

XPression™

series

XPression™ a High quality 3D Broadcast Graphics Platform, graphics experience with a very powerful yet intuitive user -

XPression is a high-end, affordable, real-time 2D and 3D broadcast graphics system based on the PC platform. Designed with the graphics designer, operator, director and automation specialist in mind we succeeded to create the first software package that satisfies the needs of all. Engineered for stability, quality, flexibility and ease of use, designers can finally unleash their creativity, operators can modify, control and sequence each and every aspect and the director actually gets what he wanted: live, vivid graphics - on cue. This, combined with its seamless up- or downstream studio, pre and postproduction integration through its wide range of supported soft- and hardware makes XPression the number one choice for demanding customers in the digital broadcast era.



2D HAS NOT BEEN FORGOTTEN · Many available 3D packages neglect the 2D workflow you got accustomed to, not so XPression. In fact, one of the primary design goals has been never to bother the designer or operator with 3D aspects when in need of 2D features and vice versa. This resulted in a very intuitive, balanced and flexible to use 2D and 3D authoring system, the best of both worlds.

LIVE, LIVE, LIVE! · XPression has been built for live, on demand graphics from the ground up. Edit scenes in the editor while playing them out in the background. Modify every aspect of an object while its animation is running, adjust roll pages while currently active on one of the outputs. Virtually anything you can think of, you can do it live!

OBJECT BASED · Each element in XPression, graphical or non graphical is regarded as an object with certain properties and features. Because of this design, objects like materials or fonts can efficiently be re-used and assigned to different objects. Objects can be groups, their properties animated and each object is automatically named. Using the scene's object manager makes keeping track of the different objects a trivial task.

MATERIALS AND SHADERS · A material defines an object's color, texture and general appearance. Each material can be defined using multiple layers of so called 'shaders' and each shader has a specific appearance and use. XPression comes with powerful shaders like video, texture, reflection and window-capture shaders. If you define a material using a video-shader you will create a material which displays video clips, this material can then be assigned to an object like text, which will then display this video on its surface. Each material has its own key channel, can be assigned to multiple objects simultaneously and can be shared among multiple scenes within a project.

DYNAMIC LIGHTING · Like in the real world, all visible objects in a scene are lit by light sources. XPression virtual lights interact with the object materials to give them their

final appearance. A newly created scene will have a default white light to make objects visible in their original color but you can add and adjust as many light sources as you require. In combination with the object's material, a light source will determine the diffuse, specular, emissive and ambient color properties of an object's surface.

VIRTUAL CAMERAS · Per default each new scene is viewed through a default virtual camera which reflects the chosen video format accurately. By adding perspective or orthogonal virtual cameras to a scene, a scene can be viewed at different angles or perspectives. Cameras can be fully animated and the rendered output will show the scene as being viewed through the active virtual camera.

STANDARD AND HIGH DEFINITION · Out of the box XPression software is SD and HD enabled. Just add the hardware which suits your application best. XPression comes with presets for the most commonly used video formats like all SD and HD formats, PAL, NTSC, interlaced or progressive. Additional presets can be added and configured for custom video formats and resolutions. Switching formats is instant.

2D FONTS · XPression incorporates a high-end broadcast quality font rendering subsystem using 256 steps of anti-aliasing. Each font can have a multitude of attributes such as borders, strokes and shadows, each can have assigned a material of choice. Import text from disk, copy, paste and automatically or manually kern individual characters. Each font has its base set of materials which you can define but you can also attach per character materials.

3D FONTS · Without any additional import steps, you can transform any available font into a fully extruded, beveled, high-quality true 3D font. 3D fonts implement all behavioral features of 2D fonts, each attribute like a bevel can have its own material or use a single material for the entire font object. Type, kern, select and edit in 3D as you would normally do in 2D and get live feedback in one of your viewports while doing so.

incorporating more than 20 years worth of live broadcast interface, design and play-out environment.

3D MODELS · Import 3D models or virtual-sets from industry-standard 3D packages, preserving all of the model's original groups, materials and pivots for direct and uncomplicated use in your scenes without additional conversion steps. Once imported, modify or re-assign materials to any of the model's faces. Just like any other object within XPression, 3D models can be fully animated.

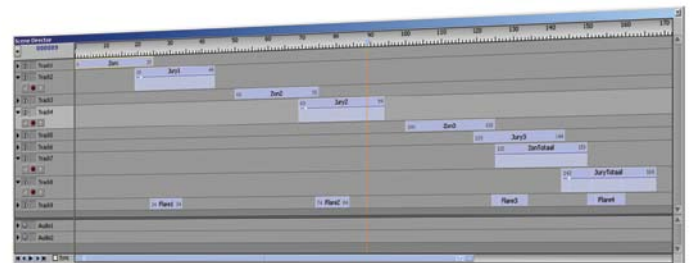
SCENE DIRECTOR · Each scene in a project comes with its own track-based time line director, the scene director. Using this director you can visually schedule, composite and re-use animation, video, audio, effect and material clips. For example, you could schedule your animation at 3 seconds into the playout and start or fade in the video and audio clips at 3:10. The director makes it a breeze to cross fade any clip, be it audio, video, animation or other in your scene by simply dragging and dropping the clip items onto the desired position in the director's time line.

LIVE INPUTS AND DVE · Any of the configured input sources can be mapped directly onto an XPression material after which the material can be used like any other. This means you can have live video inserts but you could also use a live input material mapped onto text, an animated 3D object or even as a reflection map for your objects. Whatever you can do with a material, you can do it with a live input!

UNLIMITED OUTPUT CHANNELS · The XPression render engine can simultaneously drive multiple hard or software outputs, simply target one of the available outputs as a scene or template's destination. The number of outputs is only limited by the available hardware resources.

MULTI-LAYER OUTPUT COMPOSITING · Combine multiple scenes on the same physical output. All layers can display fully animated dynamic scenes and play and com-

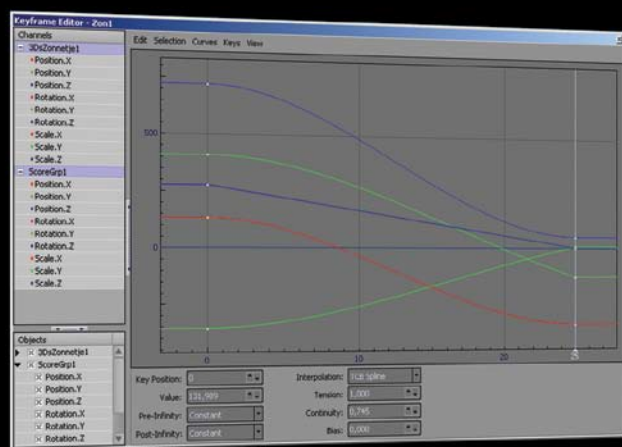
posite them onto the output while all still running completely independently from each other. Using these layers you can use an effect to reveal or hide lower-thirds, crawls etc. All while preserving the display of an animated branding logo in the upper corner, in a different layer, but on the same physical output. Just set a target layer for a sequence entry and take it on-air.



scene director

SOFTWARE BASED OUTPUTS · XPression comes with several software based output plug-ins like the AVI-Writer and Virtual Frame buffer plug-in. Using the AVI-Writer output you can directly record generated graphics to disk using any windows video codec available on the system.

PER OBJECT EFFECTS · Each object or group of objects can have multiple stackable visual effects. Effects include motion blur, bloom, color correction, chroma-keying etc. These effects can be sequenced and synchronized by dragging them in the scene director for frame accurate timing of the desired effect.



keyframe editor

CLIP BASED KEYFRAME ANIMATIONS · Each object in XPression can be animated by recording keyframes. Additionally, animations can be separated into so called animation-clips, each clip containing the animation of a single object or group of objects. These clips can then be timed and composited in the scene director to become a single cohesive animation. You could choose not to use the clip system and create a single animation for your entire scene but the clip design makes you more flexible in the design of complex animations, all while staying in control of specific movements and events inside the bigger whole. Is a clock object moving into your animated scene a bit too early? Just shift its animation clip in the scene director without editing the individual keyframes again.

AUDIO TRACKS · Each scene's scene director can hold multiple audio tracks which can be synchronized for playout on the audio card which is linked to the hardware framebuffer. If hardware support is available, the audio can also be embedded in the video stream. Audio samples can be dragged onto audio tracks and can be faded or cross-faded by creating and adjusting fade keyframes within the clip which holds the audio sample on the track.

NON BREAKING DEBUG MONITOR · For automation debugging purposes XPression comes with a debug monitor. This debug monitor automatically informs users of common mistakes like 'index out of range' and 'resource x not found' errors. Less searching for bugs in your code and you will have direct feedback without interrupting or crashing your application. A feature that will save you huge amounts of development time.



MULTIPLE VIEWPORT AND MONITOR SUPPORT · To ease the creation and editing of complex 2D and 3D scenes XPression supports docking of its interface across multiple monitors. Users can store their individual docking presets to quickly re-arrange windows and controls to their liking. Multiple viewports can be used to simultaneously show and edit the current scene from different angles or through different virtual cameras.

SMART-GPI · Besides the traditional GPI functionality, XPression can be configured to use Smart-GPI which enables you to execute more advanced actions like clearing framebuffers or taking specific sequencer items on- or offline, this using simple RS232 or TCP/IP commands.

INTEGRATED CHROMA-KEYER · The integrated real-time vector based chroma-keyer is an effect which can chroma-key live inputs or individual objects in a scene. By using the color-picker you can simply select the color to be keyed before fine-tuning its parameters. Within a scene you can use as many chroma-keyers as available resources allow you to. Because of the algorithm used, keying of transparent objects is no problem either.

TEMPLATE BASED PLAY OUT SEQUENCER · Use any scene as a base template for a sequencer entry called a 'take item'. Simply drag & drop a scene into the sequencer as many times as you need and a take item will be created. Take items will show the published links of the scene created by the designer, these links provide an easy method of updating specific properties of a scene like

text, logos, positions etc. without the possibility of the user accidentally ruining the scene's layout. Template links can be coupled to external data sources through DataLinq™ as well. Each take item can have its own framebuffer and layer destination, transition and animation settings. So drop in a scene, provide its data and take it on-air within seconds.

FAST SEQUENCER RECALL · Operators can quickly recall take items available in the sequencer by entering the Take Item's ID on the keyboard's numpad. Take items can be auto-renumbered and grouped according to the show's workflow or script.

VIDEO CLIPS · Each material can contain one or more so-called video shaders, these shaders can be used to play self-contained video clips in a multitude of formats. These video materials can then be synchronized by

dragging them onto the scene's scene director, making it possible to time and synchronize video to a scene's animation and audio tracks. Video clip materials can also be used as simple stand alone looping backgrounds or single shot effects.

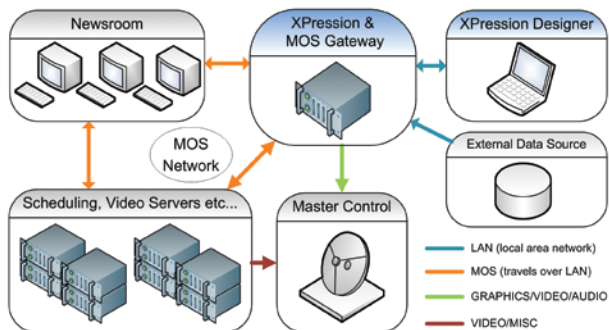
CONTINUOUS ANIMATIONS · Using continuous animations you can move elements or entire groups within a scene without keyframing. By combining multiple continuous animation tracks semi-random paths can be created. This easy to use animation technique is additive to the traditional keyframing method and is often used to create more dynamic scenes or to draw attention to certain details in the design.

INPUT GRABBER · Any defined input can be selected as source for the integrated input grabber to quickly store frame-grabs in a user defined folder. Stored frames can then easily be reused as a resource in a scene or within the sequencer.

PACKAGE & DEPLOY · Besides the traditional file based project hierarchy, XPression supports single file packages. These packages can be created from any project if you need to archive or move it. Packages provide an efficient and reliable method to deploy a project to different workstations or locations and will ensure all necessary files to successfully load the project will be deployed.

NON PROPRIETARY HARDWARE · XPression and its render engine are based on mainstream and thus highly available PC based platform solutions using a Windows® operating system. Because of this, downtime and cost can be kept to a minimum and a complete spare hardware system will be very affordable. In addition XPression comes with native drivers for a variety of well known framebuffer and I/O-board manufacturers.

MOS GATEWAY · The XPression MOS Gateway enables you to seamlessly integrate XPression products into an existing MOS Newsroom environment. Have your graphics department design templates and decide which template



properties you want to be published/available to the MOS interface. Then, from within the newsroom system, the editors can select these templates by their thumbnail, supply the appropriate data for the published template properties and get a full preview before adding them to the play list. Transparently the MOS network will make sure the play list and its associated data is correctly distributed to all XPressions and other systems involved in this broadcast chain. When it is time to go on-air all systems will readily be synchronized and available for the actual on-air play out.

DATALINQ™ · Using DataLinq live templates can automatically be filled out using external data from XML files, RSS feeds, SMS servers, Text files or any ODBC data source like Access, MS SQL, Interbase, Firebird or MySQL.

Data from these sources can be used to update stock or weather information, sport statistics, news headlines or any other type of data which changes over time.

OBJECT ORIENTED AUTOMATION API · Using the available COM Automation API, you can easily automate and integrate XPression™ features. Build game shows by running predefined animations or create dynamic animations on the fly. Update news items, scores, start and update rolls, crawls, fully dynamic ticker tapes etc. All either offline or directly on-air! Because of our Simuldrive™ feature, automation can even be used whilst simultaneously modifying the automated scenes in the scene designer, providing instant feedback on changes. Using this feature you can automate what can be automated but you will not lose the flexibility of manual last-minute changes. This also removes the need to save and reload projects whilst controlling them through your custom application, saving you vast amounts of time during development and prototyping. Use can use the programming language of your choice: c++, c#, visual basic, vb.net, delphi or any other COM or .NET capable programming language.

```

dim Engine as new xpEngine
dim Scene as xpScene
dim TextObject as xpTextObject

' load the project
if Engine.LoadProject("c:\example.xpf") then
' retrieve scene
if Engine.GetSceneByName("DemoScene1",Scene) then
' get text object
if Scene.GetObjectByName("DemoText",TextObject) then
' set the object's text property
TextObject.Text = "Hello World!"
' display the scene on output 1, layer 0
Scene.SetOnline 0, 0
end if
end if
end if
end if

```

COM API example showing how to use visual basic to retrieve a scene, getting a text object, setting its content and taking it on-air.

SUPPORTED IMAGE FILE FORMATS

- Photoshop (.psd)
- Targa (.tga)
- JPEG (.jpg)
- Bitmap (.bmp)
- TIFF (.tif)
- GIF (.gif)
- Portable Network Graphics (.png)
- Paintshop Pro (.psp)
- Silicon Graphics (.sgi, .rgba)
- Autodesk Graphics (.cel, .pic)

SUPPORTED 3D MODEL FORMATS

- Autodesk 3D studio (.3ds)
- Wavefront (.obj)
- Collada (.dae)

SUPPORTED AUDIO FORMATS

- 16bit stereo PCM wav

SUPPORTED VIDEO FILE FORMATS

- Quicktime (.mov)
- MPEG 2 (.mpg, .vob)
- AVI* (.avi)

SUPPORTED HARDWARE FRAMEBUFFERS

- AJA Video Xena Series
- Blackmagic Design Decklink
- *Any other viable hardware framebuffer can be supported on request.

*Any AVI format for which a VFW codec is available on the host system. AVI 2.0 (OpenDML) compatible. XPression™ comes with its own video codec with alpha channel support providing an easy and efficient path from 3rd party video applications to XPression™.

features and options are edition and/or version specific. It is possible not all features are available in certain editions or versions.

dealer information
www.mediarefinery.nl

XPression is a trademark of Media Refinery. Trademarks and trade names are the property of their respective owners.
Media Refinery reserves the right to make changes to the information and materials in this document at any time and without notice.