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AMP2

GAME ENGINE

The AMP2 Game Engine from 4D Rulers is designed for the creation of commercial video games, virtual walk through simulations and training simulation software. It's purpose is to deliver productivity and enough flexibility so even small design teams can produce results, stay on schedule and meet goals outlined by their publisher.

AMP was designed with small indie developers in mind yet remains a solid choice for any developer, large or small. It is the ideal choice for any multi player first or third person game, and offers strong flexibility and real time editing.

Many commercial titles have been developed using the Amp game engine such as Gore - Ultimate Soldier, Patriots - A Nation under Fire, and Secret Service: Security Breach, and more. Hundreds of indie & major developers use Amp technology for multitudes of projects.



We provide code and support for the engine and want you to succeed. AMP is easy to learn and easy and fast to work with, but support documentation and tutorials are available. Video tutorials are planned for the future to provide even more support to our users.



Amp game engine comes with email support, forums, html and word documentation, example files, tools and complete support from 4D Rulers staff. Your success is our goal. From publishing deal tips to development secrets, 4D Rulers is committed to your success. We'll preview your game and help you find a publishing deal, mentor you with solid advice and do everything we can to help you succeed.

INSIDE AMP2

The following will discuss the features available in AMP2 and provide detailed descriptions. As AMP2 is updated with new features, we will continue to add them to this page.

The following features are scheduled for release in the next version of AMP2:

Coming Soon For AMP2:

- **VC8 Support** - Support for Microsoft Visual Studio 2005.
- **Random Sound Support** - This will allow you to define as many sounds as you want for a sound event so that when an event is called up it will choose a sound at random from the list of sound files defined for that event. This allows you to prevent having the exact same sound files play every time for common events such as bullet impacts, explosions, etc.
- **AMP2 Plug-in for 3D Max 7, 8 & 9** - The AMP2 Plug-in for 3D Max 5, used for rendering Normal Maps and exporting models to AMP2 will be updated to work in 3D Max 7, 8 & 9.
- **Undo Function In Supredit** - Supredit will have a functioning Undo command, allowing up to 10 levels for movement operations.
- **SDK Updater** - Download and install updates to the AMP2 SDK automatically.
- **Character and Object Physics** - Integration of the Newton Physics Engine for realistic movement involving collisions which will respond to the polygonal shape of the model instead of simple collisions based off joints and bounding

- **Per Pixel Lighting** - AMP2 uses per pixel dynamic lighting, not preprocessed low resolution shade maps. Characters and the environments are now rendered and cast shadows in the same pipeline, so characters, map objects and level geometry are all treated the same and are rendered in the most realistic methods possible using the latest hardware.



- **Normal Mapping** - Normal Maps are textures applied to a model which will react to lights in a level to give the illusion of depth on a 3D model which is not really there. Normal Maps allow for fine detail like fingernails, wrinkles, beard stubble, rivets, weapon details, carpet, anything you can imagine under a few inches in real world depth can be simulated correctly.

- **Stencil Shadowing** - Realistic stencil shadowing allows shadows to cast off of characters and the world itself. These shadows cast onto other surfaces and wrap around up a wall, or onto multiple surfaces, just like real shadows work. Both light sources and 3D models can be individually set to cast shadows or not.



- **Texture Projection Lighting** - By using a texture in conjunction with a light source, you can create very detailed soft shadow effects like mini blinds, or make custom shaped lights by filtering them through an image. These lights will be projected correctly across the surface of characters and objects in a scene the same way a film projector will display an image across people and objects in its path.

- **Specular Lighting** - Using a texture you can control exactly how shiny each individual pixel of a surface is. Chrome, and shiny metals have never before looked so realistic in any game engine. You have full control over where specularity will be applied on a texture.

- **Portal Rendering** - Portal rendering allows for viewing of levels almost instantly versus older BSP engines which sometimes took hours or even days of preprocessing times. It is also much easier to work with and more efficient than BSP rendering engines. Simply make a 90 degree turn in a corridor, and it perfectly cuts off what isn't visible.



- **Wire™ Net Code** - AMP2 includes the Wire™ Networking Library. Known and loved by the players the 4D cult classic *Gore –Ultimate Soldier™*, and often championed by fans using dial-up as one of the few or only FPS games they have played where they still could feel competitive against broadband players without using controversial methods which punish low ping players.

RENDERER

TEXTURES AND LIGHTING

- **Destroyable Lights** - Destroyable light sources are easy in AMP2. Lamps can be destroyed, causing the light they were emitting to go out. A circuit box can be blown up, cutting off lights to an entire room. Just link your lights to a map object which is set to be destroyable, and everything is all set.
- **Texture Memory Management System** - AMP2 has texture compression capability and scalable texture depth to lower texture memory requirements. All textures by default will have compression technology applied to them, and can be easily disabled on any individual texture material for special circumstances.



- **Shader System** - Create "shader effects" which manipulate a texture for fantastic surface effects. Panning, scaling, glowing, pulsing, rotating, flickering, animated, and other effects are all possible. Use shaders for panning text or static on a computer screen, light bulbs flickering on and off, pulsing glowing surfaces like lava, practically anything you can imagine. Used in conjunction with lighting effects can produce stunning visuals.
- **Fog Flares** - Nearly any shape of lens flares are now possible. Effects such as volumetric lights, spot lights, and rectangular glows can all be created for the ultimate flare effects.



- **Custom Lighting Effects** - Lights can have various effects applied to them to customize their appearance. Choose any color of light, and as well as apply advanced features such as flickering, blinking or flashing lights. Various transitions in lighting are possible, allowing you to choose between a light flickering between being on and off or a soft transition of a light pulsating on and off. You have full control over the timing of the effects and transition type. You can even offset the effect's time in seconds so that multiple lights with exactly the same settings will not operate in unison.

- **Real-time 3D Corridor Renderer** - Six degrees of freedom allow the user to create full 3D environments, such as first and third person shooters, 3D architectural walk-throughs, virtually any 3D simulation.



- **Menus and Interface** - Create your own menus, game HUD or interface screens using our simple to use .god files. No programming skills required.

- **Artificial intelligence** - Built in AI with full source code using AMP's scripting system gives working examples of artificial intelligence that can patrol, play scripted events, attack, take cover and more.

- **Doors** - Any door behavior you like can be created with Amp script. Examples include a standard swinging door and a sliding door.

- **Particle System** - An advanced particle system allows creation of sparks, smoke, dust, muzzle flashes, flamethrower effects, weapon effects, etc. The particle systems also allow creating light sources at their origin and loading particles which have a light source embedded in the object.



- **3D character Renderer with Skeletal Animation System** - The skeletal animation system allows for the most realistic animations possible. Use 3D Studio Max's standard animation system, bones, Character Studio or motion capture to bring characters and animated objects to life. The engine also has a velocity setting to slow your characters' walk down to match his current speed, so you can tweak how fast a player moves without redoing run and walk animations. Polygons can also be assigned to multiple bones which will provide a nicer, more natural elastic appearance at the joints.

- **Per Polygon Map Object Collision** - AMP II can auto generate collision for simple convex models. You are also able to create 3D models which can be used as custom collisions. Not only does this give you complete control over the complexity of the collision in more complicated objects, but you also will have total control over which of your collision bullet impact effects are applied to the various parts of your custom collision.

- **Destroyable Map Objects** - Destroy tables, chairs, supports, walls and any other model regardless of whether or not it has per polygon collision applied to it.

- **Per Polygon Collision Effects** - Say you built a truck carrying a load of wood. Using per polygon collision effects you could be able to let a player shoot the truck in the windows and see an impact effect of flying shards of glass, shoot it in the metal areas and get a ricochet sound and torn metal decal, shoot the wood in the back and see splinters fly and have chunks of wood flying everywhere. You could do this with the convenience to level designers of having all this information in the object itself, and applied every time the object is placed.
- **Tracked Effects For Map Entities** - Tracked effects such as bullet hole decals will remain "stuck" on moving map entities such as a door as it opens and closes.



4D Automated Update is a stand alone program and middleware SDK which will automatically download patches and updates for your software products. It is easily integrated into any game engine or software you are developing, and allows you to define download locations for patches to update your software. Fix bugs, add new features, content or other updates to your software with total confidence that your customers will get them.

Customers will love having bugs fixed and updates installed without having to navigate to your web site, or get lost in slow cluttered ad filled third party sites to locate a patch for your software.

When your software is launched, 4D Automated Update kicks in and checks your master server for the latest version (this takes a millisecond) and if there is a new patch available, it will download and install the patch or updates. 4D Automated Update can be used for games, or any other Windows software.

FEATURE HIGHLIGHTS

- **Fast & Easy Updating** - Customers are able to update their software with very little effort, allowing them to be sure they are always updated with the latest fixes and features.
- **Self Updating Capability** - Not only can you automatically update your software, but should any updates be available for the updater itself, the client is capable of downloading and installing updates for itself just as easily as it does for your software.
- **Improve Customer Support** - With automated updating, your customer support team can always be sure that a customer will be very much more likely to have the latest version of your software, and can avoid wasting precious time trying to direct customers to the proper download sites and walking them through an installation.
- **Manual Update Support** - If you wish, the client can be configured to be to be manually engaged so the customer can choose to update when they want to.
- **Keep Users In Sync** - In situations such as games where multiple copies of your software will be working together, version conflicts are avoided by all players games updating themselves to the newest version.
- **Verified Downloads** - All updates downloaded for software are verified by a MD5 checksum to be correct and undamaged before the update is ever installed.

- **Configurable Download Locations** - Choose where you want the updates to be downloaded from. This in combination with the self updating feature can allow you to update the client to download from a new location should you ever need to change download servers

VERSION MANAGEMENT

BENEFITS AND FEATURES

Wouldn't it be great to be able to stay in control of your software after it launches? With auto update you can! Create patches for bug fixes or new features and content, and they will be delivered to your customers automatically the next time they launch the program.

We've seen countless online games where the developers make new levels and then the people that have not downloaded the patches end up getting kicked off the server, which can only lead to frustration. Every time a new level loads up on the game server, they are all booted out for not having the necessary level or patch. With auto update, all your customers will always have the latest version of your software.



NORMAL MAP GENERATION

The Normal Map Generator is an affordable production quality plugin for 3D Studio Max 6, 7, 8 and 9 which allows users to easily create high quality, high resolution Normal Maps.

Users will only need to learn a few very basic rules to allow them to successfully use the tool, which are easy to learn for beginner models and no problem at all for experienced artists. Once you get started you will be able to create quality artwork for impressive visual effects.

Everything you need to hit the ground running with normal mapping is included in the package. You get the normal mapper itself, as well as documentation to show you the basic guidelines of setting up models for normal mapping, as well as identifying common mistakes. This will help artists who are new to normal mapping quickly overcome any initial speed bumps and quickly develop a fast and efficient work flow.

FEATURE HIGHLIGHTS

- **Fast, and Easy To Use** - Learn the few basic rules of normal mapping and begin creating normal maps from high polygon models. Controls are straightforward and simple.
- **Generate Height Maps** - Not only can you generate normal maps, but you also have the option of generating standard black and white height maps as well. Common uses for this include use for debugging, and editing in Photoshop with the intent of running the height map through a 2D normal map filter.
- **Height Map Blending** - In addition to rendering a normal map from a high polygon model, you may use a black and white height map using painted details. This will blend the painted height map with the information from the high polygon model to allow smaller details such as chips, scuffs and scratches to be hand painted on a height map texture instead of modeled on.
- **Adjustable Height Map Strength** - When blending a height map with the results of a rendered normal map from a high polygon base, you can adjust the amount of influence the height map will have on the normal map when it is rendered. This is useful for quick subtle adjustments to strength, and helping to avoid needing to edit your height map for small changes in pixel brightness.
- **High Resolution Normal Maps** - Normal maps can be rendered at sizes from as small as 16x16 pixels, to as large as 2048x2048. All possible non-square size combinations are also possible, such as 128x2048 pixels.
- **Super Sampling** - 2x Super Sampling is supported to help smooth out jagged edges in the normal map textures which may result from tiny details in a high model in combination rendering to a low resolution. If additional Super Sampling is required, 3x and 4x modes are also available. Super Sampling may also be disabled to allow for fast renders for users who wish to check for any model errors before waiting for a higher quality render.
- **Manage Files Easy, Work Fast** - To help users manage their texture files and speed up their work flow by being able to find files easier, the Normal Mapper identifies and filters normal maps and height maps by using a common extension which comes before the targa (.tga) extension, and filters all other textures out of save and load windows. This allows users re-rendering normal maps as they work to quickly find their file to overwrite because only bump-maps will show in the explorer window. When loading one of your detail height maps, only height maps will show in the explorer window.

Please email or call me if you have any questions and we do provide competitive pricing on our licenses.

Best Regards,

Business Development

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