

Game Development Tools

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1. Commercial Tools

1.1. Game Engines

See also [Devmaster 3D engine database](#).



[catatonic](#)

Not that long ago, the only obvious choice for a low-cost game engine was Torque and most of the expensive ones were developed specifically for a game and licensed for secondary revenue by their developers, such as Monolith (Lithtech), Epic (Unreal), Crytek (CryEngine), Id, Valve... Netimmerge and Renderware were notable exceptions, although RenderWare was not a complete game engine but a renderer.

Now Renderware is gone (sold to EA), NetImmerge is [Gamebryo](#), and several low-cost game engines are available. [Qube](#) provides a free Windows binary and charges for Mac and

console versions of their engine. [Terathon](#). [Cipher](#) costs only \$100, with source code. [Garage Games](#) and [Unity](#) run on both Windows and MacOSX and offer indie licenses. [PTK](#) is free for freeware games. [Shiva](#) authors on Windows and publishes to Windows, MacOSX and other platforms.

[Unity](#) has a web player, as does [Virtools](#). The [Shockwave player](#) also has an embedded physics engine and so can be used for web-based 3D games.

If you have a lot of money, you can license the "big" engines like [CryEngine](#) and [Unreal](#) (although the [Unreal Developer Kit](#) is now available with non-commercial/indie licenses).

1.2. Physics

The aforementioned engines focus on graphics, and you need more than graphics to run a game. Simple collision detection and physics simulation is doable on your own, but anything complex is best left to middleware. Hence the popularity of physics engines such as [Havok](#) and [PhysX](#).

1.3. Mobile

Game engines for mobile phones include [X-Forge](#), [Mascot Capsule](#), and [Superscape](#) [Unity](#), [Torque](#) and [Shiva](#) have iPhone development options.

1.4. Video

The most common video middleware appears to be [Bink](#) and [CRI](#).

1.5. Audio

The RenderWare suite of products had RenderWare audio, but that's gone. The [Miles Sound System](#) has been around a long time, but these days [FMOD](#) is popular and integrated in a number of game engines including Unity and CryEngine. [WWise](#) also has growing popularity.

1.6. AI

[Symbionics](#) is a behavior development tool. [Pathengine](#) and [Kynapse](#) specialize in pathfinding and path following, and [Havok](#) also provides such a tool. [Xaitment](#) provides pathfinding and other AI tools. [Euphoria](#) provides dynamic motion synthesis.

1.7. GUI

Software engineers and GUI designers with experience in other domains might wonder why they have to invent their own user interface systems from scratch. Anark sold their game UI kit to nVidia, and RenderWare's Flash-based kit didn't really catch on, but [ScaleForm](#)'s Flash player is integrated with engines such as CryEngine and Gamebryo. The appeal of Flash-based middleware is that you can make use of Flash software (and developers) to build GUI's (but note there are some differences, e.g. Scaleform offers a CRI-based video support and their own component library). [Awesomium](#) is a newly-commercialized in-game web browser.

1.8. Network

Middleware for network games includes [Raknet](#), [Quazal](#), [SecurePlay](#) and [StreamBase](#)

Vendors who cater specifically to the [DOD game community](#) include [Mak Technologies](#), (network middleware for distributed interactive simulation), [Boston Dynamics](#) (human simulation), and [Multigen](#) (content creation).

[Multiverse](#) is a hosted platform for massively multiplayer online games (MMOG's).

[SmartFox Server](#) is a Java-based game server originally supporting Flash and now other clients. [OpenSpace](#) is an extension for 2D isometric worlds. [Shockwave Server](#) offers dedicated hosting.

[Netdog](#) is a C++ server and networking library.

[Hero Engine](#) and [Bigworld](#) are full MMO engines.

[Icarus Studios](#) and [Monumental Games](#) license their platforms.

1.9. Social Gaming

[GameSpy](#) supports social gaming on multiple several platforms. [OpenFeint](#), [Scoreloop](#), and [Agon Online](#) provide social networks for iPhone games.

2. Mod Kits



[Hot Rod](#)

If you can't afford the huge license fees for the complete game engines from [Epic](#), [id](#), [Crytek](#), and [Lithtech](#), you can still use those engines by creating game mods. [CryEngine](#) mods are discussed on [Cry Mod](#).

Mods and information about modding [Unreal](#) can be found at [Planet Unreal](#). The official [Unreal Developer Network](#) and the unofficial [Unreal Wiki](#) also have information on [UnrealScript](#). Third-party tools script editing tools include [WOTgreal](#), an inexpensive UnrealScript IDE, and [UnCodeX](#), an open-source UnrealScript class/code browser and documentation generator. The [Atari Community](#) and [3D Buzz](#) host forums on Unreal modding.

Virtual worlds can be modded, too. For [Second Life](#), see the [official wiki](#) and the [LSL Wiki](#).

There's also a [World of Warcraft Wiki](#).

3. Open Source



[Penguin Bowl](#)

If you're ready to dig into some code, there are plenty of open-source games out there - [bzflag](#), [TORCS](#), [Flight Gear](#), [LGames](#), [Macdoku](#) and [Open Frag](#). [ScummVM](#) runs the [LucasArts](#) adventure games. [SIO2](#) is a 3D engine for the iPhone and iPod touch. [Cocos2D](#) is a 2D engine using Python and running on platforms including the iPhone.

For card games, check out [Cards](#), [Poker Source](#) and [Poker3D](#).

Open source 3D engines include [Genesis3D](#), [Ogre](#), [NeoEngine](#), [Yakes](#), and [Irrlicht](#). [Delta3D](#) is developed at the [MOVES Institute](#). [Nocturnal](#) is an initiative supporting open source game development tools.

The [Open Dynamics Engine](#), the [Tokamak Physics Engine](#) and [Bullet](#) are open source physics engines. [Open Steer](#) is a C++ library for steering behavior. The [Newton Game Dynamics SDK](#) is available for free. [Chipmunk](#) is a 2D physics engine.

[SIO2](#) is an open source 3D engine for the iPhone.

[PaperVision3D](#) and [Sandy](#) provide 3D Actionscript libraries. [APE](#) is an Actionscript 2D physics engine. [Open Source Flash](#) lists other open-source Flash projects.

4. For Kids

[Scratch](#) allows children 8 and up to develop and share interactive stories. [Alice](#) teaches students programming in a 3D environment. [StarLogo](#) explores decentralized systems.