

Infinity Ward

The game developers at Infinity Ward don't like working on any one project for too long. "Our goal is to release a game within a reasonable timeframe so we can begin our next project," says Michael Boon, lead animator. "We don't like to dwell on one game for a long time. We get bored."

3ds max and character studio used to develop intense World War II shooter, *Call of Duty*

It's fortunate Boon and his colleagues at the have Discreet **3ds max**® software, which helps them build and animate photo-realistic models and characters quickly and easily.

A wholly owned subsidiary of Activision, Los Angeles-based Infinity Ward was formed in 2002 by artists who used **3ds max** to create the 3D action game Medal of Honor: Allied Assault at 2015. When they formed Infinity Ward, they stayed with **3ds max** because of the speed with which it enables them to create and animate whatever they can imagine.

Noteworthy in this regard are the software's modeling tools. "Discreet set up the quad menus so that every tool a polygon modeler uses is at his fingertips," comments Justin Thomas, lead artist. "Plus, the software offers fast spline modeling tools, which I use when I need to visualize a form that would be difficult to start with polygons."



Also notable are the animation features in **3ds max**-particularly Discreet **character studio**® software. "With **character studio**, you don't have to spend time setting up a rig," says Boon. "You can animate characters more quickly in **character studio** than in any other package."

This ability to model and animate with the utmost speed proved crucial for Infinity Ward when developing its first release, Call of Duty. A WWII-themed first-person shooter for the PC, Call of Duty places players on the front lines as soldiers battling to topple Nazi Germany. Each player experiences the horrors of war through the eyes of American, British, and Russian soldiers, armed with authentic American, British, and Russian weapons. Players find themselves in numerous confrontations, all leading to the final battle - the taking of Berlin.

Realistic immersive cinematic sequences aren't relegated to cut scenes in Call of Duty, but rather, are part of the game play. "Because players are in the middle of the action, they get a panoramic view of everything going on around them," explains Thomas. "That's one thing that sets this game apart from other WWII games."

Another distinguishing characteristic was the game's short, 17-month development cycle. Besides stunning environments and explosive effects created in the Radiant game engine, Call of Duty features more than 1000 models, 350 facial animations, and more than 2500 full-body character animations created in **3ds max** and **character studio**. "Plus, it has six voiced characters playing alongside the player," Boon states, adding that a core team of only three animators and four artists, with a fifth joining near the end, completed all the modeling and character work. "It's uncommon to have this much content created by such a small team in so little time," he says.

According to Thomas, a major development challenge concerned building the game's set pieces, vehicles, weapons, and characters quickly. The spline tools in **3ds max** were crucial to this task. "We laid out spline cages to simulate organic forms, threw a surface over the top, and began refining," he explains. "Spline modeling was great-building spline cages and our own primitives, collapsing them into editable meshes or editable polys, and sculpting from there." He adds that the software's quad menus also were a huge timesaver. "We moved from editable mesh to editable poly with just a right-click, without rebuilding entire meshes."

For Boon's team, major benefits included the Biped interface in **character studio**, which enabled animators to click a body part and move it to achieve IK or rotate it to achieve FK. "We also liked viewing our animations immediately in **3ds max**, without spending time rendering out a movie," Boon enthuses.



Also helpful were the pivot points in **character studio**. "We could tell a foot to pivot around the heel or toe to create running animations through one IK chain that always updated perfectly," he says. The animators also relied on pivot points to wrap the player's detailed "virtual hands," which appear at the bottom of the screen, around guns. "It's difficult to animate these things in other packages," Boon notes.

"Speed was the biggest factor in helping us get this game out in 17 months," Boon concludes. "We couldn't have done that without **3ds max**."



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