

Quake III Arena or Quake 3

- was released on December 2nd, 1999
- differs from the previous games in the Quake series in that it excludes the normal single-player element, instead focusing upon multiplayer action
- the solo experience in Q3 is arena combat versus AI opponents ([further reading](http://en.wikipedia.org/wiki/Quake_III_Arena) `<http://en.wikipedia.org/wiki/Quake_III_Arena>`)
- the aim of Q3A is to move throughout the arena fragging (killing) enemy players and scoring points

Quake III Arena or Quake 3

- when a player's health points reach zero, the avatar of that player is fragged; soon after the player can then respawn and continue playing with health points restored, but without any weapons or power-ups previously gathered
- the game ends when a player or team reaches a specified score, or when the time limit has been reached
- the single player mode of the game consists of the same thing against computer controlled bots

Quake 3: the game modes

- are:
 - deathmatch
 - team deathmatch
 - capture the flag
 - tournament (1 on 1)
- in which players test their skills against each other in one-on-one battles, and an elimination ladder

Weapon in Quake III

- the weapons are designed such that there is no longer a completely *dominant* weapon
- weapon balance was achieved by examining earlier games in the series
 - Quake and Quake II
 - eg the rocket launcher in Quake is so effective that it dominates entire deathmatches
 - whereas in Quake II the rocket launcher was toned down so much that it was passed over for other weapons (railgun)
- the rocket launcher in Quake III is effective to use but it not overpowered
 - allowing it to be countered in many situations

Quake III weapons

- Gauntlet
 - circular saw blade
- Machine Gun, Shotgun, Grenade Launcher, Rocket Launcher, Lightning Gun, Rail Gun, Plasma Gun, BFG10K
- further references, login into GNU/Linux, open up a terminal and type `q3` and play for an hour or five

Technology: Graphics

- unlike most other games released at the time, Quake 3 requires an OpenGL-compliant graphics accelerator and does not include a software renderer
- the graphical technology of the game is based tightly around a "shader" system where the appearances of many surfaces can be defined in one of many text files referred to as *shader scripts*
- shaders are described and rendered as several layers, each containing one texture, one *blend mode* which determines how to superimpose it over the last one, and texture orientation modes such as environment mapping, scrolling, and rotating

Technology: Graphics

- these features can be readily seen within the game
 - many bright and active surfaces in every map, and even on the character models
 - a water volume is defined as such by applying a water shader to its surfaces

Technology: Graphics

- Quake 3 introduced spline-based curved surfaces in addition to planar volumes
 - result in many of the smooth surfaces present within the game
 - cathedral arch effects

Quake 3 models: md3

- original version of Quake 3 provided support for models animated using vertex animation with attachment tags, allowing models to maintain separate torso and leg animations and hold weapons
- Quake 3: Team Arena, support for skeletal models was also added
 - Quake 3 is one of the first games where the third-person model is able to look up and down as well as around (due to the head, torso and legs being separate)

Quake 3 video: RoQ

- the in-game videos all use a proprietary format called *RoQ*
 - it was successfully reverse-engineered in 2001
 - the actual RoQ decoder is present in the Quake 3 source code release
- RoQ has seen little use outside of games based on the Quake 3 or Doom 3 engines, but is supported by several video players (such as MPlayer)
- Quake 3 includes visual features such as volumetric fog, mirrors, portals, decals, and wave-like vertex distortion

Networking

- Quake 3 uses a *snapshot* system to relay information about game *frames* to the client over UDP
- the server updates object interaction at a fixed rate independent of the rate clients update the server with their actions, and then attempts to send the state of all objects at that point in time (the current frame) to each client
- the server attempts to omit as much information as possible about each frame, relaying only differences from the last frame the client confirmed as received
- almost all data packets are compressed using Huffman coding using static pre-calculated frequency data, to reduce bandwidth even further

Networking

- Quake 3 also integrated a relatively elaborate cheat-protection system called *pure server*
- any client connecting to a pure server automatically has pure mode enabled
 - and while pure mode is enabled, only files within data packs can be accessed
- clients are also disconnected if their data packs fail one of several integrity checks

Free Software

- on August 19, 2005, Id Software released the complete source code for Quake III Arena under the GNU General Public License, as they have done for most of their earlier engines
- however this does not make the entire game GPL
 - as the textures and other data were not released
- a project called OpenArena addresses this problem, creates open content and bundles it with the engine as a stand-alone Quake 3 clone
 - the [ioquake](http://ioquake3.org) (<http://ioquake3.org>) project version of the Quake 3 engine is installed in our labs together with the content from [OpenArena](http://openarena.ws) (<http://openarena.ws>) project

Free Software

- these projects are in continual development and since this module started there has been two releases of engines and maps
- `ioquake` runs on Windows, MacOS, Solaris, GNU/Linux operating systems
- it compiles and runs beautifully under GNU/Linux - both on 32 bit x86 and x64 bit systems

ioquake features

- OpenAL is now used for sound. Surround sound supported
- AVI video capture of demos.
- Ogg Vorbis support
- SDL being used for input, OpenGL context management, and sound
 - though not on Windows yet

ioquake features

- colors converted to ANSI escape codes in terminal output
- improved auto-completion on the console.
- persistent console history
- much improved QVM tools
- MinGW compilation support on Windows and cross-compilation on Linux
- MDR support (similar to md4)

XreaL

- XreaL is currently in development
 - it will be a non-commercial multiplayer only first person shooter
 - based on a heavily modified Quake 3 Arena engine
- its aim is to push the rendering technology until it can be compared with current commercial titles and then to produce a playable Total Conversion
- Quake 3 Arena's gameplay will be only slightly modified
 - the simpleness of the original game will stay but the game media will be replaced completely with high quality assets that match the new engine's technology

XreaL

- [screenshots](http://xreal.sourceforge.net/xrealwiki/ScreenShots) <http://xreal.sourceforge.net/xrealwiki/ScreenShots>
- note that it will
 - import doom3 maps
- supports
 - omni-directional variance shadow mapping
 - avi video and audio recording
 - ogg Vorbis audio file format support

XreaL

- uses Lua 5.1 layer for level entity scripting allowing map designers to control entities as in Doom3
- does support the follow map formats
 - Doom3 map file support Version 2
 - Quake4 map file support Version 3
 - Doom3 mtr shader support
- [further reading](http://xreal.sourceforge.net/xrealwiki/Development) <http://xreal.sourceforge.net/xrealwiki/Development>