Unreal Tournament "ReadMe" notes.

Developed by: Epic Games & Digital Extremes
Distributed by: GT Interactive

Useful Web Links

- [Unreal Tournament Home Page](#) -- Visit for the latest updates, patches, and community events!
- [Epic Games Home Page](#) -- Information about other Epic games.
- [Unreal Technology Page](#) -- Latest news from the Epic development team. Great resources for programmers, mod authors, and enthusiasts.

Starting the Game

To start Unreal Tournament:
1. Click on the "Start" button at the bottom of the screen.
2. Move the mouse to the "Programs" choice.
3. Move the mouse to the "Unreal Tournament" choice.
4. Click on the "Play Unreal Tournament" icon.

Technical Support

Please see the manual accompanying the retail version of the game for instructions on obtaining technical support. Or visit the [Unreal Tournament Home Page](#).

Troubleshooting

Lockups

If Unreal Tournament locks up or crashes when you run it, then a list of "Safe Mode" options will appear the next time you run it. To access the "Safe Mode" options directly, start Unreal Tournament via the "Safe Mode" icon available in the Start menu (Start/Programs/Unreal Tournament/Safe Mode). This mode is similar to Windows 95's Safe Mode. It runs with sound, DirectDraw, and 3D hardware support disabled. This way, you can modify your options that may be causing problems, then run the game again.

Crashes

If Unreal Tournament stops with a "Ran out of virtual memory" message, you need to free up more hard disk space on your primary drive (C:) in order to play. Unreal Tournament's large levels and rich textures take up a lot of virtual memory. We recommend having 150 megabytes of free hard disk space for running the game, and 300 megabytes or more of free hard disk space for the editor.

Direct3D issues

Some video cards ship with drivers which do not support Unreal Tournament properly. If you experience any of the following problems, your Direct3D driver may need updating:
- Crashes when starting up.
- Crashes when changing video resolutions.
- Corrupted textures: garbage pixels appearing on surfaces; unexpected bright flashy colors on the screen; incorrect textures on surfaces.
- Unusually slower performance.

If you have any of these problems, please visit our [Get A Fixed Direct3D Driver Page](#) on the web.

Sound issues

The sound playback rate defaults to 22 kHz, which is optimal for Pentium machines with MMX. If you have an older, non-MMX machine, you can get better performance (though lower sound quality) by setting the playback rate

to 11 kHz in the "Advanced Options" menu. If you have a fast, shiny new Pentium II, you might try using 44 kHz for the ultimate in sound quality.

If using an Aureal A3D 3D sound accelerator board such as the Diamond Monster Sound 3D, you need to go into "Advanced Options/Audio" and turn on "Use3dHardware" to enable 3D sound card support. You need to upgrade to the latest version of Aureal's A3D drivers in order to get acceptable 3D sound performance. Using Unreal Tournament in conjunction with earlier versions of the drivers causes severe performance problems (major slowdowns on the order of 30-50% while playing sound).

If your computer is hooked up to a Dolby SurroundSound receiver, you should go into "Advanced Options" and turn on the "UseSurround" to take advantage of 360-degree Dolby sound panning, which rocks.

Known sound issues:

- A small number of computer configurations we've tested exhibit infrequent lockups when playing in full-screen DirectDraw (software rendered) mode using DirectSound for audio output. On most of these machines, going into "Advanced Options/Audio", and turning off the "UseDirectSound" option prevented the lockups. Playing in a window also prevented the lockups.
- Because of the way the OS works, many Windows NT machines experience significant latency in their sound effects, sometimes up to 1/4th second.
- If you have an Aureal A3D sound card with 3D sound enabled, you must disable the Aureal's "A3D Splash Screen" in the Aureal configuration utility. If this is not disabled, the game may be unable to go into full-screen mode because of the splash screen interfering.

Network play issues

The minimum speed connection for acceptable Internet play performance is a 28.8K modem connection to your Internet Service Provider.

Known network play issues:

- When a new player enters a network game, clients may experience a 1/4-second pause while the mesh, skin, and other data is loaded for that player. This is by design.
- Unreal Tournament's Internet play performance is highly dependent on the bandwidth of your connection, the latency (ping time), and the packet loss. The game is designed to be playable up to 300 msec ping times, 5% packet loss, and 28.8K connection speeds. Performance degrades heavily under worse latency, packet loss, and bandwidth connections.

Control issues

Some PC keyboards can't recognize certain combinations of 3 or more simultaneously pressed keys.

Performance

Memory

Unreal Tournament's performance is highly dependent on the amount of RAM you have in your machine, and the amount of memory that is available. Machines with less memory will access their hard disk more frequently to load data, which causes sporadic pauses in gameplay. Thus, if you have a 32 megabyte (or less) machine, you should make sure that you don't have other unnecessary programs loaded in memory when playing Unreal Tournament.

How the game will perform under different RAM conditions:

- 32 megabytes or less: Probably unplayable.
- 48 megabytes: Some swapping; use the Preferences/Video "low texture detail" setting to improve this.
- 64 megabytes: Great, with a bit of swapping.
- 128 megabytes: Oh Yes!

CPU Speed

The game is also very sensitive to CPU speed, memory bandwidth, and cache performance. Thus, it runs far better on leading-edge processors such as Pentium II's than it does on older ones such as non-MMX Pentiums.

How Unreal Tournament will perform on different classes of machines:

- Non-MMX P166 class machines: Slow rendering; large frame rate variations. We recommend playing in 320x200 resolution if available. We recommend setting the sound playback to 11025 Hz.
- P200 MMX: Good rendering speed; some frame rate variations. We recommend running low resolutions like 320x240 or 400x300. We recommend keeping the sound playback at 22050 Hz.
- Pentium II; K6-2 with 3DNow!: Very nice rendering speed; consistent frame rate. Software rendering runs smooth in 512x384, 32-bit color resolution. You might try 44 kHz audio for best sound quality.

Considering upgrading?

For people considering upgrading their machines, here are some tips based on our experience running Unreal Tournament on a variety of machines:

1. The biggest performance gain in Unreal Tournament comes from having a Pentium II class processor. Pentium II's have dramatically improved cache performance, memory performance, and floating-point performance compared to earlier Pentiums, and that all translates to faster gameplay. The performance improvements in Pentium II's are especially accentuated in Unreal Tournament, which contains way more content (textures, sounds, animations, level geometry) than other 3D action games.
2. The next upgrade that tends to improve Unreal Tournament performance dramatically is a 3dfx Voodoo or Voodoo2 class 3D accelerator. Especially in conjunction with a Pentium II processor, these accelerators rock!
3. Finally, lots of RAM helps. With memory prices continually falling, it's now reasonably affordable to upgrade to 64 or 128 megabytes of memory.

Requirements

Minimum system requirement:
- 233 MHz Pentium MMX or AMD K6 class computer.
- 32 megabytes of RAM.
- 4 megabyte video card.

Typical system:
- 300 MHz Pentium II or AMD K6-3.
- 64 megabytes of RAM.
- 3dfx Voodoo 2 / Riva TNT class 3d accelerator.

Awesome system:
- Pentium III 500 or AMD Athlon 550 or faster PC.
- 128 megabytes of RAM.
- 3dfx Voodoo3 / Riva TNT2 class 3D accelerator.

Getting Better UT Performance

The first thing to do is to increase your minimum desired framerate. UT will try to meet your framerate requirements by subtely dropping detail levels during complex scenes and fire fights. The default MinDesiredFrameRate is dependent on the speed of your computer. If you have hardware acceleration and a 300MHz or better CPU the MinDesiredFrameRate defaults to 30, otherwise it is 20. The higher the framerate, the more aggressive Unreal Tournament will be in eliminating excess special effects and detailing. To change the value open Advanced Options and click on Display. There will be an edit tab for the MinDesiredFrameRate variable. The change will take place immidiately.

If increasing MinDesiredFrameRate doesn't help, try decreasing your texture detail levels in the Preferences window. You can also try lowering your screen resolution.

Controls

Keyboard

You can bind new keys to controls by clicking on the "Controls" tab of the Preferences menu inside of Unreal Tournament. There are a lot of controls to bind, so here is a list of defaults.

Key	Function

TAB	Opens a mini system console line.
Shift	Hold shift while moving to walk slowly.
Ctrl, Space	Ctrl or Space causes your player to jump.
Alt	Alt will fire your weapon's primary attack.
Pause	Pause will freeze the game.
Escape	The Escape key will open the menus.
Arrow Keys	The arrow keys will move you forward and back or strafe left and right.
Number Keys [0..9]	The number keys cycle through your weapons in order.
H, J, K, L	These keys will cause your character to animate in a taunt.
F1	Displays the scoreboard.
F2	Displays the message of the day.
F3	In an Assault game, F3 lists the current objectives.
F5	Allows you to cycle through your teammates viewpoints.
F6, F7	QuickSave and QuickLoad respectively.
F9	Take a screenshot. (Appears in your UnrealTournament\System directory.)
F11	Adjust screen gamma.
T	Send a chat message to the public channel.
R	Send a chat message to your team only channel.
~	Open the system command console.
F	Drop to the ground and pretend you are dead. (Feign death.)
V	Press and hold V to access the speech menu. Use this menu to give orders and taunt enemies.

Mouse

Although you can rely solely on your keyboard to move around in and interact in Unreal Tournament's 3D universe, using both the keyboard and mouse simultaneously gives you much more fluid and responsive control.
When you use the mouse to control your rotational movement and aiming you gain a degree of precision and speed that players using keyboard-only controls can't touch. The keyboard is best used for easy lateral and forward/backward movement, and for jumping.
To master the default controls in Unreal Tournament, keep your left hand on the keyboard, using the arrow keys for movement, the 0-9 keys for weapon selection, and the space bar for jumping. Your right hand operates the mouse, controlling rotation, aiming, and firing. Of course, you can customize these controls to suit your preferences via the Options Menu.

Speech Menu

Press and hold the V key to open the speech menu. While you hold V your mouse will become activated and you can select various commands and taunts. Under the **Orders** submenu you can select a job to assign to a teammate. If your bot is a teammate they will automatically carry out your orders. The available orders are:

Defend the Base.

The ordered bot will immidiately make his way to your base and protect it from enemy attack.

Cover Me.

The bot will find you and follow you attacking enemies that you encounter.

Assault the Base.

Orders the bot to go offensive. In CTF this order is replaced with "Capture the Enemy Flag."

Hold this Position.

The bot will find your current location and try to protect it from enemy attack.

Freelance.

Releases the bot from previous orders. A freelancing bot will make their own battlefield decisions.

If you give an order to "All" then every bot on your team will attempt to complete the order. If you look at a bot the speech menu will have the option to "Order This Bot."

Dedicated Network Servers

Explanation

For optimal network play performance, you can launch a dedicated copy of the Unreal Tournament server on a computer. This improves performance compared to using a non-dedicated server but, of course, it ties up a PC. Anybody may freely run dedicated servers on the Internet; you don't need to get permission or fill out any paperwork.

Launching

You can launch a dedicated server by going through the regular Unreal Tournament "Start Game" menu, setting the appropriate options, then choosing "Launch Dedicated Servers". This is what you'll want to do for quick LAN games where you have an extra machine sitting around that can act as a dedicated server.
Alternatively, you can launch a dedicated server from the command line by running UnrealTournament.exe directly (which usually resides in the c:\UnrealTournament\System directory, or the System subdirectory of whatever other directory you installed the game in). For example, to launch the level "DM-Zeto.unr", run:
UnrealTournament.exe DM-Zeto.unr -server

Multiple Servers Per Machine

Each copy of the dedicated server can serve one and only one level at a time.
However, you can run multiple level servers on one machine. To do this, you must give each server a unique TCP/IP port number. The default port number is 7777. To specify a port, use the following kind of command line:
UnrealTournament.exe DM-Zeto.unr port=7778 -server

General performance guidelines

We find that a 400 MHz Pentium II can usually handle about 16 players with decent performance. The performance varies with level complexity and other machine speed factors, so your mileage may differ. Note that there is no absolute maximum player limit in the game; performance simply degrades as the number of players grows huge.
If you're running multiple levels simultaneously, Windows NT outperforms Windows 95 because of its superior multitasking and TCP/IP processing capabilities.
For best performance, we recommend having 64 megabytes of memory per running level. For example, for running 4 simultaneous levels, 256 megabytes is ideal.
The Unreal Tournament server uses up at least 28.8Kbits per second of outgoing bandwidth per player (on Internet), so if you run the server on a machine connected by a 28.8K modem, you'll only be able to support one client with decent performance. Dedicated servers that support many players generally require the outgoing bandwidth of a T1 line or better.

More Information

Visit the Unreal Technology Page for way more information about running Unreal Tournament servers. Some topics addressed there include:

- Remote server administration
- Linux version of the server
- Serving custom levels and game types
- Administering public servers that appear in the server list

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