SOL CONTINGENCY

PROVING // GROUNDS

PLAYER'S MANUAL

WELCOME

Gear up, pilot. Your ship is ready and waiting, guns are heated, missiles are loaded. The arena is calling. In the Proving Grounds, the best zero-gravity close combat gladiators will prove their worth in deadly face-offs against the opposition. Fight for the top. Use your senses, utilize your surroundings and pick the best weapon for the task at hand: becoming the champion of the hour in the new generation of 6-DoF multiplayer gaming. Until the next match…

Before you start

We have crafted this manual to help you settle into Sol Contingency: Proving Grounds. From gameplay information to technical assistance, this manual covers all the basics and some advanced topics. If you're not sure where to start, read on. The better you are prepared, the more fun you will have in the mines!

Also be sure to stop by our forums and visit our website. We have big plans for the game and we want you to be a part of them. Talk to us, make your voice heard. If you enjoy Proving Grounds, support us in any way you can. We are also on Facebook, Twitter and YouTube.

Distribution

Proving Grounds is provided absolutely **free of charge** to everyone. If you want to share the game with a friend, please make sure to send them to our website where they can find download links that are always up to date as well as any news about developments in Sol Contingency. Thanks for sharing the fun!

Health considerations

The nature of 6-DoF gaming can cause vertigo or motion sickness in some people. Proving Grounds also uses a lot of dynamic lighting effects, resulting in flashing and strobing. If you have a history of epilepsy or seizures, please consult your doctor before playing the game.

If you experience discomfort while playing the game, immediately stop and take a break. We recommend taking short breaks between every few matches to keep your senses sharp and your health high.

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A QUICK PRIMER ON SIX DEGREES OF FREEDOM (6-DOF)

In a 6-DoF game such as Sol Contingency, you sit inside a ship which hovers in zero gravity. This means that you will be able to turn and move in all directions, on all three axes that make up the three dimensions of the game world.

The six degrees of freedom

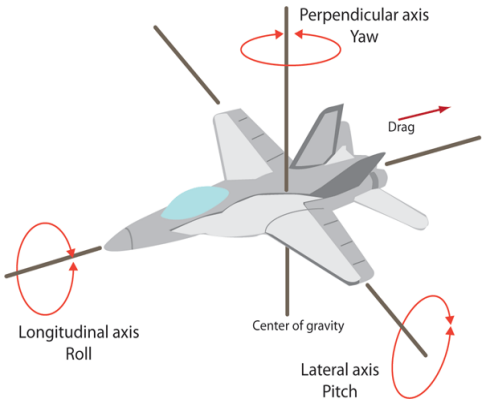


image credit: http://machinedesign.com

The first three degrees of freedom are **movement** along the **forward, sideways and up/down** axes. The fourth to sixth degree are **rotation** of your ship around these axes, i.e. looking up, down, left and right, but also rolling left and right.

If you are familiar with airplane flight, you will have encountered the proper terms for these movements:

PITCH – rotating your vehicle up and down
YAW – rotating left and right while remaining upright
ROLL – "leaning" your vehicle left or right, allowing you to turn it sideways or upside down

Translating your video game experience

If you come from video games where you walk a character across a level – such as a first person shooter – you are familiar with four of the six degrees. You can walk forward and sideways (strafing) as well as look up, down, left and right. You have control over **pitch** and **yaw** when looking, **but not roll**. Likewise, you **cannot move up or down** except for jumping and ducking.

Imagine being in zero gravity and jumping: you would travel upwards in a straight line. You could also grab a ledge next to you and make yourself turn sideways, i.e. roll. These two additional degrees of movement are only possible in zero gravity and open up new ways of playing a video game: a level may require you to speed down a tunnel that suddenly goes downwards in a curve, allowing you to **pitch** your ship along the way of travel and effectively now moving downward, but with your ship's nose pointed downwards too – so you would be traveling **forward, but downward** relative to the world. Your opponents can also come from any angle: they can ambush you from above or come at you upside down. This gameplay is what makes 6-DoF so interesting and defines true three-dimensional gaming.

HOW TO PLAY PROVING GROUNDS

In Proving Grounds, which is a multiplayer-only preview version of the game we call Sol Contingency, you will be pitted against other players on the same server, in the same arena as you, and fight for victory. There are two classic game types: **deathmatch**, which is a free-for-all mode where all players shoot each other until the pilot with the most kills wins, and **team deathmatch**, where two teams of players go against each other for the top.

Your ship loadout

Each player starts in a ship armed with standard **lasers** (the first primary weapon) and a number of **dumbfire missiles** (the base secondary weapon). Your ship is also equipped with an **afterburner** that you can use to speed up forward movement until it's depleted. However, it will recharge over time.

Firing your primary guns eats **energy** or **ballistic ammo**, depending on what kind of primary weapon you use. Secondary weapons are all missiles and they will naturally run out once you have fired them all. You will fly around the level and collect more guns, missiles and ammo to keep yourself ready for combat.

Your ship is protected in two ways: the **hull** is vulnerable and cannot withstand a lot of punishment. It is enhanced by a **shield** which floats around your ship like a bubble and soaks up incoming fire. The shield can be recharged before it goes down by picking up shield packs. You can overcharge your shield this way and make it much stronger temporarily.

However, even the best pilots will eventually run out of shield energy and when that happens, the hull is permanently damaged by any incoming fire. Get the hell out of there and find new shield packs to patch up your ship, or the next shot might kill you, giving your opponent a point towards winning the match!

Weapons

Primary weapons

All of the guns and missiles in Proving Grounds have been balanced to be useful in certain situations. Even the lasers you start with pack a punch and allow you to switch between **quad** and **rapid fire**, enabling you to launch heavy attacks or suppressive fire against other pilots. A skilled player can wipe the floor with the opposition using lasers against seemingly stronger weapons.

Other primary guns include:

- **Gatling gun** (ballistic ammo) – fires a rapid stream of bullets with heavy damage.
- **Dispersion cannon** (ballistic ammo) – a shotgun-type gun with its own magazine and auto-reload, good for close range.
- **Ion cannon** (energy) – slow-fire dual bolts that travel fast.
- **MAC** (Magnetic Accelerator Cannon, energy) – a chargeable railgun that fires two massive projectiles which reward precision with tons of damage.

You can pick these weapons up by flying over **hexagon discs** that hover in the level. This will add the respective cannon to your arsenal and you will keep it until you die and respawn. Find ammo for the guns in the form of **energy** and **ballistic** (bullet) pickups, pictured here.

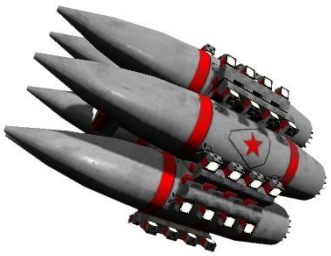

You can also recharge your energy in **refueling centers** around the level, easily identified by their gold, hexagonal plates across the walls.

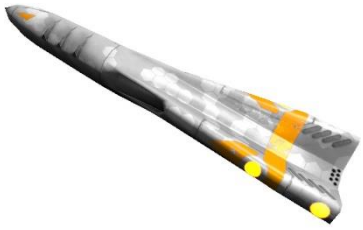
Secondary weapons

Secondary weapons (missiles) can be fired simultaneously with primaries, allowing you to tactically back up your onslaught on another player. Each missile has a different feature and damage radius, making it suitable for discreet situations:

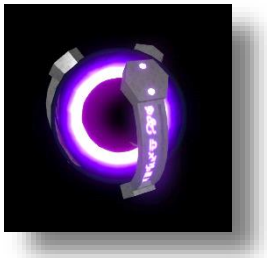
- **Dumbfire** – rapid-fire, highly explosive ordinance designed to corner targets with splash damage.
- **Seeker** – a homing missile that tracks the target you locked it on to before firing. Less splash damage, but more precision if the victim does not evade in time.
- **Atlas** – a very fast, streamlined rocket that rewards pinpoint accuracy. No splash damage, but very high impact damage. Can pierce targets and go through them.
- **Cerberus** – buries itself in a wall and releases drones that lock on to nearby players.

Except for the Cerberus, missiles come in packs or as single pickups.

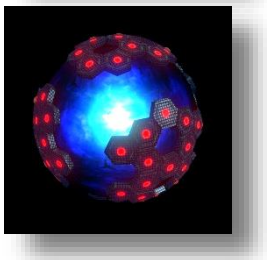




Powerups



Invisibility cloak – picking this up will make your ship barely visible to others for 30 seconds. Seekers will not lock on to you, however, Cerberus drones still do!



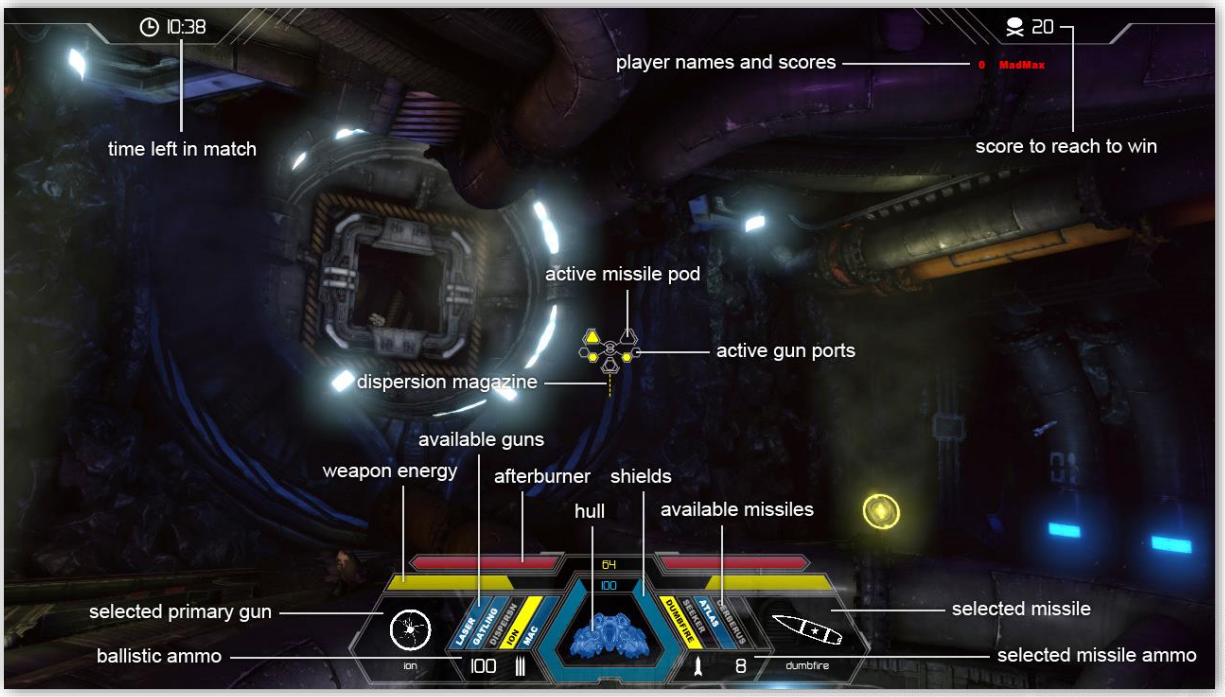
Hull armor – this makes your hull invincible for 30 seconds, so go all out attacking others. Your shields will still drain when you take damage, but your ship is indestructible… until the time's up, that is. You'd better find some shield packs at that point.

Flares

Not a weapon, a flare can be fired once per second from your ship to illuminate dark corners of a level or to open doors, which react to any form of contact with a projectile or ship. Flares can have other uses too – try firing one when you are hunted down by a Seeker missile…

Your heads-up display (HUD)

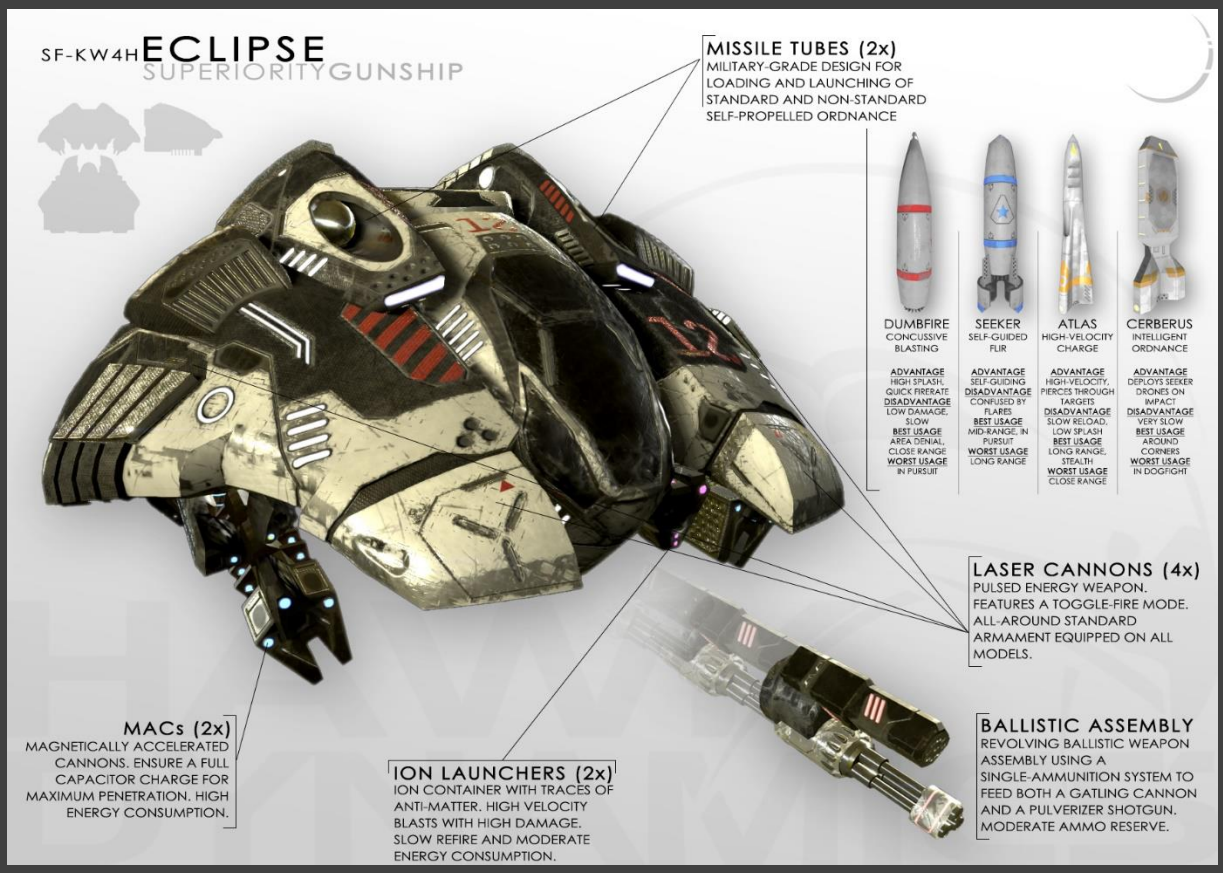
When you spawn into the level, your ship will boot its HUD, which shows you important information about your weapons, shields and the match itself. It is composed like this:

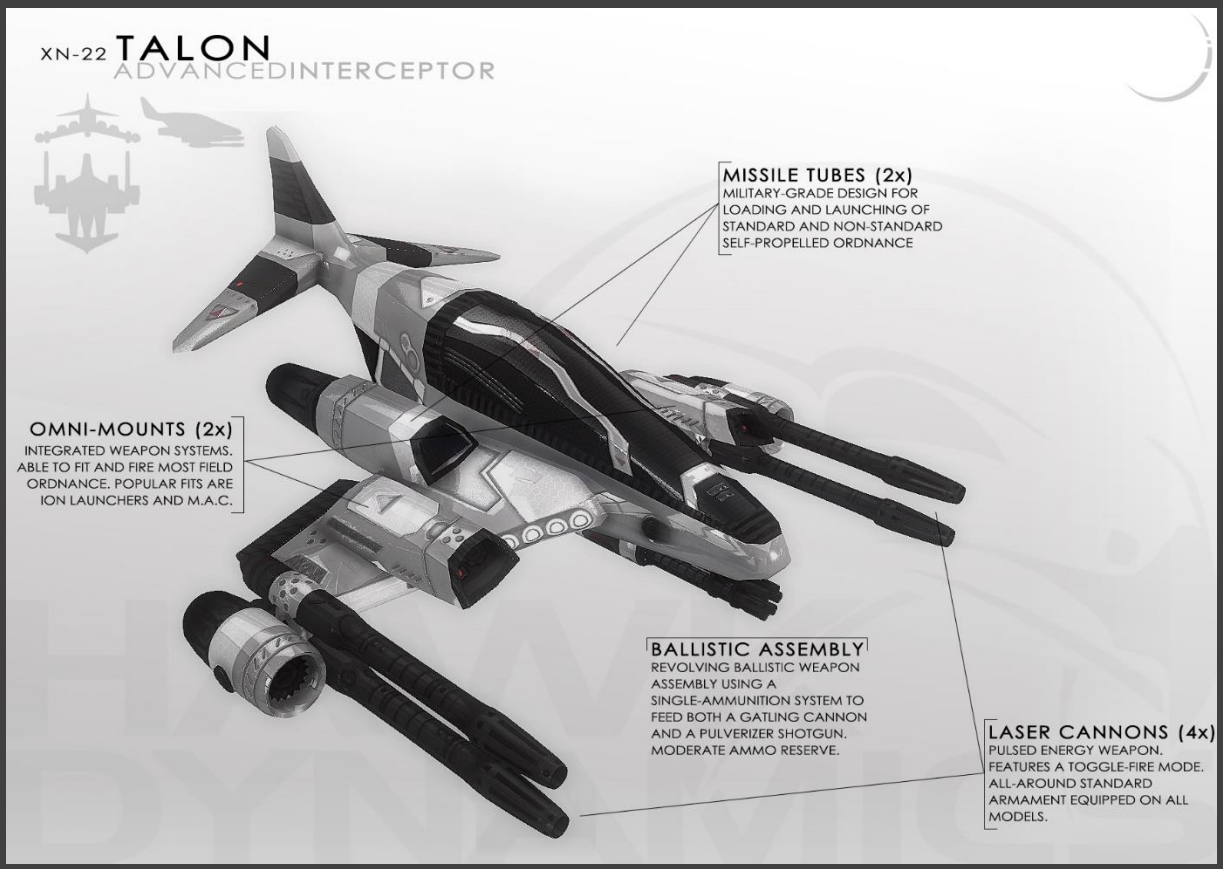


On the tabs next to the weapon screens, you will see colored **markers**. Rotating through your weapons will move the **yellow** marker to the new active weapon. **Blue** markers indicate which weapons you have collected and can use, while transparent means the weapon is not available.

The **ballistic ammo counter** will always show you how many bullets you have for your Gatling and Dispersion guns, no matter which weapon is selected, while the **missile ammo counter** will reflect the currently active missile.

The **maximum weapon energy** is **100 units**. **Shields** can be overcharged to a **maximum of 200 units**, but the overcharge will slowly drain back down to 100. The **afterburner** is indicated by the red bars which will empty out as you use the afterburner, then slowly creep back up to full charge.


SF-KW4H ECLIPSE
SUPERIORITY GUNSHIP
MISSILE TUBES (2x)
MILITARY-GRADE DESIGN FOR LOADING AND LAUNCHING OF STANDARD AND NON-STANDARD SELF-PROPELLED ORDNANCE
DUMBFIRE
CONCUSSIVE BLASTING
ADVANTAGE HIGH SPLASH, QUICK FIRERATE
DISADVANTAGE LOW DAMAGE, SLOW
BEST USAGE AREA DENIAL, CLOSE RANGE
WORST USAGE IN PURSUIT
SEEKER
SELF-GUIDED FLIR
ADVANTAGE SELF-GUIDING
DISADVANTAGE CONFUSED BY FLARES
BEST USAGE MID-RANGE, IN PURSUIT
WORST USAGE LONG RANGE
ATLAS
HIGH-VELOCITY CHARGE
ADVANTAGE HIGH-VELOCITY, PIERCES THROUGH TARGETS
DISADVANTAGE SLOW RELOAD, LOW SPLASH
BEST USAGE LONG RANGE, STEALTH
WORST USAGE CLOSE RANGE
CERBERUS
INTELLIGENT ORDNANCE
ADVANTAGE DEPLOYS SEEKER DRONES ON IMPACT
DISADVANTAGE VERY SLOW
BEST USAGE AROUND CORNERS
WORST USAGE IN DOGFIGHT
LASER CANNONS (4x)
PULSED ENERGY WEAPON. FEATURES A TOGGLE-FIRE MODE. ALL-AROUND STANDARD ARMAMENT EQUIPPED ON ALL MODELS.
MACs (2x)
MAGNETICALLY ACCELERATED CANNONS. ENSURE A FULL CAPACITOR CHARGE FOR MAXIMUM PENETRATION. HIGH ENERGY CONSUMPTION.
ION LAUNCHERS (2x)
ION CONTAINER WITH TRACES OF ANTI-MATTER. HIGH VELOCITY BLASTS WITH HIGH DAMAGE. SLOW REFIRE AND MODERATE ENERGY CONSUMPTION.
BALLISTIC ASSEMBLY
REVOLVING BALLISTIC WEAPON ASSEMBLY USING A SINGLE-AMMUNITION SYSTEM TO FEED BOTH A GATLING CANNON AND A PULVERIZER SHOTGUN. MODERATE AMMO RESERVE.


XN-22 TALON
ADVANCED INTERCEPTOR
MISSILE TUBES (2x)
MILITARY-GRADE DESIGN FOR LOADING AND LAUNCHING OF STANDARD AND NON-STANDARD SELF-PROPELLED ORDNANCE
OMNI-MOUNTS (2x)
INTEGRATED WEAPON SYSTEMS. ABLE TO FIT AND FIRE MOST FIELD ORDNANCE. POPULAR FITS ARE ION LAUNCHERS AND M.A.C.
BALLISTIC ASSEMBLY
REVOLVING BALLISTIC WEAPON ASSEMBLY USING A SINGLE-AMMUNITION SYSTEM TO FEED BOTH A GATLING CANNON AND A PULVERIZER SHOTGUN. MODERATE AMMO RESERVE.
LASER CANNONS (4x)
PULSED ENERGY WEAPON. FEATURES A TOGGLE-FIRE MODE. ALL-AROUND STANDARD ARMAMENT EQUIPPED ON ALL MODELS.

INSTALLING THE GAME

Run the installer package that you downloaded from our website or one of our mirror links. Accept the agreement and choose the installation path. If you have Windows' user account control (UAC) enabled, please **do not install** the game to *"Program Files"* or another system-protected folder. Proving Grounds needs write access to its folder. If you have to install to *"Program Files"*, make sure you run the game as an administrator every time!

PLEASE NOTE: the installer will launch a UDK prerequisites setup before finishing. Please accept its license agreement and let it do its thing. You will be notified once setup is complete.

LAUNCHING THE GAME

Go to *Start > All Programs / All Apps > Sol Contingency Proving Grounds* and click the shortcut to launch the game. Alternatively, use the desktop shortcut.

If you want to launch a dedicated server, please see the section **Hosting a Dedicated Server**.

USING THE MENUS AND SETTING UP OPTIONS

Once you launch the game, you will be greeted by the user interface. Use your mouse to navigate it and select from the following buttons:

The **EXIT GAME** button will quit the game immediately.

The **MULTIPLAYER** button, followed by **JOIN** and **HOST** buttons, is used to play online and host servers respectively.

The **OPTIONS** button, followed by **VIDEO, AUDIO, INPUT** and **GAME** buttons, is used to configure the game settings.

The **HELP** button takes you through a set of pages to familiarize you with the game quickly.

The **SINGLE PLAYER** button is grayed out because we need **your** help to make it work! Please see our website for details.

NOTE: All settings screens contain "Apply" and "Reset" buttons near the bottom. Remember to always click "Apply" to save any changes you've made. To return settings to what they were like before you started adjusting them, hit "Reset". If you leave a screen by switching to another options menu, the settings will automatically be reset if you don't apply them first.

The only exception to the above rule is the **INPUT** screen, which applies changes immediately.

You might want to start by setting up your controls and video settings, so click the **OPTIONS** button and select one of the sub-buttons. In the interest of brevity, we won't include details on every option you can set, but here are some primary suggestions:

Video options

You can quickly toggle preset options for high-end, mid-range or low-end graphics using the "Overall Video Quality" selector, and then clicking the "Apply" button. Other options below this can be set to customize your own preset.

Screen resolution, FOV (field of view), vertical sync and other common settings appear at the top. Below these common options, you will find advanced features such as texture quality and anisotropic filtering. Click the "More" button on the bottom right of this window to see the second page of those advanced settings. Adjust all settings to your liking and click the "Apply" button. The screen will go black for a few seconds, this is normal.

NOTE: For low-end PCs, we recommend turning off weapon lights or disabling dynamic lights completely first since these are the biggest performance hogs and are purely cosmetic features. Also see the in-game **HELP** button to get some more tips on what you can try to optimize performance.

Audio options

Besides a master volume slider, which affects all sounds in-game, this screen provides independent controls over the weapon effects, the game announcer and music volume. Setting the music to 0 for example will mute the music in-game.

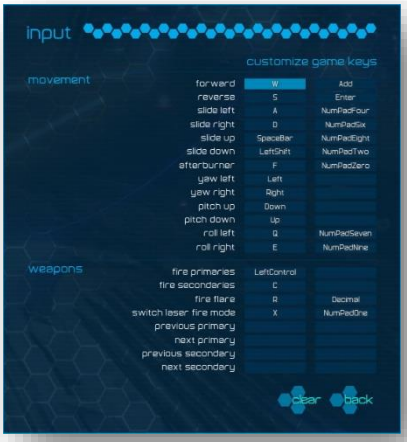
There is also a voice chat volume slider that adjusts in-game voice chat. The default key binding for voice chat is the letter **N**, although in-game voice chat doesn't always work properly for us devs. It's better to use the voice chat features in the Steam overlay (accessed through **Shift-Tab**) instead.

Input options

This is where you'll want to customize your keyboard, mouse and/or joystick/controller bindings. The main screen is organized into KEY, AXIS and BUTTON groupings by device type. Clicking one of these will take you to a sub-screen with movement and weapon binding fields where you can change your device bindings.

NOTE: You can bind two buttons or keys per function (hence the reason there are two columns of bindings on the sub-screens). You can bind one axis per function. All bindings work in conjunction with each other, meaning that primary fire can be bound to a mouse click, a joystick trigger and a keystroke, and all three inputs will work.

Binding keys, buttons or axes to functions



To set a binding, click on a slot and then press/click/move the key/button/axis you want to bind to that function. The game should register the input and show the new binding on the screen.

To clear existing bindings, click the "Clear" button on the bottom and then simply select the bindings you want cleared. Warning: you can select one binding after another to clear as many as you want, so be careful! The "Clear" button will change to say "Stop" when it's in clearing mode, so click on "Stop" to get out of this mode when you've cleared all the bindings you wish to remove.

If your joystick is not recognized: XInput vs. DirectInput

If you are trying to bind a joystick or game controller and the game does not seem to register your button presses, your device might be incompatible with the XInput standard. While modern devices usually have XInput support, older flight sticks or HOTAS setups might only support the older DirectInput standard, which our engine does not handle. If you experience problems with your device, the easiest way to solve them is to use an XInput wrapper. Please see the **Troubleshooting** appendix of this manual for more information.

Because the engine uses XInput, which was made by Microsoft originally only for the Xbox controller, the bindings you define with your device will say "LeftStick-X" or "RightTrigger" on screen even if you are using a joystick where this does not make sense. Don't be confused by the naming; the game will use whatever button/axis you defined for a function nonetheless.

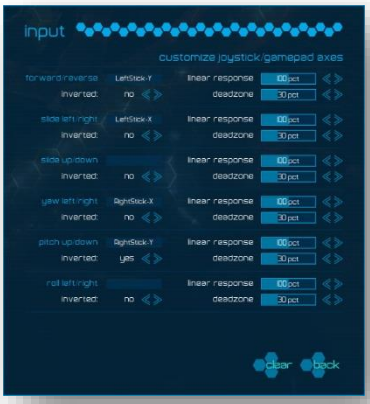
Setting up mouse/joystick axes

On the axis binding screens, in addition to binding an axis to a function, you can also set up axis inversion, deadzone and sensitivity settings for every **game axis**. This means you will set these values for the **axes on the ship** you fly, not for the input axes you use.

Example: if you change the sensitivity of the **roll** axis on the joystick screen, then whatever joystick axis you bind to **roll** will use this sensitivity. The same is true for inversion and deadzone.

NOTE: turning the invert setting **off** for the pitch axis (looking up/down) will switch from the default flight stick mode (push forward to pitch down / pull back to pitch up) to a "mouse look" mode (mouse/joy up looks up). You will know pretty fast in your first test flight if you have this set backwards for your taste.

A note on the sensitivity setting



Mouse sensitivity defines how quickly you have to move the mouse to reach maximum rotation or movement speed. Your ship cannot rotate indefinitely fast, so consider this setting as "saturation speed".

Joystick sensitivity, called "linearity" in-game, defines how responsive it is around the center. You will always hit the maximum speed when you move the stick outward, but linearity changes the "ramp" towards that speed cap. A linearity of 100% means linear response, while less/more makes the stick less/more responsive around its center.

Input presets

Please note that as soon as you set or clear a binding or change an axis option, it will be applied immediately (there is no "Apply" button on the input screens). This is because of how the engine assigns bindings. To help avoid errors, we have created input presets for the most common input schemes. If you messed up and want to return to a default scheme, simply go back to the main input screen and select one of the input presets. Click the "Load" button on the bottom right to load the selected preset.

If you are happy with your customized bindings and want to save them as a custom preset, simply click the "Save" button on the main input screen and the bindings will be saved to the "custom" preset for later reloading if you need to. **Note: this only saves your bindings to the preset, not the axis settings!** Likewise, loading a preset does not affect your existing axis settings.

Game options

This screen gives you control over the following game-related things:

- **Player name:** enter your name/nickname in the player name field. This will be overridden by your Steam nickname if you are logged into Steam while playing Proving Grounds.
- **Ship:** Proving Grounds offers two ships you can fly – the Eclipse and the Talon. Team deathmatch games are set up to play Eclipses vs. Talons, however for regular deathmatch you can choose which ship you'd like to fly. There is only a cosmetic difference between ships – they fly and handle the exact same way.
- **Camera shake intensity:** this can be set to full, reduced or off. Camera shakes will make your view shake when firing weapons, using the afterburner and taking damage from missiles. Set this option to taste.
- **Auto-switching:** the auto-switch options should be pretty self-explanatory and can be set for primary and secondary weapons independently. Remember to click the "Apply" button to make them take effect.

HOSTING AND JOINING GAMES

The **HOST GAME** screen allows you to start your own server. We recommend hosting your own server at first so you can set up your controls and options while in-game, and get a feel for the things before playing with others!

To fly alone, simply set the player limit to 1 or define a password for your server. Then hit the "Host" button and the game will take you into your first (lone) match.

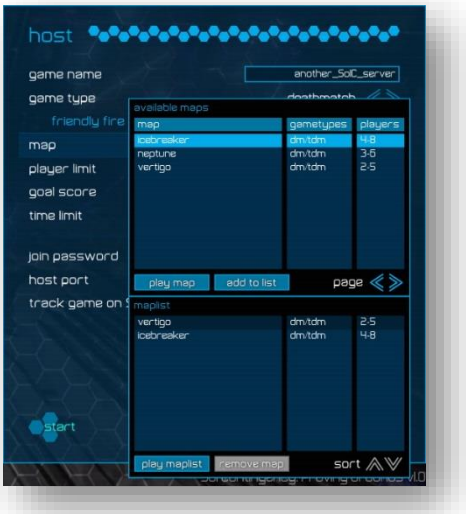
Press the **ESC** key at any time to return to the user interface while you are in-game. The match will continue while you navigate the screens. You will be able to either leave it (click the **LEAVE MATCH** button), access the help screens or customize your options further.

Hosting options

These are the options you can change to define your server's behavior when hosting a game:

- **Game name:** enter the name of your server as it should show on other player's join screen. If you leave this empty, it will simply show up as "unnamed server". Please try not to use spaces (underscores_are_okay).
- **Game type:** select from deathmatch or team deathmatch.
- **Friendly fire:** only available for team deathmatch. If you set this to off, you cannot kill your teammates or yourself with weapons fire. Turning it on will do damage to yourself and teammates when you shoot each other, but it will still be reduced by 50% over normal damage.
- **Map:** if it says <maplist> next to this, the server will run matches through the maplist that you have built. If instead there is a map name there, the server will start every match on the same map. See below how to set up the maps and build the maplist.
- **Player limit:** set how many players you want to allow on your server (1-16). More than 8 players gets pretty crowded for most of our maps though.
- **Goal score:** the first player to score this many kills will end the round regardless of how much time is left. Set this to 0 to have only the time limit determine when a round is over.
- **Time limit:** the time in minutes until the match ends, assuming a goal score was not reached first. Set this to 0 to have only the score affect when the match ends.
- **Join password:** type a password in this field that players who want to join need to type in their join screen, or otherwise they will fail to connect.
- **Host port:** games are hosted through port 7777 unless you specify another one. If you want to use a non-standard port, remember to also port forward this port per our instructions below.
- **Track game on Steam:** if you do not want your game to appear in the server browser on other players' join screens, set this to off. People will only be able to join your server through your IP address or domain.

Map selection



Click the "Select" button next to the map option to bring up the map browser. It will iterate all the maps in your game installation and list them for selection. If you select a map from the upper half of the map browser and click on the "play map" button, the server will only play this map and start a new match on it immediately after the last match ends.

If you instead click the "add to list" button, the map will be added to the lower half of the map browser, where the maplist is shown. You can build a maplist by adding maps from the upper half, removing them using the "remove map" button on the lower half, and sorting them using the sort buttons. When the maplist is complete, click the "play maplist" button to start your server with the first map on the list. It will then rotate through all maps on the list, one per match, until it starts again from the top.

Forwarding ports for your server

To accept incoming connections from clients, your server uses the port that you specified on the host screen. If you don't specify a port there, the engine uses port 7777 for traffic (the standard port for Unreal engine games like ours). Unless your router does this automatically, you will need to forward this port (and any custom port you use) so players can join your server.

In order for players to see your server in the server browser (i.e. if your server is tracked by Steam), you will also need to forward some Steam-specific ports, most importantly 27015-27016. See this link for all Steam ports you can open. Note that some routers, especially ISP-provided ones, may not allow you to forward ports manually or they might not be compatible with hosting UDP games.

In short, these ports should be forwarded on your router:

- TCP/UDP 7777 - this is used for Unreal engine games such as ours and mandatory to accept incoming connections.
- TCP/UDP 27015-27016 - these are used for Steam's master server and required for others to find your server in the browser.

The reason you should open TCP and UDP is because Steam can be run in TCP mode using the -tcp flag, which some players do.

In addition, make sure that whatever software firewall you might be using is letting traffic through for Steam and our game.

To forward ports, you must first access your primary router through a web browser. As there are thousands of types of routers, all with unique screens, it would be impossible to explain exactly how to do this here. However, the most common steps include:

- Get to your router through a web browser. For most of you, this can be done by typing 192.168.0.1 in the address field. If that doesn't work, search Google for your specific router type and usually there are videos showing how to do this.
- Access the port forwarding options screen. Often this is under a tab called "Firewall" or "NAT Gaming" or "Pinholes/DMZ", etc.
- You have to tell the router which device (i.e.: your computer) to forward ports to.
    - On a modern router, you will usually see a list of devices on your network, including your computer's name.
    - If you don't see a list like this, you will need to specify the IP for your computer. This will not be your public IP address, but your computer's local IP address (LAN IP). If you don't know this, open a Windows command prompt session and enter **ipconfig** in the console. Look for your "IPv4 address" – this should be in the form of **192.168.#.#** and is what you should tell your router about.
    - If you go with the IP address, make sure that it's a static IP, i.e. it is not automatically assigned by the router unless you know **for sure** that the router reserves dynamic IP addresses per device.
- Create two new port forwarding rules with the following options:
    - name: "Unreal", port range: 7777-7778, type: TCP and UDP
    - name: "Steam", port range: 27015-27016, type: TCP and UDP
- Some routers may need to be rebooted (in case this step doesn't seem to work for you).

Joining games

The **JOIN GAME** screen supports manual joining via IP address or domain name, as well as finding servers through Steam via the screen's server browser. To see the IP page of the join screen, click the "IP" button on the bottom right of the join screen. Click the same button (saying "Steam") to go back to the Steam page.

Joining through IP or domain name

If you want to join via IP, you need to know the server's IP address or the domain to successfully open a connection to a running game. For example:

- Player A launches a game session on his local LAN with the IP 192.168.2.3
- Player B, in the same LAN, types "192.168.2.3" into the IP address field on the **JOIN GAME** screen and clicks "Join"

- Player A launches a game session on the Internet with the IP 84.231.93.56
- Player B (anywhere in the world) types "84.231.93.56" into the IP address field on the **JOIN GAME** screen and clicks "Join"

- Player A launches a game session on the Internet with domain madmax1998.no-ip.biz
- Player B (anywhere in the world) types "madmax1998.no-ip.biz" into the IP address field on the **JOIN GAME** screen and clicks "Join"

The hosting player needs to communicate their LAN IP (output from a Windows command prompt by typing **ipconfig**), Internet IP (found via http://whatsmyip.net) or domain address to any players who want to join.

To join a server, type the IP address or domain name as well as the server's password if it has one (you should receive this information from the administrator), and click the "Join" button.

Joining through Steam

Any server that was launched with Steam tracking enabled should be visible in the server browser. If you are logged in to Steam, entering the join screen will kick off a server search and return any servers it finds. (The screen will say "not connected to Steam" if you are not logged in.)

Press the "Update" button below the server browser to start another search and refresh the list. To join a server, just select it from the browser list, type the server's password (if applicable) in the text field below the browser, and click the "Join" button.

Inviting players through Steam

Open the Steam overlay by hitting **Shift+Tab** and select the player you would like to invite. For this to work, the following conditions must be met:

- you are currently in a running match
- the player you want to invite is not running Proving Grounds

If they run Proving Grounds when accepting the invitation, joining will fail. They need to be outside the game.

DEFAULT KEYS, BUTTONS AND AXES

You can play the game using keyboard, mouse, an Xbox 360/One controller (or compatible), or a joystick with XInput support. As mentioned before, DirectInput is unfortunately not supported by the engine, however if you want to set up a more complex multi-device scheme and/or use DirectInput devices, we recommend the **X360CE** controller wrapper which we have used in testing. Our game's installer places a shortcut to the download page of the wrapper inside the "Sol Contingency Proving Grounds" folder in your start menu. Please also see the **Troubleshooting** appendix.

The following are the input presets we have included to get you started. Feel free to make your own layouts by binding your keys and buttons as you wish (see the **Input options** section above).

Keyboard (WASD layout)

1-5, 6-9	Select primary / secondary weapon
W, S, A, D:	Move forward / backward, slide left / right
SPACE, LEFT SHIFT:	Move up / down
LEFT CTRL, C:	Fire primary and secondary
R:	Fire flare
X:	Switch laser firing mode (if laser is selected)
NUMBER KEYS:	Switch to weapons directly
ARROW KEYS:	Pitch up / down, yaw (turn) left / right
Q, E:	Roll left / right
F (hold):	Afterburner

Keyboard (NUMPAD layout) – use mouse for turning and firing

+, ENTER:	Move forward, backward
1:	Switch laser firing mode (if laser is selected)
ARROW KEYS (2, 4, 6, 8):	Move up, down, left, right
7, 9:	Roll left / right
0:	Afterburner
DECIMAL:	Fire flare

Mouse

AXES:	Pitch and yaw (turn)
L/R MOUSE BUTTONS:	Fire primary and secondary
MIDDLE BUTTON:	Fire flare
THUMB BUTTON:	Switch laser firing mode (if laser is selected)
SCROLL WHEEL:	Switch to next primary or secondary weapon

Xbox 360/One controller

LEFT STICK:	Move forward, backward, left, right
RIGHT STICK:	Pitch and yaw (turn)
DPAD UP/DOWN:	Switch to next primary or secondary weapon
A, B:	Move up / down
X:	Switch laser firing mode (if laser is selected)
LEFT/RIGHT SHOULDER:	Roll left / right
LEFT/RIGHT TRIGGER:	Fire primary and secondary

IN-GAME KEY AND CONSOLE COMMANDS

When in-game, you have access to the console and several key commands.

Press **ESC** at any time in a match to bring up the user interface. It will show you the same menus as in the main screen, but you will be unable to host or join a new match. To leave the current match first, click the **LEAVE MATCH** button to be returned to the main screen.

Press **T** and type to use text chat.
Press **Y** and type to use team text chat (in team games).
Hold **N** to use voice chat (functionality may be limited, we recommend Steam voice chat).

If you are logged in to Steam when playing, you can press **Shift+Tab** to bring up the Steam overlay. You can invite people to your running game from here (see section **Joining games**).

Press **CTRL+H** to show the framerate.
Press **F6** to display the network stats on your HUD (and F6 again to turn them off).
Press **F9** to take a screenshot.

Screenshots will be dumped as BMP files into *<game folder>\UDKGame\Screenshots\Win32*.

You can open the console (hit the ~ 'tilde' key or ö on German keyboards) and type commands to tweak the game. For more information on this, see our FAQ on our forum.

HOSTING A DEDICATED SERVER

If you don't know what a dedicated server is: it's an instance of the game you cannot play on yourself. Instead, it will only show you a log window while the server is running and doing its thing. The server will be **dedicated** to serving only other players who join it, and it will keep running forever until you close the log window. If you want to dedicate a machine in your home to constantly serving matches to other testers, we provide batch files for this. You can find these files (named *ProvingGrounds_DedicatedServer_*.bat*) inside the game's installation folder.

You can configure the parameters for the server by editing the batch files yourself. An example batch file may look like this when edited:

```
cd Binaries\Win32

start UDK.exe server DM_Vertigo_2-5
?game=SDOFMultiPlayer.SDOFTeamDeathmatchGameDS?MaxPlayers=8
?serverdescription=Dedi_Test_Server?timelimit=20?goalscore=25
-ConsolePosX=1250 -ConsolePosY=680
```

Note that lines 2-5 (the "URL") above will need to be **one line** in the batch file, not several, without line breaks.

To write your own parameters for your server, start the URL by typing out

```
start UDK.exe server <mapname>?game=<gametype>
```

You can then append more parameters as shown in the above example, by separating them with question marks (?). If you do not specify any additional parameters beyond map name and game type, the server will launch with the default player, time and score limits.

This is a list of all parameters available (red is mandatory and has to be included):

Parameter	Value	Comments
<mapname>	*<game folder>\UDKGame\CookedPC\Maps*	see this folder for all maps you can use; only maps starting with **DM_**
game=	SDOFMultiPlayer.SDOFDeathmatchGameDS SDOFMultiPlayer.SDOFTeamDeathmatchGameDS	use one of these two gametypes exactly as printed
serverdescription=	any name without spaces, not too long	no quotes
MaxPlayers=	1-16	how many players to allow to join
timelimit=	0-60	time limit until the match ends
goalscore=	0-100	score limit until the match ends
-ConsolePosX=	whole number	horizontal screen position of the log window
-ConsolePosY=	whole number	vertical screen position of the log window

To set whether the dedicated server should rotate through your maplist, locate the configuration file *"UDKMapList.ini"* inside *<game folder>\UDKGame\Config*, and open it with a text editor. Change the line

`bUseMaplist=false` (or true)

to say either **true** (to use the maplist) or **false** (to run only the one map specified in your batch file).

Don't be alarmed if the server log spams "advertising" messages in the log from time to time – this is perfectly normal as the server "advertises" itself through Steam to keep server browsers refreshed.

APPENDIX: TROUBLESHOOTING

The following section is a copy of the README.TXT file that comes with the game. However, since this manual may not be updated as often as the game itself, please see the README.TXT file included with your latest version of our game as there may be new tips or information in it that is not printed here. There is a shortcut to the readme file in your start menu's Proving Grounds folder.

Q1: The game has trouble launching or does not save my settings. Why does this happen?
Q2: My joystick does not work with the game! / I want to use more than one joystick, can I?
Q3: I screwed up some video options; how can I reset them to get the game back running?
Q4: I get very low framerates, what can I do?
Q5: I can't see any servers in the server browser, what's the problem?
Q6: The UI / HUD is broken, why does this happen?
Q7: I can't seem to get into any match until I restart the whole game. What causes this?
Q8: I'm running an ultrawide / 4K / 144 Hz monitor, does the game support it?

Q1: The game has trouble launching or does not save my settings. Why does this happen?

A: This happens when the game does not have proper access rights to its installation folder, like if you installed it to "Program Files" and have Windows' user account control on. Windows will prevent write access to the game files.

We strongly recommend against installing the game to a protected folder such as "Program Files". Rather, the installer suggests a folder like "Games" (or any other folder that you make **yourself**) to get around this problem.

If you must have the game in a protected folder, then running the executable with administrator rights will fix the problem (right-click the shortcut and select "run as administrator" or edit the shortcut's properties).

Q2: My joystick does not work with the game! / I want to use more than one joystick, can I?

A: If you are having trouble getting the game to see your joystick or gamepad, or if you want to use multiple input devices, you will need to download the **Xbox 360 Controller Emulator** (X360CE) from http://www.x360ce.com and bind your input device(s) to the virtual Xbox 360 controller it simulates. Once you have done that, you can play the game using your device(s) through this virtual controller.

Why do you have to do this? Simple; Unreal (our engine) does not support DirectInput devices or device aggregates. Only one standard Xbox 360 controller or an input device with XInput support can drive our game natively. If your device does not support XInput (many modern sticks and gamepads do) or if you want to aggregate multiple devices, X360CE is your best solution. Here's a quote from our beta tester Yoshimitsu:

I used [X360CE] to make my joysticks work. I'm actually using 2 sticks and that wrapper allowed me to combine them into a single Xbox 360 controller so that Sol-C recognizes them both as one gamepad. Of course that means that I can't use all of my hat directions and I don't actually get all 5 of my axes (a gamepad only has 4) but I bound my twist axis to Start and Back so that I can use it for banking.*

My joysticks are:

Microsoft Sidewinder 3D Pro using a homemade USB converter.
Saitek Cyborg Graphite

* Note that Yoshi's suggestion about the fifth axis has been remedied; you should be able to bind that axis to the Xbox controller's triggers, which are (one-way) axes and supported by our game as such.

Hit our forums and ask for help if you have trouble with your joystick; we will find a solution.

Q3: I screwed up some video options; how can I reset them to get the game back running?

A: If you ever need to reset anything from video to audio to gameplay options or input bindings, follow these steps:

1) Go to your Proving Grounds installation folder and open *UDKGame**Config*.
2) Select the *UDK*.ini* file you want to reset and delete it.
3) Launch the game: the deleted file will be recreated automatically from the game's defaults.

- UDKEngine.ini: holds engine-related stuff (but not video settings).
- UDKGame.ini: holds game rules such as host settings, last used IP etc.
- UDKInput.ini: holds all input settings and bindings.
- UDKSystemSettings.ini: holds the video settings.
- UDKMapList.ini: holds your map list and whether to use it.

Q4: I get very low framerates, what can I do?

A: Make sure you run the game without anti-aliasing. Some people like to use their graphics driver control panel to force AA onto games; however the engine we use does not like this at all. The game does in fact have a post-process AA filter that is always on, so additional AA (like MSAA) will only smooth out the picture that much more, and can lead to drastic performance drops.

By far the biggest framerate hog are the dynamic lights we use. All our projectiles as well as pickups and ships cast lights. Go to the video options in the game, click the "More" button and turn off projectile lights or all dynamic lights, and see if it improves performance. You can also try turning off ambient occlusion.

If you have a low-end / non-gaming video chipset, then you can try opening the console (press ~ or ö), typing SCALE LOWEND and hitting **Return** (close the console with **ESC**). This puts the engine in "retro mode" and turns off ALL eye candy. It looks like Unreal Engine 2 now, but it does help performance! (This setting will not be saved when you exit the game and needs to be typed in after every launch.)

Q5: I can't see any servers in the server browser, what's the problem?

A: Either there are no servers, your Steam client is not logged in properly or there is something wrong with your router / Internet connection. I (Max) know that my router has problems displaying more than three servers in the browser and if there are more, it will just time out while querying the server list and not give me any results. This is **not** a fault of the game, it's really the router (and it is a very, VERY unlikely cause in your case unless you happen to have that router).

If you launch the game without being logged in to Steam, then the browser will show you "not connected to Steam". However, if it does not show that, the game assumes you are logged in – which you might not be. Check your Steam connection and try refreshing the browser.

Lastly, if you are looking for a specific server and can't see it, the server administrator might not have forwarded his ports properly.

Q6: The UI / HUD is broken, why does this happen?

A: If the UI or the HUD is missing buttons or fields, this means you are running the game in fullscreen mode and used **Alt+Tab** to switch out from it. When you come back, the UI/HUD is corrupted. This is unfortunately part of the engine's overlay model (Scaleform) and happens in more or less all UDK-based games with complex overlays. The only fix is a) not to use **Alt+Tab** or b) to play in a window.

Another artifact you might see is that transparent shapes (especially on the HUD) are black – this happens when you force anti-aliasing onto our game using your graphics driver. Don't do this and everything will return to normal.

Q7: I can't seem to get into any match until I restart the whole game. What causes this?

A: This can happen if you try to join a passworded server with an incorrect password and fail the join. Sometimes the engine hangs on to that server waiting for it to let you in and never times out, preventing you from opening another connection. You have to restart the game to get it to work again.

Q8: I'm running an ultrawide / 4K / 144 Hz monitor, does the game support it?

A: While Unreal supports every thinkable resolution at least in windowed mode, we have not tested ultrawide or 4K/5K resolutions in fullscreen mode since none of us own a capable screen. Not even our beta testers could help us out here – if you own one and want to report your results, make sure you post in our forum!

Short answer: it will probably work, but performance may suffer or the HUD/UI may not be correctly displayed. As for running at anything higher than 60 FPS (like 144 FPS on a 144 Hz screen), we recommend against it because while the game does support these framerates, the ship physics will become a bit wobbly. A fix is to use the game's framerate limiter (in the video options) and set it to half your screen's refresh rate – 60 FPS for 120 Hz and 72 FPS for 144 Hz.

About the log

Launching a dedicated server through a batch file will present you with a console window next to the game that outputs the running log. This log is always created when you run Proving Grounds, even if you don't normally see it. You can find the log files of your previous launches in *<game folder>\UDKGame\Logs.*

The log will tell you things about the game that are pretty technical and may only be useful to us developers. Some warnings may appear when you launch or play the game; usually these can be ignored unless something game-breaking is happening, in which case you can send your log file with these warnings to us for analyzing.

If you get thrown back to the main menu screen when trying to join a server, pay attention to the warning that's shown on the user interface. If you don't see a warning, you can go into the *"Logs"* folder and take a look at the latest "Launch.txt" to find out what the game reported as the reason for the failed joining attempt. Often this can simply be "JoinOnlineGame failed", but sometimes it says something about connection issues or other things that may help diagnose the problem. You can get back to us through the forum to seek help with this.

FINAL WORDS

We hope you get a kick out of playing Proving Grounds and rave about it to your friends. If you don't like something about our game, don't be afraid to tell us about it. We want to collect as much feedback as possible from all players! As mentioned in the foreword, go check our forums where you can sign up and easily give your opinion. Don't be afraid to ask questions either; we are there to help!

Donating

A lot of fans have asked every now and then whether they can donate to our efforts. We are in the process of sorting out how we want to fund further development of Sol Contingency, and we will give you all the information once it's in place. Please check back to our website or follow our Facebook and Twitter feeds to get updated. You can check out YouTube as well. Thanks!

Now strap yourself into the cockpit and see you in the mines!