Galactic Command - Echo Squad™ SECOND EDITION

Game Manual

© 3000AD, Inc 2017. All rights reserved.

TECH SUPPORT

For tech support, hints, tips or techniques, check the community discussion forums of our website at http://www.3000ad.com or http://3000ad.com/support/

EPILEPSY WARNING

Some individuals may experience epileptic seizures when exposed to certain light patterns of flashing lights. Exposure to these light patterns on television or monitor screens while playing computer games may induce an epileptic seizure in these individuals.

Certain conditions may also induce undetected epileptic symptoms in persons who have no prior history of epileptic seizures.

If you or anyone in your family has an epileptic condition, consult your doctor prior to playing this game.

If you experience any of the following while playing a computer game : dizziness, altered vision, eye twitches, muscle twitches, loss of awareness, disorientation, any involuntary movement or convulsions, you must **IMMEDIATELY** discontinue playing the game and consult your doctor.

1:   DEVELOPER'S INTRO

Our space combat genre is a dying breed as far as mainstream acceptance is concerned. While several space combat games have been developed, in the past few years the genre has been all but forgotten by the mainstream publishers who opt instead of the safe haven of sequels, leaving us indies to carry the torch with what few resources we have at our disposal.

My aim in creating this new franchise is to help reboot the genre that most of us grew up loving and playing. It is a departure from my previous niche sim offerings and it is my hope that you will have as much fun playing it as my team and I had developing it.

I dedicate this game to the memory of our beloved genre and to all the space combat game developers and gamers everywhere. Keep the dream alive!

2:   GETTING STARTED

2.0   INSTALLATION

Install the game if you haven't done so already. Be sure to agree to install the DirectX 9.0c runtime update if you don't already have it installed. When in doubt, just go ahead and let it do the install. If you already have this runtime installed, then the DirectX installer will simply exit. An Internet connection is required for this update to be downloaded directly from Microsoft and installed.
Run the game using the START menu shortcut.

A separate PDF file containing the game commands is included. You haven't already done so, please print it out. You can also view the game commands, manual and tutorial docs from inside the game by using **H**, **ALT+H** and **CTRL+H**.

2.1   MAIN MENU OPTIONS

NEW GAME

This is where you would create a new game profile. Click in one of the profile boxes, then enter your name and click on ACCEPT to save the settings and start the scenario. You can also press **ESC** to cancel at any time.

At the Mission Control screen, click on a scenario, read the description, then click on ACCEPT to exit and start the scenario.

RESUME GAME

This option allows you to resume the last game you played. If one does not exist, or if you are no longer on active duty status, you will be taken to the Roster screen.

Note that the resume system will only resume the last game played either from a manually saved game or the auto-save done after you press **ALT+Q** to quit. If you want to be able to restore any game, you need to first save it from inside the game.

RESTORE GAME

You can restore a previously saved game any time you quit from an active game in which you were still alive. If you died in the previous engagement then try to restore this game, you will be taken to the Roster where you must start a new game.

To restore a saved game, first select the game profile, then the saved game for that profile. Finally click on the RESTORE button to restore and load the saved game. Note that the last saved game slot is reserved for the quick save (**CTRL+S**) feature. If you use this as a full save slot, it will be overwritten!

MULTIPLAYER

This runs the multiplayer version of the game. Refer to section 11 for more info.

OPTIONS

Here you can configure various game options. Refer to section 12 for more info.
The defaults should be sufficient to run based on the minimum system requirements for the game. So unless you know what you are doing, it is best not to alter these settings. If you do mess things up, exit the game and delete the **game_config.ini** file located in the game folder. When you restart the game a new one with the defaults will be created.

If you wish to change your flight controller or to configure it, then click on KEYS and make the changes there. Then SAVE the settings and EXIT back to the main menu.

QUIT

Quits the game and takes you back to the Operating System.

3:   PLAYING THE GAME

3.0   GAME CHARACTER

Your character is an Elite Force Pilot assigned to a Terran Military force named Galactic Command, GALCOM. You are the wing commander of a five fighter squad, call sign ECHO. Your designation is ECHO 00. The call signs and designation of your echo wingmen are Hellraiser (ECHO 01), Rogue (ECHO 02), Shadow (ECHO 03) and Nightwing (ECHO 04).

Each of your wingmen has a specific skill, AI level and combat tactics profile. As their wing commander, they will follow your orders as closely as is feasibly possible but may sometimes ignore or counter those orders if it puts them or the fleet at risk.

Your Echo squad has access to twenty-five fighter types of various classes and each episode puts you in control of a different class of fighter though you will see your wingmen sometimes flying different fighter classes which you don't have access to. In Episode One of the game, you can only fly the Starlance medium fighter. Episode Two (all episodes sold separately) puts you in command of an Interceptor MK1 heavy fighter, and so on. You cannot change your fighter as this is assigned by your commander.

Assigned to the WildStar battle fleet, your primary platform is the all new and super powerful Engstrom class super carrier, the Galactic Command Vessel, Excalibur. This is the maiden combat voyage for the GCV-Excalibur.

In command of GCV-Excalibur and the Wildstar Fleet, is Tacops Commander Mark Stryker.
Other ships in the fleet include the GCV-Merlin, a Nightstar heavy carrier commanded by Strategic Commander Ruby Law, GCV-Stalingrad, a Starcarrier heavy cruiser commanded by Fleet Commander Nat Mason and GCV-Boston, a Starcarrier heavy cruiser commanded by Fleet Commander Jack Dearth.

Each of the carriers has several wings of fighters assigned to them and you can dock with either of these carriers (as well as with friendly stations) for repairs, refueling and rearming.

When you are given new orders, if you fail to report to the designated theater of operations within a certain period of time, you will be sent a warning from your fleet commander. If you still fail to report, you will be reprimanded and retired from active duty. The game will end and you will have to start all over.

As you progress through the game, you will earn (and also lose) Experience Points and medals. You can view these from your cockpit or from the COMMLINK menu.
Experience Points also lead to a higher rank. Below are the EPs required to progress to each rank.

RANKS

COMMANDER	(high)	100,000
LT.COMMANDER		75,000
MAJOR		50,000
LIEUTENANT		15,000
ENSIGN	(low)	

MEDALS

ORDER OF THE UNIVERSE	(high)
STAR OF MERIT	
EYE OF ANDROMEDA	
COMMANDERS SHIELD	
PLANETARY SHIELD	
ORDER OF THE WRAITH	
COMBAT SHIELD	
AWARD FOR GALLANTRY	(low)

3.1   GAME SCENARIOS & OBJECTIVES

The game features a single campaign scenario episode with sixteen missions. Most of the objectives in the scenario involve various types of missions. Some take place in space, and in future episodes, on planets as well. In some cases, you will get complex missions which take place in both space and on planets.

You should always pay close attention to your mission orders and objectives and do exactly are you are told.
Sometimes you may be awarded Experience Points and medals for performing certain objectives and missions. These count toward your attaining a higher rank which then boost the number of EPs you can achieve. You can view your stats at any time from the COMMLINK computer.

Each mission scenario in the campaign has a specific time limit associated with it. This can be viewed in the ACM mode of the Video Data Display (VDD). If the time for a scenario elapses without the mission objectives being achieved, you may be penalized and sometimes dismissed from service. If you are dismissed from service, your career will end as will the game.

When you perform poorly, miss objectives, fire upon or destroy non-hostile targets, you will gain one violation point. If you get ten of these, your career will end.

As you increase in rank, you will gain the ability to command other fighters (in addition to your fighter wingmen) in the combat theater. However, if the commanders piloting those crafts outrank you, they will ignore your orders.

The game world does not revolve around your primary actions. Each scenario in the campaign is designed to be performed by you, your squad, your battle fleet or other non-player computer controlled units (NPC).

So for example if your orders were to destroy a specific target, another friendly craft may perform that task. You will of course not get credit or Experience Points for it. And if friendly forces keep performing your missions for you, your career will be a short one because you will be dismissed from active duty.

You can pause and save the game at any time and you should do this as often as is necessary in order for you to become acquainted with your orders, the world around you as well as your fighter's systems.

3.2   COMMUNICATIONS

Your fighter has two communications sub-systems. The mini COMMLINK at the top of the cockpit as well as the larger version accessible via the COMMS cockpit menu. This is where you can view all incoming and outgoing messages as well as your immediate orders for the current scenario.

Each time a new mission is generated and downloaded to your fighter, you will receive an 'Urgent Message Received' message from Mother, your on-board computer AI personality. You should then access the comms computer either by clicking on the COMMS button or by pressing **ALT+C** or **ALT+O**. To exit the COMMLINK computer, move your mouse to the top-right corner to activate the drop-down menu and then log-off. To exit the orders display, press any key or click any mouse button. The orders display gives you immediate info about your orders as well as the scenario information without you having to scroll through several comms messages via the COMMLINK system.

You can also communicate with your wingmen and other NPC crafts by using the Team Orders Menu (TOM).   Refer to section 10 of this manual for more info.

4:   COCKPIT DISPLAY SYSTEMS

The cockpit HUD has three specific areas where data is displayed. These are numbered 1 through 3 in the graphic above. This data is not part of the cockpit, but is rather fed directly into your helmet optics. Because of this, some of the symbology will at times overlay on top of the cockpit itself. This is normal and you'll eventually get used to it.

The cockpit itself has one instrument cluster (5) and two (6&7) Multi-Functional Displays (MFD). The left MFD is used by the Navigation Interface Display (NID) and the Tactical Radar Scanner (TRS). The right MFD is used by the Visual Data Display (VDD).

4.0   COCKPIT HEADS UP DISPLAY

1. The icon represents your fighter's self-regenerating shields (outer & right digits) and armor (inner and left digits). These are color coded from Green (fully operational), to Yellow (some damage) and Red (critical damage or destroyed). If your shields are fully breached, your armor will start to take damage. Once your shields and armor are fully breached, the ship will start taking even more major damage and will eventually be destroyed. With you in it.

Most missiles – and most especially beam turret fire - are powerful enough to completely breach your shields and prevent them from regenerating. If this ever happens, your best option is to break from the engagement and dock with either GCV-Excalibur, GCV-Merlin or a friendly station and perform repairs.

Above the shield/armor icon is the Wingman Status Display (WSD) where you can track what your wingmen are doing. The data shows their designation, fighter integrity level, current orders and target (if any). The information is identical to the information in the Team Orders Menu (see section 10), except that it is always displayed.

The comms video display appears above the WSD and shows the image of the speaker of the current message. This display can display up to six images simultaneously in the event that up to six people all decide to speak at the same time.

2. The center HUD display contains tactical information related to your currently selected target, guns, missiles, mouse flight controller etc.

Top: Shows your current heading. If you have a jump target, the target name preceded by a Flight Path (FP) designation is also displayed. See section 6 for more info on navigation operations.

Center: This symbology shows your craft's direction of flight. This is also where the missile tracking symbology is displayed when a missile is armed. See section 9 for more info about missile launch systems.

Right: The currently selected target's info. This includes its race/caste designation, class, shield/armor level as well as   its range/closure. This information is identical to what is displayed in the Visual Data Display except that it is   always displayed regardless of the current VDD mode.

If you are with a planet's atmosphere, your current altitude is also displayed to the right.

When you are within a planet's atmosphere, an indicator appears as a guide for your egress from the planet. When at or above the egress altitude of 14,000 feet, the indicator will be at or below the HJD centerline. When pegged at the top or bottom of the altitude indicator or when you have reached the required altitude, the egress indicator arrow flashes.

Left: Shows your current velocity which depends on the current thrust (0 – 9) settings.

If you are currently matching the speed of the current target, the match target symbology (M) also appears. This system constantly adjusts your craft's speed but pegs at 0 and 1500 km/s. Once you are behind a target, this prevents you from overshooting and maintains your distance from the target. If you need to close on the target or increase your distance from it, use the normal afterburner and retro-rocket keys. The match target speed command has no effect when the autopilot is off and it is auto-disengaged when the target moves outside the profile parameters of the system.

When a missile is armed, it goes into one of three operating states; SCAN, TRACK or LOCK. This state is displayed on the lower left of the display.

If you have a ground target selected in the NID or TRS, the radar capabilities of the target are shown in a symbology here called the Track Warning Indicator (TWI). This is a small box which has one or more carets on either edge as follows:

Top   You are BELOW the max altitude of the target's radar.
Bottom   You are ABOVE the min altitude of the target's radar.
Right   You are at an altitude OUTSIDE of the min range limit of the target's radar.
Left   You are at an altitude WITHIN the max range limit of the
            target's radar.

When all carets are ON, the symbol flashes, indicating that you have satisfied all the target's acquisition parameters. At this point, you stand a very good chance of being intercepted by hostile forces or weapons fire (e.g. missiles) from the target.

3. The current date/time as well as your rank, experience points, number of medals and violations. If playing a campaign scenario, the stats are also displayed here as follows.

THEATRE   : Region where mission primarily originated based on your orders
START   : Current mission start time
END   : Current mission end time
NEXT   : Time to next mission

There are also two menu hot spots located here:

LOCATION   : Displays your current location.
COMMS   : Gives you access to the full COMMLINK comms computer as well as your orders system.
COMMAND   : Gives you access to various commands and settings. You can also use it to give your autopilot orders, then
engage the autopilot's Combat Assist mode in order that those orders be carried out. You also have access to   other fighter
systems as well as the ability to save the game.

4. The icon represents your fighter's gun charge level (left digits). The icon is color coded; Green is full, Yellow is recharging, Red is low
charge or damaged. If your guns are completely destroyed, they will fail to recharge and won't fire.

The number of missiles currently loaded is displayed on the right. When you arm a missile, the name of the currently armed missiles is also
displayed here.

5. This indicator cluster has several indicators.

        STT   Radar currently in Single Target Tracking mode.
        LNH   Missile launched at craft.
        LCK   Hostile radar or missile locked on craft.
        TRK   Active hostile radar system tracking craft.
        EMD   Electromagnetic Disruptor missile jammer. If the EMD is enabled, the cockpit MFDs will display static noise and all
             missile locks will be lost. The jammer doesn't always work reliably, especially against missiles which can "burn" through
             it.
        SOS   A craft in region is emitting an SOS signal.
        IFF   A friendly craft in the region is emitting an Identify Friend or Foe signal.

        A/P   When the auto-pilot is on, this indicator is Green. It
             has a Yellow surround when in Combat Assist mode. Note that waypoint orders can only be performed in CA mode. This
             means that if you are manually flying the craft and you want the AI to perform waypoint or combat orders, you have to
             use the CA mode otherwise the craft will fly to the waypoint but not perform the order (e.g. attack) itself.
        HDR   This is your hyperdrive level indicator which shows you the current charge indicating if you can do a jump
     or not.

6. Multi-Function Display 1 (MFD1) is shared by the Navigation Information Display (NID) and the Tactical Radar Scanner (TRS)

With either the NID or TRS active, you can right **RIGHT-CLICK** anywhere in the HUD to display a target list menu which will display valid
targets depending on which display is currently active in the MFD.

7. Multi-Function Display 2 (MFD2) is used exclusively by the Visual Data Display (VDD) system.

8. System Status Relay contains color coded icons representing various states of your fighter's systems. Each time your fighter takes a hit from weapons fire, a system stands a chance of taking damage or being completely destroyed.

Red : Destroyed and inoperable

Yellow : Damaged and possible malfunction

Blue : Damaged and undergoing repairs

HUD	Heads Up Display	NRE	Nuclear Reactor
MLS	Main Life Support	NAV	Navigation Computer
ILD	Inbound Launch Display	COM	Communications Computer
ENG	Engine	MNC	Main Computer
EMD	Electromagnetic Disruptor	WEP	Weapons Systems
SHD	Shield Array	LAS	Laser Gun Array
TAC	Tactical Radar Scanner	HULL	Hull Armor Array

4.1   NAVIGATION INFORMATION DISPLAY, NID

This provides access to various modes, including navigation, weather display, etc. Put it command mode by pressing the **N** key or using the COMMAND/SYSTEMS/NID menu.

By default, all navigation based targets tracked in the NID are displayed. The type of target can be filtered using the Radar Target Mask in the COMMAND/SYSTEMS menu.

To select and cycle targets, use the **.** and **,** keys or **RIGHT-CLICK** in the HUD area to display the target menu. You can also **LEFT-CLICK** click anywhere in the HUD to remove the list if you decide to exit without selecting a target.

Once a target is selected, the target designator box will appear in the HUD if it is within the craft's field of view.
The target's range (km) and closure rate (m/s) are displayed in the top left/right and lower right corners of the TRS.

To cancel the current target, press the **X** key.

NAVIGATION MAP (MAP)

In space, this mode tracks navigation related targets on a grid with your ship at the center. On a planet surface they are tracked on a static topological bitmap of the planet or moon with your ship in the center.

In space, targets are represented by color-coded dots with stalks pointing away from the center of the display indicating the relative position.
On a planet, they are just dots on the map.

Targets in the display are color coded depending on the operating environment:

Green	:	Planet, Ground Unit
Grey	:	Moon, Disabled Unit
Red	:	Hazard, Starbase
Blue	:	Jumpgate
White	:	Wormhole, Sites / Cities
Yellow	:	Fluxfield, Naval Unit

The NID grid in space indicates a flight plane to the target. Chevrons are added to define which edge of the rectangular grid indicates the direction to the target. When the chevrons are pointing up with regard to the display, the ship is pointing towards the target. The chevrons are active only if a target is selected.

Vertical stalks are added to the target blips to give a sense of depth. These stalks are pointing away from the center of the NID (your position). Since the grid interferes with this visual depth cue, it is disabled unless a target is selected. Cancel your target to view the grid. These stalks are a fixed length and only indicate relative position.

When on a planet's surface, the topology map of the surface is removed as the zoom level is increased. This will display a view of the object at its current location. The planetary visibility range is displayed as a Yellow circle. There is also a line extending from the center of the map to the edge of the display. This line indicates your current direction of flight.

A Yellow box defines the mission zone area. A White box defines the scene area. You can see the outlines of the mission zone or scene areas from the topmost level of the topology map. The directional indicator helps determine whether or not you are in a mission zone/scene.

Use the **[** or **]** keys to change the zoom level or click on the MAP tab and use the menu.

WAYPOINT TRACKING SYSTEM (WTS)

This mode displays the waypoints list created in the TACOPS computer. Each waypoint order type and your range to it is displayed on each line.

To select and cycle waypoints in the list, use the **.** and **,** keys.

To delete the current waypoint, press **X**. To delete and clear all waypoints, press **SHIFT+X**.

NAVIGATIONAL INFORMATION RELAY (NIR)

This mode displays your ship's regional location along with the current game date and time. If in a planet's atmosphere, it also displays your planetary coordinates.

The local time indicated in the NID in a craft on a planet is consistent with its position on the planet and game time.

The current weather condition is also displayed as well as a weather forecast mode that allows you to be aware of the next predictable weather condition.

4.2   TACTICAL RADAR SCANNER (TRS)

This system is the center of your weapons and radar systems. Its primary function is to track targets in all environments. Put it command mode by pressing the **T** key or using the COMMAND/SYSTEMS/TRS menu. It has several operating modes.

SPC	:	Tracks space borne targets when in space
GND	:	Tracks ground targets when on planets
AIR	:	Tracks airborne targets when on planets
SUL	:	Filters out all targets except those of your support crafts

When activated, two circles are displayed with one smaller than the other. These circles are used to track all targets in relation to your ship. Any target within the inner circle is in front of your ship's bearing. If the target is in the outer circle, it is behind your ship. The very center of the inner circle represents what is directly in front of your ship.

It is important to note there may be times when all targets in your region are not picked up by the TRS due to range limitations.

Targets are color coded depending on type. They also only appear depending on the current radar target filter.

Blue	:	Neutral or Other
Cyan	:	Towed
Green	:	Friendly
Red	:	Enemy
White	:	Missile or Mine
Grey	:	Disabled

To select and cycle targets, use the **.** and **,** keys or **RIGHT-CLICK** in the HUD area to display the Select Target menu. You can also **LEFT-CLICK** click anywhere to remove the list if you decide to exit without selecting a target.

Once a target is selected, the target box will appear in the HUD if it is within the craft's field of view. The target's range (km) and closure rate (m/s) are displayed in the top left/right and lower right corners of the TRS.

The type of target can be filtered using the Radar Target Mask in the COMMAND/SYSTEMS menu.

To cancel the current target, press the **X** key.

To switch to Single Target Tracking (STT) mode which filters out all targets except for the current one, use the **** key.

RADAR MODES

There are three radar modes and which also affect all the radar systems in the fighter. These modes can be toggled using the **R** key.

ALERT : mode (default) the radar tracks up to limits of the current space region and up to 250km when on a planet. The target info for all targets are displayed in the HUD but only the current target (if any) has all the information about the target. The other target boxes show only the target name and range. In this mode, the target boxes for all targets are displayed, not just for the currently selected target. They are limited by range (25m – 50km on planets and 1m – 150km in space), so some will only appear when you are within a range of the target.

ACTIVE : mode, the radar operates the same as ALERT mode, but only the target box (with full information about the target) for the currently selected target is displayed in the HUD.

PASSIVE : mode, the radar ranging circles in the TRS go off and the ship detects objects based on a rotating antenna model. If you are on a planet, a Green line (you must zoom the NID map to see this) in the NID rotates about your craft's position, detecting any objects that the line passes over. This is like a conventional radar system. No energy is emitted from your craft as it is assumed that the objects are detected due to their thermal, electromagnetic or other property. This allows your craft to detect objects without exposing its position on radar. In a target rich environment with a lot of enemy air defense units tracking you, this is usually your best radar mode for getting in and out of the theatre of ops safely.

A limitation of passive mode is that on a planet, the effective range is reduced to 5km, except when an object is using active radar; in which case it can be detected up to 250km away. NPC units frequently use active radar, making it very difficult to sneak up on them. Also, a missile cannot lock on a target when the radar is in this mode.

A radar enabled unit cannot achieve active ping if the target is outside of its min and max acquisition parameters. Just because an active ping is achieved, does not mean that the target has a lock solution. It could have a long radar range and still not have a missile that can launch within those parameters.

For example, a Surface To Air (SAM) enemy unit with a max radar distance range of 100km and a radar min/max altitude range of 500ft/5000ft, cannot see a target that is more than 100km away. Once the target falls within its radar distance range, the target altitude is then taken into account. For example, if the target is at 80km distance at an altitude between 500ft and 5000ft, the SAM *can* see it. If the target then drops below 500ft or pops above 5000ft, the SAM will lose its tracking after a few seconds.

Note that all air, space and ground units have different radar detection characteristics. You can use the Track Warning Indicator (TWI) in the HUD to determine whether or not a selected ground threat can see you on radar or not. Also, NID radar targets are not subject to the TRS radar target filters. But if the TRS is in ground (GND) mode, then those target types are also visible in the NID.

LAUNCH WARNING INDICATORS (LWI)

These indicators are located in the instrument cluster and provide critical threat assessment info.

TRK : Your fighter is being tracked and scanned on hostile radar
LCK : A hostile target has a weapons lock on your fighter
LNH : A missile has been launched at your fighter

4.3.   VISUAL DATA DISPLAY (VDD)

This system provides video and data information about the currently selected NID or TRS target.

When a target is selected in the NID or TRS, a video image can be displayed here. Once the target is identified, its race, caste, and type are displayed in the top part of the display. Its shield and armor levels are displayed as vertical bars on the left and right sides of the target's image. These correspond to the values in the target box.

A set of three or four additional numbers are also displayed above the target image depending on its type. From left to right, these numbers represent the status of the target's reactor, engines, weapon systems, and launch bays. Some of this information does not apply to certain targets. During combat, the integrity of the target can be monitored here as these values make up the target's overall integrity. As the target's systems are breached the indicators are adjusted to reflect these changes.

Engine	:	Affects speed and turn performance
Weapon	:	Below 25% integrity, the weapon systems will fail
Reactor	:	If the reactor is destroyed, the target will explode
Launch Bay	:	Below 25%, target will be unable to launch other craft

Other info related to the tactical state of the target may be displayed at the bottom display.

If a craft being viewed is in hyperspace, this mode will display static, along with a time estimate of when the craft will emerge from hyperspace.

If a target is destroyed, moves out of radar range or is cleared from the TRS or NID, using the **X** key, the display shows NO TARGET.

If you launch a missile (e.g. STS-Vagrant) which has an infra-Red camera (shows what the missile is tracking), the view will remain in infra-Red until the missile detonates.

4.4   RADAR TARGET FILTER

You can change the type of targets displayed by the NID, TRS and TACOPS using the Radar Target Filter in the COMMAND/SYSTEMS menu. Once a target class is filtered off, targets in that class will no longer appear in these systems. e.g. by default missiles (White dots in the TRS) are filtered out. If you wish to see missiles in the TRS, then you need to enable this filter.

Note that the NID and TRS display different classes of targets. So if you enable a filter and don't see the targets in the TRS, check the NID. e.g. You cannot view ground buildings in the TRS and to view them in the NID, you have to zoom the display so that the topographical map is removed. Also, if the Missiles/Mine filter is off, the **F7**/**F8** missile view keys will not work.

5:   FLIGHT CONTROLS

To fly your fighter, the autopilot must be turned off.

The **0-9** keys can be used to set the thrust setting to preset values.

You can still use the **W** and **S** keys (or the joystick throttle), which effectively act like afterburner and retro-rockets. For example, if you set your max speed to 5, the craft will slowly ramp up to thrust factor **5**.
However, if you then press and hold the **W** key, you can exceed this thrust setting and go up to the max speed of the craft. When you let go of the W key, the craft will slowly reduce it's thrust back to factor **5**. A thrust factor of **9** sets the max thrust of the craft, while **0** (press and hold) brings it to a halt.

If you are using a joystick with a throttle, the speed value is modified by the throttle if enabled. This means that if you have thrust factor **9** set, then setting the throttle to min level will effectively bring the craft to a halt. While setting it to the max level (pushing it all the way forward), will take the craft up to the max thrust speed set by the **1-9** thrust settings. For example, if you have thrust factor **9** set, then moving the throttle all the way forward will ramp the craft all the way up to its max speed.

5.0   CONTROLLERS

JOYSTICK / GAME PAD

A joystick or game pad is the highly recommended controller. If you have a joystick with a throttle, it will have precedence over keyboard thrust controls. You can restore keyboard controls by moving the throttle all the way back and using the keyboard for thrust controls.

Joystick throttle is functional when enabled in the game options. The throttle and speed control both combine to effect the final speed such that the throttle continuously adjusts (limits) the max speed of the craft. So if you move the throttle all the way forward, when using the **W** key, you will achieve full speed. If you have the throttle at the half way mark, you will then achieve half the max speed.

MOUSE

Though the mouse is used primarily for making menu selections, you can also use it to fly a craft. By default, the mouse is in SELECT mode. To switch to CONTROL mode, tap and release the **ALT** button.

Mouse flight control is simple in that you just turn the ship in the direction that you want to fly. Move the mouse forward/backward to pitch up/down and left/right to yaw left/right.

The default Y axis pitches up when the mouse moves forward (up the screen) and pitches down when the mouse moves downwards (down the screen) i.e. the craft tries to follow the mouse.

This Y axis behavior can be changed in the game options. To switch the current state of the yaw/roll X axis, press and hold down the **SHIFT** key.

This X axis behavior can also be changed in the game options and is the same setting as the keyboard.

When mouse flight control is active, the mouse pointer is hidden and replaced with a small cross/circle reticule. A direction indicator also appears at the center of the display and pointing at the position of the mouse.

The length of the direction pointer indicates the distance of the mouse from the center of the display (i.e. the degree of turn). If the mouse position is within the indicator radius (dead zone) the direction pointer and cross are hidden.

5.1   FLIGHT DYNAMICS

Normally, crafts are in Forward Takeoff And Landing, FTOL, state, but they also have Vertical Takeoff And Landing, VTOL, capability which allows them to take off from a fixed spot and maintain a sustained hover in the air. This switch from one state to the other is handled automatically and depends on the crafts properties. When the forward or back key is released in FTOL/TAXI state, the speed is set/held at the current value. For aircrafts in VTOL state, the flight system tends to reduce any velocity to zero (hover) when no input is given.

If you are attempting to land the fighter on the ground, you have to do it while in VTOL mode. Fly to the lowest possible altitude, then slow down the craft until it auto-switches to VTOL mode. Then lower your altitude by keeping your finger pressed on the **Z** key until the craft touches down. Based on the gravity of the planet and your altitude, you may have to keep this key pressed for longer, in order to defeat the effects of gravity. But until you see TAXI appear in the HUD, the craft has NOT landed.

VTOL is performed by tapping the **F** key to lift off. This then places the craft in a hover state. To transition from VTOL to FTOL, press and hold the **W** key until the craft reaches a predetermined threshold speed at which time the state is automatically cleared. You can also use the **Z** key to lower your altitude when in VTOL.

WARNING: When using the mouse flight controls on a planet, you will find yourself in situations where you are inverted. Moving the mouse in the wrong direction will crash you into the ground. On the planet, you are advised to use the keyboard L/R right arrow keys in addition to the mouse. Letting go of the mouse and then pressing and holding down the **NUMERIC 5** key, will also quickly auto-level the craft. When all else fails, just tap the mouse out of CONTROL mode and back into SELECT mode, then use the **NUMERIC 5** key to quickly auto-level the craft.

5.2   PLANETARY FLIGHT

One of the worst things that can happen to you when on a planet is if your craft is too damaged to achieve enough thrust to breach the planet's escape velocity. If you cannot attain this thrust level, your craft will never reach the minimum altitude required to engage orbital breach procedures.

The lift characteristics are progressively degraded once the craft attains 90% of the max altitude (MSL). This is not a hard limit, so the craft may exceed the max altitude by a small amount for short periods during climbs.

Your craft can overcome the max altitude limit by using the afterburner, but in normal flight, the max altitude limit is imposed.

The low Above Ground Limit (AGL) altitude is implemented using an altitude hold autopilot which is always active.

The altitude hold value depends on the speed of the craft which depends on the distance of an object from its objective (the further away it is, the greater the speed - the speed reduces as the craft reaches its objective).

At speeds at or greater than maximum speed, the craft will use the max altitude as the altitude hold value. For speeds at or less than the cruise speed value, the min altitude is used. The altitude being held varies progressively between max and min altitudes depending on speed.

The effect of this is that when a craft needs to fly to a distant target or waypoint it will fly at maximum speed and climb to maximum altitude. As it approaches the objective it will slow down while simultaneously reducing altitude.

PLANETARY TERRAIN FOLLOWING & AVOIDANCE

Your fighter has a terrain following and avoidance model which allows it to follow the surface terrain without crashing into the ground or into mountains. It is not 100% fail-safe especially at high speeds.

To use this system, activate the autopilot and the ship will fly a low altitude, making course corrections to avoid collisions with the ground and other terrain features such as hills etc. If you have waypoints programmed, the autopilot will fly the pattern, using this model.

When you establish planetfall, the autopilot assumes a safe altitude and engages the terrain following and avoidance model. Under manual control, if you fly too close to the ground and are in danger of colliding with it, the computer system will sound a verbal warning and a pull-up cue will also appear in the HUD.

ALTITUDE HOLD SYSTEM, AHS

Your fighter has an AHS system which is activated using **CTRL+M** (toggle). This system assists in instances where you are attempting to fly to a distant location, don't want to use a waypoint and you want the craft to remain at a specified altitude.

When turned on, the altitude is set at the current altitude and an **"H"** marker and the AHS set altitude, appear to the right of the Altitude Information Display. The default altitude is 250 feet AGL.
When AHS is on and in normal (FTOL) flight mode, the **F** and **Z** keys (normally used to control altitude in VTOL mode) adjust the AHS altitude setting.

The AHS altitude setting is indicated to the right of the H marker when the AHS is turned on and while it is adjusted with the **F** and **Z** keys. AHS will cancel if the craft stalls (50 m/s speed is the minimum speed for the AHS to work) or a low speed setting causes it to enter VTOL. Simply applying thrust and entering FTOL flight mode, will re-activate it. This is because AHS requires that the craft is flying fast enough to cancel VTOL.

You still have control of the craft, but the AHS will cause the craft to settle at the specified altitude if you don't do anything while in forward flight.

The altitude set is in AGL so the craft will tend to follow terrain features (since the Emergency Ground Avoidance System, EGAS, used by the autopilot is also turned on) but is not aggressive enough to be used at very low altitudes. A minimum altitude of 500 ft or higher while flying over terrain, is recommended.

The AHS will NOT avoid terrain or airborne objects. So, if you are in the direct path of an object, the craft will collide with it. It is not an auto-pilot system and bears no relation to it.

If you are trying to sneak up on hostile forces, you absolutely do NOT want to use AHS when you are within their radar range. If you do, there is a good chance that AHS will increase the craft's altitude, resulting in your craft's radar signature appearing on their sensors.

5.3   AUTOPILOT

The autopilot (A/P) operates in two modes, NAV and COMBAT ASSIST.

NAV MODE

In this mode (**ALT+A**), the cockpit indicator flashes Green. The A/P will track and follow the current target, carry out waypoint orders etc. Sample usage would be selecting a target to escort from the COMMAND/ESCORT menu, then activating the A/P. It will then follow the target. You can also use this system to navigate within the current region or to jump (by selecting a jump anomaly from the COMMAND menu) to another region.

COMBAT ASSIST

In this mode (**CTRL+A**), the cockpit indicator flashes Red contains all the features of NAV mode. In addition, the A/P will fire the fighter's guns and launch missiles as appropriate. Sample usage would be to select a hostile target to attack from the COMMAND/ATTACK menu, then activating the autopilot in this mode.

In some cases, the fighter's self-learning AI can perform better during combat engagements than you. When in COMBAT ASSIST mode, you can still manually use the jammers during the engagement. Bear in mind that while jammers are active, you will lost track/lock data for your armed missile.

6:   NAVIGATION OPERATIONS

The game takes place in a huge galaxy which contains space regions as well as planets and moons. The areas which you can visit in any campaign are dependent on your scenario orders. A full sized galaxy map is included in the game for you to print and have as a handy guide during your travels. You can also display it using **G** when running the game.

You can plot a course to any location or target within the current region or to other regions.
The simplest method is to select the target in the NID or TRS then manually travel toward it. This is useful for short hops or in cases where you have insufficient fuel or power to initiate a HyperJump.

6.0   JUMPING WITHIN THE CURRENT SPACE REGION

In cases where you want to use the ship's navigation computer, select the target in the NID or TRS, then press **SHIFT+9** to jump to the target.

You can also use the COMMAND tab to give your craft the JUMP TO order, select a jump target from the list and then turn on the autopilot.

The range to the target must be more than 180km for this to work. Once the jump engine is engaged, the ship will travel through hyperspace to the target and emerge a short distance (depending on size of target) from it.

To engage the HyperDrive engine, the craft must have an engine integrity greater than or equal to 75%.

In hyperspace, nothing is real and even though you would seem to fly into things, you cannot collide with them.

During the jump, notice that the HDRIVE charge icon in the HUD, will start to deplete. Each jump depletes this charge and you cannot initiate another jump until it is fully recharged.

While in hyperspace, you can still go about your normal tasks but you cannot drop out of hyperspace manually. Once the jump transition ends, the ship will emerge a short distance from the destination and the jump anomaly will collapse. The HyperDrive system then shuts down and will begin to recharge.

The jump transit times are based on the type of craft. For example it will usually take a capital ship a lot longer to jump than a fighter. So if you are being pursued by a craft with a faster jump engine and it determines that you have jumped, it too will plot a course to your jump destination and possibly reach there ahead of you.
So don't be surprised if you emerge from hyperspace to a hail of gun fire or inbound missiles.

From time to time, you will also notice that the screen will flash briefly when ships jump into and out of the region you are currently located in. Sometimes if you happen to be looking at the jump location of a craft that is about to jump into or out of hyperspace, you will also see the flash of the jump anomaly as it collapses.

6.1   JUMPING TO A NEW SPACE REGION

If you want to jump outside the current space region, you should select a jump anomaly such as a jump gate, flux field or wormhole in the NID and make sure that it is visible in the VDD/VID mode. The craft will jump to the anomaly and then travel through it.

Your craft is then relocated outside the anomaly end point in the target region. Using this method you can travel to any region or star system in the entire galaxy.
If wish to cancel the jump to the new region, press X after you emerge from the jump. This is because unless the jump anomaly is the current target in the VDD/VID mode, the jump will not occur to the target region.

You can also use the COMMAND tab to give your craft the JUMP AT order, select a jump target from the list and then turn on the autopilot. If the jump target is a jump anomaly, the craft will jump to the anomaly, enter it and exit in the target region.

6.2   JUMPING TO A PLANET

If you select a planet as the jump target, you will be prompted to enter the planet. If you respond with Y then the ship will enter the planet and establish planetfall after the jump completes. If the response is N then your craft will stop just outside of the planet's gravitational field and will not enter the planet.

The jump is not performed until you respond to the prompt. Note that the craft will begin the planetfall transition immediately if it is already too close to perform a jump.

6.3   SETTING WAYPOINTS

Your craft has the ability to follow waypoints created using the TACOPS computer. If the ship is under pilot AI control, then they will attempt to visit each waypoint, carry out the order assigned, and move on to the next waypoint. Once the final waypoint is reached, they will return to base unless otherwise instructed.

When you take manual control of a craft, you have the ability to follow the waypoints created for it.

The waypoint number and the range (in km) to it will appear in the top right corner of the TDD. A vertical box, WHI, below the heading indicator indicates the current waypoint being tracked. Fly toward this heading in order to reach the waypoint.

If you have the autopilot on and the pilots have flight control thereby following a waypoint pattern, you can still cycle targets in the NID or TRS and view them in the VDD. The current target will be designated with an open triangle.

If you turn off the autopilot and make this target the current destination, and then engage the autopilot again this will over-ride the current waypoint and the ship will fly to the target. In order to resume following the original programmed waypoint, destroy or cancel the current target using **X** and the autopilot will resume the original waypoint pattern.

You can alter a ship's waypoint pattern by activating TACOPS and either moving the waypoint location or changing its order. The target box will reflect the new waypoint location and range which the ship, under pilot control, will now follow.

In the cockpit and under AI mode, you can have the ship fly to a target and ignore the current waypoints. To do this, select the target in the NID or TRS, use the **CTRL+F** keys to designate it as a flight path target, then engage the autopilot.

The ship will fly to the target but if you cancel the target, the ship will resume its original waypoints if any.

6.4   ENTERING A PLANET

Orbital procedures are not implemented in the game because you do not need to be in orbit to perform actions on the planet. However, to simulate an orbit around a planet or moon, jump to the planet (or approach manually, but be cautious so that you are not pulled by its gravitational field!) and the autopilot will stop the craft at a safe distance from it. Be aware that at 100km, you will breach its gravitational pull and enter the atmosphere.

Once the jump completes and you have flight control, kill your engines (don't forget to shut your joystick throttle too!) and clear any targets you currently have selected in the NID or TRS. You can also turn on the autopilot and give it the HALT order from the orders menu.

To enter a planet or moon's atmosphere, select the target from the NID or TRS, press **SHIFT+9** and jump to it. When prompted if you wish to establish planetfall, say **Y**. Once the craft enters the atmosphere, it will descend to a reasonable altitude and switch to manual flight controls. At this point, you should control the craft so that it doesn't fall to the ground under gravity.

If you want to land at specific part of a planet, you need to set a waypoint (with any order) first before jumping to it. Once you enter the planet, you will ingress at the location of that first waypoint. Refer to the TACOPS section for more on this.

All crafts will enter the planet's atmosphere at the center of the planet unless a waypoint is first set in the TACOPS computer. If you set a waypoint first before entering the planet, then your fighter will emerge above the location of the first waypoint.
Using a waypoint ingress method is useful when you want to enter a planet/moon at a specific location rather than an arbitrary location selected randomly by the ship's navigation system. In fact, if you are in a slow craft and have access to the space region, you can shorten your travel distance by setting waypoint #1 at the desired destination. Then egress to space and establish planetfall again. You will now be positioned at that location.

6.5   LANDING ON A PLANET

To land on the ground after entering a planet, you can either do it manually or use the Computer Aided Landing System, CALS. This can be turned on or off using the **CTRL+E** keys and while at any altitude. If you use CALS, the craft will start a landing sequence and pick a spot to land. Note that the craft will not pick a safe place to land, so if you activate this over water, the ship will probably land on water and in some cases become disabled.

When CALS is active an indicator appears that shows the location on the ground where the landing will occur and the range to that position. This indicator also appears when the craft is following waypoints with a landing point and during the landing state.

Once the craft lands, the TAXI state will be activated. You **cannot** exit your craft after landing on the ground.

While on the ground, you can also use CALS to takeoff. If the craft does not have a waypoint set or does not have a target (in the NID or TRS) for the AI system to follow, takeoff will not work correctly because the ship does not accelerate. TAXI is displayed in the target box when the craft has landed on the ground or FLOAT if it landed on water.

CALS may not be appropriate in some landing conditions. In which case, you can manually land the craft.

Note that in space, CALS just turns off the engine. On a planet, the autopilot will take over, land the craft and turn off the engines.

6.6   LEAVING A PLANET

To leave a planet, pitch the ship upward and using the altitude gauge as a cue, fly to an altitude of 12,000 ft or higher. Then press **SHIFT+9** when the EGRESS ALTITUDE INDICATOR (EAI) next to the altitude gauge starts to flash.

Depending on the planet or moon, you may have some difficulty reaching this altitude; especially if your craft has taken some damage. You have to maintain max thrust while pitching the ship up between twenty to forty degrees. Pitching the craft at too high an angle will cause it to bleed more power. The most effective method is to first press (**9**) to set max thrust. Then press and hold the thrust key (**W**). You can then pitch up at about twenty degrees and climb out to around 10,000 ft. At this altitude, you can increase your pitch angle to between thirty and forty degrees and maintain that until the EAI starts to blink. At which point you can release the thrust key and press **SHIFT+9** to initiate the egress transition.

6.7   ASTROGATION

When the NAVITRON computer is activated from the **COMMAND/SYSTEMS** menu, the section of the galaxy where you are currently located is displayed.

You can scroll the galaxy map by using the arrow keys or you can right-click anywhere in the display, and while still holding down the button, drag the mouse slowly in the desired scroll direction and the auto-scroll will activate.

Starsystems are linked by wormholes and in some cases by flux fields. In order to travel from a region within a starsystem to another region within another starsystem, you have to locate a region with a wormhole which will provide the link to the destination. For example, you can only go from the Sol system to Alpha Centauri via a wormhole located in the Pluto region in Sol.

The regions within the starsystems are linked via jump gates; therefore, you can jump from Earth to Pluto region using a jump gate and from Pluto to the Centris region in the Alpha Centauri starsystem using a wormhole.

JUMP GATES

Jump gates allow you to jump from on part of the current starsystem to another.
They have only one entry and one exit point. Jump gate links are displayed as connecting Blue lines on the navigation map. For example, in the Sol starsystem, there are several jump gates to other parts of Sol.

FLUX FIELDS

Flux fields are similar to jump gates but some have multiple entry and exit points and can lead to any location in the entire galaxy. Once you enter a flux field you have no way of knowing where your ship will emerge.
Flux fields are displayed as connecting Yellow lines on the navigation map. For example, in the Sol starsystem, there is a flux field located in the Mars region.

The entry point of a flux field includes the originating point itself. This means that sometimes it would seem that entering a flux field did not work.
It may have simply deposited you back at the point at which you entered. Some flux fields have end points in black holes which make them dangerous to use sometimes.

WORMHOLES

Worm holes are similar to jump gates and have a single entry and exit point. They only connect starsystems Wormhole links are displayed as connecting Red lines on the navigation map. For example, in the Sol starsystem, there is a wormhole in the Jupiter region which links the Sol starsystem to the Lyrius region in the Sirius starsystem.

The galaxy is divided into four quadrants which are linked via jump anomalies known as jump gates, wormholes and fluxfields. Each quadrant contains a number of starsystems which are further divided into four regions named TERRAN, CREDIAN, GAMMULAN, SYRION.

7: TACTICAL OPERATIONS

The Tactical Operations (TACOPS) computer gives you a top down view of the space or planetary region you are currently in. It operates in either space or planetary scan mode. In both modes, the orientation is such that the direction North is toward the top of the screen.

When you activate TACOPS, depending on your operating environment, it will activate in either space or planetary mode.

MENU   Used to access the EXIT and WAYPOINT tabs.

HOLD   Pauses the map update. This is a toggle

EXIT   Exit the TACOPS computer.

WAYPOINT   Create waypoints for your fighter.

OPTIONS   Configure various Tacops display options.

ZOOM   Allows you to instantly zoom to any object in the current region.

PRIORITY   Allows you to add targets to a quick access list and your asset is always in this list.

FLEET   When you reach a certain rank and you are given wing command control, this option gives you access to units which you are authorized to give orders to. i.e. your wingmen.

Below these tabs is a display area which provides your current date and time, the date and time for the currently viewed planet surface (when in planet observe mode), the currently selected target, a probe's status and region and your own current location.

There are several methods of using and configuring the TACOPS interface and they are as follows :

Click	:	Zoom to area or unit
SHIFT + Left-Click	:	Select unit and display orders menu without zooming
Right-Click	:	Return to previous map level
Home/End	:	Zoom in/out (fine) at current mouse location
PageUP/PageDown	:	Zoom in/out (course) at current mouse location
Insert/Delete	:	Roll the display
Left/Right arrow	:	Rotate the display
Up/Down arrow	:	Pitch the display
Left-Click + Hold	:	Pan the display by dragging mouse up/down
Right-Click + Hold	:	Rotate/pitch display by dragging mouse up/down
Numeric 5	:	Reset the display view to default zoom mode
SPACEBAR	:	Toggle region display info

SPACE SCAN MODE

Moving the mouse over a target box cluster will display a list of targets at the current location. You can then click on a target box to select it or just click in the general vicinity to provide a clearer zoom of the now separated target boxes at that location.

To select a single unit without zooming the view, press and hold the **SHIFT** key, then click on the desired unit.

The ZOOM TO menu also allows you to zoom to and select a target.

Once you have selected a target, it will be made the current target. If you click on it again, an orders menu will be displayed.

Depending on the target type and if you have fleet command & control, the menu will allow you to perform operations on that unit.

PLANETARY SCAN MODE

To select targets on a planet, you must first access the planet's topology data. To do this, locate the planet in the display and click on it, and then select OBSERVE from the menu. You could also use the ZOOM TO menu and then select the planet from the menu filter.

The global map for the planet will then be displayed. If there are any mission zone areas of interest on the planet, these will be indicated by animated Yellow boxes. Move your mouse over these mzones to display a pop-up menu of the name. If an mzone contains a starbase, the box will be colored Cyan.

If it contains a military or naval base, it will be colored Red. If it contains both a starbase and a military or naval base, the starbase color coding takes precedence.

Regions controlled by a specific race/caste are defined by Green rectangular areas. The race/caste owner is displayed on the lower left corner. Toggle this using the **SPACEBAR**.

The global map shows the planet's local time zone graduated in 24hr GMT format as well as the different climate zones (e.g. Artic, Desert, Moderate etc).

To view a region of the planet, click anywhere on the global map or inside one of the mission zones to display the local map.
If there are any areas of interest, they too will be displayed as animated boxes with their name being displayed as the mouse hovers over them. Again click on the local map to display the scene map where you should now see objects, if any. You can also use the Zoom To menu to select any mzone on the planet.

From this point on, target identification and selection is similar to space scan mode.
To revert to the previous map level and all the way back to the global map, just right-click repeatedly or press **NUMLOCK**.

SETTING WAYPOINTS

Waypoints and orders can be created for your fighter via the WAYPOINT icon in the MENU tab. After selecting this tab, it will reveal several other tabs which have descriptive tool tips. To set a waypoint, follow this procedure:

First, locate, select and zoom to the local scene map of the deployment area.

Click on the ADD tab to create a new waypoint.

Click on the WAYPOINT ACTION tab and select the mission for this waypoint. You can change a waypoint action order at any time. This allows you to change the orders without having to create new or delete waypoints. Note that if you select a waypoint action which requires a target (e.g. strike), then you have to use the TARGET tab to specify the target for that waypoint action.

Click on the SETPOS tab and you will notice that a waypoint marker is now anchored to the mouse cursor. You can now click anywhere on the map to place the waypoint. To change the waypoint location, you can either click on it to select it on the map, or select it from the WAYPOINT NUMBER tab and then again select the SETPOS tab.
Note that the waypoint line/box on the map is color-coded depending on the type of support craft selected. Green are fighters, Yellow are shuttles and Blue are vehicles. The currently selected waypoint is White.

When placing multiple waypoints you will notice that there is a number displayed on the waypoint line connecting the two waypoints. This number is the distance between the two waypoints and can be very useful in mission planning.

The altitude of the waypoint is also displayed at the base of the waypoint stalk. Sometimes this value will be negative due to the terrain elevation at the waypoint location. This is perfectly normal and has no adverse effects.

Also, if the mouse hovers over a waypoint, the set orders will be displayed.

All crafts will enter the planet's atmosphere above the location of the first waypoint. This is also the case if you are flying the fighter manually (i.e. not in autopilot mode) and you enter a planet that contains a waypoint set.

This ingress method is useful when you want to enter a planet/moon at a specific location rather than an arbitrary location selected randomly by the ship's navigation system. In fact, if you are in a slow craft and have access to the space region, you can shorten your travel distance by setting waypoint #1 at the desired destination. Then egress to space and establish planetfall again. You will now be positioned at that location.

To delete a waypoint, cycle through the list in the WAYPOINT BOX and select the DEL tab.
WAYPOINT ORDERS

These are general orders and not only for waypoints. Some are available as waypoint orders as well as unit orders (via menus) where applicable. Waypoint orders not valid for a unit type, will not be displayed when setting waypoints for that unit.

PROCEED TO NEXT

Immediately go to next waypoint.

INTERCEPT

Engage and destroy all hostile air/space targets detected in the vicinity of the waypoint. Pursue fleeing enemy if necessary. Used for the defense of a wide area.

STRIKE (Requires a valid target)

Attack this target only and either return to base or proceed to the next waypoint upon completion. Defend if engaged and make one pass at the target. If inadequate weapons, then proceed to the next waypoint.

PATROL

Protect the area along the flight path from hostile incursion. Do not attempt to locate or destroy any hostile ground targets, only air or space targets.

SEARCH & DESTROY, S.A.D

Actively engage & attempt to destroy all detected air, ground or space targets regardless of target type. This is a combination of Intercept and Patrol.

SUPPRESS ENEMY AIR DEFENSES, S.E.A.D

Actively search for and engage targets capable of attacking aircraft. These include SAM, SAL and ODS threat systems.

COMBAT AIR PATROL, C.A.P

Search for hostile air and radar units in the vicinity of the waypoint.

ESCORT (Requires a valid target)

Protect the assigned target craft from hostile attacks. Stay as close as possible to the escorted craft and do not engage any craft which does not pose an immediate threat to the escorted craft.

DEFEND (Requires a valid target)

Similar to the escort order but do not leave the current region if the target being defended leaves the region. Do not engage threats which are firing on the target you are defending.

MINESWEEP

Destroy any and all detected hostile mines in the region.

REPEAT ACTIONS

Repeat the entire pattern of waypoint orders beginning with the first waypoint.

WAIT FOR INSTRUCTIONS

Halt at this waypoint location and await further orders.

HALT

Halt at this waypoint location, await further orders while maintaining radio silence.

LAND

Land at this waypoint and await further orders.

8:   DOCKING OPERATIONS

You can dock at starstations or with any of the primary carriers (e.g. GCV-Excalibur) in your battle fleet.

To dock, select the target in the TRS, fly within 10km, then press **CTRL+D**. If clearance is granted, your ship will automatically dock.
REPAIRS

When you dock at a station or carrier, you will have the option of repairing or rearming your fighter via the LOGISTIX computer.

To repair your fighter, press the CRAFTS button to see the status of your fighter's systems.

Green	:	System is operational or has very little damage
Yellow	:	System has minor damage and can be repaired or replaced
Red	:	System is destroyed and can only be replaced
Cyan	:	System is undergoing repairs
White	:	Repairs suspended

To repair and refuel your fighter, press the REPAIRS tab. The engineers will then perform the operation as best they can. Sometimes, some repairs cannot be performed. In which case you have to either keep trying or launch and try again later.

REARMING

To rearm your fighter, click on the WEAPON tab, then click on the desired missile in the list to select it. Once selected, you can then use the up and down arrow keys to rearm the craft to the max number of weapons allowed. Your fighter can only carry a total of ten missiles.

UNDOCKING

To exit the computer and launch from the station or carrier, move your mouse over the **LOGISTIX** button and **LOG OFF**.

9:   ENGAGING THE ENEMY

LOCATING & SELECTING TARGETS

You can select targets in the Tactical Radar Scanner (TRS) using either the mouse or the keyboard. The target box is display when a target is selected. The color of this box depends on the alliance of the target where Red is hostile, Green is friendly and Blue is neutral.

If the target is within the field of view, its name, race, and caste is displayed below the box.

The target's integrity is at the top and its shield and armor are displayed on the left and right sides of the box respectively. During combat the integrity, shield, and armor levels are updated as the target takes damage or recharges its shields.

You can also select navigation targets in the Navigation Information Display (NID) computer. This changes the target box color to Blue.

If the target is within the field of view, its name is displayed below the box and your approximate range to it is displayed at the top of the box.

When a target is selected, a Target Locator Line (TLL) which is the same color as the current target box, will appear. If the target box goes outside the field of view, the TLL and BREAK X symbols are displayed. The target box then changes to a thicker box pegged to the edges of the HUD.

A flashing X is superimposed over the box indicating that it does not reflect the position of the target and that the target box does not have a valid target.

When the target is behind the craft, the TLL/BREAK X symbolism flashes rapidly.

At the end of the TLL is a Target Lead Designator (TLD) which resembles a small dotted box. This indicator attempts to predict where the current target will be in the next few seconds. This is where the target is calculated to be by the time the fired shot reaches it if you were to fire at the box. The TLD box will go from Green to Red if the target is predicted to exceed the firing range of your guns. When dog fighting, try to fire at this box or near it when it is Green to increase your chances of hitting the target; this is called leading the target.

PRIORITY LIST VIEWER (PLV)

When you prioritize the current by pressing **P** or via the TACOPS computer, it is added to a priority list which can be called up at any time using the **TAB** key which then displays the contents of the list with color coded entries.

Pressing the **TAB** key will cycle through the items in the list and if the key is not pressed for four seconds, the list will disappear.

When the list is displayed, if you currently have a target selected, it will be displayed as the first entry in the list. Once a target is selected from the list, it then becomes the current target and target related operations such as **F10** (view), **ESC** (the Team Orders Menu) can then be used.

Units that are part of your squadron or which are assigned by mission control to escort you (thus becoming a part of your wing) are automatically added to the priority list.

You can also designate a specific target for an order by selecting the target and pressing **D**. Once this target is designated, you can, for example, give one of your wingmen an order (e.g. attack) directed at the target.

USING MISSILES

When a missile is armed, a circular reticule is displayed in the HUD center. The diameter of this Missile Targeting Reticle (MTR) is dependent on the range of the currently selected missile. The larger the diameter of the reticule, the greater the range of the missile. The maximum range is pegged at 1100 km. The actual diameter should be used only as a guide to the weapon range.

If the selected weapon is the wrong type (such as an ATA missile selected in space), the reticule will change to Red and will flash continuously indicating that the weapon cannot be fired.

A triangular target pointer indicates target range on the reticule that moves around the outer edge of the reticule clockwise from the top as range increases. The complete circumference of the circle represents a range of 1100 km. If the range is greater than this, the pointer pegs at the top and starts to flash.

The reticule has two tick marks on its circumference that represent clockwise respectively the minimum and maximum lock range of the current weapon. The goal is to get the target pointer between these two marks for a valid lock.

It is also assumed that the chance of a missile hit is best if the pointer is exactly midway around the circle between the minimum and maximum marks.

When a missile is armed, its radar system will start to scan for a valid target as the Missile Tracking Designator (MTD) - a diamond symbol - starts moving around the display. During this search, the missile's lock indicator will be set to SCAN mode and displayed in the HUD.

Once the weapons computer verifies that the current target is valid, the tracking designator will be inside the target box and the missile's lock indicator will change to TRACK.

As soon as the target comes within the valid range of the currently armed missile, the missile's lock indicator will change to LOCK indicating that you can now launch the missile.

If the target is a friendly or an invalid target, a flashing BREAK X symbol will be displayed in the target box.

USING GUNS

When the laser gun is fired, it must recharge fully before it can fire again. If your guns (LAS indicator in VDD/SSR mode) and/or weapon systems (WEP in VDD/SSR mode) are damaged, the recharge rate will also be slower and the gun will be less effective until repaired.
The maximum range of the gun takes into account the size of both your fighter and the target. e.g. if a station is 10km long and a carrier is 1km, and the centers are 20km apart, the max firing range is 20-10-1 = 9km (9.0km range shown in TRS).

10: SQUAD COMMAND

As leader of your flight group, you have several wingmen under your control. You can send them basic orders during combat engagements using various tools.

TEAM ORDERS MENU (TOM)

To use the TOM, do the following:

1. Select a target (e.g. one of your wing men) either in the TRS or the PLV
2. Press **ESC** to display the TOM
3. You can now either follow the next step or use **.** and **,** target cycle keys to pick a target
4. Select a key (**F1-F8**) corresponding to the order you wish to send and the target will attempt to carry it out. Some invalid orders will be unavailable.

F1	ESCORT/DEFEND ME
F2	ESCORT/DEFEND MY TARGET
F3	ENGAGE/ATTACK MY ATTACK
F4	S.A.D
F5	S.E.A.D
F6	C.A.P
F7	HALT
F8	RETURN TO BASE

If an order (e.g. F2) requires a target object, that target object is defined as the last designated target (using **D**).

The orders menu indicates, by name, the object receiving the order and the second (previously designated) target (if any). So if you have a target you would like to be engaged or defended, you would first designate it, then activate the TOM to send the order to the unit you wish to instruct to carry out the order.

If the target cannot accept orders, the TOM instructs you to cancel the directive. If there is no current target, then activating the TOM displays a warning message.

When using the target cycle keys in the menu, the current target filter in the NID and TRS are active. For example, if the TRS was set to fighters , you will only be able to cycle through friendly fighters which you can command.

The target box for targets you can give orders to, will be of a higher intensity color than normal.

11: MULTIPLAYER

Multiplayer is disabled and no longer supported v2.11.08 (Oct 2017). See KB80 article for more info.

12: GAME OPTIONS

These options control various aspects of the game. Unless you know what you are doing, you are advised to not tamper with the default settings.
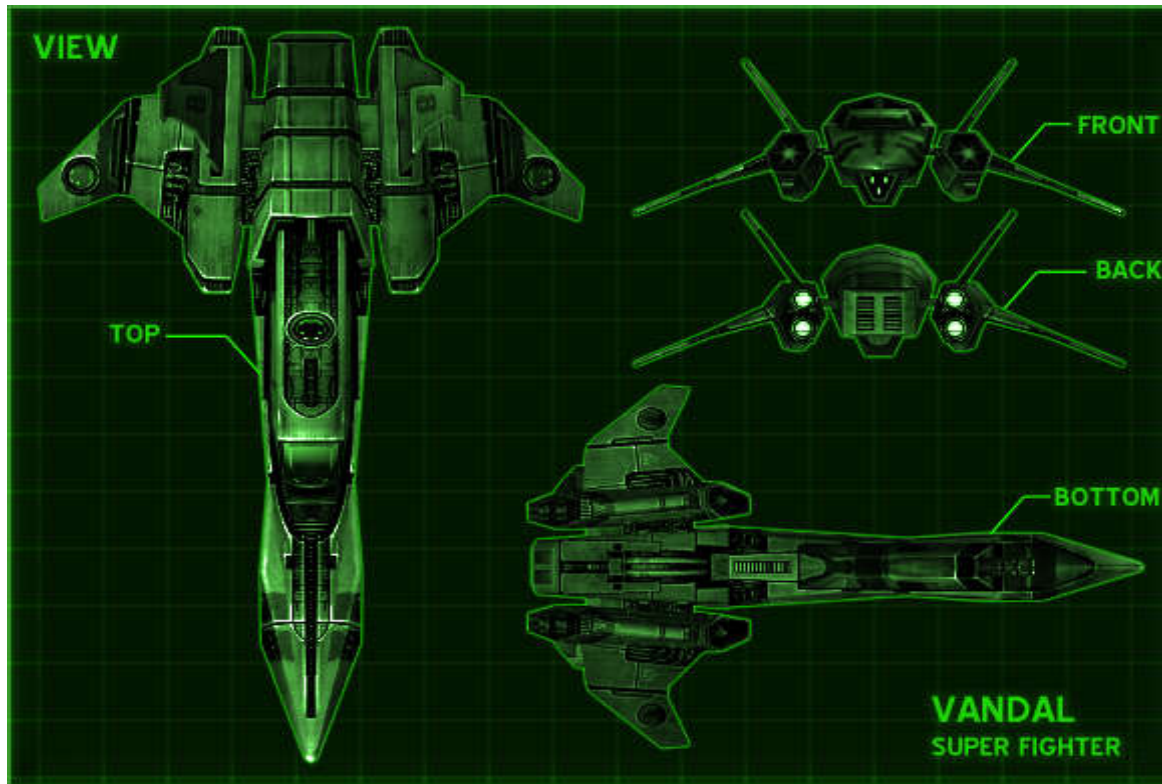
If you do make changes and you wish to revert to original default values, quit the game completely.

Then delete the GAME_CONFIG.INI file located in the game install folder. When you restart the game a new one with default settings will be created.

When you have finished making your selection, press the SAVE button and EXIT to quit back to the main menu or to the game (if you had a game in progress).

VANDAL SUPER FIGHTER
SPECIFICATIONS

HEIGHT	3.19m	WIDTH	9.33m
LENGTH	14.13m	LOW SPEED	150m/s
CRUISE SPEED	350m/s	HIGH SPEED	710m/s
PITCH/ROLL/YAW RATINGS	22/24/18 degrees/s	MAX RADAR RANGE	50km
SHIELD RATING	300	ARMOR RATING	500
HYPERDRIVE RECHARGE TIME	30 seconds	HYPERSPACE JUMP TRANSIT TIME	30 seconds
GUNS	03	GUN SHOT RATING	55 units/shot
GUN SHOT MAX RANGE	15.75km	GUN SHOT EFFECTIVE RNG	10.50km
GUN SHOT SPEED	1.5m/s	GUN SHOT RATING	24 shots/sec
GUN CHARGE TIME	125ms		

STARLANCE MEDIUM FIGHTER
SPECIFICATIONS
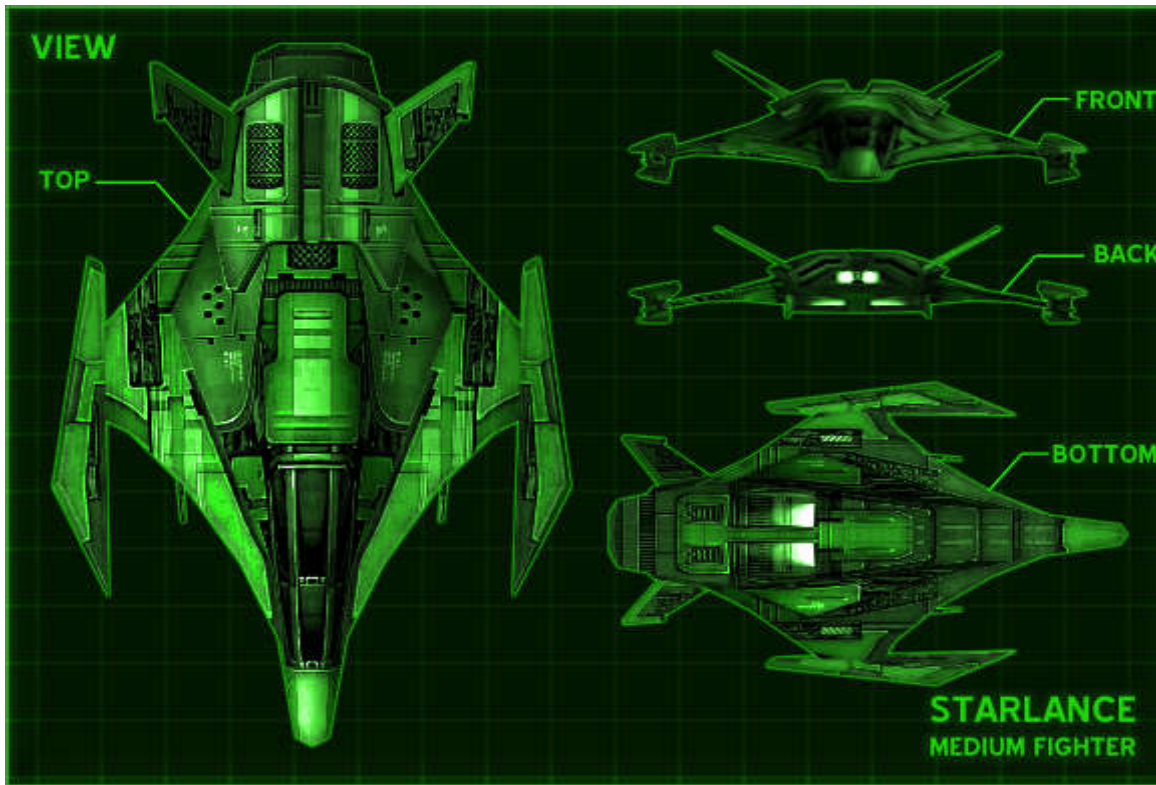
HEIGHT	1.89m	WIDTH	8.05m
LENGTH	12.23m	LOW SPEED	125m/s
CRUISE SPEED	255m/s	HIGH SPEED	575m/s
PITCH/ROLL/YAW RATINGS	18/22/20 degrees/s	MAX RADAR RANGE	50km
SHIELD RATING	225	ARMOR RATING	275
HYPERDRIVE RECHARGE TIME	18 seconds	HYPERSPACE JUMP TRANSIT TIME	07 seconds
GUNS	02	GUN SHOT RATING	25 units/shot
GUN SHOT MAX RANGE	10km	GUN SHOT EFFECTIVE RNG	6.67km
GUN SHOT SPEED	750m/s	GUN SHOT RATING	20 shots/sec
GUN CHARGE TIME	100ms		

INTERCEPTOR MK1 HEAVY FIGHTER
SPECIFICATIONS
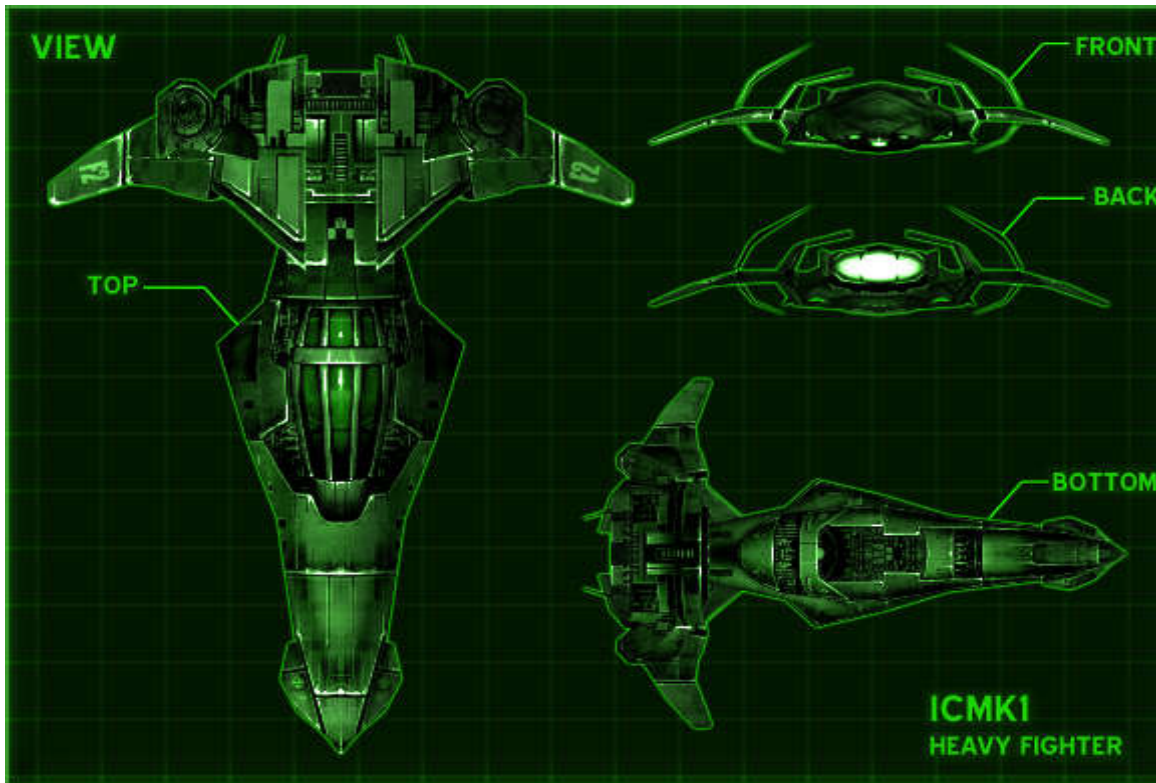
HEIGHT	2.35m	WIDTH	8.65m
LENGTH	11.98m	LOW SPEED	105m/s
CRUISE SPEED	305m/s	HIGH SPEED	650m/s
PITCH/ROLL/YAW RATINGS	22/30/28 degrees/s	MAX RADAR RANGE	75km
SHIELD RATING	200	ARMOR RATING	200
HYPERDRIVE RECHARGE TIME	20 seconds	HYPERSPACE JUMP TRANSIT TIME	15 seconds
GUNS	02	GUN SHOT RATING	45 units/shot
GUN SHOT MAX RANGE	10km	GUN SHOT EFFECTIVE RNG	6.67km
GUN SHOT SPEED	1.5m/s	GUN SHOT RATING	16 shots/sec
GUN CHARGE TIME	125ms		

STARMONK LIGHT FIGHTER
SPECIFICATIONS
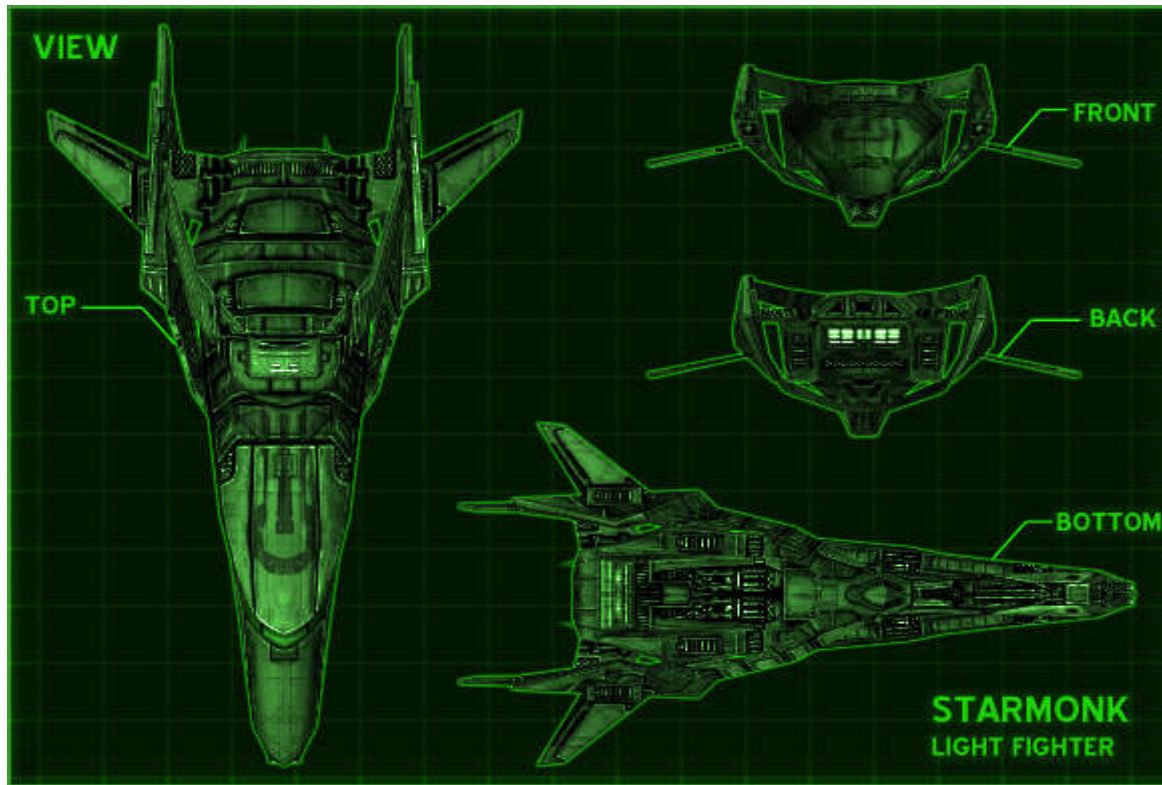
HEIGHT	2.18m	WIDTH	7.32m
LENGTH	12.87m	LOW SPEED	125m/s
CRUISE SPEED	225m/s	HIGH SPEED	725m/s
PITCH/ROLL/YAW RATINGS	30/32/28 degrees/s	MAX RADAR RANGE	50km
SHIELD RATING	225	ARMOR RATING	225
HYPERDRIVE RECHARGE TIME	6.5 seconds	HYPERSPACE JUMP TRANSIT TIME	3.5 seconds
GUNS	02	GUN SHOT RATING	35 units/shot
GUN SHOT MAX RANGE	6.5km	GUN SHOT EFFECTIVE RNG	4.33km
GUN SHOT SPEED	1.5m/s	GUN SHOT RATING	20 shots/sec
GUN CHARGE TIME	100ms		

AURORA MEDIUM FIGHTER
SPECIFICATIONS
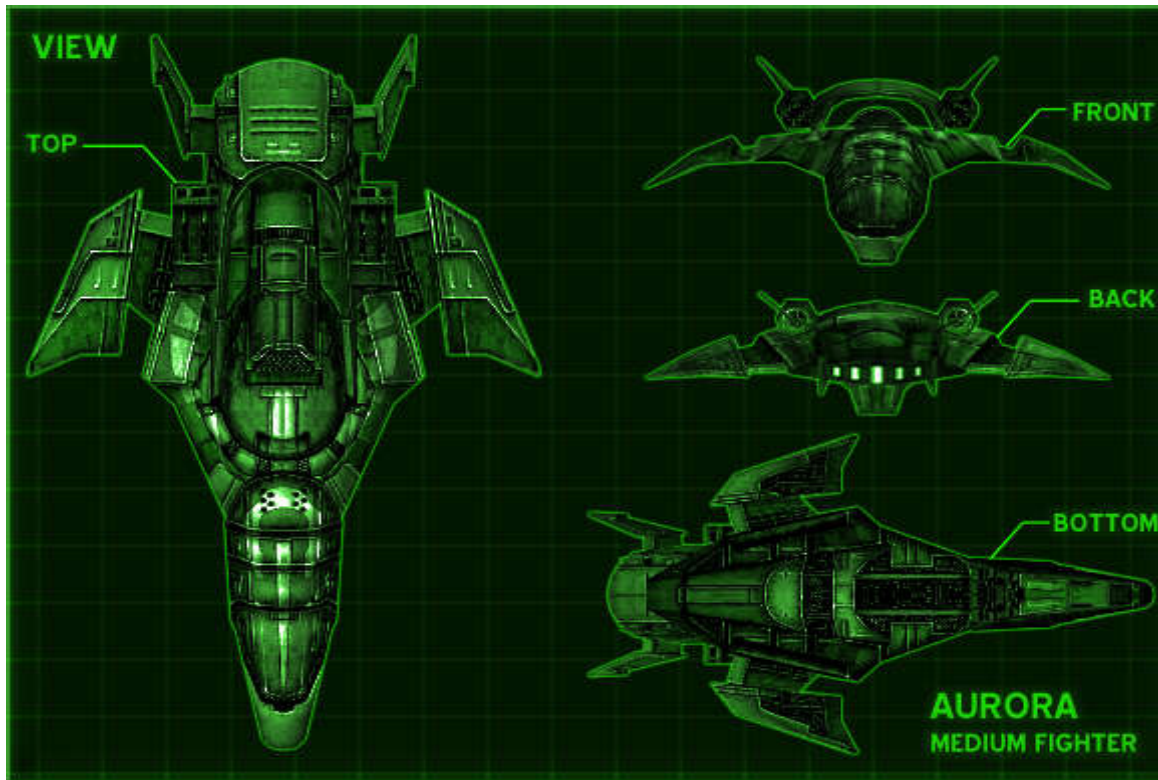
HEIGHT	3.46m	WIDTH	9.15m
LENGTH	14.37m	LOW SPEED	125m/s
CRUISE SPEED	250m/s	HIGH SPEED	610m/s
PITCH/ROLL/YAW RATINGS	22/25/24 degrees/s	MAX RADAR RANGE	50km
SHIELD RATING	250	ARMOR RATING	325
HYPERDRIVE RECHARGE TIME	16.5 seconds	HYPERSPACE JUMP TRANSIT TIME	8.5 seconds
GUNS	02	GUN SHOT RATING	35 units/shot
GUN SHOT MAX RANGE	6.5km	GUN SHOT EFFECTIVE RNG	4.33km
GUN SHOT SPEED	1.5m/s	GUN SHOT RATING	20 shots/sec
GUN CHARGE TIME	100ms		

MISSILE ARMAMENTS
SPECIFICATIONS

Your fighter can be fitted with a myriad of weapons in three different classes (see chart) depending on the target and environment. For example, in space, only Space-To-Space (STS) missiles will work. On a planet, Air-To-Air (ATA) missiles are for airborne targets, while Air-To-Surface (ATS) missiles are for ground based targets.

All missiles have a variety of configurations and characteristics. For example, the higher the blast energy of the missile, the more damage it will cause when it detonates.

Some missiles (e.g. STS-Perseus) also have video cameras which are immediately activated in the right MFD display upon launch. These cameras give you a view of what the missile is seeing during its flight to the target.

Choosing the right missile is vital to the success of a mission. You can dock with a friendly station or one of your battle fleet carriers (e.g. GCV-Excalibur) at any time to change and/or replenish your missiles.

At the start of your assigned scenario, you can dock with either GCV-Excalibur, GCV-Merlin or a nearby friendly station and change your missile loadout.
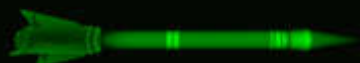
MISSILES

ATA MISSILES — (Air To Air)
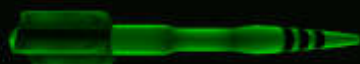
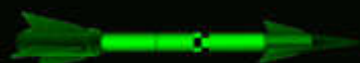|	MIN LNCH RNG (km)	MAX LNCH RNG (km)	MIN LNCH ALT (ft)	MAX LNCH ALT (ft)	GUIDANCE LOGIC	BLAST ENERGY	LOCK TIME (seconds)		
ATA-CLUSTER	1	35	100	25000	ATL	100	2.5	5.0	100/180/45
ATA-MAGELLAN	1	50	100	25000	ATL	125	2.0	5.0	75/120/45
ATA-MARINER	1	50	100	25000	ATL/V	150	2.5	4.0	75/100/45
ATA-WARRIOR	1	35	100	25000	ATL/V	200	2.5	3.5	100/120/45
ATA-PILGRIM	1	65	100	25000	CTL	150	3.0	3.5	100/130/45
ATA-SEEKER	1	50	100	25000	CTL	225	2.5	3.5	75/120/45

ATS MISSILES — (Air To Surface)

	MIN LNCH RNG (km)	MAX LNCH RNG (km)	MIN LNCH ALT (ft)	MAX LNCH ALT (ft)	GUIDANCE LOGIC	BLAST ENERGY	LOCK TIME (seconds)		
ATS-SPYDER	1.5	25	100	20000	ATL	235	2.0	2.5	100/120/45
ATS-LYNX	1.5	35	100	8500	ATL	250	3.0	5.0	105/120/45
ATS-MAVERICK	1.5	50	100	10000	ATL/V	275	4.0	5.0	100/120/45
ATS-HARPOON	1.5	75	100	12500	ATL/V	300	5.0	5.0	120/140/45
ATS-GAINER	1.5	50	100	10000	ATL	375	3.5	5.0	180/120/145
ATS-HYPERDYNE	1.5	85	100	5000	ATL/V	350	4.5	2.5	120/150/45

STS MISSILES — (Space to Space Missiles)

	MIN LNCH RNG (km)	MAX LNCH RNG (km)	MIN LNCH ALT (ft)	MAX LNCH ALT (ft)	GUIDANCE LOGIC	BLAST ENERGY	LOCK TIME (seconds)		
STS-VAGRANT	1	15	N/A	N/A	ATL/V	200	3.5	5.0	105/120/45
STS-PERSEUS	1	25	N/A	N/A	ATL/V	125	1.25	5.0	96/120/45
STS-QUESTOR	1	35	N/A	N/A	ATL/V	150	1.5	5.0	72/120/45
STS-STARFLASH	1	50	N/A	N/A	CTL	75	1.25	5.0	100/120/45
STS-STARSEEKER	1	50	N/A	N/A	CTL	100	1.5	5.0	96/120/45
STS-FIRESTAR	1	35	N/A	N/A	ATL	125	1.5	5.0	100/120/45
STS-STARCHILD	1	55	N/A	N/A	ATL	125	2.5	5.0	105/120/45
STS-RALIX	1	20	N/A	N/A	ATL/V	175	2.5	5.0	105/120/45
STS-ANALOG	1	35	N/A	N/A	CTL	100	1.5	5.0	96/120/45

STARSTATION LOCATIONS

There are several starbases and starstations located all over the galaxy. This list only shows the ones in the Terran Quadrant, your primary theatre of operations. You will discover many more as you play the GALCOM series of games and the game galaxy opens up to you fleet's on-going operations.

Each TYPE indicates the design and capabilities of the station. The RACE/CASTE determines its affiliation. e.g. You cannot dock at a TERRAN/INSURGENT station because they are hostile.

NAME	TYPE	RACE	CASTE	LOCATION (space region / star system)
GALCOMHQ	TYPE 0	TERRAN	MILITARY	EARTH/SOL
GENESIS	TYPE10	TERRAN	MILITARY	VENUS/SOL
STARPATH	TYPE 3	TERRAN	MILITARY	MARS/SOL
GAZER1	TYPE 2	TERRAN	SCIENTIST	PLUTO/SOL
ISS	TYPE 1	TERRAN	MILITARY	TITAN/SOL
EARTHSTAR	TYPE 5	TERRAN	EARTHCOM	EUROPA/SOL
DESTINY	TYPE 12	TERRAN	INSURGENT	NEVUELA/ALPHA CENTAURI
CENTAURI	TYPE 1	EMPIRIAN	MILITARY	CRONUS/ALPHA CENTAURI
ALERI	TYPE 8	EMPIRIAN	MILITARY	TRAMIS/ALPHA CENTAURI
ORION	TYPE 7	TERRAN	MILITARY	CENTRIS/ALPHA CENTAURI
SYGANSTAR	TYPE 9	TERRAN	INSURGENT	SYGAN/BARNARD'S STAR
IDAN	TYPE 8	TERRAN	INSURGENT	ZILON/BARNARD'S STAR
BOREALIS	TYPE 4	TERRAN	INSURGENT	LENNEN/SIRIUS
WRAITH	TYPE 7	TERRAN	MILITARY	LYRIUS/SYRIUS
ERIDANI	TYPE 6	VESPERON	MILITARY	CANAAN/OMICRON ERIDANI
RAMIX	TYPE 1	VESPERON	MILITARY	RAMIS/OMICRON ERIDANI
NEW AMERICA	TYPE 13	TERRAN	INSURGENT	MIDAE/OMICRON ERIDANI
DARKSTAR	TYPE 2	TERRAN	INSURGENT	ARIMA/TAU CETI
QUANTICON	TYPE 11	TERRAN	INSURGENT	EORI/TAU CETI
CENTRON	TYPE 2	MIXED	TRADER	POLARIS-1/POLARIS
VELARI	TYPE 6	TERRAN	MILITARY	POLARIS-2/POLARIS
PROCYON	TYPE 4	MIXED	TRADER	ACTIS-IV/PROCYON
PROCIN	TYPE 10	MIXED	SCIENTIST	ACTIS-V/PROCYON

STARBASE LOCATIONS

NAME	TYPE	RACE	CASTE	LOCATION (planet / mission zone)
VITANA	TYPE 2	TERRAN	MILITARY	EARTH / EARTH02
WARCLAW	TYPE 4	TERRAN	MILITARY	EARTH / EARTH04
STORMCLOUD	TYPE 5	TERRAN	MILITARY	EARTH / EARTH06
HADLEY	TYPE 6	TERRAN	MILITARY	EARTH / EARTH01
HELLSTORM	TYPE 1	TERRAN	MILITARY	EARTH / EARTH03
WILDCARD	TYPE 3	TERRAN	MILITARY	EARTH / EARTH05
PATHFINDER	TYPE 1	TERRAN	INSURGENT	EARTH / EARTH01
LANDSHARK	TYPE 2	TERRAN	INSURGENT	EARTH / EARTH04
BROKENWING	TYPE 3	TERRAN	INSURGENT	EARTH / EARTH02
STARBORNE	TYPE 4	TERRAN	INSURGENT	EARTH / EARTH06
INDEPENDENCE	TYPE 5	TERRAN	INSURGENT	EARTH / EARTH03
FREEDOM	TYPE 6	TERRAN	INSURGENT	EARTH / EARTH05

CREDITS

Designer, Producer, Project Manager, Lead Developer, Chief Technology Officer, Core Development, AI, Program Documentation, QA

Derek K. Smart, Ph.D.

Additional Programming Development

Sergio Gil
Nick Vining
Martin Piper   (Replica Software)

Lead 2D/3D Art Director

Joerg "Fritz" Ecker

Additional 2D/3D Art Assets

Joerg "Fritz" Ecker
Digital Dreamers
Jeff Smith

Scenario Storyboard & Scenario Scripting

Derek K. Smart, Ph.D.
Darren Pearce

Digital Soundfx & Voice Over Engineering

Somatone, Inc.

Musical Scores

Soundrama, Inc.

Professional Voice Actors

Adam Harrington
Carina Harman
Chuck Kourouklis
Doug Boyd
Gina Tuosto
Owen Thomas

== THE END ==