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Order the Retail version of Stars! now!

Getting Started and other General Playing Info REGISTER!

One to 16 people can play Stars! using one computer or a local area network, or by transferring files using a modem, FTP or E-mail for BBS or other types of play where the host is at a remote site. These topics introduce you to the game and help you set up and manage your preferred style of play.

General Info and Player Support

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Setting Up the Game and Beginning Play

You can play Stars! alone against one or more AI (computer) players, against other human players or a mix of human and AI players, on a single machine, a network, over a modem, email or bulletin board.

[Starting a Single Player Game](#)

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The Stars! Screen   REGISTER!

Understanding the Stars! screen layout and controls. The screen is divided into four panes:

Command pane

Where you assign orders to your fleets and planets. The pane displays data and controls for the either the currently selected fleet or the currently selected planet.

Commanding a Planet
Commanding a Fleet

Scanner pane

Your view of the universe. You can assign fleet routes and view different types of planet and fleet information. The toolbar above the panes controls your view of the Scanner.

Messages pane

View and filter messages reporting events and conditions within your empire. Send messages to other players and read their replies.

Selection Summary pane

This pane displays summaries of what you know about the object selected in the Scanner pane.

Read about manipulating the Stars! screen:

Changing the Basic Layout
Shrinking and Growing Panes
Moving and Collapsing Tiles

Command Reference   REGISTER!

This section is a reference to all Stars! menu commands, dialogs and displays.

Menu Commands

The Stars! Command Menu   File   View   Turn   Commands   Report   Help

Dialogs and Displays

Dialogs

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Battle Plans   New Game

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How To... REGISTER!

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View Enemy Ship Designs

Playing Stars! REGISTER!

How to build your empire, win your wars, and take out the trash.

Popup Help

When moved over certain parts of the Stars! screen, the normal cursor changes into a help cursor. Point the arrow at an item and left-click to see popup help and technical details. You can also left-click on blue diamonds to display popup help on the commands accessed through the diamonds (cursor stays normal).

Major Elements of Play

Planets	Patrolling
Production	Combat
Research	Transport
Scanners	Managing Fleets
Ship Design	Navigation
Mining	Diplomacy
Colonization	

The Guts

Here's rule-based information for advanced players.

[Data Tables](#)

[The Guts of Combat](#)

[The Guts of Minefields](#)

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The Guts of Combat

Here's some information to help you understand the behavior of fleets in battle. You may find it useful in planning battle strategies. It may also satisfy your drive to collect Stars! military trivia.

About the Battle Board

Armor, Shields and Damage

Damage Repair

Weapons and Battle Devices

Movement, Initiative and Firing in Battle

About the Battle Board

The battle board is the grid you see in the Battle VCR. The fleets are distributed on the board as tokens. Each token is a stack of identical ships from a single fleet. The individual tokens move around the board targeting enemy tokens, following the tactics specified in their battle plan. Each location can contain any number of tokens.

Battles last up to 16 rounds. One round of battle is each token getting a chance to move and fire. A round is broken into phases, where one phase is a single token moving or firing.

Each round has three parts:

◆ First, all tokens target an enemy token that best meets their battle plan criteria.

◆ Second, all ships move, in order from heaviest to lightest. Ships' weights are randomly adjusted by up to 15% each turn, giving   ships that are nearly identical a chance to alternate going first. All ships that can move three squares this round move one square first, then all ships that can move two squares move one square, then all ships that can move at least one square move a square.

◆ Third, weapons fire, in order from highest initiative to lowest.

Armor, Shields and Damage

Read this section with the section on Weapon Properties for a fuller understanding of how armor, shields and specific weapon types interact in Stars!.

Armor and Shields

Hulls have a base armor value. Additional armor is added to this value.

Shields will take damage and fail before enemy weapons attack your armor.   In a token, the shields overlap. For example, if your fleet has 20 scouts with shields valued at 20 each, you have a pool of 400 shields points that must be destroyed before the armor on any of those ships is damaged--unless your opponent is using torpedoes. Torpedoes damage both shields and armor, taking shield points and armor points from the token with each successful attack.

Shields are at full strength at the start of each battle. This means if you leave a battle one turn and enter a battle the next turn, your shields will be back at full strength. If you have the Regenerating Shields lesser racial trait then your shields will regenerate 10% of their base value at the start of every round.

If you are using beam weapons and the damage your token can inflict on an enemy's token is more than enough to destroy the enemy token, the remainder is used on additional enemy tokens in the same location, limited only by the number of ships in the attacking token. For example, one token does a total of 1000 dp of beam weapon damage. The primary target is destroyed after taking 500 damage. If there are 10 other tokens at the same location, each consisting of a single ship with 150 dp of armor 3 of them would be destroyed and one would take 33% damage.   If those 10 tokens had been a single token of 10 ships they would have still lost 3 ships but each of the remaining 7 ships would have taken less than 5% damage. If the ships had 100 dp armor and 50 dp shields each, then stacked together the shields would have absorbed all 500dp and no ships would have been lost. No combination of shields and armor would have saved those 3 ships with each ship in a separate token.

Damage

Damage is applied as follows: If the damage applied to a token's armor exceeds the remaining armor of one or more of the ships in the token, then those ships are destroyed. Any remaining damage is spread over the ENTIRE token, with the damage being divided up equally among the remaining ships.

A separate damage value is stored for each token in the battle. Stars! stores the percentage of ships in the token that are damaged, along with the percentage of damage to each ship.

Damage is displayed as C @ P%, where C is the count of damaged tokens in a fleet and P is the percentage of damage inflicted. For example, 10@33% says that 10 tokens are 1/3rd damaged.

For the type of damage inflicted by beam weapons and torpedoes, read about Weapons and Battle Devices.

Weapons and Battle Devices

Read this section with the section on <u>Armor, Shields and Damage</u> for a fuller understanding of how armor, shields and specific weapon types interact in Stars!.

Weapons and Starbases

All weapons mounted on Starbases get a +1 added to their range.

Beam Weapons

Beam weapons always hit their target, but decay in strength at a rate of 10% pro-rated over their maximum range. For example, a weapon that will do 100 dp to a target in the same square and has a maximum range of 3 will only do 94 dp to a target two squares away. All damage from beam weapons is applied to shields first. Any damage not absorbed by the shields is applied to armor.

If an attacking token has more than one ship and its beam weapon strike destroys the target token, then the remaining damage is applied to other tokens in the same square. The maximum number of tokens targeted is the number of ships in the attacking token.

The following beam weapon information is provided for comparison purposes. See the Beam Weapons section of the Technology browser for the exact statistics of a specific weapon.

Normal Beam Weapons

Damage: From 10 to 430 damage points
Range: From 1 to 3 squares
Initiative: From 6 to 11

Range 0 Weapons

Damage: From 90 to 600 damage points
Range: Same square only
Initiative: 12

Gattling Weapons

Damage: From 11 to 200 damage points
Range: 1 square
Initiative: 5

In spite of having short range and the lowest of all beam weapon initiative values these are extremely powerful weapons that hit every enemy token in their range each time they fire. They also <u>sweep minefields</u> as if they were range 4 weapons (see **Minesweeping** below).

Shield Busters

Damage: From 80 to 540 damage points
Range: 2
Initiative: 14

These medium range weapons are very powerful but are only useful against shields. They have no effect on armor. They do have a higher initiative than any other weapon. This means that they will take out the enemy shields before your other weapons fire.

Minesweeping

Each beam weapon automatically sweep up to (Damage x Range x Range) mines per year.

Torpedoes

Each torpedo fired has a chance of missing.   For example: If a token has two ships, each with a weapon slot holding 2 normal torpedoes, then a single shot fires all 4 torpedoes. Each torpedo has a chance to hit or miss according to its accuracy value. Normal torpedoes have an accuracy of 75%, which means that it is likely that 3 of the 4 torpedoes

would hit.

Torpedoes that hit their primary target apply half of their damage directly to the armor of the target token. The other half of the damage is applied to the shields. Any damage that isn't absorbed by the shields is applied to the armor.

The maximum number of ships that can be killed by a torpedo strike is the number of torpedoes that hit. So in the preceding example the strike can kill up to 3 ships. If the target token has one ship in it and the hits caused more damage than was necessary to destroy it, then the damage is applied to other tokens in the same square. This type of damage is applied first to the shields; any damage not absorbed by the shields is applied to the armor. In no case can the number of ships destroyed exceed the number of torpedoes that hit.

Torpedoes that miss do collateral damage to the target token only. Collateral damage is 1/8th of the normal damage of the torpedo and works much like a "Shield Buster" beam weapon. In other words it only affects shields.

Torpedo accuracy can be improved using Battle Computers. Jammers can decrease the accuracy of enemy torpedoes.

The following torpedo information is provided for comparison purposes. See the Torpedoes section of the Technology browser for the exact statistics of a specific weapon.

Normal Torpedoes

Damage: From 5 to 300 damage points
Range: From 3 to 5 squares
Initiative: from 0 to 3
Accuracy: 75%

Capital Ship Missiles

Damage: From 60 to 460 damage points
Range: From 5 or 6 squares
Initiative: From 0 to 3
Accuracy: 25%

These powerful torpedoes do more damage than normal torpedoes and have a longer range than any other weapon. Due to the poor accuracy and the fact that a single torpedo can take out at most one enemy ship, these missiles are best mounted on starbases and battleships with a lot of Battle Computers. Their ideal use is against large ships and starbases.

Jammers

Jammers decrease torpedo accuracy. The Jammer 10 and 50 are available to Inner Strength players only. Jammer strength is additive. For example, a ship with three 20% Jammers reduces a normal torpedo's 75% accuracy by 20% three times:

75 x .8 x .8 x .8 = 38% torpedo accuracy

See the Electrical section of the Technology Browser for a descriptions of each Jammer.

Battle Computers

These devices increase the initiative of all weapons on the ship. The three different devices range from +1 to +3 initiative. They also decrease torpedo inaccuracy by 20 to 50%.

Decreasing the inaccuracy of a torpedo by a percentage is not the same as increasing the accuracy by that percentage. As torpedo accuracy becomes higher it becomes harder to improve it.

Computing the effect of a battle computer:

- **Example 1:** A normal 75% accurate torpedo fired using a   50% battle computer.

   Incorrect calculation: 75% x 1.5 = 112% accuracy.

   Correct calculation: 100 - ((100 - 75) x .5) = 88% accuracy.

- **Example 2:** A normal torpedo's 75% accuracy is modified by two 30% battle computers by decreasing its inaccuracy 30% twice. 100 - ((100 - 75) x .7 x .7) = %88 torpedo accuracy.

If the attacking token has battle computers and the target has jammers the devices cancel each other out on a 1% to 1% basis.

Examples:

◆ Target token has Jammers totaling a 50% decrease in accuracy. Attacker's battle computers add up to a 45% decrease in inaccuracy. Result: 5% decrease in accuracy.

◆ Target token has Jammers totaling a 30% decrease in accuracy. Attacker's battle computers add up to a 40% decrease in inaccuracy. Result: 10% decrease in inaccuracy.

Energy Dampener

This device slows down ALL ships in the entire battle board by 1 square of movement per round, for the duration of the battle. This is true even if the ship carrying the Dampener is destroyed before the end of the battle (the device has a lasting affect). The effect is not additive, so there is no advantage or penalty for having more than one Dampener in a battle.

Capacitors

Increase the damage caused by all beam weapons on board by a percentage. Capacitor values run from 10% to 20%. The maximum additional percentage increase in damage caused by multiple capacitors is 250%.

Example:

A ship has a beam weapon capable of 100 damage and three 10% capacitors.

100dp x 1.1 x 1.1 x 1.1 = 133dp

Damage Repair

If after a battle your fleet has one or more ship types listed in red in the Fleet Composition tile, then you have taken damage. Click on a red ship name to display how much damage has been done.

Ship repair restores the armor value, at an annual percentage based on the ship's location:

Ship location	Annual rate
Moving through space.	1%
Stopped in space.	2%
Orbiting but not bombing an opponent's planet.	3%
Orbiting a planet you own, with a space dock.	20%
Orbiting a planet you own, with a starbase but not a space dock.	8%
Orbiting a planet you own that doesn't have a starbase:	5%
Orbiting a planet you're bombing.	no repair
Stopped or orbiting, with at least one Fuel Transport hull in the fleet.	additional 5%
Stopped or orbiting, with at least one Super Fuel Xport hull in the fleet.	additional 10%

For example, a ship with a base of 25 damage points (dp) plus armor with a value of 75 dp has a maximum armor value of 100 dp. It takes 10 dp of damage, it would take 2 years in deep space, or one year in orbit, to fully repair the armor.

If you're orbiting an opponent's planet and your fleet has Attack orders, repairs will not happen. Repairs also do not happen during the year a fleet is using a stargate.

During the years the starbase is under attack, the fleet will be repaired as if the starbase was not present.

Fuel Transport/XPort Hull Advantage

Notice that the table shows an advantage of using the Fuel Transport and Xport hulls: they repair other ships in the fleet, as well as collecting fuel. You only need one Fuel Transport hull in the fleet to gain the 5% increase in the repair rate, or one Super Fuel Xport to see a 10% increase. Adding extra Transport or Xport hulls doesn't increase the rate. And you always see the gain provided by the more advanced hull. Thus, if you have both Fuel Transport and Super Fuel Xport hulls in the same fleet, you gain only the 10% increase provided by the Super Fuel Xport hull.

Starbase Repair

For ordinary players, starbases are repaired at a rate of 10% a year. For players with the Inner Strength race trait, starbases are repaired at 15% a year.

Movement, Initiative and Firing in Battle

Movement

Movement ranges from 1 to 8 squares on the battle board. Movement is always between 1/2 and 2 1/2 squares per round.

The distance a ship can move per round is computed in 1/4 squares, using the following formula:

The Formula for Movement

Movement = (Ideal_Speed_of_Engine - 4) / 4 - weight / 70 / 4 / Num_Engines + 1/4 * Num_Maneuvering_Jets + 1/2 * Num_Overthrusters

Movement in Squares per Round

	Round							
Movement	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
½	1	0	1	0	1	0	1	0
¾	1	1	0	1	1	1	0	1
1	1	1	1	1	1	1	1	1
1 ¼	2	1	1	1	2	1	1	1
1 ½	2	1	2	1	2	1	2	1
1 ¾	2	2	1	2	2	2	1	2
2	2	2	2	2	2	2	2	2
2 ¼	3	2	2	2	3	2	2	2
2 ½	3	2	2	2	3	2	3	2

Order of Movement

Movement happens in three phases:

Phase 1: All tokens that can move 3 squares this round get to move 1 square.

Phase 2: All tokens that can move 2 or more squares this round get to move 1 square.

Phase 3: All tokens that can move this round get to move 1 square.

In each part tokens move in order from heaviest to lightest, with a margin of +/- 15%.

Each token attempts to find the best square to move into that matches the tactic they've been assigned. For example, you have selected Maximize Net Damage and have a ship with a combination of range 1 and 2 weapons. Your enemy has a ship with a combination of range 1 and 2 weapons also, but their range 1 weapons are much better than yours. You will stay at range 2 because that is where you will do the highest net damage.

Overthrusters, Maneuvering Jets and Movement

Multiple Overthrusters and Maneuvering Jets are additive. One Overthruster gives the token a speed bonus of 1/2 square of movement per round, with each extra Overthruster adding 1/2 square.

A Maneuvering Jet gives the token an extra 1/4 square of movement per round of battle, with each extra Jet adding 1/4 square.

Maximum movement is 2 1/2 squares per round, regardless of how many Overthrusters and Maneuvering Jets the design may have.

Firing

Faster tokens fire first, the slower tokens last, since the faster ships have the initiative. Weapons fire on a weapon slot-by-weapon slot basis, the shortest range weapons of a given initiative firing first. If the target token is destroyed, damage will stream over to other tokens in the same square. After the primary target is destroyed subsequent weapon slots can retarget on other squares within range.

Multiple weapon slots on the same ship can target different tokens in different squares.

Initiative

Initiative determines the *firing order* in battle. All ships have an innate hull initiative value, ranging from 0 to 15. Battle computers increase initiative by 1, 2 or 3 points. Firing initiative is the sum of the hull initiative, battle computers, race modifiers (if you're a War Monger) and the weapon's initiative.

Highest initiative fires first. If a ship has a base initiative of 11 and beam weapons with an initiative of 5 for a total initiative of 16, and a second ship has a base initiative of 14 and a torpedo weapon with an initiative of 3 for a total initiative of 17, the second ship fires first. If the torpedo ship also had a second weapon with an initiative of 1 then the torpedo would fire first, the other ship's beams would fire, followed by the torpedo ship's second weapon.

The Guts of Minefields

Types of Mines

Normal

Effect: Blows up.
Maximum safe speed: Warp 4
Damage/ship: 100 (125 for ramscoops) for each engine
Minimum fleet damage: 500 points (600 for ramscoops)
Probability of hitting one: 0.3% per light year traveled for each warp over the safe speed.
Example: A fleet traveling Warp 9 has a 1.5% chance per light year traveled in a turn. Traveling 10 light years through the minefield that turn, the fleet has a 10.5% chance of triggering a mine.

Heavy

Effect: Blows up.
Maximum safe speed: Warp 6
Damage/ship: 500 (600 for ramscoops)
Minimum fleet damage points: 2000 (2500 for ramscoops)
Probability of hitting one: 1% per light year traveled for each warp over the safe speed.
Example: A fleet traveling Warp 9 has a 3% chance per light year traveled in a turn. Traveling 10 light years through the minefield that turn, the fleet has a 30% chance of triggering a mine.

Speed Trap

Effect: Halts the fleet, does no damage.
Maximum safe speed: Warp 5
Damage/ship: none
Minimum fleet damage: none
Probability of hitting one: 3% per light year traveled for each warp over the safe speed.
Example: A fleet traveling Warp 9 has a 15% chance per light year traveled in a turn. Traveling 10 light years through the minefield that turn, the fleet is going to trigger a mine.

Detecting Minefields

Cloaked value of minefields:

Penetrating Scanners: 0%
Non-Penetrating Scanners: 82%

Conditions for detecting an opponent's minefield:

You can see both the center and radius of an opponent's minefields if:

◆   the center of the minefield is in range of your penetrating scanner, **OR**

◆   You have hit the minefield at least once and the center is in range of your normal scanners OR

◆   You are IN the mine field.

Ship Cloak Effectiveness in Minefields

When a ship is in a minefield, it's cloak effectiveness is always an absolute value (90% cloak = 10% chance of detection).

Racial Traits and Minefields

Special Capabilities

Space Demolition: Minefields act as normal scanners but do not detect fleets orbiting planets.

Mine Dispensers Available by Race

Space Demolition:

Mine Dispenser 40 (lays 40/year)
Mine Dispenser 50 (lays 50/year), available to all except War Monger
Mine Dispenser 80 (lays 80/year)
Mine Dispenser 130 (lays 100/year)
Heavy Dispenser 50   (lays 50/year)
Heavy Dispenser 110   (lays 110/year)
Heavy Dispenser 200   (lays 200/year)
Speed Trap 20   (lays 20/year), requires Space Demolition or <u>Inner-Strength</u>.
Speed Trap 30   (lays 30/year)
Speed Trap 50   (lays 50/year)

War Monger: All except Mine Dispenser 50

Inner Strength: Mine Dispenser 50 and Speed Trap 20

All Other Races: Mine Dispenser 50 only

The Guts of Mass Drivers

Damage Potential of Mass Packets

So you always wondered exactly what sort of damage a mass packet was capable of doing?   Here's the scoop on mass packets.

Mass packets can be flung at any speed from Warp 5 to 3 Warp levels above its rated speed.   Exceeding the rated speed will form unstable packets that will disintegrate and lose minerals as they travel. Thus, with a top of the line Warp 13 mass accelerator, you can fling packets at speeds up to Warp 16.

Why would you want to fling packets slower than the rated speed?   Simple: the planet you are throwing to doesn't have an driver capable of catching the faster packets and you don't want to kill off your own colonists.

Packet Decay Rate

Packets thrown over the rated speed of the mass driver decay as follows:

    +1 Warp   10% / year (turn)
    +2 Warp   25% / year (turn)
    +3 Warp   50% / year (turn)

There is a minimum decay of 10kT of each mineral in the packet each year.

Packets decay in both the year they are launched and the year they reach their destination by a prorated amount based on the distance they traveled that year.   The decay rate is not of the original amount in the packet, but the current amount.

If you have the Packet Physics advantage, the decay rate is half the stated rate; as is the minimum decay.

Speed and Distance

Warp X means that something traveling at that speed will cover $X * X$ l.y. per year.   Thus, a Warp 16 packet will travel 256 light years each turn!

Damage and Recovery Formulas and Calculation

When a packet hits a planet without a mass driver, or with a mass driver rated beneath the speed of the incoming packet, damage will be done. Note that if a Warp 5 driver flings a packet at Warp 8 to another Warp 5 driver, damage WILL be done to the receiver. Damage is determined by the speed of the packet, not the rating of the driver sending the packet.

Speed
spdPacket = Packet Warp ^ 2
spdReceiver = Rcvr Accel ^ 2

Percent Caught Safely: The percentage of the packet recovered intact.
%CaughtSafely = spdReceiver / spdPacket

Minerals Recovered: The receiver recovers 1/3 of the portion not caught safely.
(packetkT * %CaughtSafely + packetkT * %remaining * 1/3)

Raw Damage
dmgRaw = (spdPacket - spdReceiver) * wtPacket / 160

Raw Damage modified by planetary defenses
dmgRaw2 = dmgRaw * (100% - pctDefCoverage)

Colonists Killed: The number colonists killed is the larger (maximum) of the following:
dmgRaw2 * Population / 1000
dmgRaw2*100

Planetary Defenses Destroyed
#destroyed = #defenses * dmgRaw2 / 1000

If #destroyed is less than dmgRaw2 / 20, then it is that number.

Example
You fling a 1000kT packet at Warp 10 at a planet with a Warp 5 driver, a population of 250,000 and 50 defenses preventing 60% of incoming damage.

spdPacket = 100
spdReceiver = 25
%CaughtSafely = 25%
minerals recovered = 1000kT * 25% + 1000kT * 75% * 1/3 = 250 + 250 = 500kT
dmgRaw = 75 * 1000 / 160 = 469
dmgRaw2 = 469 * 40% = 188
#colonists killed = Max. of (188 * 250,000 / 1000, 188 * 100) = Max. of (47,000, 18800) = 47,000 colonists
#defenses destroyed = 50 * 188 / 1000 =   9 (rounded down)

If, however, the receiving planet had no mass driver or defenses, the damage is far greater:

minerals recovered = 1000kT * 0% + 1000kT * 100% * 1/3 = only 333kT.
dmgRaw = 100 * 1000 / 160 = 625
dmgRaw2 = 625 * 100% = 625
#colonists killed = Max. of (625 * 250,000 / 1000, 625 * 100) = Max. of (156,250, 62500) = 156,250.

If the packet sped up to Warp 13, then:

dmgRaw2 = dmgRaw = 169 * 1000 / 160 = 1056
#colonists killed = Max. of (1056 * 250,000 / 1000, 1056 *100) = Max. of (264,000, 105600) which entirely wipes out the colony.

Learn more about:

Mass Driver Basics

Alternate Reality Races

Although Alternate Reality is really a primary racial trait, it's responsible for races so unusual it deserves its own topic. To read about the other races provided with Stars!, visit our Web site at www.webmap.com/stars!.

Population and Growth

The Alternate Reality race is a highly developed energy-based life form. Their "bodies" are fragile, flattening like paper under any but the lightest gravitational conditions. As a result they have adapted to living in starbases instead, controlling their planets from orbit. Their growth rate is still determined by the planet's value as these numbers indicate their tolerance to such factors as solar radiation and planetary gravity wells. Their maximum population per planet is determined by the starbase size. This ranges from 250,000 for starter colonies to 3,000,000 for their Death Star. Living on the starbase has a downside: if the starbase is destroyed, the population goes with it.

Scanners

Alternate Reality colonists perform scanning duty from the starbase. They distance they scan is determined by the following formula:

Scanning Distance = SQRT(Population / 10)

The Ultra Station and Death Star come with equipment that allows the colonists to also perform penetrating scans at half that distance as long as you don't select the No Advanced Scanners secondary trait when defining the race.

Factories

Since Alternative lifestylers aren't suited to planetary operations, they can't build factories either. However, due to their energy-based nature, the number of resources available at each planet is determined as follows:

Resources = Habitability_Value * SQRT(Population * Energy_Tech_Level / Efficiency_Coefficient).

The Efficiency Coefficient. is specified in the Custom Race wizard. As the Energy tech level increases, so the efficiency.

Mining

These folks can't build mines. Using energy powers alone, they can do a limited amount of mining equal to this formula:

Mining = SQRT(Population/10)

However, since they don't actually inhabit the planet, there is nothing to stop them from remote mining worlds they own as well as uncolonized worlds.

Defenses

Likewise, they can't build defenses. Since they live and die with their starbase, defenses don't have any meaning to them. People can't bomb Alternate Reality planets, and mineral packets flung from other planets don't kill Alternate Reality colonists.

The best defenses are advanced armor and weapons for the starbases, and minefields.

Starbases

Starbases costs Alternators 20% less than other races (though this is not cumulative with the Improved Starbases secondary trait). They are also able to build the Death Star, the biggest, baddest thing in the sky.

Colonization

Alternators can't build normal colonization modules. They must build the more expensive Orbital Colonization modules capable of deploying as an Orbital Fort at the target world. This module can be mounted only on the colonizer hull. The hull is also capable of limited bombing to get rid of any pesky enemy startup colonies. An Orbital Colonization module can kill 2000 enemy colonists each year that it bombs.

Alternators cannot drop colonists on worlds in order to take them over (no ground combat).

Files Used in Stars!

Host file -- *gamename.hst*

This is the file containing the information the host program needs for a specific game. This file should be available only to the person playing the host.

Universe file -- *gamename.xy*

This is the universe file, containing information about the positions of all the planets. It does not change over the course of the game. Individual players as well as the host program need to have this file available to them.

Turn file -- *gamename.mN*

These are the turn files. *N* is a number from 1 to 16, representing the player number. This is the individual file for each player, containing all the data about that player's race and state of the player's empire at the beginning of a turn.

Race Description file -- *name.rN files*

This file contains a race description created and saved using the Custom Race Wizard. *N* can be any number (you can actually use any extension, the default is r1.) You can specify a race file for each non-computer player in the game from step 2 of the New Advanced Game dialog. Once the universe has been created the race file is no longer needed. If you open this file from **File** (**Open**), the Custom Race Wizard opens.

> The extension of .r1 is the default, and is not required.

Log file -- *gamename.xN*

These are the log files. *N* is a number from 1 to 16, representing the player number. This is the log of commands given by a player for the current turn. This file is submitted, either automatically or manually, to the host program. The host adds the changes to the player's .m*N* file, and returns that file to the player when the new turn is generated. The host needs these files to update the information about each player from the .hst file before turn generation.

Each time the player opens (or continues) a game, the .m*N* file is loaded. If a corresponding log file exists, it will also be loaded to update the game's current state.

History file -- *gamename.hN*

These are history files. *N* is a number from 1 to 16, representing the player number. This file is created by the player as he sees universe data. It is a history of the things the player has seen or learned on previous turns. Typically, only the player maintains a copy of this file. If a player will be absent for a few turns, and wishes to be temporarily replaced by the "Human Inactive" AI, a copy of this file should be given to the host so the absent player's view of the universe can be updated.

If this file is lost, corrupted or moved to another directory, the player will not see what's been done in past turns.

Ini file -- *stars.ini (in the Windows directory)*

Stars! Stores player options and current game information in this file. Most of the items in the file have to do with relatively unimportant stuff like the arrangement and windows, the current scanner view and overlays.

User-definable Options

The following items in the [Misc] section of stars.ini are user changeable:

DefaultPassword=Foo

Where Foo is whatever password you generally use. If you are sure that your opponents will not have access to your stars.ini file you can set this to your password. Whenever you open a game file that is protected by this password you will not be prompted to enter it.

Backup=x

Where x is a number between 1 and 999. Backup directories will be named Backup1 to BackupX and old game files will be stored there according to the turn number. For example with backup=4 then the first turn would be backed up to the directory backup1, the second to backup2, the third to backup3, the fourth to backup4, the fifth to backup1

and so on.

By default Stars! saves one previous turn's data in a directory it creates called Backup, without a number on the end.

When the ini file is Written

The stars.ini file is written the first time you play Stars and save a game. If you start Stars! and exit from the splash screen without saving a game, the file isn't written. You can delete this file, if you find a need. This will cause Stars! to ask for your registration number again, however. An absent ini file is just one of the conditions that triggers [Stars! copy protection](#).

Menu Commands

File

New...

Custom Race Wizard...

Open...

Close

Save

Save and Submit

Exit

View

Find...

Zoom

Window Layout

Race...

Game Parameters...

Turn

Wait for New

Generate

Commands

Ship Design...

Research...

Battle Plans...

Player Relations...

Change Password

Report

Planets...

Fleet...

Score...

Dump to Text File

Help

Introduction

Player's Guide

What's New

Technology Browser

Tutorial

Ordering and Registration

New Game (Quick Setup)

The **File** (**New**) command opens the New Game dialog. There you choose basic options for a new game then let Stars! handle the details of Universe creation, or enter the advanced game setup dialog, or start the tutorial game:

Difficulty Level   Begin Tutorial

Tiny Universe   Player Race

Small Universe   Advanced Game

Medium Universe

Large Universe

Huge Universe

Learn how to:

Start a Single Player Game

Begin Tutorial

If you select this option the tutorial game begins without further adieu. If you are new to Stars!, the tutorial will help you become a proficient player in 31 quick turns.

The tutorial game includes yourself and one computer player, or AI.

Difficulty Level

Choosing a higher level increases the number and skill level of computer opponents. If you want to increase the number of opponents without raising their level of skill, just choose a larger universe size. At any difficulty level, a larger universe creates more opponents.

Tiny Universe

400 light years in size. The tiny universe is only recommended for a 2 or 3 player game. Players will encounter each other very early.

Small Universe

800 light years in size. This universe will comfortably accommodate 4 players for an intimate game. If early encounters with other players are desired, 5 or 6 players can play in a small game.

Medium Universe

1200 light years in size. This is a relatively large universe for 4 or fewer players, giving them plenty of room to expand. A full complement of 16 players can comfortably play a game in a medium universe, though early contact is likely with more than 12 players.

Large Universe

1600 light years in size. This universe easily holds 16 players. Four or fewer players will often be able to build substantial empires before contacting another race.

Huge Universe

2000 light years in size. This really, really big universe will allow even 16 players quite a bit of time to expand before running into other players. Since the huge universe can have up to 1000 planets, even 16 players could colonize about 60 planets each before needing to battle to expand their empires.

Player Race

Open the dropdown list and choose a predefined race or select **Random** to let Stars! select a predefined race for you.

For a description of the races provided with Stars!, visit the Web site at **www.webmap.com/stars!**.

New Game (Advanced Setup)

More Stars! Commands

View Game Parameters Help

View Game Parameters is a read-only version of the Advanced Game Wizard. Both dialogs contain the same information and display the same help.

Open the New Advanced Game wizard by clicking on the **Advanced Game...** button in the **New Game dialog**. Use this wizard if you're setting up a multi-player game or want more control over the playing conditions in a single player game. The Advanced Game wizard has these steps:

Step 1: Specify the Universe

Step 2: Specify the Players

Step 3: Specify Victory Conditions

Learn how to:

Start a Multi-player Game

Step 1: Specifying the Universe (Advanced Setup)

Other Advanced Setup Options

More Stars! Commands

New Advanced Game wizard / View Game Parameters dialog

Create the universe, using the following options:

Game Name   Player Positions

Tiny Universe   Beginner: Unlimited Minerals

Small Universe   Slower Tech Advances

Medium Universe   Accelerated BBS Play

Large Universe

Huge Universe   No Random Events

Density   Computer Players Form Alliances

                          Public Player Scores

When you complete this step, move on to specify the number, types and races of the players.

Game Name

Keep the name Stars! offers or type in a name for your game. This name appears in the Stars! titlebar when the game is running.

Density

Normal planet density in Stars! is approximately one planet for every 5000 l.y.^2. That is, if you divided the universe up into squares 70 l.y.^2. on each side, there would on average be one planet in each square.

Selecting **Sparse** decreases density to approximately one planet for every 6500 l.y.^2. Selecting **Dense** increases the density to approximately one planet for every 4000 l.y.^2. Choosing **Packed** increases the density in number of planets by 30% over Dense in all but the Huge universe (which is stuffed as full as is playable by the Dense setting).

Player Positions

This allows you to specify how close players start out relative to each other.

The result of these selections are affected by the number of players, the size of the universe and the density of the universe.

For instance, playing a 16 player game in a tiny universe severely restricts your chances for expansion, since a tiny universe typically has only 32 planets. More than two players in a tiny universe will be a very short game. You can increase the pace and length of a game in any size universe by selecting Dense in the planet Density box. You'll have more planets to colonize with short distances between them, and a rapid increase in resources and technological development.

If you want plenty of time get the feel of the game and to plan before you run into your opponent(s), choose **Distant** player positions.

Beginner: Maximum Minerals

The starting concentration of all minerals on every planet is 100. This option is for beginning players who don't want to deal with mineral shortages. Not recommended for advanced players, this option reduces the quality of advanced game play substantially.

Slower Tech Advances

Choosing this option will make research twice as expensive. This will extend the game, making long-term strategy a more important element of play.

Accelerated BBS Play

When you check this option, the following happens:

- Players start out with a population 4 times larger than normal.

- All planets have 20% more minerals.

- Planets with poor mineral densities are improved by a few percentage points.

This means you can build 5 to 10 ships your first turn, complete research up to 2 tech levels a year, and in general jump-start the game. You don't need to worry about running out of colonists if you want to send out a bunch of colony ships at the beginning of the game.

In games started with this option you'll need to make many more decisions from turn 1 on. The first 10 turns accomplish what otherwise takes about 30 to 50 turns. Games with this option usually have a winner emerging before turn 100. The disadvantage to this option is that some of the subtlety of Stars! is lost. You don't have to make as many of the early resource tradeoffs that have a large impact on your strategy later in the game. Most BBS gamers will find that this disadvantage is outweighed by the faster pace.

No Random Events

This disables all random occurrences such as new mineral and artifact discoveries, comets, habitability shifts, and traders.

Computer Players Form Alliances

Checking this box will cause the computer players to prefer attacking you over attacking each other. This will make the game significantly more difficult.

Public Player Scores

All players' scores are displayed in the Score sheet (press F10) after the first 20 turns of the game. This gives players in games with this option time to disguise their races adequately.

Step 2: Specifying the Players (Advanced Setup)

Other Advanced Setup Options
More Stars! Commands

New Advanced Game wizard / View Game Parameters dialog

Click on the blue diamond next to a player number. The menus that appear list the following options:

Predefined Race   displays a list of all predefined races. Select a listed race or select **???Random???** to let Stars! design a new race to fill that position. Select **Expansion player** to create a random, potentially human controlled computer player that is currently inactive. The host may assign these player positions to players entering the game after it has started. Until that happens, the expansion players do generally passive things like conduct research.

Custom Race   designs a new race or loads a custom race. Select **New...** to design and save a customized race, and add it to the game. Select **Open...** to add an existing custom race to the game.

Edit Race...   appears only when a human controlled race is selected. Choosing this item takes you into the Custom Race wizard.

Computer Player   displays a list of all computer generated races. Select a race and a proficiency level.

No Player   clears that position.

When you complete this step, move on to specify the victory conditions.

Step 3: Victory Conditions (Advanced Setup)

Other Advanced Setup Options

More Stars! Commands

New Advanced Game wizard / View Game Parameters dialog

Each of the values has a spinner next to it to adjust it. Select and modify as many conditions as you wish, then select the number of them that must be met for victory to be declared.

Multiple players can achieve victory at the same time (with the same or different conditions)

Once you're satisfied with the victory conditions, you can click on **Finish** and let the game begin.

Both the SHIFT and CTRL keys act as accelerators on this step.

To learn more about hosting Stars! read:

What the Host Needs to Do

Custom Race wizard

View Race Help

The View Race dialog is a read-only version of the Custom Race wizard. Both dialogs contain the same information and thus display the same help.

Here are the steps in creating your own player race. If you haven't defined a race before, finish reading this topic before you start clicking.

Step 1: Basic Definition

Step 2: Primary Traits

Step 3: Secondary Traits

Step 4: Population Growth Factors

Step 5: Population Efficiency

Step 6: Research Costs
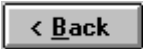
Finish and Save

The 6-step Custom Race wizard allows you to tailor the race you play in Stars!. Here, you define a race's strengths and weaknesses. The trick lies in balancing advantages with disadvantages in order to achieve a mix that makes the best use of the stuff of creation -- units of primordial ooze called advantage points.

In each step, the box in the upper right corner of the dialog shows the current number of unused advantage points.

With each advantage selected, the number decreases. Advantage points go down a little for slight advantages, and a lot for juicy ones. Before you finish, the number of advantage points must be greater than or equal to zero. When the number becomes negative and turns red, your race has missed the boat to Creationville. To get back in the black, select a few disadvantages (what, did you think there wouldn't be a catch to playing God?).

Use the buttons to move between steps while trying to compensate for your greedy ambitions.

> Choose your race attributes wisely. Once you begin the game, the race is yours for the duration. You can view your characteristics, but you won't be able to change them.

Step 1: Basic Definition (Player Race)

Custom Race wizard / View Race dialog

Specify/view your race type, name and use of leftover advantage points:

Race Name and Password

Predefined Races

Leftover Advantage Points -- Surface Minerals

Leftover Advantage Points -- Mines

Leftover Advantage Points -- Factories

Leftover Advantage Points -- Defenses

Leftover Advantage Points -- Mineral Concentration

Race Emblem

Once you've set these basic parameters, go to step 2 and specify the primary traits.

Race Name and Password

Name your race and if you wish, choose a password. The password chosen when a race is created is attached to the race file. While you may change the password during the game, that change applies only to the current game. Opening that race file for use in another game will require proper entry of the original password. Also in order to open or view the race file, you need the password. You may specify a race name only here in step 1.

    No Ssssss: *Don't* pluralize the race name.

Predefined Races
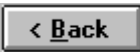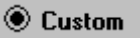
Selecting a predefined race automatically presets all of the options in steps 2 through 6. Choosing a predefined races doesn't prevent you from changing any option -- they are only provided as a time saver.

Each predefined race has specific strengths and weaknesses you can use in determining your playing style and strategies.

You can use the Race Creation wizard to learn about each "canned" race:

1. Select each predefined race in turn.

2. Use the buttons to step through the wizard, noting the settings.

3. Go back to step 1 and select the predefined race that looked the best for your purposes.

4. Fine tune that race using as much of the wizard as necessary.

5. The predefined race type changes to custom after you change any settings.

Leftover Advantage Points -- Surface Minerals

You will get 10kT of surface minerals for each leftover advantage point. For example, if there are 20 unused points, you would receive a total of 200kT of minerals. Stars! weights the distribution in favor of the rarest minerals. These will be available immediately.

Leftover Advantage Points -- Mines

You will get one additional mine for every two leftover advantage points. These will be available immediately.

Leftover Advantage Points -- Factories

You will get one additional factory for every 5 leftover advantage points. These will be available immediately.

Leftover Advantage Points -- Defenses

You will get one additional defense installation for every 10 leftover advantage points. These will be available immediately.

Leftover Advantage Points – Mineral Concentration

The concentration of the mineral on your home world that would have been poorest is improved by 1% for every 3 leftover advantage points. Increasing the concentration increases the rate at which the mineral is mined (mining, of course, reducing the concentration over time).

Race Emblem

Select a race emblem from the collection. This emblem identifies your fleets when they are displayed in the Selection Summary pane. In a multi-player game you may not get the emblem you select if another player chooses the same emblem.

Step 2: Primary Traits (Player Race)

Custom Race wizard / View Race dialog

Choose the primary characteristics for your race. Each type gives you a specific and powerful set of strengths. Click on the following for a list of the specific technologies, advantages and disadvantages:

Hyper-Expansion   Space Demolition

Super Stealth   Packet Physics

War Monger   Interstellar Traveler

Claim Adjuster   Alternate Reality

Inner-Strength   Jack-of-All-Trades

Learning more about technology
Use the Technology Browser (press F2) to learn more about any of the technology listed for each primary trait.

Once you determine your primary traits, refine your race by choosing secondary traits in step 3.

Hyper-Expansion

Starting Advantages

- Growth rate is twice the value shown on step 4 of the Custom Race wizard.
- Maximum population limitation is half what the planet would normally support for a race with your environment requirements (also on step 4 of the wizard).
- One armed scout
- Three mini-colony ships

Exclusive Hulls

- Mini-Colonizer hull
- Meta Morph hull (completely flexible)

Exclusive Engines

- Settler's Delight engine--Warp 6 for free, but only for Mini-Colonizer hull.

Exclusive Components

- Flux Capacitor increases the damage done by all beam weapons on Hyper-Expansion ships by 20%.

Super-Stealth

Starting Advantages

- Tech level 5 in Electronics

- One scout

- One colony ship

Exclusive Hulls

- Rogue hull.

- Stealth Bomber hull.

Exclusive Components

- Pick Pocket scanner that sees enemy fleet cargo in same location, allowing you to steal that cargo using the standard cargo transfer dialog.

- Chameleon scanner with a scanning range of 160/45 plus a 20% cloak

- Robber Baron scanner that sees enemy fleet cargo and enemy planet surface minerals.

- Shadow Shield with a strength of 90 plus a 15% cloak.

- Depleted Neutronium with an armor strength of 280 plus a 10% cloak.

- Transport Cloak

- Ultra-Stealth Cloak

- All ships built by Super-Stealth races have an inherent 50% cloak.

Exclusive Abilities

- Can travel through opponent's mine fields at one warp speed faster than the limit stated in the Technology Browser.

War Monger

Starting Advantages

- Tech level 5 in Weapons
- Tech Level 1 in Propulsion and Energy
- One armed scout
- One colony ship

Exclusive Hulls

- Battle Cruiser hull
- Dreadnought hull

Exclusive Weapons

- Gattling Neutrino Cannon
- Blunderbuss

Exclusive Abilities

- +2 initiative in battle.
- Colonists attack better.
- All weapons cost 25% less to build.
- Can build SDI or Missile Battery defenses only..
- Learns the exact design of enemy ships as soon as they are scanned.

Claim Adjuster

Starting Advantages

◆ Technology level 1 in Energy, Weapons and Propulsion, level 6 in Biotech.

◆ Ship capable of terraforming planets from orbit

Exclusive Components

◆ Warp 12 Mass Accelerator.

◆ Retro Bomb "de-terraforms" planets.

◆ Orbital Adjuster modifies planet environmental conditions from orbit.

Exclusive Weapons

◆ Bombs that "de-terraform" worlds

◆ Mineral packets that terraform opponent's planets, but are 1/3 less effective as weapons

Exclusive Abilities

◆ Mass packets have a 50% chance of modifying an environment attribute 1% toward the Claim Adjuster's ideal value, and a 0.1% chance of changing the underlying original planet value for every 100kT of a mineral not caught by the receiving planet.

◆ Terraforming is only 50% as expensive as other races.

Inner-Strength

Starting Advantages

- One scout
- One colony ship

Exclusive Hulls

- Super Freighter hull
- Fuel Transport hull

Exclusive Components

- Croby Sharmor shield strength 60 plus 65 dp as armor
- Fielded Kelarium armor strength 175 plus 50 dp as shield
- Speed Trap 20 mines--stops fleets cold
- Jammer 10 and Jammer 50 deflects torpedoes

Exclusive Weapons

- Mini Gun power 13 range 1 sweeps mines at 208 /year
- No Smart, Neutron, Enriched Neutron, Peerless or Annihilator bombs

Exclusive Components

- Tachyon Detector, reduces the effectiveness of other players cloaks by 5%.

Exclusive Abilities

- Colonists defend better.
- Ships heal faster
- Planetary defenses cost 40% less
- Colonists on freighters reproduce at 1/2 of their maximum rate

Space Demolition

Starting Advantages

◆ Tech level 2 in propulsion and biotech.

◆ One scout

◆ One colony ship

◆ Two mine layers (one standard, one speed trap)

Exclusive Weapons

◆ Mine Dispenser 80, 150, 250 -- standard mines.

◆ Mass Discriminator 100, 230, 400   These mines detonate for ships > 200kT mass

◆ Speed Trap 30, 60, 90 mines -- stops fleets cold.

Exclusive Hulls

◆ Mini Mine Layer hull

◆ Super Mine Layer hull

Exclusive Abilities

◆ Mine fields act as non-penetrating scanners. Cloaks work as an absolute percentage against mine scans.

◆ Can travel through opponent's mine fields at two warp speeds faster than the limit stated in the Technology Browser.

◆ Can remotely detonate standard minefields.

◆ Mine fields decay at a rate of 1% a year per planet enclosed in the field. All other player's fields decay at 4% a year per planet enclosed.

◆ Learn the exact design of any enemy ship that detonates one of your mines.

Packet Physics

Starting Advantages

- Tech 4 in Energy
- Two shielded scouts
- One colony ship
- Two starting planets in non-tiny universes

Exclusive Components

- Mass Driver 5, 6, 8, 9, 11, 12, 13
- Mass packets with built-in penetrating scanners, with a range equal the square of their warp speed.
- Energy Dampener slows all ships in combat by 4 initiative points

Exclusive Abilities

- Mass packets are smaller and cheaper to build.
- Learn the exact design of any enemy starbase that uses a mass accelerator to receive a packet you fling.

Interstellar Traveler

Starting Advantages

- 2 planets with 100/250 stargates (in non-tiny universes only)
- Tech 5 in propulsion and construction.
- One scout
- One colony ship
- One destroyer
- One privateer

Exclusive Hulls

- Stargates any/300, 100/any, any/800, any/any

Exclusive Components

- Anti-matter Generator acts as a 200mg anti-matter fuel tank and generates 50mg of fuel every year.

Exclusive Abilities

- Exceeding the safety limits of stargates is less likely to kill your ships.
- Stargates cost 25% less.
- Stargates reveal planetary statistics on all other planets with stargates in range.

Alternate Reality

Exclusive Hulls

◆ The Death Star is the largest starbase hull ever known.

Exclusive Components

◆ Orbital Construction Module colonizes any world by transforming into an Orbital Fort.

◆ Orbital Construction Module contains viral weapons capable of killing 2000 enemy colonists per year.

Exclusive Abilities

◆ Lives on starbases only, not planets (therefore can "colonize" any planet).

◆ Starbases are 20% cheaper to build (non-cumulative with Improved Starbases).

◆ Population acts as natural miners and scanners.

◆ Remote mine own planets (since they live in orbit).

◆ Maximum population is determined by the size of the starbase, not the planet.

◆ Planetary resources grow as Energy Tech Level increases.

Limitations

◆ Cannot build planetary installations.

◆ Interstellar travel kills 3% of any colonists in the fleet per year.

Jack of All Trades

Starting Advantages

- Tech 3 in all fields

- Two scouts

- One colony ship

- One medium freighter

- One mini miner

- One destroyer

Exclusive Components

- Scout, Frigate and Destroyer hulls get a built-in 40/20 scanner

Exclusive Abilities

- Improves all "Costs 75% extra" fields to tech level 4 if the box in step 6 is checked.

Step 3: Secondary Traits (Player Race)

Custom Race wizard / View Race dialog

Specify/view the secondary traits for your race. You'll probably find several traits that won't affect your playing strategy. Each time you choose a trait that prevents you from developing something, you'll gain advantage points you'll be able to use elsewhere or, if you're in the hole, bring the balance closer to being above zero (you have to be above or at zero before you can click on Finish).

Select secondary traits that compliment the profile you chose in step 2:

Improved Fuel Efficiency	No Ramscoop Engines
Total Terraforming	Cheap Engines
Advanced Remote Mining	Only Basic Remote Mining
Improved Starbases	No Advanced Scanners
Generalized Research	Low Starting Population
Ultimate Recycling	Bleeding Edge Technology
Mineral Alchemy	Regenerating Shields

When you finish, use step 4 to specify your survival conditions and growth rate.

Improved Fuel Efficiency

Your ships will burn 15% less fuel than what the drive specifications indicate. The Fuel Mizer, Trans-Galactic Mizer Scoop, and the Galaxy Scoop engines are also available.

Total Terraforming

You begin the game with the ability to adjust each of a planet's environment attributes by up to 3% in either direction. Throughout the game, additional terraforming technologies not available to other players will be achievable, up to 30% terraforming. Total Terraforming requires 30% fewer resources.

Advanced Remote Mining

Gives you three additional mining hulls and two new robots. You will start the game with two Midget Miners.

Improved Starbases

Gives you two new starbase designs. The Space Dock hull allows you to build starbases which can in turn build small to medium ships. The Ultra-Station is much larger than a standard Starbase.. Your starbases are automatically cloaked by 20%. Starbases will cost you 20% less to build.

Generalized Research

Your race takes a holistic approach to research. Only half of the resources dedicated to research will be applied to the current field of research. 1/8 of the total will be applied to all other fields.

Ultimate Recycling

When you scrap a fleet at a starbase, you recover 90% of the minerals AND 70% of the resources used to produce the fleet. The resources are available for use the next year.   Scrapping at a planet gives you 45% of the minerals and 35% of the resources.

Mineral Alchemy

You will be able to turn resources into minerals more efficiently. One instance of mineral alchemy will use 25 resources to produce one kT of each mineral. Without this attribute it takes 100 resources to produce one kT of each mineral.

No Ramscoop Engines

You will not be able to build the Radiating Hydro-Ram Scoop, Sub-Galactic Fuel Scoop, Trans-Galactic Fuel Scoop, Trans-Galactic Super Scoop, Trans-Galactic Mizer Scoop or the Galaxy Scoop. You will be able to build the Interspace-10 engine, which can travel warp 10 without taking damage.

Cheap Engines

Pro: Engines cost 50% less to build.

Con: Your ship engines aren't entirely reliable. When attempting to travel at speeds above warp 6, there is a 10% chance the engines will refuse to engage.

Only Basic Remote Mining

No Robo-Miner, Robo-Maxi-Miner or Robo-Super-Miner robots or their corresponding .

No Advanced Scanners

You will not have any standard scanners that can scan planets from a distance and see fleets hiding behind planets.

All ranges for conventional scanners are doubled.

Low Starting Population

Instead of 25000 people, you start with 17500 (30% fewer). Does not seem to be bad disadvantage, but is in fact really nasty when you consider the compound interest qualities involved. It takes a long time to overcome a lower starting population -- it helps to have a high growth rate, but even then it can be painful.

Bleeding Edge Technology

New technologies initially cost twice as much to build. As soon as you exceed all of the tech requirements by one level, the cost drops back to normal. Miniaturization, the lowering of production costs, occurs at 5% per level, up to 80%. Without this racial trait miniaturization occurs at 4% and tops out at 75%.

Regenerating Shields

All shields are 40% stronger than the listed rating. Shields regenerate at 10% of the maximum strength after every round of battle. All armors are at 50% of their rated strength.

Step 4: Population Growth Factors (Player Race)

Custom Race wizard / View Race dialog

Specify/view your race's habitable range and its growth rate under optimum conditions, using the following topics as guidelines:

Growth Conditions

Maximum Population Growth

When you know where and how you'll grow, go on to Step 5 and specify how efficient your race is at running your empire.

Growth Conditions

Use this dialog to specify how well your race tolerates gravity, temperature and radiation. The tolerances are set individually for each of the three environmental factors.

The width of the colored bar represents the extent of the habitable range. The width plus the position of the bar left or right determine the extremes of the habitable range. The numbers to the right of the bar show the extremes in either gravities (g), degrees Celsius (°C) or millirads (mR).

Your race will grow only on planets with conditions that fall within the habitable ranges. On planets that are outside the habitable ranges, some colonists will die every year due to the unbearable conditions.
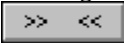
The gravity and temperature of every planet are picked at random, but are slightly weighted to favor values in the middle of the spectrum. If you move the colored bar away from the center, you will see the advantage points increase, compensating for the reduction in the number of habitable planets you will encounter. The radiation level of a planet is chosen completely at random.

Adjusting the Habitable Range

If you click on the or

 buttons, the entire range moves left or right. Holding down the SHIFT key while clicking moves the range in steps. Click and hold the colored bar to drag it back and forth freestyle.

Clicking the button widens the habitable range. Clicking the

 button narrows the habitable range. Holding down the Shift key while clicking narrows and widens the range in 20% increments.

Choosing an Extreme Range

Cons: The more extreme your habitability range, the more planets will be out of your habitable and terraformable range.

Pros: You get back advantage points. Also, planets with environments near the ends of the spectrum have a good chance of being super-rich in one or more minerals. For example, a planet with a flesh-searing radiation extreme of 97mR could easily have four times the concentration of each mineral as a mild-mannered vacation world.

Immunity

Selecting the **Immune to** checkbox allows you to ignore an environmental factor. This is very expensive and will require the selection of many disadvantages to bring advantage points back above zero. When you select immunity, the habitable range becomes irrelevant and disappears.   If you select any kind of immunity, you may not want to spend points on the Total Terraforming advantage. Once you're in the game, you can research individual terraforming technologies that apply only to environmental factors that can affect you. If you are totally immune, you never need to terraform.
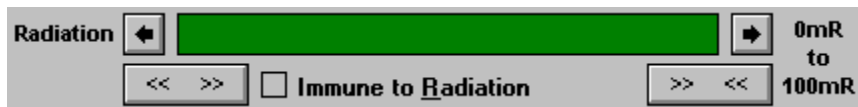
Selecting immunity is different than expanding the habitable range to fill the entire spectrum. Immunity treats every point in the spectrum as 100% ideal. A range widened to fill the spectrum treats only the mid-point as 100% ideal. The edges of the range are 0% ideal.

Learn about:

Or take the next step:

Maximum Population Growth

Maximum colonist growth rate per year: 15%

Set the maximum colonist growth rate between 1% and 20% per year. The colonists will grow at this rate only if the planet value is 100%. If the planet value is less than 100%, the colonist growth rate will fall proportionately.

For example:

**Maximum colonist growth rate per year: 10%**

The planet May is the home world for a race with a 10% maximum colonist growth rate. As with all home worlds, May has a planetary value of 100%.
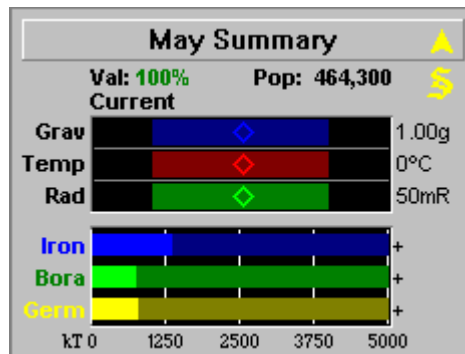
Clicking on the Value in the Selection Summary pane for the planet May displays this popup:

Your population on **May** is **464300**. **May** will support a population of up to **1000000** of your colonists. Your population on **May** will grow by up to 10% per year.

Your people on May decide to colonize Demski, a nearby rock with a planetary value of 15%.
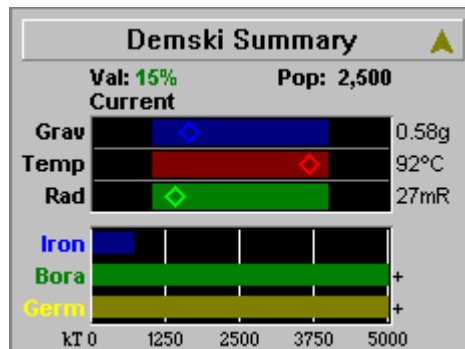
Clicking on the Value in the Selection Summary pane for the planet Demski displays this popup:

Your population on **Demski** is **2500**. **Demski** will support a population of up to **150000** of your colonists. Your population on **Demski** will grow by up to 1.50% per year.

If you are immune to an environmental factor, every planet you explore will be 100% ideal for that factor. Immunity is expensive. You will have to choose many disadvantages in order to compensate and bring the advantage point value back above zero.

If you select both immunity to one or more environmental variables and the advantage of Total Terraforming, some or all of the points used to obtain the Total Terraforming advantage will be wasted.

Learn about:

Growth Conditions

Or take the next step:

Step 5: Specifying the Efficiency of Your Race.

Step 5: Population Efficiency (Player Race)

Custom Race wizard / View Race dialog

Specify/view the efficiency of your colonists, mines and factories for all the planets you inhabit.

If you are confused about whether increasing or decreasing a value is providing an advantage, watch the advantage points box as you click on the controls. If the number of points decreases when you click on a control, you have given the race an advantage.

If you have a race with a high population growth, you may not care about being efficient with factories. In this case you would set the controls so colonists produce fewer and more expensive factories, thereby freeing up advantage points to use somewhere else.

If you don't plan on building a lot of mines, or if you have extra advantage points, consider increasing the mining production rate. This will NOT affect the rate at which the mineral concentration is reduced on your planets. It only makes you more efficient at squeezing minerals out of the rock. This can give you a competitive advantage over a player who operates more mines but is less efficient--they'll decrease their mineral concentration faster than you. The rate at which mineral concentration decreases (always stopping at 1) is determined by the number of mines on a planet and the number of years they've been in existence.

Keep in mind that when the mineral concentrations on both your planets and your opponent's planets reaches 1, the player with more mines can do as well, and possibly better, than the player who is very efficient at extraction. If you're very good at production and are creating resources like crazy, you may find you can easily make up for low mineral concentrations with Mineral Alchemy.

These are only simple examples of possible strategies--make the choices that suit your game the best, keeping in mind the rules determining the rate at which mineral concentration is reduced.

Next you'll specify the cost of research for your race.

> If you choose the Alternate Reality primary trait most of these controls are disabled. Alternate Reality races can't build planetary installations.

Learn more about:

Mines, Mineral Concentration, and Player Efficiency

Step 6: Research Costs (Player Race)

Custom Race wizard / View Race dialog

Specify/view how efficiently your scientists use planetary resources in their research. Changes are reflected in the advantage points box in the upper-right corner of the dialog.

Selecting **Costs 75% extra** increases the available advantage points.

Selecting **Costs 50% less** decreases the available advantage points.

If you check **All 'Costs 75% extra' research fields start at Tech 3**, then it is to your advantage to have as many research fields 'Costs 75% extra' as makes sense, as this option costs a flat fee.

If you have chosen the Jack-of-All-Trades primary trait, this is '...start at Tech 4'

This is the last step. You can return to any of the others if you need to adjust your advantage points or finish and save the race in a file.

Finish and Save (Player Race)

Custom Race wizard only

When you click on **Finish**, Stars! verifies that you have created a valid race, asks you to reenter your password (if you have specified one), and then opens the **Save As** dialog.

1. Type a file name (for example, *gump*).

2. Click **OK**.

The file name under which the race is stored can be different from the name you've given the race. However, you may wish to make some reference to the race name in the race filename to help you keep track of numerous saved races.

Production dialog

Here you order a planet to build ships, defenses, factories, mines and starbases. You can also schedule terraforming and mineral alchemy. The list box on the left is the inventory of everything you know how to build, the list box on the right is the queue of items to be produced. The dialog tells you the cost of each item when you click on it, and how long it will take to produce the item. You can also create and apply production templates to automate adding items to the queue. Auto-build items (in italic) can be added so the queue is always busy.

Read more about the inventory and queue:

Previous and Next Queues

Each planet has its own production inventory and queue, accessed using the **Previous** and **Next** buttons.

The planet queues appear in the current sort order of the Planet Summary Report. You can change this order in the Planet Report. Open the report using the **Reports** (**Planets**) menu item.

Apply or Define a Production Template

This option allows you to apply or customize an auto-build production template. A production templates represents auto-build production strategies you plan to use more than once. You can define the default production template to be used with any newly colonized planet and create up to three custom templates. Templates are saved for the duration of the game.

When you apply a template, ALL items currently in the queue are replaced with the auto-build items listed in the template.

Contribute Only Leftover Resources to Research

Ordinarily, every planet devotes a percentage of their annual resources to research. Before any resources are used in production, this cream is skimmed off the top at the percentage set in the Research dialog's budget control. If the production queue empties or is blocked during a turn, leftover resources are also funneled into research.

Selecting this option specifies that production gets top priority and the research budget gets only what production fails to use that year. This is important for fledgling colonies who need to build a basic infrastructure with meager resources.

This checkbox applies to only the current planet.

Learn about:

Production Inventory

Inventory list	
Liliputian Freighter	Inventory list of everything
Smaugarian Peeping Tom	the planet can build. Like items
Small Colonizer	are displayed the same color.
Starportal (upgrade)	
Gateway	
Raze Mine	
Defenses	
Viewer 90	
Terraform Environment	
Mines (Auto Build)	
Factories (Auto Build)	

Required Minerals:		
Ironium	2 kT	Amount of each mineral
Boranium	2 kT	and number of resources
Germanium	2 kT	required to produce one
Resources	10	of whatever is selected
		in the inventory.

Learn about:

Adding an Item to the Production Queue

Production Queue

Items are produced in order, from top to bottom. The color of each item in the queue indicates the estimated time to completion:

◆ **Green** -- all will be produced this turn.

◆ **Blue** -- at least one, but not all, will be produced this turn.

◆ **Black** -- these items all require more than one turn to complete.

◆ **Red** – estimated completion time is greater than 100 years.

◆ **Gray** – item is not necessary this year and will be skipped.

Keyboard Shortcuts
Holding down the SHIFT key while clicking on the **Add**/**Remove** buttons will add or remove 10 items at a time.

Holding down CTRL will **Add**/**Remove** 100 at a time.

Holding CTRL+SHIFT will add or remove as many of that item as possible.

These keystrokes also work if you double click on the item.

If you plan to clear the queue, **% done** helps indicate how many minerals and resources you'll lose for any item in production. All minerals and resources already put into a partially completed order will be lost if the queue is cleared.

For example, if the top item in the queue cost a total of 2000 resources and 1000 kT of minerals to build, and is 30% complete, when you clear the queue you'll lose 600 resources and 300 kT of minerals.

Learn about:

Customize Production Templates dialog

Use this dialog to create, modify or delete custom production templates. A production template is a common set of auto-build items you wish to build many times in a game, just by selecting the template name instead of adding the items manually to the production queue. You can define the default production template used for any newly colonized planet and create up to three custom templates for use on any planet. These templates are saved for the duration of the game.

Import -- Imports the auto-build items currently in the Production Queue into the template you select. The Rename Production Template dialog appears, allowing you to enter a new template name or use the existing name.

Delete -- Deletes the contents of the selected custom template.

Rename -- Opens the Rename Production Template dialog, allowing you to change the name of the selected order.

Learn more about:

Technology Browser

To enter the Technology Browser, press F2 or use the **Help** (**Technology Browser**) menu command. The Technology Browser provides details about every technology you can learn through research, including ship components, planetary installations and terraforming.

To find an item quickly, select a technology category from this dropdown list.

Technology Browser

[<- Prev] | Engines ▼ | Next ->

Radiating Hydro-Ram Scoop

Ironium	3kT	Mass: 10kT
Boranium	2kT	
Germanium	9kT	
Resources	8	

Resource costs and weight.

Tech Req:
Ener: 2
Prop: 6
Cost: 1670

Fuel Usage vs. Warp Speed

800%
400%
200%
100%
50%
25%

Warp 0 1 2 3 4 5 6 7 8 9 10

Technical stats and capabilities.

This engine creates powerful waves of radiation and will kill some of your colonists if the midpoint of your race's Radiation band isn't at least 85mR.

Warnings and special notes about availability and race.

☐ **Show Only Available Technology**   [Close]

Select to show only technologies you can currently build.

Learn more about:

Ship and Starbase Designer

The Ship/Starbase Designer allows you to view, edit, and delete ship and starbase designs, and to create new designs as hull types and components become available through construction research.

Existing Designs displays your current hull types and component configurations.

Available Hull Types displays the hulls available to you at your current level of construction technology.

Enemy Hulls displays hull designs for enemy ships you have scanned, and component configurations for enemy ships you have battled.

Components displays an inventory of all available hull components.

 Other ship designer features you'll need to use:

Hull Schematic

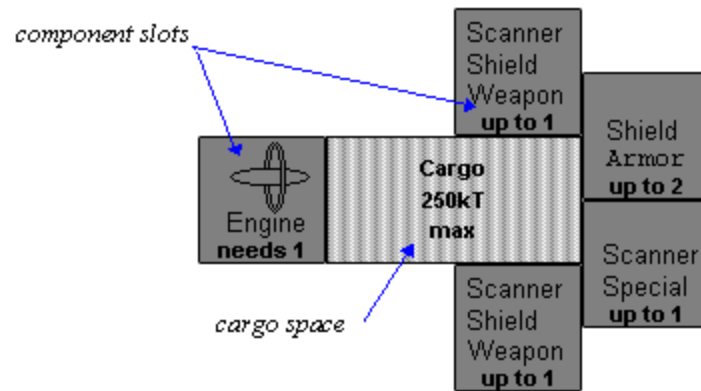Hull Component List

---

You can also learn about:

How to Design Ships

Hull Schematic

Hull schematics show the type and number of components a hull is designed to hold. The schematic is made up of component slots that only accept the type and number of components indicated by their labels. Cargo spaces only show cargo capacity -- they do not accept components.

The cost, mass, fuel capacity, shield and armor strengths, and other ship statistics are shown in the lower-right corner of the Ship Designer dialog. The values change as components are added or removed.

Hull Component List

The hull component list is the parts inventory used to build or edit a hull. New components are automatically added to the list as construction research levels increase.

Selecting a component category from the dropdown list screens out all other components. This can save time when the list of all components becomes too long for a quick scroll.

Click here to display a list of component categories. Select a category to display only those components.

Right-click on a component to see technical details and cost.
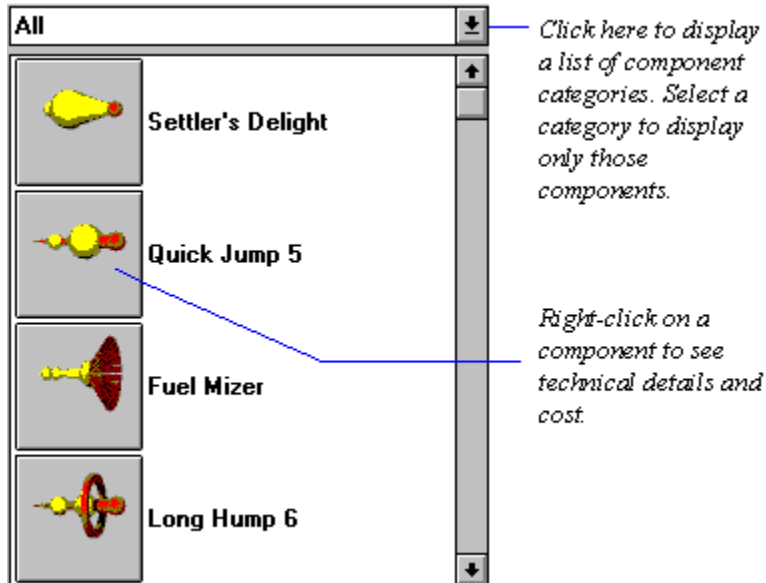
When a component is selected, the cost and mass of the item are shown in the lower-left corner of the Ship Designer dialog.

Research dialog

The Research dialog displays research status and has the controls for setting the annual budget and the field of study. In the research dialog you can specify a research field, view expected technology benefits, estimate the time to completion for current research, specify a research sequence and adjust the annual research budget.

Read about these features:

Technology Status
Expected Research Benefits
Currently Researching
Resource Allocation

Technology Status

Technology Status shows your current level of achievement in each area of technology. Tech levels range from 0 to 26. For every tech level you achieve above the minimum required to produce an item, the cost of that item is reduced by 5% (continued technical advancements improves production, thereby lowering costs).

When you select a technology, research will continue in that field until you reenter the research dialog and change the field of study setting.

Expected Research Benefits

Expected Research Benefits

Plasmotic Armor
Gorilla Delagator
Planetary Shield
Elephant Hide Fortress
Neutron Shield

Expected Research Benefits lists the items that further research in the selected field of study will make available. The color of each item indicates how many more levels of research are required to make that item available:

◆ **Green --** will be available at completion of the current level.

◆ **Blue --** will be available after 2 to 4 more levels.

◆ **Black --** will be available after at least 5 more levels.

The levels of research required to build an item vary. Some items require only one level in one area, while others require several levels in two or more fields (for example, the Dolphin Scanner requires the following minimum tech levels: energy level 5, electronics level 10 and biotechnology level 4).
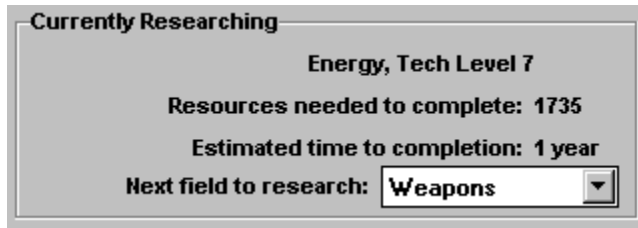
When you move the cursor to an item in the list, the help cursor appears. Left click and hold to see the technical details and cost of that item.

Currently Researching

Currently Researching shows the status of research in the selected field of study.

Resources needed to complete

Resources needed to complete current research. If you invest more resources than are necessary to complete the current technology, the excess resource may be applied against the next level of the current research field or against a different field.

Estimated time to completion

The years-to-completion number is based on values that change from year to year and is almost always conservative. The number cannot anticipate resource expansion due to population growth and construction, nor can it anticipate any resources freed when your production queues become empty.
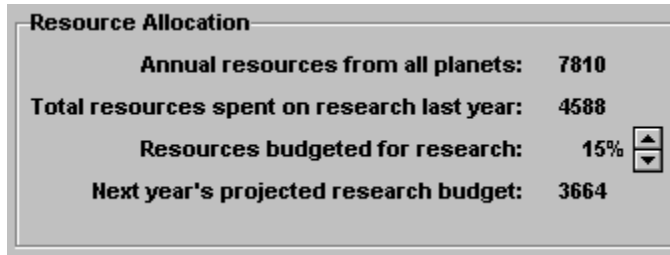
Next field to research

This automatically changes the field of research once you attain the technology level you're currently researching. Any resources not used that turn in researching the current field are applied to researching the next field. Selecting **Lowest Field** will automatically switch research to the field with the lowest level after each advance.

Resource Allocation

Resource Allocation

Annual resources from all planets:	7810
Total resources spent on research last year:	4588
Resources budgeted for research:	15%
Next year's projected research budget:	3664

Resource Allocation shows the detail of your current resource budget and allows you to adjust the percentage of available resources that are spent on research.

Annual resources from all planets

Shows the total resources you have at your disposal.

Total resources spent on research last year

Shows how many resources were actually spent on research last year. This can differ dramatically from last year's projected research budget due to uncalculated increases in productivity, population growth and leftover resources from planetary production queues.

Resources budgeted for research

Specifies the amount of each planet's total resources to siphon off for research before allocating to production. (A planet with 100 resources will have only 85 resources available for production if the research percentage is set to 15%.)

Planets whose production queues are empty or blocked due to a shortage of minerals will automatically allocate all of their resources to research.

You may adjust the research percentage from 0% to 100%. Hold down the SHIFT key and left-click on the arrow buttons to raise or lower the number in 10% intervals.

Next year's projected research budget

A conservative guess of how many resources will be invested in research in the coming year. (conservative unless you are currently being slaughtered by another player's bombers - then it may be liberal due to diminished output the next year on the planet(s) currently being attacked)

If the projected research budget does not seem to change when you adjust the budget % it means all of your production queues are blocked or empty.

Cargo Transfer dialogs

The cargo transfer dialog enables you to transfer fuel, minerals and colonists from a planet to a fleet in orbit, from a fleet in orbit to a planet and from fleet to fleet. Transfers can be made to another player as well as between planets and ships you own.
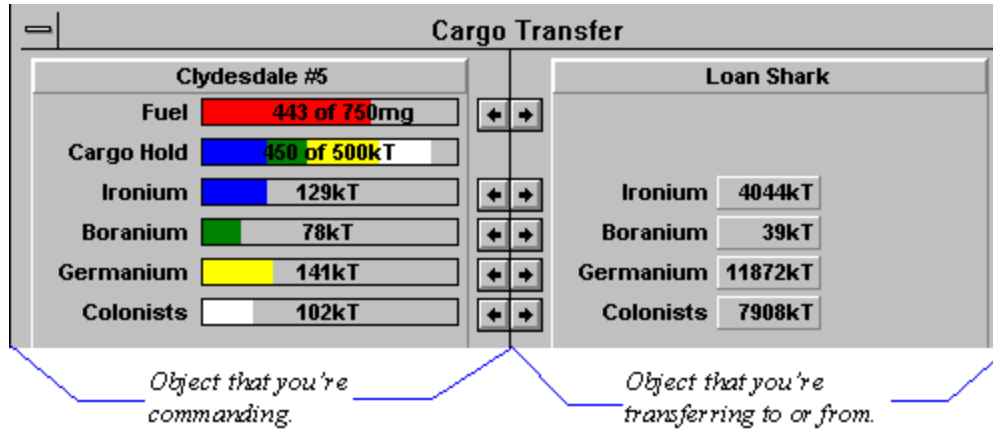
All transfer dialogs work the same: the fleet or planet you are commanding is shown on the left half of the dialog, the fleet or planet you're transferring cargo to or from is on the right. The amount of cargo available for transfer on either object is shown in the gauges on both sides. If the object on the right belongs to an opponent, the gauges for that object will initially register zero.

Learn more about a specific type of cargo transfer:

Between Your Planet and Your Fleet

While commanding a planet, click on the **Cargo** button in the Fleets in Orbit tile of the Command pane. The Cargo Transfer dialog appears as shown below:
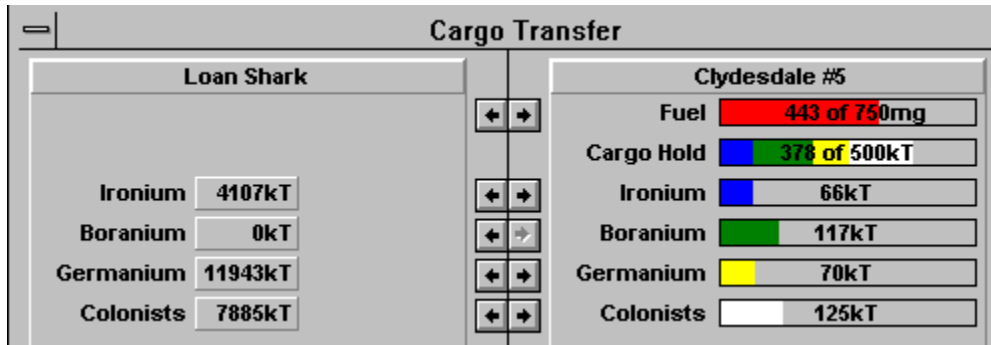
The numbers on the planet side of the dialog represent the total planetary supply of minerals and colonists. To transfer cargo between your planet and your fleet, do one of the following:

⇒   Click in gauge next to the cargo name and drag.

⇒   Click on the arrows.

Tip: Shift-click to transfer cargo in units of 10. CTRL-click to transfer in units of 100.

Between Your Fleet and a Planet

While commanding a fleet, click on the **Xfer** button in the planet tile or click on the Cargo gauge in the Fuel & Cargo tile. The Cargo Transfer dialog appears as shown below:
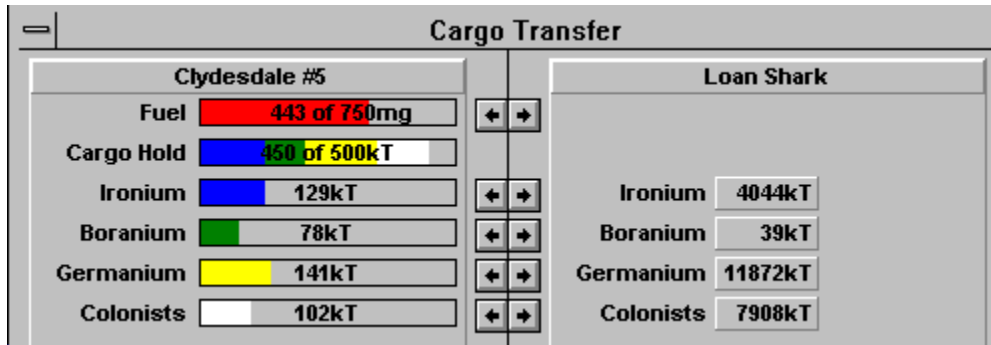
The numbers on the planet side of the dialog represent the total planetary supply of minerals and colonists. The gauge labeled Cargo Hold shows the combined cargo weight.

To transfer cargo between your planet and your fleet, do one of the following:

⇒ Click in gauge next to the cargo name and drag.

⇒ Click on the arrows.

Tip: SHIFT-click to transfer cargo in units of 10. CTRL-click to transfer in units of 100.

Between Your Fleets

While commanding a fleet, select another fleet in the Other Fleets Here tile, then either click on the **Cargo** button or click in the Cargo gauge. The Cargo Transfer dialog appears:

Clydesdale #5			Fleet #4	
Fuel	443 of 750mg	← →	Fuel	38 of 175mg
Cargo Hold	149 of 250kT		Cargo Hold	101 of 250kT
Ironium	131kT	← →	Ironium	60kT
Boranium	18kT	← →	Boranium	41kT
Germanium	0kT	← →	Germanium	0kT
Colonists	0kT	← →	Colonists	0kT

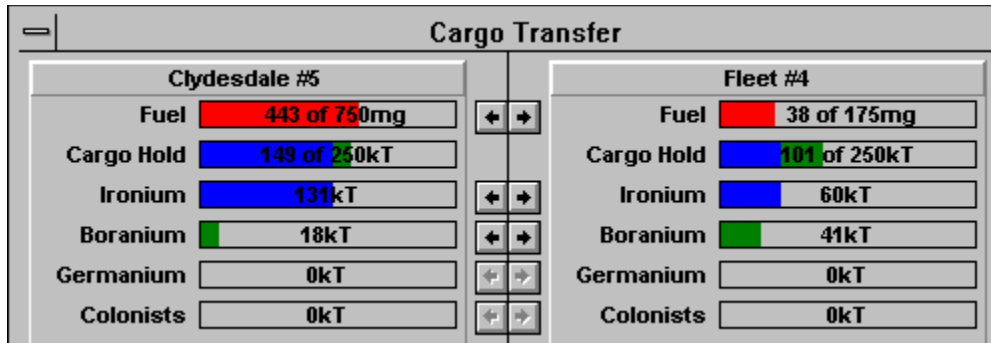The gauge labeled Cargo Hold shows the combined cargo weight.

To transfer cargo between your planet and your fleet, do one of the following:

⇒ Click in the gauge next to the cargo name and drag.

⇒ Click on the arrows.

Tip: SHIFT-click to transfer cargo in units of 10. CTRL-click to transfer in units of 100.

Between Your Fleet and an Opponent's Fleet

While commanding a fleet, select an opponent's fleet from the Other Fleets Here tile, then either click on the **Cargo** button or in the Cargo gauge. The Cargo Transfer dialog appears:

In this dialog, you are not able to see what the other player's fleet is currently holding. The gauges on the other player's side of the dialog start off at zero and increase to show only the amount you transfer to that fleet. If you later rendezvous with that fleet and they are still carrying all their cargo, you will still see only the amounts you transferred to them in their gauges.

The gauge labeled Cargo Hold shows the combined cargo weight.

> **Note**: You can not transfer colonists to other player's fleets or planets. Their biology is incompatible with yours.
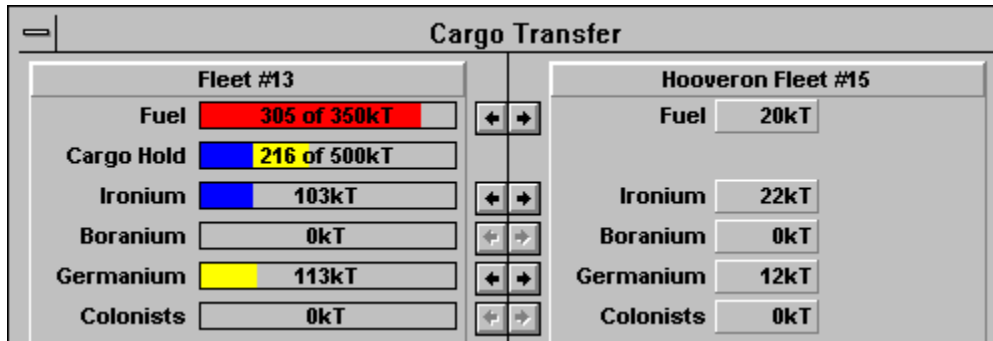
To transfer cargo between your planet and your fleet, do one of the following:

⇒ Click in the gauge next to the cargo name and drag.

⇒ Click on the arrows.

> **Tip**: SHIFT-click to transfer cargo in units of 10. CTRL-click to transfer in units of 100.

Ship Transfer dialog

Use the ship transfer dialog to reassign ships to other fleets. While commanding a fleet, select another fleet in the Other Fleets Here tile, then click on **Ships**. The Ship Transfer dialog opens.

Click on the arrows to transfer ships between fleets.

Battle Plans dialog

The Battle Plans dialog allows you to view or change the battle plans for a selected fleet. You can open the Battle plans dialog using the **Commands** (**Battle Plans...**) menu command or through the Waypoint Task tile.

Plan

Click on this dropdown to list and select from existing battle plans. Stars! provides several pre-defined battle plans to get you started. To learn the contents of a plan, select it from the list. Then look at the options chosen for target, tactics, and, if you're in a multi-player game, the victim. You can modify, rename or delete an existing plan, or copy it and use it as the basis for a new plan.

Default Plans

New fleets are given a battle plan of Default. This plan sets up a default attack strategy if the fleet is armed, and a default flight strategy is the fleet is unarmed. You can't rename or delete the Default plan, but you can modify it.

Tactics

Choose tactics to use on primary and secondary targets. A tactic applies to the entire fleet.

- **Disengage** -- Attempt to run away as soon as possible. Seven squares of movement on the battle board are required to leave the battle. As movement ranges from ½ square to 2 ½ squares per round it can take from 3 to 14 rounds to disengage.

- **Disengage if challenged** – Behaves like Maximize damage until the token takes damage and then it behaves like Disengage.

- **Minimize damage to self** – Attempt to move to the location from which this token can do the most damage to its target while taking the least damage from your enemies.

- **Maximize net damage** – Attempt to find a location to fire from that maximizes damage to the target minus the damage your token is likely to take.

- **Maximize damage ratio** – Attempt to find a location to fire from that maximizes damage to the target divided by the damage your token is likely to take.

- **Maximize damage** -- Maximize damage to target without regard to self.

- **Dump Cargo** -- Jettison cargo at the start of battle.

Targeting Options

You can specify both primary and secondary targets. If no target matching the primary target description is found, the fleet looks for the secondary target. Possible targets are:

- **None/Disengage** -- Don't look for a target, just attempt to disengage.

- **Any** -- Target any opponent's fleet you encounter.

- **Starbase** -- Target the opponent's starbase whether it is armed or unarmed.

- **Armed Ships** -- Target any ship or starbase carrying weapons (does not include bombers). Preference is given to the strongest tokens this token is likely to be able to hurt.

- **Bombers/Freighters** -- Target Bombers and Freighters only.

- **Unarmed Ships** -- Target any ship not carrying weapons or bombs.

- **Fuel Transports** -- Target Fuel Transports only.

- **Freighters** -- Target Unarmed Freighters only.

Specifying the Right Target

Make sure your battle plan reflects what you really want your ships to do. For example, if you specify a target of Any and the closest ship happens to be an unarmed freighter instead of the enemy's battleships, you will waste a round destroying an easy target while the opponent's battleships pound you into space dust. In this case, choosing a

target of Armed Ships would be much more appropriate.

Specifying which Players to Attack

Attack Who specifies which players are targeted using this plan. In a multi-player game, the categories listed are defined in the <u>Player Relations dialog</u>. In a solo game everyone is your enemy, and this field is disabled.

Learn more about Combat in these topics:

<u>The Basics of Combat</u>
<u>The Guts of Combat</u>

Battle VCR

Use the VCR to replay a battle in which your fleet or the enemy's fleet took damage or were destroyed. The VCR displays each ship type involved in the battle on a grid, or battle board. Use the VCR control buttons to step back and forth through phases of the battle.

Phase 21 of 46 Round 2 of 16
Playback Speed: 4 ◄ ►

BATTLE STATUS

The Gylarians
Defender ◄ ———— *Active (attacking or retreating) ships.*
attacks the Sectoids
Nightstalker * 19 ◄ ———— *Ships being attacked are shown in red*
at (3, 4), doing
1088 damage to shields and ◄ ———— *Damage detail.*
159 damage to armor.

Blue frames the token detailed in the selection

Selection: (1, 4)
The Gylarians
Defender
Initiative: 21   Movement: 1
Armor: 2580   Damage: (none)
Shields: 1920
Jamming: 20%
Primay Target: Any
Secondary Target: Any
? ◄

SELECTION

The selection details the active token during playback or any other token you click on.

Click here to see the design details of the ship type displayed in the selection.

Number of tokens at this location → 6 · | 12 ← *Total number of ships at this location*

Race Icon → ✳

Start of Battle ———— |<<   <   >/|| >   >>| ———— End of Battle

One Phase Back ———— Play Battle / Pause ———— One Phase Forward

The ship displayed in a square represents one or more ships and is called a token. A token is a stack of identical ships from a single fleet--like a company of specialized soldiers within a larger army. The predominant ship type from that fleet is shown. In video modes of 800x600 or less a small plus sign appears for each token that is in the same location but not displayed. These plus signs can indicate other player's tokens as well as your own. In higher resolution video modes there are numbers in the upper right and left hand corners. The upper right hand number is the total number of ships at this location regardless from all tokens owned by any player. The number in the upper left hand corner contains the count of tokens at this location. If either number is 1 then the number is not displayed.

⇒ **Left-click on a ship token to select it**. The battle status detail tells you whether ships are attacking or fleeing, how fast they're moving, and whether they are taking damage. It also displays the tactic being employed by the active ship. This helps you figure out your opponents battle strategies.

⇒ **Right-click to display a list** of all the ship tokens at that location or keep left-clicking to cycle through them.

For a more detailed description of what takes place in the VCR, read About the Battle Board.

Player Relations dialog

Multi-player Games Only

The Player Relations dialog determines your relationship to other players for the purpose of giving attack orders. You can open the Player Relations dialog using the **Commands** (**Player Relations...**) menu command or through the Waypoint Task tile.

One on One...

In the Battle Plans dialog you can order an attack on a specific race or on combinations of races by grouping them under enemies. Specifying a player as a friend prevents you from selecting them under the neutral or enemies category when you specify a target. You can change your relationship with another player at any time during the game. The change takes effect immediately.

All for One...

If you reach a waypoint and encounter a friend involved in a battle with a player you've marked as a neutral or an enemy, you'll be automatically pulled into the battle to help defend your friend. If both the battling players are marked as your friend, then you are not affected unless you choose to join the battle voluntarily.

Other attributes of friendship…

Players you specify as friends are immune to your minefields, are automatically refueled by your starbases, and can use your stargates. You won't sweep their minefields and your starbases will not initiate hostilities against them.

Rename Fleet dialog

Use this dialog to rename the fleet displayed in the Command pane. Just replace the text showing the fleet's current name with your own more descriptive label.

The R key also opens this dialog.

Find Planet or Fleet dialog

Use this command to find a planet or fleet quickly.

To find a planet

⇒ Enter the name of the planet. Partial names comprised of the first few letters of the planet will work provided no two planets share those first letters. The more letters you type, the more accurate the search will be.

To find a fleet of your own

⇒ Enter the fleet number or name.

To find another player's fleet

⇒ Enter the fleet identification using this format:

race_name   #(fleet_number).

Example: tritizoid #125

Custom Zip Orders dialog

Use this dialog to create, modify or delete custom Zip Orders. A Zip Order is a common Transport order you wish to specify many times in a game, just by selecting the Zip Order name instead of filling out the Waypoint Task tile. Stars! provides three pre-defined Zip Orders. You can't change the pre-defined orders in this dialog, but you can add to the list.

Once you create a Custom Zip Order, it's available in all your games until you delete it. Use the following buttons to create, modify and delete one:

Import -- Imports the Transport order in the Waypoint Task tile into the Zip Order chosen in this dialog. The Rename Custom Order dialog appears, allowing you to enter a new order name or use the existing name.

Delete -- Deleted the contents of the selected custom Zip Order.

Rename -- Opens the Rename Zip Order dialog, allowing you to change the name of the selected order.

Learn about:

Creating a Custom Transport Zip Order

Reports

Both the planet and fleet reports list all statistics for all your fleets and planets.

⇒ Hide and show columns by left-clicking on the column label.

⇒ Choose a new sort order by right-clicking on the label.

⇒ You can also left-click on any cell to go to that item or open the related dialog.

⇒ Right-click on statistics to display related popup information.

Planet names -- a yellow dot next to the name indicates a starbase capable of building ships. A blue dot indicates a starbase unable to build ships. A green dot indicates the planet has a stargate, a purple dot indicates the planet has a mass accelerator.

Dumping (Exporting) Information to a Text File

To export basic information about the universe, planets and fleets to an plain text file, choose the **Dump to Text** command from the Reports menu. Each option (Universe, Planet, or Fleet) produces a file with the same base name of the current game and an extension of either .map (for the universe), .pla (for a planet) or .fle (for a fleet).

Sort Order of Planets and Fleets

You can change the sort order of planets and fleets using the Reports form. When you right click on a column header and change the sort order by selecting one of the popup options, that order is saved in the stars.ini file. The next time you cycle through your planets notice that the order of planets or fleets displayed matches the order you specified in the report form.

Score sheet

Each asset a player controls is worth a certain number of points. The score sheet shows the current tally of points for each asset and how you fare against other players based on the point total. It also lists the victory conditions and shows how you close you are to reaching them. If the host chose the Public Player Scores option during the game setup, score statistics for all players are shown after the first 20 turns have passed.

⇒   Click on **Switch** to toggle between the score/rank and victory conditions reports.

Here's how your empire scores:

|	
Planets	1-6 points, 1 point for each 100,000 colonists
Starbases	3 points each (doesn't include Orbital Forts)
Unarmed Ships	1/2 point for each ship with a power rating of 0
Escort Ships	2 points for each ship with a power rating of less than 5000
Capital Ships	6 points for each ship with a power rating of greater than or equal to 2000. Non-capital ships only score points first N where N is the number of planets you control.
Tech Levels	1 point for levels 1-3, 2 points for levels 4-6, 3 points for levels 7-9, 4 points for level 10 and above
Resources	1 point for every 30 resources

Learn about:

Winning

Choosing Victory Conditions

Host Mode dialog

Multi-player Games Only

The host mode dialog is used only by the host of a multi-player game. The person acting as host can choose to manually or automatically generate a new turn when all players have submitted their turns.

Roll Call
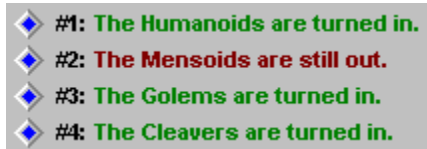
The upper-left corner of the dialog displays player status. Click on the blue diamond to learn whether a player is human or AI, and to change a human player from Active to Inactive. Once a player is inactive, a marginally competent AI takes over for the absent player to run his empire. When the player returns, click on the button again, selecting Active Player.

The dialog displays player's status as dead if they have been eliminated and no longer waits for a turn to be submitted by deceased players. The dialog also shows the status of players who have saved turn changes, but not marked their log file as turned in.

One Step Ahead

The upper-right corner of the dialog displays the year of the next turn. All games start in the year 2400.

Hurry Up and Wait

The amount of time since any change has been made, including the last time a player submitted or unsubmitted a turn, or when host mode was entered--any change made that would affect host mode.

Stars! The Next Generation

 Click to manually generate a new turn. This forces the turn to be generated regardless of whether all players have submitted their turns. In network games, all turn data saved by each player who hasn't yet submitted changes is used.
   All unsaved changes made in unsubmitted turns will be lost.

Auto Pilot

 Click to tell Stars! to automatically generate turns when all players have submitted their changes. Stars! will continue to poll the play directory, waiting for all players to submit their turns.
If the Host Mode dialog is visible, it will only poll the play directory to see which players have submitted turns and which players are out. It will not automatically generate the turns.

Changing the Host Password

 Click on this button to create or change the host password. Player passwords are changed

within the game. The password is limited to 16 characters.

Learn about:

[Starting a Multi-Player Game](#)

Change Password dialog

Multi-player Games Only

This dialog allows you to create a new password for your race or to change an existing one. The password is limited to 16 characters. Passwords are not effective until the next turn has been generated.

You can also create a default password using the **stars.ini** file.

File Open command

This standard file browser dialog allows you to open files saved on your machine and on network drives. There are the three types of files that a host or player has access to:

◆ ***gamename.hst*** -- This is the file containing the information the host program needs for a specific game. This file should be available only to the person playing the host. If the file is password-protected, you will be asked for a password.

◆ ***gamename.mN*** -- *N* is a number from 1 to 16, representing the player number. This is the individual file for each player, containing all the data about that player's race and state of the player's empire at the beginning of a turn. Both the player and the host maintain copies of this file.

　You can load the current turn in a game by opening the **.m** file which has your player number in the extension. If the file is password-protected, you will be asked for a password.

◆ ***name.rN files*** -- This file contains a race description created and saved using the Custom Race Wizard. If you open this file from **File** (**Open**), the Custom Race Wizard opens. If the file is password-protected, you will be asked for a password. The .r extension is not required for a race file, so you may open race files saved using a different extension as well.

Password Notes

Forgetting Your Password
If you forget or lose your password, there is nothing you can do to open the password-protected game. We hope you're not reading this because you've forgotten. Don't worry, empires come, empires go.

AIs
There is no valid password for AI players.

Inactive Players
There is no valid password for inactive players. When the player becomes active again, they get their old password back.

Save File commands

Saving a File

Use the **Save** command to save the current state of your game.   This is useful if you need to exit the game before you finish your turn. When you restart Stars! just click on the **Continue Game** button to resume where you left off.

If you close the game before saving you will see this alert, you'll be asked if you wish to save before exiting.

Save and Submit

Multi-player Games Only

Use the **Save and Submit** command to save the current state of your game and submit your turn. In multi-player games, this marks your turn as finished so the host can auto-generate; **Save** does not.

If you close the game before saving you'll be asked if you wish to save and submit your turn before exiting.

File Close/Exit commands

The **Close** command closes the current game but does not exit Stars!. You'll be prompted to save any unsaved changes. You can use the **File** (**Open**) command to open a new game.

The **Exit** command exits Stars!. As with Close, you're prompted to save unsaved changes. The first time you play, this writes the very important stars.ini file.

Tutorial command

This Help command begins the tutorial game without further adieu. If you are new to Stars!, the tutorial will help you become a proficient player in one short game.

The tutorial game includes yourself and one computer player, or AI. The tutorial instructions floats above the game. If you are running in 800x600 or less, you'll need to move it out of the way from time to time, or Hide it.

If you're already in the middle of a game, you're asked if you wish to save your changes before you begin the tutorial.

Merge Fleets dialog

Use this dialog to merge two or more fleets currently at the same location.

To use the Merge Fleets dialog:

1. When commanding one of a number of fleets at the same location, click on the **Merge** button in the Fleet Composition tile.

2. Select any combination of fleets to merge and **OK** the dialog.

   If the fleet under command is not selected to merge, the other selected fleets are merged into the fleet with the lowest ID number. If the fleet under command is selected, the other selected fleets are merged into it.

Learn about:

Splitting and Merging Fleets

Added Cost of Research

The added cost of research represents the cost of such things as dilution of research efforts across more than one field, ramp up time to switch to entering a new fields of study, etc.

AI

An AI is a computer player. AIs always exist in single player games and can exist in multi-player games, if chosen.

AIs and Advantage Points

The easy AIs receive substantially fewer advantage points than you do. The expert AIs receive quite a few more advantage points than you. The Standard and Hard AIs fall somewhere in between.

Annual Growth Rate

This rate is calculated by multiplying the habitability value by the "Maximum colonist growth rate per year" found on page 4 of the View Race dialog.   For races with the Primary Racial Trait of Hyper-Expansion the actual maximum colonists growth rate is twice that displayed.

Battle Speed

In computing movement in battle, the best speed for all engines is the figure for 120% fuel usage.

Best Warp Speed

This is the maximum warp speed that the engines on this ship design can go at 120% normal fuel consumption or less. For Ramscoop engines it is the maximum speed the engine can travel withut using fuel. This number appears in the Fleet Composition tile for the selected fleet.

This speed appies only to travel between waypoints, not battle.

Capital Ship

A ship with a power rating of greater than or equal to 2000.

Collateral Damage

Damage taken by all non-targeted ships in the area of a torpedo blast.

Defenses and Invading Troops

Defense percentage values are based on the installations effectiveness against bombs.   Planetary defenses are 75% effective against invading troops.

Dialogs and Displays

A dialog is a graphical command window that you interact with by selecting options and specifying preferences. A display is a window that shows you current game settings, provides reference information or plays back an event.

Disengaging

The token attempts to get out of battle (jump into hyperspace). It does not try to leave the square. Eventually, it will simply disappear from the board. Hopefully this means it has escaped and not been liberated to its component quarks.

Energy Sources for Starships

Standard starship engines burn Fuel mined from planets while Ramscoops simply scoop fuel from the surrounding universe

Factory

Factories produce resources. Resources are units of work created by people and factories for use in production, research and other tasks.

Fibonacci Series

Fibonacci numbers are the unending sequence 1, 1, 2, 3, 5, 8, 13, 21, 34 ... where each term is defined as the sum of its two predecessors.

Fleet Colors

A blue fleet belongs to you. A red fleet belongs to an opponent. A purple fleet indicates that both your fleet and an opponents fleet are in the same, or nearly the same, location.

Fuel Poor Planets

Poor is defined to be very low quantity (under 500 kT) or very low density (under 10).

Initiative and Speed

Initiative is order of movement in battle (ranging from 0 to 15), speed is the amount of movement (ranging from 1 to 8). All ships move in reverse order, the slower ships moving first, the faster ships last. This allows the faster ships to catch the slower ships (the faster ships fire first, the slower ships last, since the faster ships have the initiative.)

Load from Fleet

Transport order. Load everything the other fleet has of an item, then leave.

Load Optimal

Transport order. Load no more fuel than you need to reach the next waypoint.   This option can only calculate the amount of fuel required for one waypoint.   It will not attempt to load enough fuel to get you beyond your next waypoint.   If each of your waypoints has a fuel reserve you can give Load Optimal Fuel orders at each waypoint to minimize the fuel useage for the whole journey.

Losing Colonists

Colonists won't die or reproduce while terraforming a planet with a negative value. They're all sealed into space suits and too busy and scared to think or do anything else. If you do attempt to give them other tasks, such as building mines or factories, they will die off at the annual rate shown by the negative value in the Selection summary pane until you resume terraforming.

Maximum Ship Designs and Ships

16 different ship designs at one time, and up to 32,000 ships of each design in a fleet.

Mine

Mines bring minerals to the surface of your planets, where they are used in production.

Mineral Alchemy

You will be able to turn resources into minerals. One instance of mineral alchemy will use 25 resources to produce one kT of each mineral. This item will be available in the production inventory and can be automated through the auto build feature of the production dialog.

Orbit Ring Colors

A white circle indicates that one or more of your fleets are in orbit. A red circle indicates one or more of an opponents fleets. A purple circles indicates that both your fleet(s) and an opponents fleet(s) are in orbit.

Planet-penetrating Scanners

These scanners can detect fleets in orbit around a planet. They also can tell you planetary stats from a distance.

Resources

Resources are units of work created by people and factories. They represent the cost of performing a task or producing an item

Round of Battle

One round of battle is each token getting a chance to move and fire.   Within a round each token moves from slowest to fastest then each token fires from fastest to slowest.Battles last up to 16 rounds. One round of battle is each token getting a chance to move and fire. A round is broken into phases, where one phase is a single token moving and, if applicable, firing.

Ship Classes

Unarmed ships -- any design that has no weapons.

Scouts -- ships based on the Scout, Super Scout, and Destroyer hulls.

Warships -- all other armed ships, including armed freighters.

Bomber -- any ship based on one of the Bomber hulls.

Token

Each token is a stack of identical ships from a single fleet.

Views in the Scanner pane

Right-click on the blue diamond to display a list of different views of the universe.   Left-click on a view in the list to alter the scanners display.

Wait for Fleet

Transport order. Wait for the other fleet to have enough of the mineral to fill your hold or until youve loaded the amount you specified in the Waypoint Tasks tile.

Setting Up Play

How to Play with a Custom Race...

[Create and Save a Custom Race](#)

[Add an Existing Race to a New Game](#)

[Edit an Existing Custom Race](#)

How to Manage Production...

Add an Item to the Production Queue

Remove an Item from the Production Queue

Clear the Production Queue

Create or Edit a Production Template

Unblock the Production Queue

How to Assign Waypoints and Tasks...

[Add Fleet Waypoints and Tasks](#)

[Move Fleet Waypoints](#)

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How to Manage Battles...

How to Design Ships...

How to Manage Fleets...

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[Switch Between Fleets](#)

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Messages Pane

Welcome to Stars!

One world is not enough. The universe is huge and insidiously subtle, infinitely dangerous, and more fun than you can slam a mouse at. Its begging you to come after it. Look at the night sky. Its dark now, but youve been able to see the future since you were a kid: systems strung together with fleet routes and wormholes, ripe planets glittering with minefields and lit by the warm, cheery glow of space battles. Somewhere out there are (other?) nasty beings who feel the same way.

Its the 2400th year of the Planetary Era. Your world is resource rich and bustling with technological development. Your political leaders are giddy and have just declared this as the first year of the Galactic Era. Your people are looking for a real leader.

A big voice whispers, Its your turn.

You are the Master Strategist

Use the Stars! control panels to command your planets and fleets, to seek out strange new worlds and new civilizations, to boldly help your neighbors understand their role in the doctrine of Manifest Destiny.

Stars! may seem complicated at first glance. Lots of tiles and windows, lots of text, lots of colors. These things require a little explaining. Only a very little.

But not here. You wont need to pay more than cursory attention to most of the information on the screen, most of the time. Its there when you need it. You can even temporarily collapse some of pieces if you find them distracting.

To orient yourself, before you go nose to beak with the other spacially challenged races, PLAY THE TUTORIAL GAME. Just click on **New Game** in the opening screen, then click on **Play Tutorial** in the New Game dialog.

To get help during play, LEFT-CLICK the mouse when you see this cursor: . Also consider clicking on Help buttons in the dialogs and choosing the Help commands in the main menu.

Get going. The universe is waiting, along with up to 15 other star-hungry races.

Stars! World Wide Web Site

Be sure to check out the official Stars! Web site at **http://www.webmap.com/stars!**. There youll be able to purchase the retail version of Stars!, download the latest shareware version, view the FAQ and other Stars! information you wont find in this players guide, and connect to sites hosting multi-player games.

You can also send feedback directly to the authors via the Web site. Or just email them at **stars@webmap.com**.

Multi-player games

You can challenge your opponents on a single computer or across a local area network, or by transferring turn files using ftp, modems, email, computer bulletin boards, or any other file transfer mechanism you can think of. There's room for up to 16 of you in the Stars! universe, with any mix of human and computer opponents.

Keyboard Shortcuts

Press	To
F1	Open this **Player's Guide**.
F2	Open the **Technology Browser**.
F3	Open the **Planet Summary Report**. Second press opens the **Fleet Summary Report**. Third press closes the report window.
F4	Open the **Ship Design** dialog.
F5	Open the **Research** dialog.
F6	Open the **Battle Plans** dialog.
F7	Open the **Player Relations** dialog.
F8	Open the **View Race** dialog.
F9	Generate a **new turn**, immediately.
F10	Display your **score**.
1-6	Change the Scanner view: Normal (1), Surface Mineral (2), Mineral Concentration (3), Planet Value (4), Population (5), No Player Info (6).
7, 8, 9, 0	Toggles these Scanner overlays: Radar Coverage (7), Mine Fields (8), Fleet Paths (9), Planet Names (0)
Esc	Closes the displayed **report**.
CTRL F	**Find** a planet or fleet in the Scanner.
+ / -	The plus (+) key zooms in the Scanner. The minus (-) key zooms back out.
Up arrow Down arrow	**Up arrow** displays the previous message in the Messages pane. **Down arrow** displays the next message.
Home / **End**	Display the first and last messages in the Messages pane.
Enter	Go from the Messages pane to the **related dialog or location**
Backspace / **Delete**	Deletes the selected waypoint.
p / **n**	Displays the previous or next planet or fleet in the Command pane.
P / N	Displays the previous or next planet with a starbase in the Command pane.
q	Opens the Production dialog.
v	Flash cursor in the Scanner pane.
f	Displays your fleet or planet with the lowest ID number in the Command pane. If the fleet is already selected the planet is displayed, and vice versa.
,	Decreases the selected fleet's warp speed to the current waypoint by one.
.	Increases the selected fleet's warp speed to the current waypoint by one.

Changing the Basic Layout

From the main menu, select **View** (**Window Layout**). Select **Small Screen**, **Medium Screen** or **Large Screen**. Choose the screen layout that works best with your video resolution.

Shrinking and Growing Panes

You can change the size of each the four panes. Move the cursor to the line dividing panes. The cursor changes to indicate the directions the border can be dragged. Left-click and hold, then drag the cursor to a new position and release.

Moving and Collapsing Tiles

Stars! contains a tile for each type of command you can give a planet or fleet. You can move and collapse these tiles, arranging and displaying them in any order you wish.

To move a tile, click here and drag, letting go when the tile is close to the new location.

Fleet #2

Prev

Next

Click here to collapse a tile.

Fleet #2

Click here to expand a tile.

Commanding a Planet

The Command pane is the command interface for each of your planets and fleets. When you select a planet to command, tiles for assigning planet-specific orders fill the pane.

To learn more about a tile, click on the picture.

Winter		Fleets in Orbit	
	Prev	Fleet #3	
	Next	Fuel	175 of 175mg
		Cargo	0 of 250kT
		Goto	Cargo

Minerals On Hand

Ironium	125kT
Boranium	1525kT
Germanium	285kT
Mines	210 of 282
Factories	232 of 235

Production

Medium Colonizer	1
Super-Fuel Xport	1
Min Terraform	Up to 10%
Factories	Up to 20
Mines	Up to 10
Completion:	1 year
Route to	Catnip
Change	Clear	Route

Status

Population	470,900
Resources/Year	890 of 890
Scanner Type	Snooper 250X
Scanner Range	125/250 l.y.
Defenses	66 of 100
Defense Type	Neutron Shield
Def Coverage	92.24%

Gateway to Hell

Dock Capacity	Unlimited
Armor	29800dp
Shields	2400dp
Damage	None
Mass Driver	Warp: 7
Destination	None
Set Dest	Warp 7

Planet tile
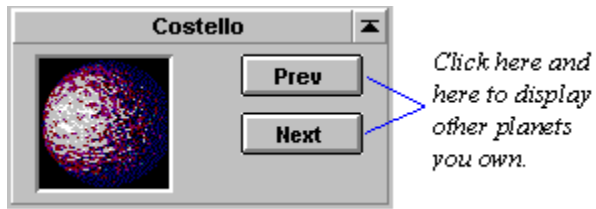
This tile shows the planet currently selected to command. Switch to commanding to other planets you control by clicking on **Prev** and **Next**. When you hold down on the SHIFT key while clicking on Prev or Next, the previous or next planet with a starbase appears in the Command pane.

Production tile
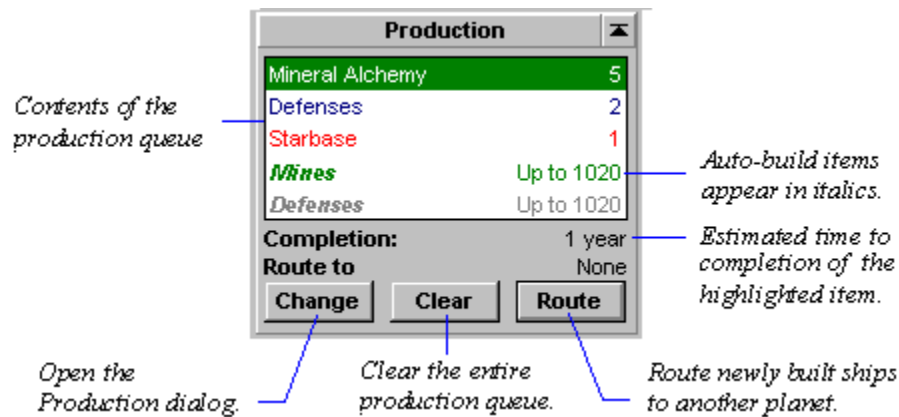
The Production tile displays the contents of the production queue for the planet you are commanding and allows you to automatically route new ships to other planets. It is also your primary entry point into the Production dialog, where you set up production for each of your planets.

Green items will be produced at the end of the current turn.

Blue items will have at least one of the items shown produced at the end of the current turn.

Black items require more than one turn before anything is produced.

Red items will never be built, due to a lack of required minerals.

Gray items will be skipped this year.

Completion time is almost always 100% accurate, modeling planetary growth, the effects of mines and factories, mining rates, and mineral alchemy.

⇒ To open the Production dialog, click on **Change**. Use this dialog to view and change the production queue for one or more of your planets

⇒ To remove everything from your production queue, regardless of completion status, click on **Clear**. Minerals and resources spent on partially completed items are lost if an item is removed before completion.

⇒ To route newly built ships to another planet, click on **Route**, then click on the destination planet. You can also set the Route by just CTRL-clicking on the destination planet.

Read more about:

Routing Fleets

Status tile

Left-click in each section of the Status tile to display more information about the current population, scanners and defenses. Learn more about the different scanner and defense types by visiting the Planetary section of the Technology Browser (press F2).

Population Status

Population -- How many of your people live on the selected planet.

Resources/Year -- This number is based on the size of the planet's population, your colonists' efficiency, and the number of factories on the planet. You increase resources by increasing the population and, if the population growth potential is less than 100%, by terraforming the planet. Each year you get one resource for every N colonists, and N resources for every 10 factories you've built. Of course, factories also cost resources to build.

The population growth potential is based on a maximum population size of 1,000,000. Maximum growth occurs only on planets that are 100% optimum for your race. The Value in the Selection Summary pane indicates the percentage of the maximum number of your people the planet will support. Certain racial traits can increase or decrease this potential maximum population.

To learn how many colonists it takes to generate one resource and how many resources 10 factories can create, open the View Race dialog to page 5 (press F8, click on **Next** 4 times.)

Planet's Scanner Status

Scanner Type -- Type of scanner deployed on the planet surface.

Scanner Range -- Range of the scanner in light years.

Planet's Defense Status

Defenses -- Number of defenses deployed out of the maximum you can operate, given your population.

Defense Type -- Current technology of the defenses.

Defense Coverage -- Estimates how many of an enemy's bombs and troops the current defenses will stop. Defenses also protect planets against mineral packet bombardment.

Learn more about:

Minerals on Hand tile

Minerals On Hand	⏫		Minerals available for immediate use.
Ironium	190kT		
Boranium	446kT		
Germanium	152kT		
Mines	10 of 28		Available and possible mines and factories.
Factories	10 of 28		

Left-click on each statistic in the Minerals on Hand tile to display more information about the planet's mineral supply, mines and factories.

Mineral Statistics

This tile lists type and quantity of minerals on the planet surface. These minerals are ready for immediate use in production. The mineral concentration and mining rate are displayed in the mineral content graph of the Selection Summary pane, and are also available by left-clicking on each of the values in this tile.

Mine and Factory Statistics

The current number of mines and factories on this planet and the total number that you can currently operate are displayed. The number you can operate is determined by your current population. Since your population changes from year to year, the maximum number your people can operate will also change. To determine how many mines X number of your colonists can operate, look at page 5 of the View Race dialog.

In the picture above, 10 out of a maximum of 28 mines and factories currently exist. This means that the current population can operate 28 of each facility. If more than 28 mines or factories are built, they will sit idle until the population increases.

Learn more about:

Mining

Factories

Fleets in Orbit tile

Other Planet-related Tiles

The Rest of the Screen
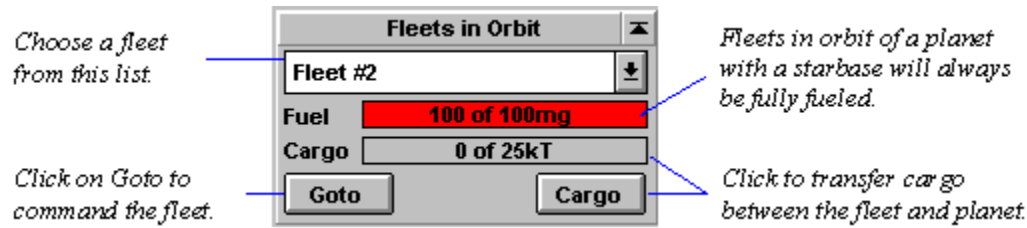
The fleet dropdown lists all fleets and other objects in orbit of the planet you are currently commanding. Fleets you own are listed in black. If you own the fleet, you can transfer any amount of cargo between the fleet and planet, limited only by the carrying capacity of the fleet.

Fleets belonging to other players are listed in red. You can transfer cargo to another player's fleet, and, if you wish, transfer up to that amount back to your planet. Once the turn is over, however, that cargo belongs to them.

⇒ To command a fleet you own that is shown in the tile, click on **Goto**.

⇒ To open the dialog for transferring cargo between the planet and the fleet, click on the Cargo gauge or the **Cargo** button.

In small screen layout, the Cargo gauge isn't displayed. Click on the **Cargo** button to display the cargo list.

Starbase tile

Click to display
the schematic.

Click on the
destination in
the Scanner,
then click here.

Guardian Angel	
Dock Capacity	Unlimited
Armor	37000dp
Shields	8000dp
Damage	None
Mass Driver	Warp: 10
Destination	Bufu
Set Dest	Warp 13

Maximum safe
packet speed.

Click here to set
the packet speed.

The Starbase tile describes the starbase orbiting the selected planet, and the mass driver attached to the starbase. You also use this tile to set the destination of the mass driver and the speed at which the packets will be launched.
If the speed is higher than the maximum safe speed specified in the tile, the packet decays during travel: 1 warp level over the maximum = 10% decay per year traveled; 2 warp levels = 20% decay/year, 3 warp levels = 50%/year. When you set the mass driver speed, notice that the gauge color is purple as long as the speed is safe, yellow when the speed is just over the limit, and red when you reach the maximum decay rate.

Learn about:
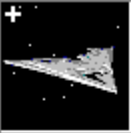
Commanding a Fleet

The Command pane is the command interface for each of your fleets and planets. When you select a fleet to command, tiles for assigning fleet-specific orders fill the pane.

To learn more about a tile, click on the picture.

Fleet tile

Use the **Prev** and **Next** buttons to display each of your fleets in the Command pane, allowing you to give orders to that fleet. The fleets are cycled in the current sort order specified in the Fleet Summary Report. The picture in the tile indicates the most common ship in the fleet or the largest type of ship in the fleet.
Use the **Rename** button to give your fleet a new name.

     If a fleet contains more than one distinct ship type, a small plus sign appears for each type not currently displayed.

Location tile

Click Goto to command the planet you currently orbit.

Orbiting Cherub

Goto   Xfer
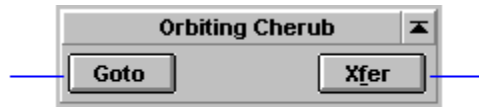
Click here to transfer cargo between your fleet and planet.

This tile indicates whether you are in orbit or in deep space. If the fleet is in orbit, the planet name is displayed in the title bar. Here, the location tile shows that the fleet is in orbit of the planet Cherub.

Selecting **Goto** switches to commanding the planet you're orbiting. The **Goto** button is disabled (shaded) if you don't own the planet.

If the fleet is in Deep Space, the **Jettison** button is displayed, allowing you to donate your fuel and cargo to the cosmos.

> **Tip**: Jettison cargo if you don't have enough fuel, must reach your destination or make a fast getaway, and can't wait for another ship to reach you with fuel.

Learn more about:

Fuel and Cargo tile
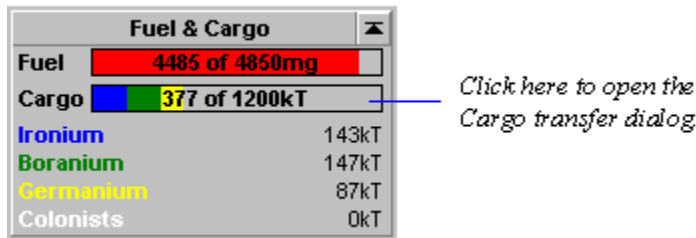
Fuel -- The Fuel gauge shows the current and maximum fuel level of the fleet. Here, 40mg of fuel is present in a 100mg tank. To load fuel, the fleet must be orbiting one of your planets with a starbase (the ship is refueled automatically) or in the same location as another one of your fleets. You can also accept fuel from another player, but they'll have to perform the transfer action.

Fuel transfers are performed using a transport task or by direct manipulation of the Fuel gauge when transferring between two fleets.

Cargo -- The Cargo gauge shows the total amount of cargo loaded and the total cargo capacity of the fleet. The exact amount of each type of cargo loaded is listed below the gauge. In the picture, the cargo hold is full of colonists.

⇒   To display the dialog for transferring cargo, left-click in the Cargo gauge. If your location is in deep space, you can only dump cargo using this dialog.

In medium and large screen layout, the exact amount of cargo is displayed under the gauges. In small screen layout, you'll need to click in the Cargo gauge to display the cargo list.

Learn more about:

Fleet Composition tile
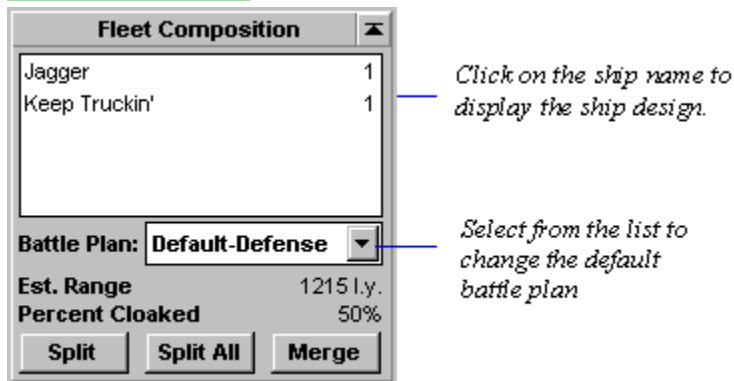
This tile shows the number and type of each ship in the selected fleet. This fleet contains a ship with the Small Colonizer hull type, with a recommended top speed of warp 5 (anything faster uses fuel at a rate of more than 120%) and an estimated range of 330 light years at that speed.

⇒ To assign or change the fleet's battle plan, click on the drop down and choose the plan. This plan is in effect regardless of the fleet's waypoint task. Click on **Battle Plans...** to view, create or edit a plan.

⇒ To display the specific design of a ship, click on the ship name. If the fleet name is in red, the ship has been damaged in battle. When you click on the name of a damaged ship, the amount of damage is listed in the popup in red.

⇒ To break the selected fleet into smaller fleets of a single ship each, click on **Split All.**

⇒ To break the selected fleet into two fleets, click on **Split**.

⇒ To join the selected fleet with other fleets in the same location, select the **Merge** button.

Tip: If you want transfer some but not all of the ships between two fleets, select the second fleet in the Other Fleets Here tile and click on **Merge**.

Learn more about:

Other Fleets Here tile
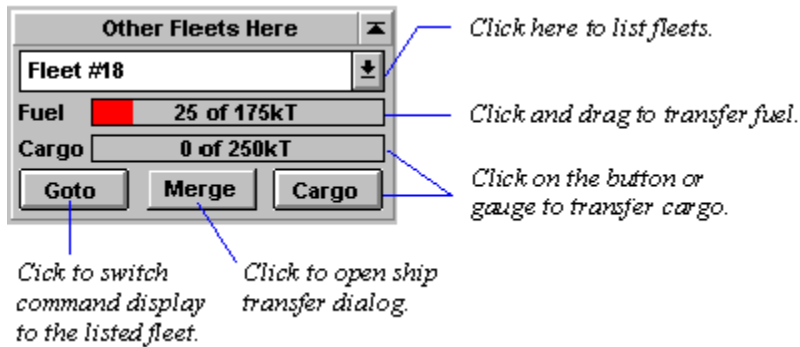
The dropdown lists all other fleets and any mass packets or other objects present at the selected fleet's location.

⇒   To switch to another fleet, choose a fleet in the list, then click on **Goto**.

⇒   To open a dialog to transfer ships between the selected fleet and a fleet shown in the list, select **Merge**. You must own both fleets.

⇒   To open a dialog for transferring cargo between the fleet selected in the command pane and the fleet listed in this tile, click on the Cargo gauge or the **Cargo** button.

Small Screen Layout
Click on the **Cargo** button to display the cargo list.

Transferring Cargo from Mass Packets or Salvage
Click on the mass packet in the dropdown, then click on the **Cargo** button and siphon off as much as you can carry.

Learn more about:

How to Manage Fleets

Fleet Waypoints tile
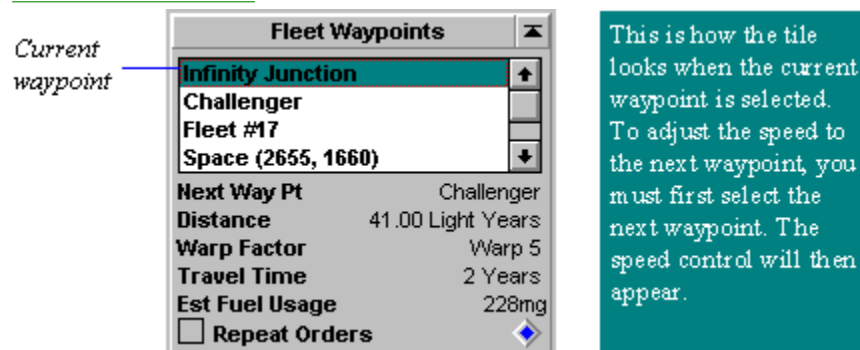
The Fleet Waypoints tile lists all the waypoints assigned the selected fleet. A waypoint may be a planet, another fleet or a position in deep space. The first waypoint listed is your current location. If you are in transit between waypoints, the current waypoint is shown as your coordinates in deep space. Listed below the current waypoint are future waypoints. You assign waypoints in the Scanner pane.

 Right-click on the blue diamond to display a list of all items at the selected waypoint. Select an item to change the waypoint target.

> **Tip**: You can follow a fleet currently at your location by right-clicking on the diamond and selecting the other fleet. This fleet appears as the waypoint. When the selected fleet moves your fleet will attempt to follow it at the same speed. Once you have moved and you catch up with them again your waypoint is no longer set to follow them.
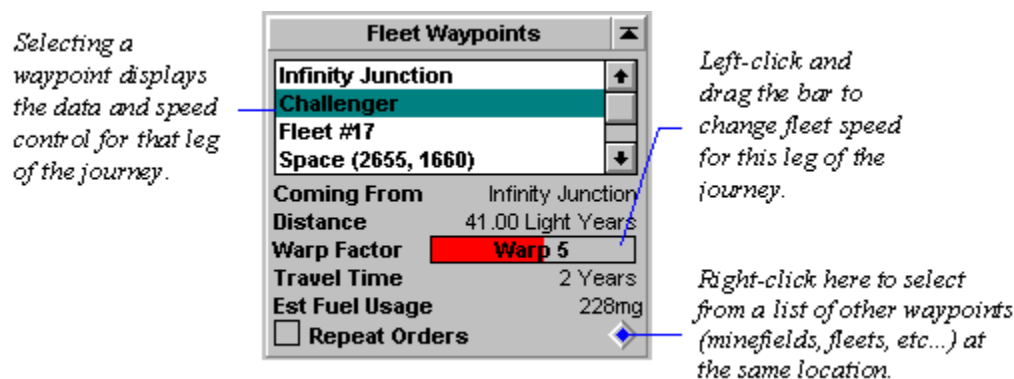
Warp Factor

Left-click and drag the colored bar to adjust speed. Changing speed changes travel time and fuel usage. By default, Stars! chooses the ideal speed for reaching the waypoint (balancing fuel usage and time to destination).

If you wish to use a stargate, drag the bar all the way to the right end of the gauge. The speed will change to Use Stargate. If a stargate is not present, the travel time will say "Never".

Fuel Usage

This tells you exactly how much fuel the fleet will use to reach the waypoint at its current speed. When you choose a waypoint the fleet can't reach given the current speed and fuel supply, the amount turns red.

Repeat Orders

Repeats the total set of orders you assigned using the Waypoints Task tile, until you deselect this box. Repeating

orders is useful if the first waypoint in the list is the same as the last waypoint.

Learn more about:

Waypoint Task tile

When you select a waypoint in the Fleet Waypoints tile...
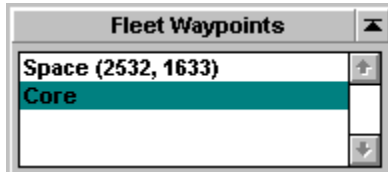
the Waypoint Task tile shows the task you ordered the fleet to perform at that waypoint.
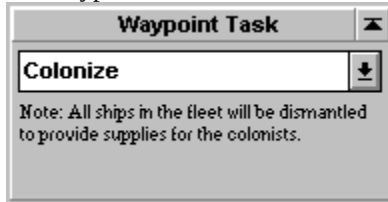
You may alter the task at any time before the fleet reaches the waypoint. Just select the fleet, select the waypoint in the Fleet Waypoint tile, and choose another waypoint task.
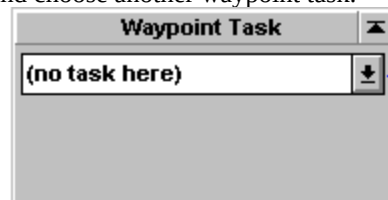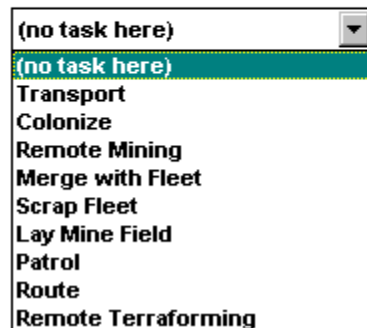
For all waypoint tasks except *Patrol*
If the fleet comes under attack it will defend itself using the Default battle plan.

Learn about these waypoint tasks:

Learn more about:

How to Assign Waypoints

Transport
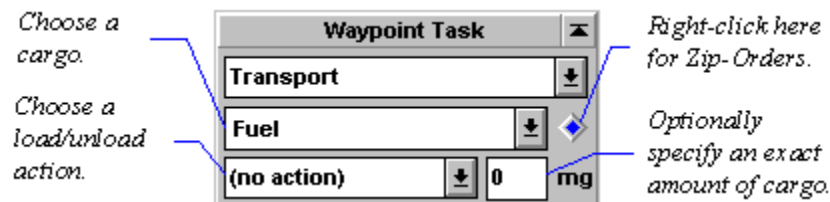
Transport orders specify the loading or unloading of minerals, fuel or colonists. They work whether your waypoint is a planet, fleet, mineral packet, or salvage. However, Fuel transport tasks have meaning only when the waypoint is a fleet, and colonist transport tasks have meaning only when the waypoint is a planet or fleet.

For each type of cargo specify one method for loading or unloading. For some actions you can specify the exact amount of cargo to load or unload.

When you assign an action to a cargo, the cargo name turns from black to green. This tells you, at-a-glance, which cargo has an action assigned.

◆ **Zip Orders**: To quickly load fuel, minerals and colonists, right-click on the blue diamond and choose a pre-defined order from the list. If a Zip Order doesn't quite meet your needs, you can create your own custom Zip Order or modify the existing order in the Waypoint Tasks tile.

(no action)

No task for the specified cargo.

Load All Available

Loads as much of the specified cargo that is available at the waypoint and fits in the available cargo space of the fleet.

Unload All

Unloads all the specified cargo at the waypoint.

Load Exactly...

Load exactly the amount specified; no more, no less. If there is not enough room in the hold, the order is not carried out.

Unload Exactly...

Unloads exactly the amount specified at the waypoint. If the this number is more than the fleet is carrying, the order is not carried out.

Load up to %...

Loads up to the specified percentage of the cargo hold, depending on how much is available that year at the waypoint or how much room is left in the hold. For example, specifying Load % 50 Boranium will load up to 50% of the hold's total capacity with Boranium.

Wait for %...

Loads exactly X % of the hold (based on the hold's total capacity) with the specified cargo. The fleet stays at the waypoint until the order is filled.

Load Optimal

Fuel only. Loads or unloads fuel until the fleet carries only the exact amount of fuel needed to reach the next waypoint. A good example use of this task is to send a fleet loaded with fuel out to rescue a fleet with empty tanks, specifying Load Optimal at the stranded fleet. This causes the rescue fleet to transport any fuel not needed for reaching its second destination to the stranded fleet.

Load Dunnage

Minerals and colonists only. This command waits until all other loads and unloads are complete, then loads as much of the mineral specified as dunnage as will fit in the cargo hold. For example, setting Load Dunnage Ironium, Load All Germanium will load all the Germanium that is available, then fill the remaining cargo space with as much Ironium as possible. If you specify more than one cargo type using Load Dunnage, they are loaded in the order of Ironium, Boranium, Germanium, and Colonists. This option appears only when Fuel is not selected as the Transport item. Load Optimal occupies this position in the menu   when Fuel is selected.

Set Amount to...

Loads or unloads the cargo so that the amount on board is the amount specified. This order will keep the fleet from moving on if less than the required amount is available.

Set Waypoint to...

This order specifies the exact quantity of the item you want the waypoint to have, loading or unloading cargo as needed. This order is always carried out to the best of the fleet's ability that turn. For example, if you Set Waypoint to 3000 kT Boranium, the waypoint has only 1000 kT, and the fleet can only carry 1000kT of Boranium, the fleet will unload all its Boranium at that waypoint and move on to its next destination.

> **Tip**: One strategy is to use this Transport task to balance the amount of minerals or colonists on several planets, specifying the this order for each planet, along with the item, and the amount you want the planet to have. If you cause these orders to repeat, the fleet will follow its path continuously. Eventually each planet will have the specified amount.

Learn more about:

How to Manage Fleets

Creating Custom Transport Zip Orders

Transporting Freight

Colonize
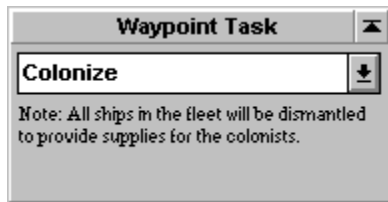
Specify this order when you first colonize a planet. To succeed, the fleet must contain a ship with a colonization module, and must be loaded with colonists. When the waypoint is reached all ships in the fleet are dismantled for raw materials used in building the colony. Once the colony is established you can use freighters to transport additional colonists.

Learn more about:

Remote Mining

Waypoint Task		The tile also shows how much of each mineral the fleet's robot miners can mine annually. The minerals are color coded:
Remote Mining		Blue: Ironium
Mining Rate per Year:		Green: Boranium
132kT 63kT 100kT		Yellow: Germanium

Specify this order to send a fleet containing robot miners on its way to mine an uninhabited planet. If you try to assign this task to a fleet that doesn't include robot miners, the tile will display this warning:

Waypoint Task	
Remote Mining	
Warning: This fleet contains no ships with remote mining modules on them. This mission will be unsuccessful.	

Learn more about:

Merge with Fleet

This task orders the fleet to automatically merge with another fleet at the specified waypoint.   The fleet will assume the orders of the fleet it's been merged with.

The destination waypoint must be the fleet to merge with. If there is more than one fleet at the waypoint, Stars! automatically tries to pick the best merge candidate, based on a preference for ships of the same design and ships without orders to go anywhere else. You can also use the blue diamond in the Fleet Waypoints tile to change which fleet at the destination to merge with.

Learn more about:

Scrap Fleet

Specify this order to discard an out-of-date ship. Scrapping a fleet salvages a percentage of the minerals used in the ship's construction. This is a good way to get rid of ships built using a hull design that is no longer useful.

The minerals you recover are added to the minerals at the planet where the fleet is scrapped. The percentage of minerals recovered depends on the following circumstances:

◆ **Colonization mission** -- leaves 75% of the minerals used in construction on the surface of the planet.

◆ **Scrap Fleet at a starbase** -- leaves 80% of the minerals used in construction on the surface of the planet. If your race has the Ultimate Recycling secondary trait, you recover 90% of the minerals and 70% of the resources used to produce the fleet.

◆ **Scrap Fleet at any planet without a starbase** -- leaves 30% of the minerals used in construction on the surface of the planet. If your race has Ultimate Recycling, you'll recover 45% of the minerals and 35% of the resources.

◆ **Scrap Fleet in deep space** -- everything is lost.

Learn more about:

Lay Mine Fields

This task lays mines at the specified waypoint. The size of the field is determined by the type and number of mine dispensers in the fleet and the number of years the fleet performs the task.

Give this order only to fleets with mine laying capability. The tile notes how many mines the fleet will lay for each year it performs the task (the default is Indefinitely). The fleet will lay mines only if it has been at the waypoint all year and hasn't moved.

You can view the location and size of a field using the Scanner pane's Mine Field's overlay.

Learn more about:
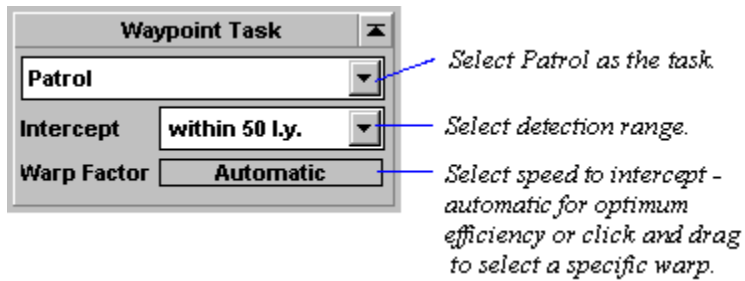
Patrol

Patrol tells a fleet to automatically target incoming enemy fleets and intercept them. The intercept range specifies how close another player's fleet must be before the patrol fleet will consider intercepting it. The warp factor control specifies how fast the patrol fleet travels to intercept the opponent fleet. The default of Automatic chooses the optimum speed (attempting a speed that uses the least amount of fuel to intercept in the shortest possible time.)

Learn more about:

Route

The Route order automatically sends the fleet to that planet's route destination, if one exists. If you are routing using a series of planets with route destinations, you only need to specify route at the first waypoint or at the current planet if it has a route destination you wish to reach. If you are also visiting planets that don't have route destinations, you'll need to specify route again for the next applicable waypoint.

Learn more about:

Remote Terraforming

Only races based on the Claim Adjuster primary trait can perform remote terraforming.

Remote terraforming is terraforming performed while in orbit, allowing Claim Adjuster races to change a planet's environment before colonizing. You must be in orbit of the planet you're modifying. You can choose to improve the planet's value for your own race or attempt to return the planet to its natural pre-terraformed state: useful when orbiting enemy planets.

Learn more about:

Terraforming

Selecting an Object to Command

The Command pane contains tiles that display planet orders or tiles that show fleet orders. It all depends on the object you've selected to command. Here's how to command a fleet or planet.

Selecting a Planet from the Command Pane

Whenever the Location tile shows that you're orbiting a planet, you can command the planet by clicking on **Goto**.

Selecting a Fleet from the Command Pane
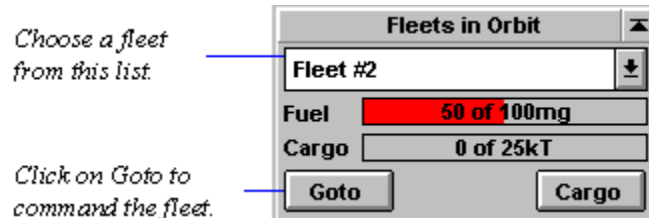
From the Command pane, you can select one of your fleets in the same location using the Fleets in Orbit tile. In the picture, clicking on **Goto** would bring Fleet #2 into the Command pane.

Selecting a Fleet or Planet from the Scanner Pane

Double-click, or click a second time, in the Scanner on your fleet or planet. The object is displayed in the Command pane and magnified in the Scanner. To command an object when more than one object is in the same location, do one of the following:

⇒ Left-click on the location. The selection arrow moves to that location. Now right-click on the same location. A popup appears, listing all objects at that location. Click on the name of the object you wish to command.

⇒ Left-click on the location till the object you wish to command appears in the Command pane.

When clicking on a location to cycle through your planet and fleets, enemy fleets are skipped. Even though you'd like to, you can't display enemy fleets in a command pane. Enemy fleets, if present, are listed in the popup menu: selecting one will display what you know about that fleet in the Selection Summary pane.

Obtaining a Summary of a Planet, Fleet or other Object

To just obtain a summary of a specific planet, fleet or other object, left-click once on the object in the [Scanner](#). A small yellow selection arrow appears under the object you select. The status bar under the Scanner pane displays the name of the object, and the distance from the object in the Command pane. The [Selection Summary pane](#) changes to display what you know about the selected object.

You can also use the Find command to locate a fleet or planet and display its summary.

Messages pane

The Messages pane allows you to effectively manage your empire. Stars! generates a lot of messages to inform you of most significant events that happen each year of the game. From this pane, you can view these messages, open a dialog related to the current message, and change your Command and Scanner pane selection to the planet or fleet described in the message.

You can also view messages from other players and compose and send messages to other players.

Click on the checkmark to filter this type of message.

The asterisk appears if you've given orders this turn and haven't saved.

Click here to enter and exit Mail Mode. (multi-player games only)

Year: 2401* Messages: 1 of 1

Your starbase at Garfunkel has built a new Smaugarian Peeping Tom which has been assigned to Fleet #3.

Prev

Goto

Next

Click here to go to the subject of the message.
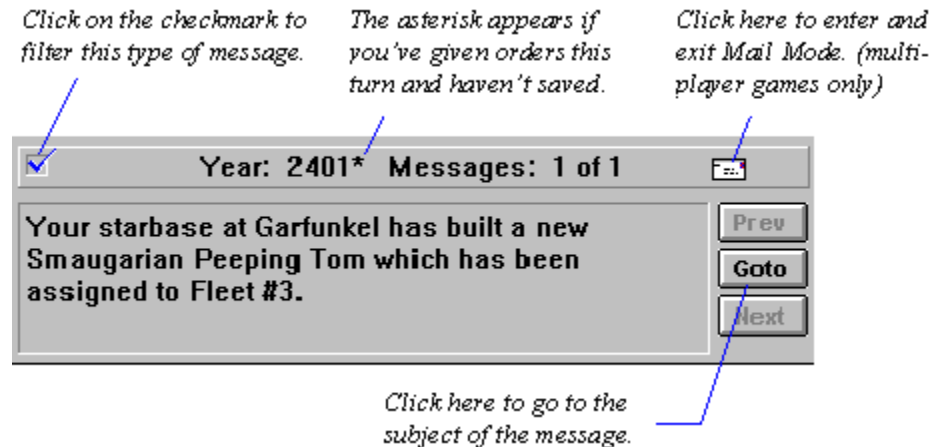
The text in the title bar tells you three things:

◆ The current year or turn. Since every game starts in the year 2400, the example shows that it's currently turn number 2.

◆ Whether or not you have made changes and need to save. * An asterisk follows the year if you have unsaved changes.

◆ How many messages you were sent this turn, and the number of the message displayed.

Read more about Messages:

The Goto, Previous and Next Buttons

Click on the **Goto** button or use the ENTER key to go to the object of the current message.

Click on the **Next** and **Prev** buttons to see the next or previous message.

To see the **first** message, press **SHIFT** and click on **Prev**.

To see the **last** message, press **SHIFT** and click on **Next**.

The Up and Down Arrow keys can also be used in place of Prev and Next.

Filtered Message Checkbox

If this box is checked, the message type is not filtered out. If the box contains an X, the message type is filtered and will not display.

⇒   Left-click on the box to filter out that message type. The check mark changes to a red **X**.

Filtering Message Types

Click here to filter or unfilter a message type.

Click here to display all messages or important messages.

Year: 2404* Messages: 3 of 4

This message type has been filtered out and will not be shown by default anymore. You will still be sent these messages and to show them, click on the magnifying glass.

FILTERED

Prev

Goto

Next
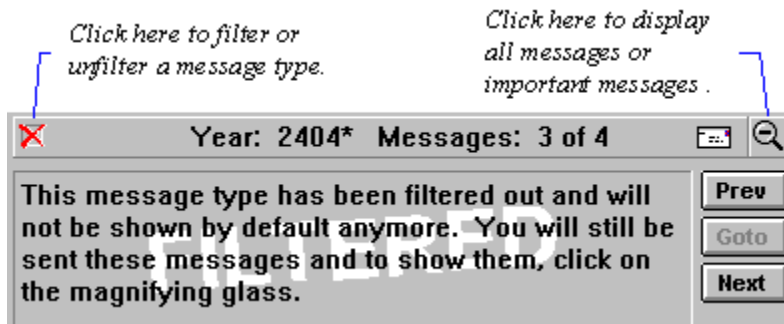
Over time you'll find that some types of messages are too trivial to provide you with useful information.   The example shows what happens when you filter out a message.

⇒   To filter out a message type, click on the blue check mark in the title bar. The mark changes to a red **X** and a magnifying glass containing a minus appears in the title bar. This means you're only viewing the messages you feel are important. These messages are filtered out for the remainder of the game, unless you choose to unfilter them.

⇒   To display all messages, including filtered messages, click on the magnifying glass. The glass changes to contain a plus.

⇒   To return to viewing only important messages, click on the magnifying glass again.

⇒   To unfilter the type of message displayed, click on the red **X**. The **X** changes back to a blue check. Now you will see messages of that type by default.

Even though you filter out a message type, Stars! continues to send you all important and unimportant messages. When you filter out a message, you're only specifying that it's no longer important and that you probably won't want to see it again.

Sending Messages to other Players
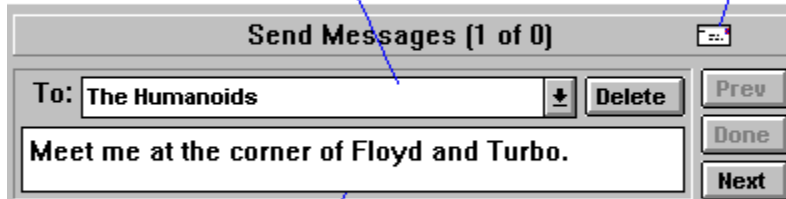
Multi-player Games Only

The envelope appears only if you are playing against other humans. Selecting the envelope replaces the message viewer with a mail form.

Select the addressee
from the dropdown list.

Click here to enter and exit mail
mode. (multi-player games only)

Send Messages (1 of 0)

To: The Humanoids   Delete   Prev
                              Done
Meet me at the corner of Floyd and Turbo.   Next

Type your message
here. It is sent when
you exit Mail Mode.

Your pen pal will receive your message in their next turn. You can use this system to set up diplomatic relations or trade, taunt your enemies, whatever you wish.

Scanner pane
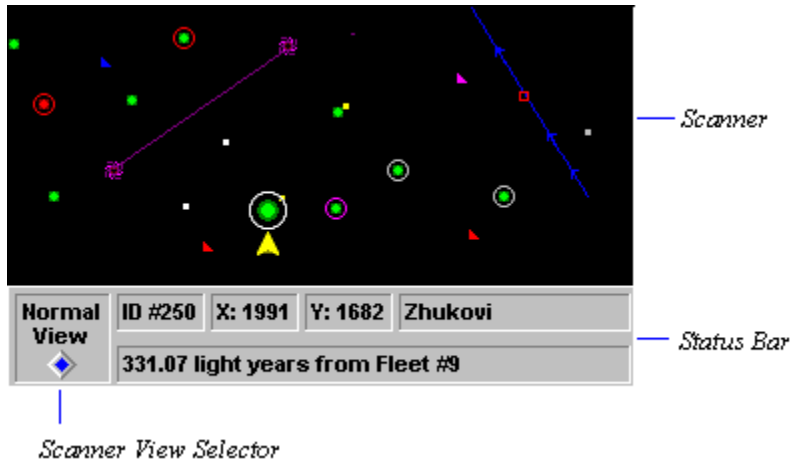
The Scanner pane is your window on the universe, showing what you do and don't know. All the planets in the universe are displayed, along with every other interesting object you know about. When you start the game, all the planets except your home planet are displayed as dim gray specks. Once you visit a planet, it turns white in the scanner, indicating that you have data on it. All players see the same map, from their own perspective. Learn about the universe by selecting objects and different views. You also assign waypoints for your fleets using the scanner, and can view fleet locations: those owned by you as well as any opponent fleets that your radar can detect.

Read more about the Scanner pane:

Key to the Scanner
Quick Reference to Scanner Usage
Choosing Your View of the Universe
Status Bar Information
Zooming

Key to the Scanner

Click once on an object to display a description of it in the Selection Summary pane. The following key lists the objects you'll find in the scanner pane--the scope of the summary depends on what your race currently knows about the object.

Planets - Normal View

·	Dim gray - a planet you know nothing about
·	White - a planet you have visited
●	A planet you own
●	An opponent's planet
●	A friend's or neutral's planet

Orbital Devices

●	Starbase capable of building ships
●	Starbase not capable of building ships
●	Mass driver
●	Stargate

Orbiting Fleets

◉	You are in orbit
◉	One or more opponents are in orbit
◉	You and one or more opponents are in orbit

Fleets

◻	Fleet marker
▷	Fleet under command now
▸	Your fleet
▸	An opponent's fleet
▸	You and an opponent have fleets in close proximity. Increase the scanner zoom factor to see the fleets separately (if possible).

Mass Packets and Salvage

◻	Your mass packet
◻	An opponent's mass packet
◇	Salvage

Spacial Anomalies

✵	Wormhole

Estimated Paths

	Click on an enemy fleet or any player's mass packet to display the item's estimated path. Ticks show direction and est. annual progress.

Quick Reference to Scanner Usage

The following commands work in any scanner view.

Set Waypoints	SHIFT-left click on the waypoint.
Route Fleets	CTRL-left click on the destination planet.
List Objects at Waypoint	Right click on the waypoint.
Measure Distance	Hold down SHIFT, then right-click and drag.

Choosing Your View of the Universe

To display a specific view of the universe, click on one of these buttons or press the associated key. There are six exclusive scanner views, which you can use with one or more overlays.

Tool	Key	View name
	1	Normal view
	2	Surface Minerals view
	3	Mineral Concentration view
	4	Planet Value view
	5	Population View
	6	No Player Information view

Specify one or more overlays or filters using these buttons or keys. These overlays can be used in any combination.

Tool	Key	Name
	None	Add Waypoints
	7	Scanner Coverage
	8	Mine Fields
	9	Fleet Paths
	0	Planet Names
	None	Idle Fleets filter
	None	Ship Design filter

None   Enemy Ships Class filter

Tip: Hide or show the toolbar using the **View** (**Toolbar**) menu command.

Normal view
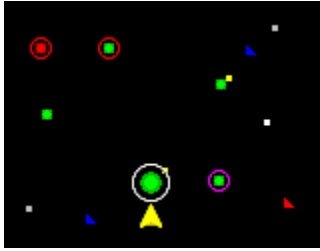
This is the default scanner mode, allowing you to easily view and manipulate all of your planets and fleets. This view displays the route of the selected fleet and shows, using color, which planets you inhabit, have visited or scanned, or know nothing about.

Scanner Overlays/Filters:

Add Waypoints

Scanner Coverage

Mine Fields

Fleet Paths

Planet Names

Idle Fleets filter

Ship Design filter

Enemy Ships Class filter

Planet Value view
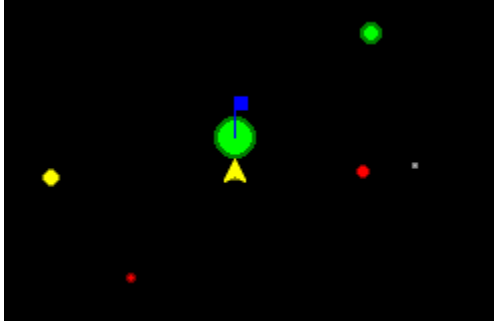
This view represents planet size based on the habitability value. Orbiting ships are not shown in this view. The color specifies the planet type:

◆ **Green planets** -- habitable by your race. The larger the circle, the more hospitable the planet.

◆ **Yellow planets** -- can be terraformed to become habitable. The larger the circle, the quicker you'll be able to make the planet inhabitable, and the more hospitable the planet will be after you terraform it to the limits of your technology.

◆ **Red planets** -- uninhabitable by your race. As terraforming technology improves, some red planets may become yellow.   Larger circles indicate less habitable planets.

Scanner Overlays/Filters:

Surface Minerals view
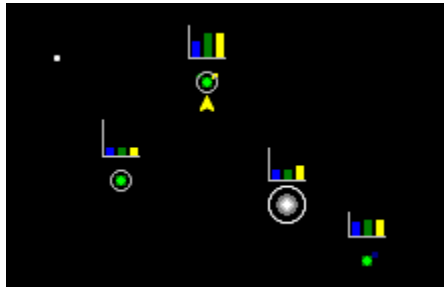
The bar graph at each colonized planet shows the amount of minerals under the surface, the top of the Y axis being 100%. This amount is mirrored in the Selection Summary pane. The height of the bars change if you change the scale by clicking on the bottom of the Summary pane's Mineral Content graph. Each color matches the color of the mineral in the Mineral Content graph:

◆ **Blue** -- Ironium

◆ **Green** -- Boranium

◆ **Yellow** -- Germanium

Scanner Overlays/Filters:

Add Waypoints
Scanner Coverage
Mine Fields
Fleet Paths
Planet Names
Idle Fleets filter
Ship Design filter
Enemy Ships Class filter

Mineral Concentration view
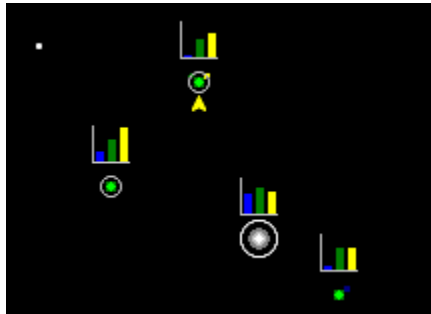
The bar graph at each colonized planet shows the concentration of minerals under the surface, the top of the Y axis being 100%. Each color matches the color of the mineral in the Selection Summary pane's Mineral Content graph:

◆ **Blue** -- Ironium

◆ **Green** -- Boranium

◆ **Yellow** -- Germanium

Scanner Overlays/Filters:

Add Waypoints
Scanner Coverage
Mine Fields
Fleet Paths
Planet Names
Idle Fleets filter
Ship Design filter
Enemy Ships Class filter

Population view
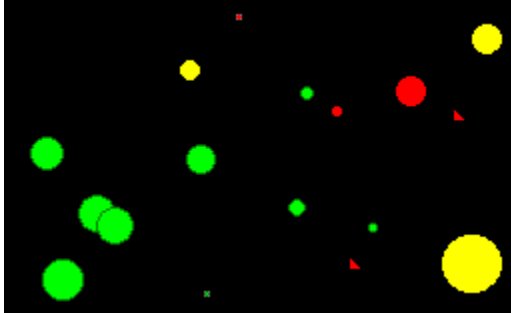
This view displays planets you own in green, planets owned by friends in yellow, and planets owned by neutrals and enemies in red. The bigger the circle, the larger the population. Unowned planets you've visited are bright white.

> **Note**: Don't confuse the yellow planets in this view with the yellow planets in the Planet Value view. In the latter view, yellow specifies a planet your race can terraform.

Scanner Overlays/Filters:

Add Waypoints
Scanner Coverage
Mine Fields
Fleet Paths
Planet Names
Idle Fleets filter
Ship Design filter
Enemy Ships Class filter

No Player Information view
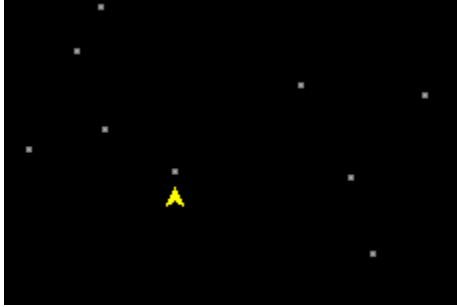
This view hides all traces of planet ownership in the scanner. You can use this view with the Planet Names overlay to plot strategy with another player without revealing your empire. If an opponent will be looking at your screen, make sure you select a planet before you select this view. If a fleet is selected, its waypoint path will be shown.

Scanner Overlays/Filters:

Add Waypoints

Scanner Coverage

Mine Fields

Fleet Paths

Planet Names

Idle Fleets filter

Ship Design filter

Enemy Ships Class filter

Add Waypoints mode

This mode allows you to use only the mouse to add waypoints for the selected fleet (the fleet displayed in the Command pane). It can be used with any of the overlays and filters.

⇒ To add a waypoint, select the fleet then left-click on the waypoint location.

⇒ To delete a waypoint, left-click on the waypoint and press BACKSPACE.

⇒ Change waypoint locations when the cursor turns into a hand. Left click on the waypoint and drag it to a new location.

   Note: You may quickly find that using this mode is unnecessary. You can add waypoints in ANY view or overlay by pressing the SHIFT key and left-clicking in the scanner. This mode exists primarily to help beginning players, or for anyone who wants to eat and play at the same time.

Scanner Coverage overlay
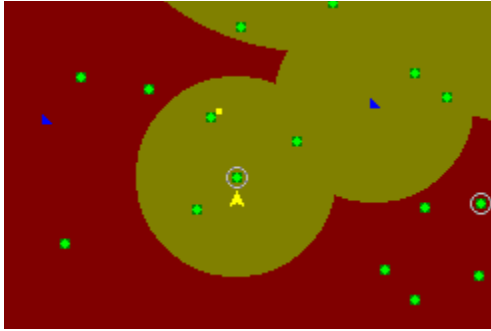
The radius of each circle is that scanner's detection range.

Use the Scanner Effectiveness dropdown to scale down the displayed coverage and look for areas of lesser coverage an enemy stealth fleet might sneak through. For example, setting the displayed coverage to 30% shows paths that a fleet with 70% or better cloaking could pass through undetected. Reducing the displayed coverage does not change the actual coverage.

[< Back]　[Next >] To display information on a planet's scanner, left-click on the scanner portion of the Status tile when the planet is displayed in the Command pane. To display information about the scanners used in your fleet's hull designs, open the Ship Design dialog (press F4).

Mine Fields overlay
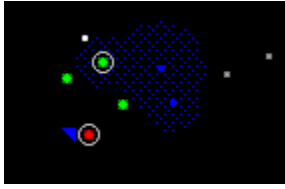
This overlay shows only those minefields within scanner range. All minefields appear as circular grids. Your mine fields are blue, friendly mine fields are yellow, and enemy or neutral mine fields are red.

Fleet Paths overlay
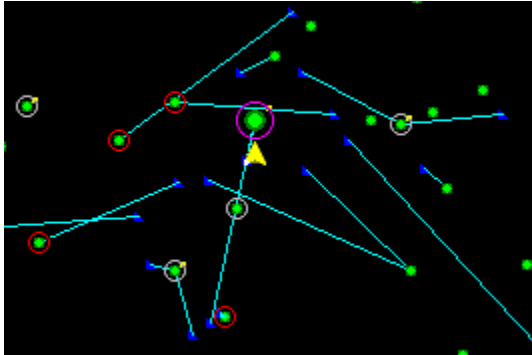
This overlay shows the assigned paths of all your fleets. This overlay is useful for spotting fleets that have no assigned waypoints and planets you own that have no traffic going to them. Also, which fleet may approach closest to a fleet that is stranded, or which fleet may be able to intercept an opponent's fleet or beat an opponent's fleet to colonizing a planet.
This overlay is turned off when the **No Player Info** view is used.

Planet Names overlay
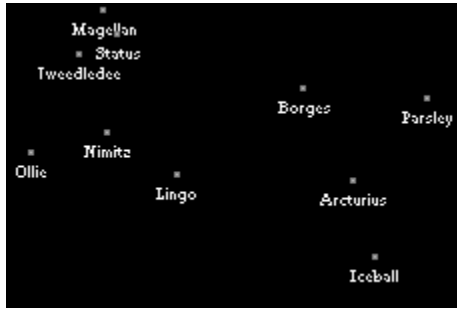
This picture shows the No Player Information view used with the Planet Names overlay.

This overlay displays planet names (at zoom >= 100%). You can use this overlay with the No Player Information view to plot strategy with another player without revealing your empire. If you prefer locating planet waypoints by name, you may also prefer to use this view when assigning waypoints.

Idle Fleets filter

This overlay shows only your fleets that have no movement orders, and any active enemy ships (so you can match one with the other, if you wish). If your fleet is orbiting a planet, only those planets with idle fleets will show orbit rings. If the fleet is in space, it appears as a blue triangle.

Fleets that have run out of fuel are still considered active, and won't appear if you're using only this overlay.

Idle Fleets filter notes
Idle enemy fleets are filtered out of the scanner when you select the Idle Fleets filter.
Claim Adjuster fleets doing remote terraforming are not considered idle.

Ship Design filter

This overlay displays those fleets that contain a selected ship design. Select the design to display ships of that type in the scanner. If the selected ships are all in orbit, only the associated planets will have orbit rings. If the ship is in space, it appears as a blue triangle.

You can select any or all of your ship designs for display.

Enemy Ship Class filter

This overlay displays the opponent fleets containing the selected ship class. Opponent fleets appears as red triangles.

You can select any or all of the opponent ship classes for display.

Status Bar

| ID #114 | X: 1702 | Y: 1105 | Utopia |

| 55.04 light years from Garfunkel |

This bar displays the selected planet's ID, X and Y coordinates, and name.

If a fleet in deep space is selected, this bar displays the fleet coordinates and number.   If the fleet is in orbit around a planet, only the planet information is displayed.

This bar also displays the distance in light years between the object you've selected in the scanner and the object you are commanding (the object in the Command pane). If they are the same, the bar is blank.

> **Distance and the Scanner "Grid"**
> When you set a waypoint, notice that the Scanner snaps to a "grid". The grid snap is one light year, and can't be redefined. Vertical or horizontal distance is measured in whole years. Diagonal distance across a grid coordinate is a decimal amount.

The full set of information shows only if the Scanner pane is wide enough to display the information. If the scanner window is too narrow, only the object name is displayed. If the text is too small to read, left-click in the bar to display the popup.

Zooming

⇒ To zoom in or out of the Scanner, use the **View** (**Zoom**) menu command or click on the Zoom tool:

Stars! can zoom the scanner from 25% to 400%. The zoom factor does not change the way you select and command fleets and planets.

If you have trouble selecting a particular planet or fleet because the Scanner Pane is too crowded, just increase the zoom factor a bit. If you are plotting global strategy and need to see your whole empire just decrease the zoom. To quickly zoom in and out, use the + and - keys on the numeric keypad.

> **Tip**: You can also change the amount of universe displayed by left-clicking and dragging on the left or bottom edge of the scanner pane or by using the menu command, **View** (**Window Layout)**.

Selection Summary pane

The Selection Summary pane displays what you know about an object selected in the Scanner pane. For planets, it reports on the population size and habitability value, environment and mineral content of the planet. For enemy fleets, it displays the owner's race icon, and some information about the fleet composition. For your fleets, it displays a summary of the fleet composition and cargo.

If you select a minefield, wormhole, or mineral packet, this pane displays what you know about that object.

Read about each type of summaries:

Planet Summary
Fleet Summary

Planet Summary

To learn more about each part of the Summary pane when a planet is displayed, click on the picture.
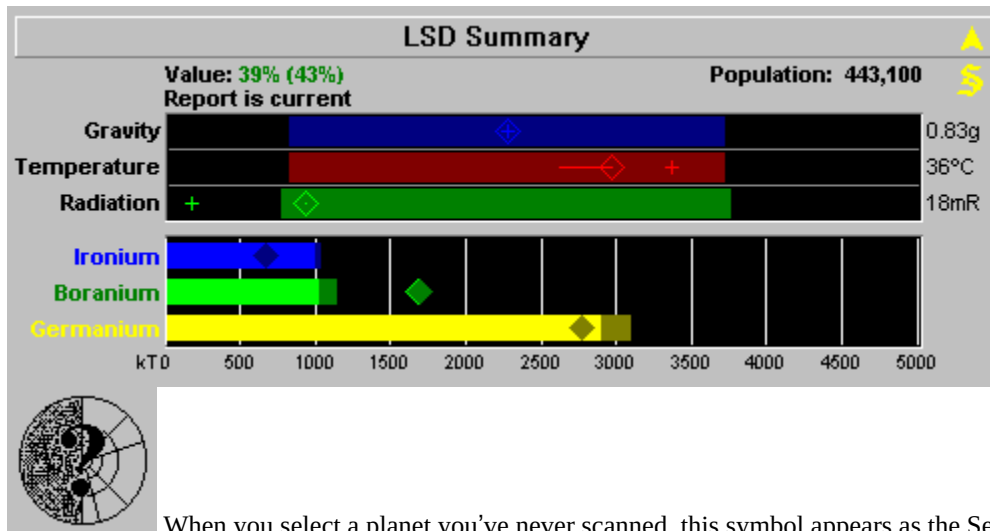
When you select a planet you've never scanned, this symbol appears as the Selection Summary.

Multiple Objects Indicator

⬆ When this arrow is bright yellow, you have information about more than one of the objects at the selected location.

⇒   Left-click on this arrow to cycle through the objects at this location. The Summary pane and other displays change with each object.

⇒   Right-click on this arrow to display a list of everything at the location, then left-click on an object in the list. Whatever you select appears in the Summary pane.

Report Vintage

This line shows the age of the information in the Summary pane. This summary is only as new as your last visit or scan of the planet. If you have colonized the planet, the information is always current. The summary may not be accurate if another player has made changes to the planet since you last visited.

Population Status

Uninhabited -- The planet is free for colonization or remote mining. The Habitability Value shows if the planet is safe to colonize or terraform.

Population number -- how many colonists currently live on the planet. If you own the planet, the number is exact. If another player owns the planet, the number is a guess (since you are understandably denied the ability to conduct a door-to-door census of your neighbors.)

[< Back] [Next >]   If you own the planet, left-click on the population to display the current and maximum population, and growth rate. If the planet is owned by an opponent, left-clicking displays a guess on the defensive capability of the planet.

Learn more about

Population

Habitability Value

This number helps you to decide if you should colonize the selected planet. The higher the Value percentage, the more habitable the planet is to your race. The values range from -45% to 100%, with 100% as the optimum value. An accompanying number in parentheses indicates the value after terraforming using your current technology.

Notice how these numbers compare with the contents of the Environment Graph, the first number associated the locations of each diamond in the graph, the second number associated with the values at the end of the lines projecting from the diamonds.

Positive value -- Indicates the maximum population size possible for your race on that planet, given the current conditions. The Value is a percentage of the absolute maximum of 1,000,000 people. For example, if a planet has a value of 29%, it will support up to 290,000 of your people.   Of course if you have selected racial traits that alter your maximum population, the value is a percentage of that number.

Negative value -- A rough estimate of how fast your colonists will die on the planet. For example, if the value is -10%, 10% of your colonists will die each turn.

If you have terraforming technology, you may be able to modify the planet's environment to support more of your people. While you are terraforming a planet, none of your colonists will die.

Growth Rate -- The Value also approximates the maximum rate at which your population will grow. For example, if your population's maximum growth rate is 10%and the Value is 30%, your population will grow at a maximum of 30% of the 10% growth rate, or 3% per year.

Population growth begins to plateau after the planet reaches 25% capacity.

[< Back] [Next >]   Left-click on the Value for a description of how the value relates to your potential for growth on the selected planet.

Learn more about

Starbase Indicator

When this symbol appears, the planet has a starbase in orbit. Only a planet with a starbase can produce ships. A starbase is indicated in the Scanner by a yellow or blue dot in orbit of the planet. A yellow dot indicates the starbase can build ships. A blue dot indicates a starbase without ship building capability.

Planet with a starbase.

Learn more about

Environment Graph

Gravity		0.83g
Temperature		36°C
Radiation		18mR

The Environment Graph displays the planet's gravity, temperature, and radiation levels. Left clicking on each of these factors displays an informative summary popup. The name is shown to the left of the graph, its value is shown to the right. The blue, red, and green bars represent the range your colonists find habitable. Your colonists are more reproductive in the center of the range, and less reproductive toward the edges. If the graph is missing a colored bar, it means that your colonists are immune to that factor.

The bright diamond in each bar shows the current level of gravity, temperature and radiation for that planet. If each diamond falls within the range, your race can survive on that planet. If you terraform the planet, improving planetary conditions, you'll see the diamonds move closer to the center. If you possess terraforming technology, a line appears next to each diamond that your technology can shift. The end point of the line represents the maximum amount of terraforming you can perform with your current technology. A plus mark in the graph represents the original value of the factor if terraforming has been done.

Learn more about

Terraforming

Mineral Content Graph
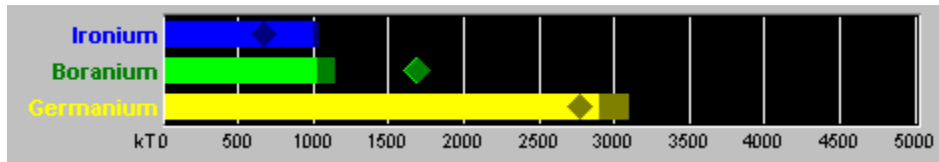
This graph displays the quantity of each mineral on the planet. The bright colored bar shows the amount on the surface and ready for immediate use. The dark bar at the end of the bright bar shows how much you'll mine in the next year. The position of the diamond shows the density of that mineral under the surface, from one to 100. Scanners will only detect the mineral density. You can't detect how much is available on the planet surface unless you colonize the planet.

The scale along the bottom of the graph can be adjusted to focus on small mineral quantities or zoom out to get the big picture. Left-click on the scale to display a menu of available scales, then select a value.

> **Tip**: If you can't see the dark bar, set the scale to a lower number, such as 1000.

Left-clicking on any mineral to display the exact amount of the mineral under the surface and on the surface, the rate at which the mineral is being mined, and the amount that will be mined in the coming year.

Learn more about

Fleet Summary

When you click on a fleet in the Scanner, the Summary pane displays what you know about the fleet. The picture in the tile indicates the dominant design of ship in the fleet. A small plus sign appears in the corners of the picture for each additional ship design in the fleet.

For your fleet, the number, ship count, fuel and cargo amount, fleet mass, next waypoint and waypoint task, and speed are shown:
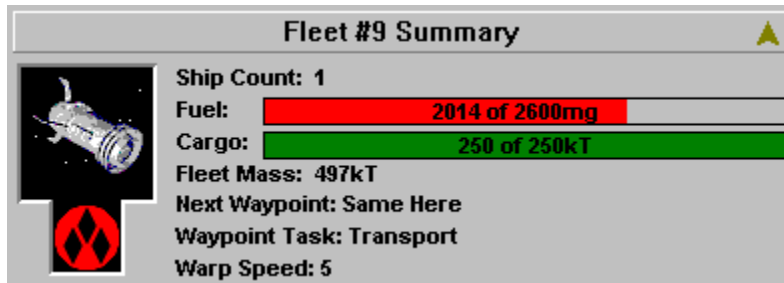
For an opponent's fleet, the owner, number, ship count and mass are displayed:
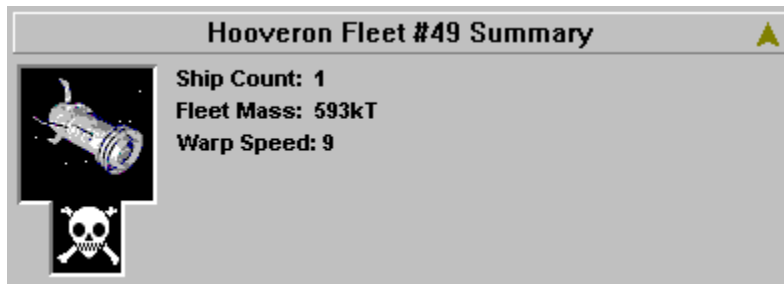
If you are scanning an enemy fleet using a Robber Baron or Pick Pocket Scanner, the fuel and cargo gauges for the fleet are also displayed.

 Display a fleet's composition by left-clicking on the ship picture. Right clicking on the fleet picture pops up the hull design of the first ship type in the fleet. If you have met the enemy ship of that type in battle, Stars! displays the hull type. Left-clicking on the race icon displays the race name and associated player number.

▲ Multiple objects indicator

When this arrow is bright yellow, you have information about more than one of the objects at the selected location. Left-click on this arrow to display each object in turn or right-click and choose from a list of the objects here.

Planets

Planets have three environmental factors that affect your population's growth rate: gravity, temperature, and radiation. The levels of each are different on every planet. You can create a race that is immune to one or more of these environmental factors--a very expensive advantage. You can also make a planet's environment more hospitable to your race by terraforming.

Planets provide three raw minerals: Ironium, Boranium, and Germanium. These minerals provide the building blocks for all the technology you create, including planetary installations such as defenses and scanners, and starbases that support stargates and mass drivers.

Read more about Planets:

Inhabited Planets

Population

Minerals

Mines

Factories

Building Defenses

Planet-based Scanners

Orbital Devices

Terraforming

Your Home World and Other Inhabited Planets

More General Planet Topics

Playing Stars!

You start the game on your home world, where you have a small but thriving population, basic industry in the form of factories and mines, fundamental technology, and a short range, planet-based scanner. In orbit, you have a starbase capable of building ships and providing a small amount of planetary defense. Each player's home world, whether it belongs to an AI or a human, starts out with these same items. When you colonize another planet, you can build these and other items as your resources and knowledge of technology allow.

All planets contain minerals at the start of the game. All home worlds start with the same surface mineral content -- adjusted to even out any advantages or disadvantages provided by racial attributes. If your home planet has a serious lack of a specific mineral on its surface then your opponents are initially faced with the same problem.

All the information about a planet you own and the controls you use to give orders to that planet are available in Command pane. The Selection Summary pane shows the gravity, temperature and radiation levels of a planet, as well as the rate at which your population will grow. Environmental conditions on your home world are optimal for your race.

Abandoning an Inhabited Planet

When you abandon a planet, the starbase and all defenses on that planet are destroyed.

Population

People, along with factories, create the resources you need to build your empire.

> To see how many colonists it takes to produce one resource per year, use the **View** (**Race**) command and turn to page 5 of the View Race dialog.

Your maximum population is based on the Habitability Value displayed in the Selection Summary pane. For example, a planet with a value of 100% can support 1,000,000 people. A planet with a value of 50% can support only 500,000 people. As your population grows, you'll want to colonize new worlds to prevent your current worlds from overcrowding. Certain racial traits can increase or decrease the maximum planetary population.

Growth Rate

The Value also determines your population's annual growth rate on that planet. **Left-click on the Value** to display the annual growth rate, as well the total number of people the planet will support based on current environmental conditions. The growth rate is shown as "up to n%" because the rate slows as the population approaches the maximum.

Population growth begins to plateau after the planet reaches 25% capacity.

Maximum Population

A planet's maximum population number is also affected by racial traits. The population limit of races with the Hyper-Expansion primary racial trait is 1/2 that of other races -- a 100% planet would be limited to 500,000 people. Races which have the Only Basic Remote Mining lesser racial trait get a 10% increase in maximum population over other races -- a race with Only Basic Remote Mining and without the Hyper-Expansion primary racial trait can put 550,000 people on a 100% planet.

Only a planet's maximum population performs useful work. People in excess of the maximum population work at 50% efficiency.

All planets with a positive Value of less than 5% are treated as 5% planets for determining the maximum supportable population.

Overcrowding

Deaths from overcrowding reach a maximum of 12% at 400% capacity.

Killer Planets

Planets with negative habitability values kill colonists, at a percentage rate of Habitability Value / 10 percent of the colonists on the planet per year. For example, a planet with a value -10% inhabited by 2000 colonists will kill 1% or 20 colonists per year.

If you terraform the planet after colonizing, your people will begin to die. To get around this problem, perform remote terraforming (**link to topic**).

Alternate Reality Races and Population

Since races based on the Alternate Reality trait live on starbases, they use a different population model. Read more about them.

Minerals

All planets contain three raw minerals: ironium, boranium and germanium, providing the building blocks for almost everything your race produces. All minerals exist both on and under the planet's surface. Minerals found on the surface can be used immediately in production. Those under the surface must be mined to make them usable. Minerals can also be transported to other planets where they're needed. If you have the race advantage of Mineral Alchemy, you can transform existing resources into minerals without mining.

The Selection Summary pane shows the surface mineral supply, concentration of minerals under the surface and mining rate for the selected planet. Each mineral is represented by a colored bar. The bright colored bar shows how much of the mineral is on the surface and ready to use; the dark colored bar shows the amount that will be mined next year. The diamond indicates the concentration. If you are scanning the planet but don't own it, you'll see only the mineral density. You see all mineral information as soon as you colonize the planet.
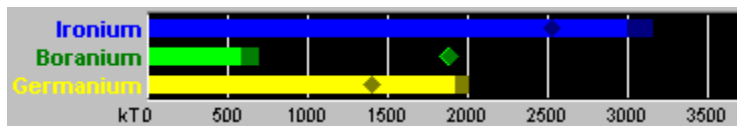
Left-click on any of the bars to display the exact quantity, concentration and mining rate of each mineral. You can also obtain this information from the Minerals on Hand tile when you are commanding the planet.

Learn more about:

Mining
Flinging Mass Packets

Mines

Mines extract minerals from the planet. As you mine, you decrease the concentration of minerals under the surface, adding them to the supply on the surface and making them available for immediate use. You never run out of minerals on a planet, you just decrease the concentration until it reaches 1, when it becomes difficult to extract more than tiny amounts from each mine each year.

Use the Scanner or Command pane to select a planet you own. Look at the Mineral Content Graph in the Selection Summary pane. Each mineral is represented by a colored bar. The bright color shows how much of the mineral is on the surface and ready to use; the dark color shows the quantity to be mined that year. The diamond shows the current mineral concentration, from 0 to 100.

[‹ **B**ack]   [**N**ext ›]

Left-click on any of the bars to display an estimate of the amount the current number of mines will extract in the coming year.

Mining production is also displayed in the Minerals on Hand tile when you are commanding a planet. This tile also shows you the current number of mines and factories and the maximum number of mines and factories the current population can operate. Left-click on the mines and the factories values for additional details.

You can build mines on any planet you inhabit or use robot miners on uninhabited planets.

Calculating the Rate of Reduction

The number of mine years it will take to reduce the concentration by 1 can be approximated by dividing 12,500 by the current mineral concentration. Mine years is one mine per year: if you are operating 50 mines per year on a planet, that equates to 50 mine years.

The decrease in concentration is solely related to the number of mines you have and the number of years they've been in operation. For two players with the same number of mines operating over the same number of years, the decrease in concentration will be the same for each.

Mineral Concentration and Player Efficiency

The rate of concentration reduction is not related to mining efficiency--the player who is more efficient at extraction will mine more minerals. When the concentration reaches 1 on your planet and an opponent's planet, the player who has the more mines but is not as efficient can do as well as a very efficient player who is operating fewer mines.

To learn how many colonists you need to operate a mine and how efficient the mine is at extraction, choose the **View** (**Race**) menu item, and turn to page 5 of the View Race dialog.

Alternate Reality Races and Mining

Races based on the Alternate Reality primary racial trait mine their own planets using remote mining technology only. Read more about them.

Learn more about:

Mining
Auto-building

Factories

Factories, along with people, create resources used to build items such as ships, mines, defenses and more factories. Resources are also required to research new technologies. In general, any task that requires mental or physical effort requires resources.

> To learn how many resources a factory will produce for your race, select the **View** (**Race**) menu item, and turn to page 5 of the View Race dialog.

You do not need factories to build things. Factories only increase the total number of resources you receive each year. For a typical race, you can double the number of resources generated per year by building factories.

> **Tip**: Keep an eye on how many factories you build. They increase the rate at which you use available minerals and, if left unchecked, can strip a planet. If you think you've built too many, you can always raze a few.

Alternate Reality Races and Factories

Races based on the Alternate Reality primary racial trait can not build planetary installations. Read more about them.

Learn about:

Auto-building

Research

Building Planetary Defenses

Defenses partially protect a planet from bombs and invasion. If you haven't taken the primary racial trait, Alternate Reality , you should build defenses, especially in a single player game. AIs love to bomb planets. While you can't build a perfect planetary defense system you can significantly reduce the number of bombs and invading colonists. Whether you build defenses in a multi-player game depends on how much you can trust other players to leave your worlds in peace (there's room enough for all in the Stars! universe--isn't there?)

While you can build as many defenses as you wish, you can only operate as many as your population has resources to handle. When commanding a planet, look at the Status tile to see both the current and maximum number of defenses, the type of defenses deployed and the percentage of bombs and invading colonists that can be stopped.

As a game progresses, you can increase the number of defenses and upgrade the technology (and the efficiency) of existing defenses:

◆ **Adding defenses** increases the number of existing defenses of the type you're currently employing. For example, if you're using Missile Batteries, then adding Defenses to the production queue causes more Missile Batteries to be built. This increases the percentage of coverage.

◆ **Upgrading defenses** happens automatically. Whenever you learn new technology that applies to defense, all defenses on all your planets upgrade automatically -- for free.

For a description of defense technology:

1. Open the Technology Browser (press F2) and choose **Planetary** from the drop-down menu.

2. Click the **Next** button until you step through the Scanners and reach the Defenses. Each type of defense is described with a graph summarizing its effectiveness.

Alternate Reality Races and Defenses

Races based on the Alternate Reality primary racial trait can not build planetary installations such as defenses. Read more about them.

Planet-based Scanners

More General Planet Topics

Playing Stars!

A scanner is the planet's radar, giving you information about all objects within its range. There are several types of planet-based scanners, with different ranges for detecting fleets, mass packets, mine fields and wormholes, and different ranges for detecting the environment and mineral content of other planets.

You start the game with a basic scanner on your home planet. As you research areas that gain you new scanner technology, the new scanner types appear in the Production inventory.

> To learn about each of the different planet-based scanners and the type of research required to attain them, open the Technology Browser (press F2) and choose Planetary from the drop-down menu.

You can only build scanners that are more powerful than the scanner currently in use. When you successfully build a new scanner, any weaker scanners you also know how to build disappear from your inventory. The new scanner replaces the existing scanner.

A planet's scanner type and range appear in the Status tile.

Planet-based scanners are useful for detecting opponent's fleets that pass near or enter your empire. Only fleets that are cloaked have a chance of escaping detection. It's a good idea to build the strongest scanner possible on each of your planets, allowing you to fully cover all your space. You can reduce the chances of fleets sneaking past if you place scanners on all your planets. When you select an enemy fleet, the scanner will also show the estimated path of the fleet.

To view the area covered by your scanners, select the Scanner pane's Radar overlay. Your basic radar coverage appears in red. Planet-penetrating radar coverage appears in yellow.

Alternate Reality Races and Planetary Scanners

Races based on the Alternate Reality primary racial trait can not build planetary installations. Read more about how these orbit-loving nuts perform scanning.

Learn more about:

Scanning the Universe

Orbital Devices

Orbital devices include:

- Starbases for planetary defense and ship production.

- Stargates that provide shortcuts across the universe.

- Mass drivers for flinging cargo to other planets without the use of ships.

Read about Orbital Devices:

Starbases

A starbase can be an orbiting shipyard (space dock), defensive station, and a platform for both a stargate and a mass driver. Before a planet can build ships, it must have a starbase with a space dock. Starbases stand in the way of attacks against the planet--your fleet must destroy the starbase before bombing can commence. Starbases with weapons always strike back and can initiate attacks against enemies in orbit.

A starbase can also carry cloaks, and thus can partially cloak itself from remote scans. Cloaking a starbase does not cloak the planet.

Your starbase is your primary defense against bombing and invasion by enemy fleets. Your planet can not be bombed or invaded as long as your starbase still exists. Defend it well.

In the Scanner pane, a starbase appears as a yellow or blue dot orbiting the planet. The Starbase tile describes a starbase belonging to the planet you're commanding.

> You can find details on a specific starbase hull design in the Technology Browser: press F2, click on the dropdown list and choose the Starbase Hulls category.

Building a Starbase

Build a starbase by adding it to the production queue. Like a ship, cost depends on the type and number of items attached to the hull. You'll find that a starbase hull is very expensive, so you'll need to plan how to afford it. You'll also find that hull parts attached to a starbase are 50% cheaper than the same parts attached to ship hulls, helping balance out the cost and making the replacement or addition of components easier to handle.

A planet can have only one starbase at a time. An existing starbase can be upgraded or replaced, with credit given for the recycled materials.

You'll have access to additional starbase hulls if you have the Improved Starbases trait.

Starbase Design

There are five starbase hulls, with slots for weapons, armor and other items:

- **Orbital Fort** -- No ship building capacity. These don't count as starbases in the score.

- **Space Dock** -- Ship building capacity: 200kT or smaller ships. This hull requires the Improved Starbases secondary racial trait.

- **Space Station** -- Unlimited ship building capacity.

- **Ultra Station**　-- Unlimited ship building capacity--more slots for weapons, shields and other components. This hull requires the Improved Starbases racial trait.

- **Death Star** – Top of the line orbital habitat for races based on the Alternate Reality primary racial trait.

   For Alternate Reality races the starbase also determines their maximum population. Read more about these unusual Stars! denizens.

Upgrading a Starbase

You can upgrade a starbase by changing the hull or by adding or changing items in the hull slots. You receive full credit for the existing installation, paying only the difference between the old and new hulls. Here's how the cost is determined:

If the hull changes:

- You receive a 50% credit for minerals and resources used in the original starbase.

If the hull does not change:

- Slots where the components don't change are free.

- Slots where only the count of the component increases cost only the component price multiplied by the number of additional items.
- Slots where the component type changes to a similar component are discounted in cost; the discount based on the closeness of the part types.
- Slots where the component type changes dramatically cost the full price of the new component. You will receive some minerals back if the old components are recycled.

Stargates

Stargates are optional starbase components that provide cargo-less ships with fuel-free, single year transport between your planets. This is the optimum way to move scouts and warships when you're in a hurry, or any other ship that isn't carrying anything but Fuel.

In the Scanner pane, the stargate appears as a green dot orbiting the planet.

All stargates require research into Construction and Propulsion. The Orbital section of the Technology Browser describes capabilities for each stargate.

> If you choose the major racial trait Interstellar Traveler, your starbases with stargates will scan any planet in stargate range that also has a stargate.

Building a Stargate

A stargate occupies an Orbital slot in a starbase hull. You can add a stargate by upgrading an existing starbase hull or building a new hull.

To upgrade a hull and add the gate:

1. Select **Commands** (**Ship Design...**) to open the Ship Designer.
2. Under Design, click on **Starbase**.
3. Select the design you wish to upgrade from the dropdown.
4. Click on **Copy Selected Design**. The dialog changes, offering the design and a component list.
5. Select a hull picture and type in a new name, or use the defaults shown in the dialog.
6. Drag the stargate from the component list to an Orbital slot in the design. Subtract and add any other components as you wish.
7. Click on **OK**. Then click on **Done** to close the dialog.
8. Add the new design to the planet's production queue.

Learn about:

Mass Driver Basics

More about Orbital Devices

General Planet Topics

Mass drivers provide a fuel-free method of transporting mineral cargo packets between planets, and, secondarily, can act as an effective long range weapon. Mass packets are bundles of Ironium, Germanium and Boranium. Mass drivers fling mass packets at high rates of acceleration so you can't fling Fuel, which would explode, or colonists, who would, well, also explode.

In the Scanner pane, the mass driver appears as a purple dot orbiting the planet.

Building a Mass Driver

A mass driver occupies the Orbital slot in a starbase hull. You'll have to research Energy--the requirement for each type of driver is listed in the Orbital section of the Technology Browser.

Once you complete your research, upgrade your starbase hull design to hold the driver (or design a new starbase hull that includes the driver). To upgrade a hull and add the driver:

1. Select **Commands** (**Ship Design...**) to open the Ship Designer.

2. Under Design, click on **Starbase**.

3. Select the design you wish to upgrade from the dropdown.

4. Click on **Copy Selected Design**. The dialog changes, offering the design and a component list.

5. Select a hull picture and type in a new name, or use the defaults shown in the dialog.

6. Drag the driver from the component list to an Orbital slot in the design. Subtract and add any other components as you wish.

7. Click on **OK**. Then click on **Done** to close the dialog.

8. Add the new design to the planet's Production queue.

Flinging Packets

Target a mass driver by clicking on the **Set Dest** button on the Starbase tile, then selecting a target in the scanner. The path to the mass driver target is then displayed in the Scanner. You can also target the mass driver by SHIFT-clicking on the destination planet.

For the packet to arrive safely, the target must also have a driver of equal or greater capacity. If the planet has a lesser mass driver, or no driver at all, the packet destroys colonists and installations on the planet surface.

The gauge in the Starbase tile allows you to control the speed at which packets are flung. You can purposefully fling packets at a slower speed if your receiving planet isn't equipped with an accelerator that's high tech enough to catch the packet at full speed.

You may fling packets at speeds up to three Warp levels above the rated speed. Packets flung above the rated speed become unstable, decaying at 10% per year for one warp level above the rated speed, 20% for two warp levels, and 50% for three warp levels. For players with the Packet Physics racial trait, decay rates are half the stated levels. Packets decay in the year they are launched and in the year they arrive at a planet proportional to the distance they travel in those years.

Building Packets

Mineral packets are built and flung as a function of the Production queue. The Production inventory will list a packet for each mineral and a mixed packet that contains all three minerals. When you click on a packet type in the inventory the numbers below the inventory show how many kT of each mineral the packet contains. Once a packet is built, the driver automatically flings them at the destination you've set. If you don't set a destination, the packet disintegrates.

The Scanner pane shows mass packets within your scanner ranges, regardless of who the packets belong to (unless you have the Packet Physics primary trait).

Packets as Scanners

For races with the Packet Physics primary trait the mineral packets have the added feature of behaving like a [planet-penetrating scanner](#). The radius of the scan is equal to the square of the packet's warp speed.

Packets Perform Terraforming

For races with the [Claim Adjuster primary trait](#), the mineral packets only do 1/3 the normal damage when hitting a planet, but have a 50% chance per 100kT of minerals to terraform the planet's environment toward the Claim Adjuster's ideal value. There is a lesser chance that it can permanently alter the planet's environment, allowing you to move it even further.

Don't Attack Packets

You can't attack mineral packets. You can only intercept them and transfer their contents to your fleet, as described below.

Stealing Mass Packets

If you can intercept a mineral packet in flight you can steal from it. When a packet is at the same location as your selected fleet, it appears in the [Other Fleets Here tile](#). Use the **Cargo** button and the Cargo Transfer dialog that appears to transfer minerals from the packet to your fleet.

Building Two Mass Drivers on a Starbase

You can build up to two identical mass drivers on the same starbase (assuming you haven't used an Orbital slot with a stargate already). This has two advantages: 1) you can catch incoming packets at one warp speed greater than the driver's nominal rating; and 2) overflung packets from dual drive starbases decay as if they were flung at one warp speed lower.

Learn about:

[Flinging Mass Packets](#)
[The Guts of Mass Drivers](#)

Terraforming

Terraforming is the ability to change a planet's environment to make it more habitable for your race. If you are immune to environmental conditions, you don't need to terraform.

> To see your race's habitability range, choose the **View** (**Race**) menu item, then turn to page 4 of the View Race dialog.

You won't know if you need to terraform or can terraform a planet unless you can scan it, gathering information about the planet's environment. To see all terraformable planets you've found use the Scanner pane's Planet Value view. You possess the technology to terraform Yellow planets, making them habitable. Most green planets can also be terraformed to improve them. The larger the yellow dot, the better the planet will be once you terraform it:

Won't be a candidate until you significantly improve terraforming technology.

Great candidate for terraforming.
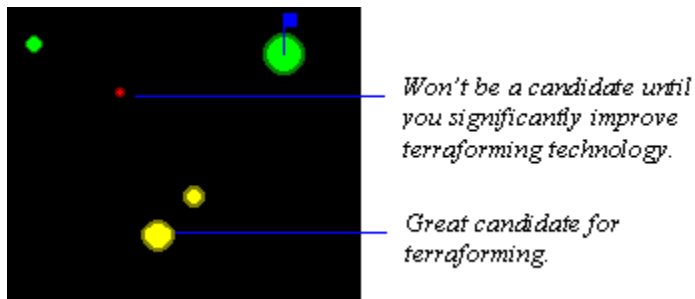
Click on a planet in the Scanner pane, then look in the Selection Summary pane. The habitability value shows the current value of the planet followed in parentheses by the value the planet would be after terraforming (given the limits of your current technology). The environment graph shows how much you can modify the planet's environment, given your level of terraforming technology. The following graph shows that the player possesses Gravity, Temperature and Radiation terraforming technology, and that Radiation must be terraformed to make the planet habitable. Gravity is right at the edge of this race's habitable range, and should be terraformed at least a small percentage. Terraforming the Temperature will improve conditions even more.
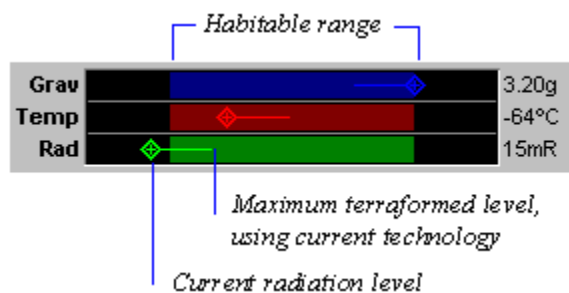
Fortunately you don't have to worry about the order in which to terraform the different environmental factors. The terraforming task that appears in the production dialog always works on the factor which is the furthest out of range. If you can improve Gravity by 3%, Temperature by 5% and Radiation by 2% the Production dialog will let you add 10% Terraforming to the queue. Each 1% Terraforming task executed will modify one of the environmental factors by 1%, which will improve the overall planet value by at least 1% and probably more.

You can find out which variable should be terraformed to maximize the planet's value to your people by clicking on each variable in the environment graph of the selection summary pane. A popup will tell you the potential increase in planet value if you modify that variable to the limit defined by your current level of technology.

Colonists Die if Minimum Terraforming Lasts more than One Year

If it takes longer than one year after colonizing to bring the planet to a Habitability value of 0% or better, your colonists will start to die. If you can bring it within range the first year, they'll be fine. This is the best reason for

[creating a production template](#) that contains auto-build terraforming tasks.

Read more about Terraforming:

[How to Terraform](#)
[Types of Terraforming Technology](#)
[Total Terraforming](#)
[Remote Terraforming](#)

How to Terraform

There are two basic ways to terraform a planet. The first and easiest is to add auto-build terraforming tasks to the production queue. Min and Max Terraforming are auto-build tasks which remain in the queue and operate only when both necessary and possible. These can be added manually or using a production template. The second method is to manually add the Terraform Environment task to the production queue.

Terraforming tasks can use only the terraforming technology you possess. So, if you have only Radiation and Temperature Terraforming, you can't modify only gravity. The terraforming will automatically act first on the environmental attribute which when modified will most improve the planet's habitability.

Terraforming with Auto-build Tasks

1. Bring the planet you wish to terraform under command.

2. Click on the **Change** button in the Production tile, opening the Production dialog.

3. In the production inventory, click on either the Min or Max Terraform auto-build tasks. Then click on the **Add** button to raise the limit to which the task will terraform.

Min and Max Terraforming:

Minimal (Min) terraforming changes only those environmental attributes that have a negative value and that you have the technology to change, up to the percentage you specify in the task. Terraforming will continue only until the planet value reaches zero. To go beyond the point of minimal terraforming, you must manually add Terraform Environment or the Max Terraforming auto-build task. Minimal Terraforming will activate and terraform only when there are resources available and not doing so would cause people to die on the planet (from negative environment values or overcrowding).

Max Terraforming changes any environmental attributes that you have the technology to change, up to the percentage you specify in the task.

As each terraforming task completes, an environmental factor is improved by 1%.

Terraforming as a Default Action

You implement default terraforming by defining a default production template that includes auto-build terraforming tasks. This is done through the production dialog.

Auto-build items do not need to be consecutively listed nor do they need to appear at the top of the queue to work.

1. Make sure the auto-build terraforming items in the production queue are arranged in the sequence you want them to appear in the template.

2. Make sure the Contribute only Leftover Resources to Research checkbox is set the way you want it to be reflected in the template. A checked box is reflected at the bottom of the dialog by the words "Don't contribute to research" while an unchecked box is reflected by the words "Contribute to research".

3. Right-click on the blue diamond and select <customize>.

4. Select <Default>.

5. Click on **Import** and **OK** the dialog.

That's it. The default production orders will take affect on every planet taken over or newly colonized. It does not affect any planets where colonists have already landed.

Adding Terraforming to the Queue Manually

1. Double-click on the planet you wish to terraform, placing it in the Command pane.

2. Click on the **Change** button in the Production tile, opening the Production dialog.

3. In the production inventory, click on the Terraform Environment task. Then click on the **Add** button to add the desired number of this task to perform.

Each Terraform Environment task you add to the production queue improves an environment factor by 1%. The number of tasks you may add to the queue is limited by the current level of your terraforming technology. When you have successfully completed all the tasks you can add to the queue, the Terraform Environment task disappears from the production inventory. It will reappear once you achieve a higher level of technology that allows you to terraform further.

> Races based on the Claim Adjuster primary racial trait have access to ship components that can remotely terraform planets from orbit.

Learn about:

Creating a Production Template

Types of Terraforming Technology

Each of a planet's three environmental factors has a matching type of terraforming technology: Temperature Terraforming, Gravity Terraforming, and Radiation Terraforming. Each requires a different combination of research:

◆   Temperature terraforming requires research into Biotechnology and Energy.

◆   Gravity terraforming requires research into Biotechnology and Propulsion.

◆   Radiation terraforming requires research into Biotechnology and Weapons.

   The Total Terraforming lesser racial trait requires that you research only Biotechnology to learn terraforming technology

Each technology allows you to improve a specific factor a minimum of 3% from its initial value and a maximum (without Total Terraforming) of 15%.

The percentage of improvement does not always indicate how much the Value of the planet will increase. Often only one or two environmental factors will be negative, while the remaining factors look pretty attractive. In this case improving the negative factors can improve the planet's overall value to a much higher percentage than that indicated by the technology.

As you upgrade your terraforming technology, you'll see the amount you can improve the planet increase. You may also see that some planets that were previously not terraformable (red in Planet Value view) become terraformable (yellow in Planet Value view).

To learn more about the individual types of terraforming technology and their research requirements, open the Technology Browser (Press F2) and select Terraforming from the dropdown menu.

Total Terraforming

Total Terraforming is a lesser racial trait, not a type of technology.

> To determine if your race has this trait, choose the **View** (**Race**) menu item and turn to page 3 of the View Race dialog.

Total Terraforming races begin the game with the ability to improve temperature, gravity and radiation levels up to 3%. Terraforming requires 30% less resources and you can research terraforming technologies that improve factors up to 30% instead of just 15% normally. Terraforming requires research into only Biotechnology, instead of Biotechnology and three different additional fields.

Remote Terraforming

Only races based on the Claim Adjuster primary trait can perform remote terraforming.

Remote terraforming is performed from orbit, which allows Claim Adjuster races to change a planet's environment before colonizing. There is no range for remote terraforming -- only the requirement that you be in orbit of the planet.

Remote terraforming can also be used as a weapon: just orbit the planet and start to terraform it under your opponent's feet. This allows you to prepare more favorable conditions for a planetary invasion. You must destroy any existing starbase before you can launch this type of attack.

Depending on your opponent's level of terraforming technology, using terraforming as an attack could turn into a shoving match if they begin terraforming operations of their own.

To perform Remote Terraforming:

1. Set the waypoint by shift-clicking on the target planet.

2. Choose Remote Terraforming from the Waypoint Task tile.

As soon as your fleet arrives, they will begin to terraform. You'll have to keep an eye on the planet to determine when it's fit to live on -- there is no feature to auto-colonize after the planet's environment is within your safe range.

> **Retro Bomb**
> Claim Adjusters also can gain the Retro bomb, a type of terraforming weapon used to return the planet to it's original conditions.

Production

You use production to build things, including ships, mines, factories and defenses and to do tasks, such as terraforming. The Production dialog lists all the things you can build or tasks you can perform on a specific planet, commands that allow you to add these items to the queue, and information that tells you how much each item will cost and when or if it will be completed given your available resources.

Read more about Production:

How Production Works

Adding an Item to the Queue

Removing an Item from the Queue

Clearing the Production Queue

Production Templates

Unblocking a Queue

Adding Auto Build Items in the Queue

Conditions that Affect Production

How Production Works

You have one production queue per planet. The queue is essentially a work list. Items are produced in the order shown in the queue, from top to bottom. You can add, delete or move items at any time, anywhere in the queue. The percentage complete is shown for the selected item. If you add an item to the top of the queue in front of something that is partially complete, your people will not work to complete the original item until the new item you placed in the queue is complete or has been deleted. In all cases, production is halted if the planet runs out of minerals.

The production inventory lists all the things you know how to build or tasks you can currently perform on that planet.

Unique Items

When a planet can only use one of an item, such as a planet-based scanner or starbase, the item appears only once in the inventory. When this kind of item is added to the queue, it disappears from the inventory. As soon as the item is built, all lesser models of the same item disappear from the inventory.

Upgrades of Existing Items

Upgrades of existing items, such as planet-based scanners and ship and starbase hulls, will replace any older versions in the inventory list. When you upgrade a hull, it is labeled in the inventory as an upgrade. Since upgrades enhance rather than replace an item, they only require enough minerals to create the enhancements.

Adding an Item to the Production Queue

You can add an item at any time to any spot in the production queue . The procedure is slightly different depending on whether you want to do the following:

Add an item to the top of the queue

1. Click on **--- Top of the Queue ---**.

2. Click on an item in the inventory, then click the **Add** button or double-click on the item in the inventory list.

⇒ To add additional units, keep clicking the **Add** button or double-clicking on the item in the inventory list.

Large orders
Pressing CTRL+SHIFT when clicking on the **Add** button will add as many of that item as possible. This also works if you press CTRL+SHIFT and double click on the item.

Add an item to the middle of the queue

1. Click on the item in the queue under which you want the new item to appear.

2. Click on an item in the inventory list, then click the **Add** button, or double click on the item in the inventory list.

⇒ To add additional units, keep clicking the **Add** button or double-clicking on the item in the inventory list.

Large orders
Pressing CTRL+SHIFT when clicking on the **Add** button will add as many of that item as possible. This also works if you press CTRL+SHIFT and double click on the item.

Add an item to the bottom of the queue

⇒ Click on the last item in the queue, then on an item in the inventory list. Then click the **Add** button, or double click on the item in the inventory list.

⇒ To add additional units, keep clicking the **Add** button or double-clicking on the item in the inventory list.

Large orders
Pressing CTRL+SHIFT when clicking on the **Add** button will add as many of that item as possible. This also works if you press CTRL+SHIFT and double click on the item.

Move an item in the queue

1. Click on the item in the queue that you want to move.
2. Click on the **Item Up** or **Item Down** buttons.

Removing an Item from the Production Queue

⇒ Select an item in the queue, then click the **Remove** button or double-click on the item in the queue.

⇒ Keep clicking the **Remove** button or double-clicking on the item name to remove additional units.

Speed Removal
Pressing CTRL+SHIFT when clicking on the **Remove** button will remove as many of that item as possible. This also works if you press CTRL+SHIFT and double click on the item.

Production Templates

A production template is a sequence of auto-build items imported from a production queue and saved for later use. Use production templates to automate auto-build production strategies you plan to use more than once. The default production template is automatically applied on any planet taken over or newly colonized by your people. The other three templates can be manually applied to any planet's production queue. Templates are saved for the duration of the game but may be edited at any time.

You implement templates by simply selecting the template name instead of manually adding the items to the production queue. When you apply a template, all auto-build items currently in the queue are replaced with the list of items in the template.

Production Template Strategy

To help illustrate how production templates are useful, here's a typical example of a good default template for new colonies:

Minimum Terraform Up to 10%
Factories (AB) Up to 10
Mines (AB) Up to 10
Defenses (AB) Up to 2
Factories (AB) Up to 25
Mines (AB) Up to 25
Maximum Terraform Up to 10%
Defenses (AB) Up to 5

Minimum Terraform Up to 10%
The planet will work on terraforming first if it is possible and people might die otherwise. This handles fledgling negative worlds, overcrowding and disasters.

Factories (AB) Up to 10 / Mines (AB) Up to 10
You want constant progress on improving the planet's productivity. This is what fledgling colonies spend most of their time doing.

Defenses (AB) Up to 2
If the planet is doing well enough to complete all those mines and factories you can afford to work on defenses a bit to keep from falling way behind. Fledgling colonies don't make it this far.

Factories (AB) Up to 25 / Mines (AB) Up to 25
At this point we want to ensure the planet has the maximum number of mines and factories. Only mature planets will reach this point.

Maximum Terraform Up to 10%
Push a mature planet to perfection. The mines and factories are probably maximized for the current population so, if possible, increase the maximum population and growth rate.

Defenses (AB) Up to 5
Add defenses if the colony has the maximum number of mines and factories possible for the current population.

Contribute only Leftover Resources
While the colony is fledgling it is a good idea to have 'Contribute only leftover resources to research' checked. When the colony reaches the point were the defenses are being auto-built you can deselect this option.

Creating a Template

Auto-build items do not need to be consecutively listed nor do they need to appear at the top of the list to work.

1. Make sure the auto-build items in the queue are arranged in the same order in which they should appear in the template.

2. Make sure the 'Contribute only Leftover Resources to Research' checkbox is set the way you want it to be reflected in the template. A checked box is indicated at the bottom of the Production dialog by the words "Don't contribute to research" while an unchecked box is indicated by the words "Contribute to research".

3. Right-click on the blue diamond and select <customize>.

4. Select default or one of the three other template choices.

5. Click on **Import**.

6. Type in a name for the template and OK the name dialog.

7. **OK** the Template dialog. The template is now ready to apply. If you created a default template, it will be applied automatically whenever you establish a new colony.

Manually Applying a Template

Right-click on the blue diamond and select a template to apply to the current production queue. The auto-build items in the template are applied underneath the last item currently in the queue.

Editing a Template

1. Repeat steps 1 & 2 above.

2. Right-click on the blue diamond and select <customize>.

3. Select the template to be edited.

4. Click on Import.

5. Type in a new name for the template if you wish and OK the name dialog.

6. Click on OK. The edited template is now ready to apply.

Renaming or Deleting a Template

1. Right-click on the blue diamond and select <customize>.

2. Select one of the three non-default templates. Click on Delete to erase the template contents and it's name or click on Rename and type in a new name.

   The default template cannot be renamed. To clear the contents of the existing default template you must import an empty production queue.

Clearing the Production Queue

Click on the **Clear** button to remove all items from the production queue. The twin to this button can be found on the Production tile.

If the item is removed from the queue before completion, resources and minerals already spent on the item are lost.

Unblocking a Production Queue

If one of your planets has run out of minerals while producing an item in the production queue , the item name turns red. This means it'll never be completed unless you do something about it. You have two choices: transport minerals from other planets or use mineral alchemy (or use a combination of the two).

Transporting Minerals

To transport minerals, set up freighter waypoints to transport minerals from your remote miners or mineral-rich planets to your planet with the blocked production queue. If you have a mass driver on the needy planet and the mineral-rich planet, you can also fling mineral packets between planets without using ships.

Mineral Alchemy

Mineral alchemy transmutes resources into minerals (sort of your own Philosopher's Stone). If you can't complete an item in the queue because you've run out of one or more minerals, place mineral alchemy in the queue ahead of the item you're trying to build. Each unit of mineral alchemy will turn a mere 100 of your resources (25 if you have the lesser racial trait 'Mineral Alchemy') in 1 kT of each of the three minerals. This is a good strategy for unblocking queues on a planet where you have a large population and can quickly replace the resources used by alchemy .

Add as many mineral alchemy units as you need to finish the item stuck in the queue. Like other items in a queue, the color of each Mineral Alchemy task will tell you how long it will take for the process to complete. If you have a large number of resources dedicated to production, you can create a large amount of minerals fairly quickly.

Mineral alchemy is one of the items available for auto-building. Consider adding it to your default or a custom production template, if it isn't already there. If auto-alchemy is placed in front of an item, it will be used only if you have a mineral shortage. If it is the only item in the queue, it will create resources until you remove it or place another item immediately following.

Adding Auto-Build Items to the Queue

Auto-build items are always in italic, but appear differently in the production inventory and queue.

When they're in the inventory, they are labeled as Auto-build. When you add them to the queue, they are labeled <Item> up to <number>; for example, 'Factories Up to 50'. The latter number indicates that the queue will ATTEMPT to produce the stated number of that item every year.

Auto-build Mineral Alchemy is the exception. It displays as 'Mineral Alchemy as needed'. If you insert it in front of an item in the queue you want to perform as much Alchemy as possible to maximize the production rate for that item. If you already have enough minerals, Mineral Alchemy isn't needed and doesn't happen. It's a great insurance policy that always does the right thing. If Alchemy is the last item in the queue, it means to spend all remaining resources on Mineral Alchemy.

Auto-build items can be used to create a default queue for newly colonized worlds, or for items you wish to produce on any world whenever extra resources are available for production, or when the queue is empty of anything but auto build items. For example, early in the game, it's useful to continuously build mines and factories. It's always useful to auto-terraform when conditions are less than perfect and you have the means.

Like any production item, auto build items can be inserted anywhere in the queue. An auto build item stays in the queue until you remove it. This means your production queue will annually attempt to build these items when possible. You can always place other items ahead of auto-build items, or rearrange the items in the queue. Auto build items that cannot be built are skipped.

There are, however, differences between the behavior of auto-build items and others in the queue:

◆ Auto-build items do not block the queue. If they cannot be performed, they are skipped over.

◆ Auto-build items are never automatically removed from the queue. They remain there until manually removed and activate only when necessary and possible.

◆ You never make "progress" on auto-build items. When work is done it is seen as a partially completed normal build item in the queue.

Mines, Factories, Defenses, Mineral Alchemy and Terraforming are all auto-build items.

Learn more about

Conditions that Affect Production

Racial Traits

Page 5 of the View Race dialog tells you if you excel at building and operating factories and mines, as well as how many resources *N* colonists generate each year (not counting the resources created by factories). The more each of the following conditions are true, the more your race will excel at production:

◆ One resource is generated each year for every seven colonists.

◆ Factories produce 15 resources per year.

◆ Every factory requires five resources (and the usual amount of minerals) to build.

◆ Colonists may operate 25 factories.

◆ Factories cost one mineral less to build.

Of course, the mining rate also affects production. The closer your race is to meeting one or more of the following conditions, the better:

◆ Mines produce 25 kT of minerals per year.

◆ Every mine requires two resources to build.

◆ Every 10,000 colonists can operate 25 mines.

How Research Makes Production Cheaper

Production of a particular item becomes cheaper when all research requirements are surpassed by one level: for example, an engine that requires research level 3 Propulsion and level 1 Energy becomes 4% cheaper when you attain level 4 Propulsion and level 2 Energy, 16% cheaper with level 7 Propulsion, level 5 Energy, and so on. You can eventually reduce the cost of producing some items by 75% (or 80%, if you possess the Bleeding Edge secondary race trait, which also decreases costs at a rate of 5% per level instead of the normal 4%).

Disaster Strikes Planet X!

When comets or other naturally occurring blunt instruments crash into inhabited planets, the planet's production queue is reset. All work in progress is lost, including the resources spent on that work. It's not all bad. Usually a cosmic barrage brings extra minerals that you can apply immediately to production.

Learn more about:

Research

You can't go from rubber band drives to ramscoops or from binoculars to 520X planetary scanners without applying mental elbow grease. This means research. Fortunately, to conduct research in Stars!, you need to know nothing of physics or animal husbandry, biomechanics or elastic waistbands. You only need to know which general areas of technology you wish to research and how many resources you wish to allocate to that research. That, pushing a couple of buttons, and being patient, will gain you access to all the technology you need to rule the known Stars! universe.

Before you start researching, spend a little time in the Technology Browser (press F2). Learn about the types of technology available to your race, the items you want to build, and which areas and levels of research are needed to do that.

Read more about Research:

Fields of Study

Allocating Resources for Research

The Cost of Research

Fields of Study

There are six fields of study: Energy, Weapons, Propulsion, Construction, Electronics, and Biotechnology. You can research only one at a time. The levels of proficiency range from 0 to 26 (at 26, you are a techno-geek summa cum astrolabe, a level that 20th century hi-tech moguls can only daydream about reaching). When you complete a research level, new technology becomes available to you.

Going beyond the level needed to produce an item has cost benefits: for every technology level you achieve above the required level, the production cost of that item is reduced by 5%. You can eventually reduce the production costs for many items by 75%.

The type of research needed to gain a technology depends on the function of that technology. For example, most ship hulls require Construction research only. Some technology requires research into more than one area: Gravity Terraforming requires research in both Biotechnology and Propulsion.

Use the Research dialog to specify a field of study and the percentage of resources you wish to apply annually to that research. The dialog also displays the specific technology you'll gain by achieving the next few levels in that field. Resources applied to research are taken off the top of your resource heap. This allocation is modified only if you check **Contribute only leftover resources to research** in the Production dialog, which reverses the order, allocating resources to production first, then research.

You can change research fields before achieving a new level. Stars! keeps track of how much progress you've made in a field, allowing you to return to a partially researched field at any time without losing progress.

Choosing the Next Field of Study

You can queue your next field of interest using the Next Field to Research dropdown in the Research dialog. This switches your research as soon as you reach the next level in your current field. All resources not needed to reach the next level in your current field are applied to the next field.

Allocating Resources for Research

For research, you receive all resources from planets with nothing in the production queue and with auto-build turned off. You receive all unspent resources from planets with items in the queue. If the **Contribute only leftover resources to research** box is selected, you'll only receive the resources left over if the queue is emptied that turn. If this box is not selected, you'll receive the percentage of resources you indicated in the Research dialog, plus any resources left if the production queue if emptied that turn. If the production queue is blocked you'll receive all the resources from that planet for that turn.

Predicting the amount of time it will take to complete a research level is slightly tricky. Stars! displays an **Estimated time to completion** in the Research dialog. The estimate is based on an unchanging supply of resources, including the following:

◆ all resources from planets with empty production queues and non-active auto-build

◆ allocated resources from planet's items in production but who are dedicating resources to production first (**Contribute only leftover resources to research** box is not selected).

To get your best estimate of how long research will take, look at both the current time estimate and the number of resources allocated the previous year (also shown in the Research dialog). Each turn, check how much the estimate changes as a result of changing conditions in your empire.

To get a more accurate estimate, assign or change your research allocation as the last task of your turn. By then, Stars! will know how many resources are required for production and will remove those from the calculation for research time.

The Cost of Research

Research becomes more expensive for each level of technology you achieve. You spend resources to do research. Research in any field becomes progressively more expensive, increasing in a Fibonacci type series. The total cost equals the cost for that field plus the added cost of 10 resources per field of study per level you've already achieved. This cost is calculated for you in the Research dialog.

In general, you should pick which technology you wish to learn, then research only the field(s) needed for you to be able to gain that technology. Then you'll never use more resources than necessary to learn a technology. Ultimately, though, it costs the same to research all technology. The added costs encourage you to develop a few initial technologies quickly and take them out into the universe.

Research can be cheaper for some races than others. To learn how efficient your race is at performing research, choose the **View** (**Race**) command, then turn to page 6 of the View Race dialog. Both the Technology Browser and pages 2 and 3 of the View Race dialog show you which technologies you won't be able to research due to a racial traits. The Research dialog shows you only the technology that's available to your race.

Designing Ships

Use the Ship Designer dialog to create, edit and delete new ship designs. After you create a new design you can add it to the production queue of any of your planets that has a starbase with a space dock.

Maximum Number of Designs, Ships and Fleets

There are limits to the number of designs, ships and fleets you can have in the game. Develop strategies that take these limits into account.

◆ Different ship designs per player: **16**

◆ Total ships of each design in a fleet: **32,000**

◆ Fleets per player: **512**

◆ Different starbase designs per player: **10**

Determining the Number of Fleets: To determine the number of fleets you currently have select Report/Fleets. The total count of your fleets is displayed in the title bar of the report.

Read more about Designing Ships:

How to Approach Ship Design

Designing a New Ship from Scratch

Editing an Existing Ship Design

Deleting a Ship Design

Reaching the Maximum Number of Designs

Counting the Number of Ship Designs

Adding Ship-based Scanners

Adding Cloaking Devices

Engines

Learning About Enemy Hulls

How to Approach Ship Design

Develop a strategy for deciding when to create a new design. If you create a new design every time you successfully research a new piece of technology, chances are you'll have too many ships of similar design out in space at the same time. Try to leave room for at least one additional design, so that you can create a new design quickly without first deleting an existing design. You could also create a new design for an existing class of ship, such as a colonizer, when the existing design has outlived its usefulness.

Example Obsolescence Strategy
If you colonize everything within the reasonable range of your current colonizers, you may want to delete the old design and replace it with a new one.

Spend time in the Technology Browser (press F2) learning about the ship technology you think you'll want to research. Take ship design into account when you plan your research strategies. If possible, design new ships only when you gain the technology you need to make a significant advance over older designs.

Once you're ready to build, follow the steps for using the Ship Designer dialog:

Designing a New Ship from Scratch

To design a new ship from an empty hull schematic:

1. Select **Available Hull Types**.

2. Click on the hulls dropdown and select a design:
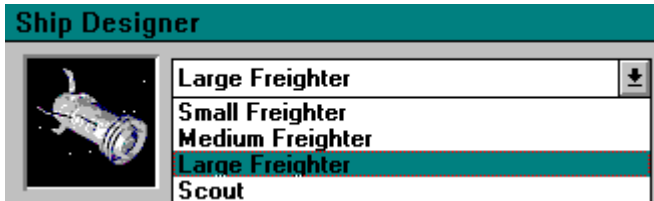
3. Click on **Copy Selected Design**.

   If the **Copy Selected Design** button is shadowed, you've reached the maximum of 16 concurrent ship designs. You must delete an existing design before you can design a new ship.

   Tip: You can use **Copy Selected Design** to clone a known enemy ship design (although the results may not be perfect).

4. Attach components to the hull by dragging them from the collection of ship components to a compatible tile on the ship schematic.

   Tip: Hold down the CTRL key to drag as many items as the slot can hold, or the SHIFT key to drag 4 parts at a time.

5. Use the spinner controls below the ship picture to choose a representative image for your new design.

6. Click in the name field and type in a name for the new ship design.

7. **OK** the dialog.

Reaching the Maximum Number of Fleets

If you already have 512 fleets (the maximum), you'll have to merge or scrap a fleet, or place a fleet in orbit of the planet producing the new ship. The ship will be added to the existing fleet automatically.

Editing an Existing Ship Design

Do the following if you want to change an existing design or create a new design based on the existing design. You can edit a design only if none of your existing ships use that design.

1. Select **Existing Ship Designs**.

2. Click in the ships dropdown and select the design.
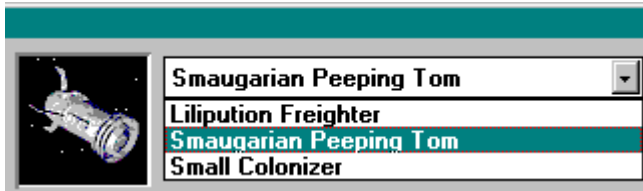
3. Click on **Copy Selected Design**.

    If the Copy Selected Design button is shadowed, you've reached the maximum of 16 concurrent ship designs. You must delete an existing design before you can design a new ship.

    If the **Edit Selected Design** button is shadowed, there are existing ships based on this design. Only designs for which no ships exist may be edited.

    Tip: You can use **Copy Selected Design** to clone a known enemy ship design (although the results may not be perfect).

4. Drag the components to be removed from the ship schematic to the collection of ship components and release.

    Tip: Hold down the CTRL key to drag all items from the slot, or the SHIFT key to drag 4 parts at a time.

    If you wish, replace the old components with new ones from the ship component list. Drag them over to the ship schematic and release.

5. To change the image for the design, click on the spinner controls beneath the ship picture.

6. Save the design:

    To save the design under the same name, click on **OK**.

    To rename the design (creating a new design), click in the name field and type in a new name. Then click on **OK**.

Deleting an Existing Ship Design

If you delete an existing design, all ships that use that design are destroyed, and their minerals are lost to the cosmos. If you wish to retrieve some of the minerals used in the ship, scrap all the ships using that design, then delete the design.

This plaque appears below ship schematics of existing designs. It tells you how many ships built on the selected design still exist. If you delete an existing design, any existing ships built with that design will be destroyed.
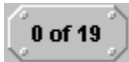
In this case, all of the 19 ships built on this design have already been destroyed. Deleting this design will destroy no existing ships.
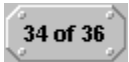
In this case, 34 out of the 36 ships built on this design remain intact. Deleting this design will destroy all 34 remaining ships. Ships destroyed by this mechanism are not recycled for scrap.

To delete an existing design:

1. Select **Existing Ship Designs**.
2. Click on the ships dropdown and select the design to delete.
3. Click on **Delete Existing Design**.

Reaching the Maximum Number of Designs

- Different ship designs per player: **16**

- Total ships of each design in a fleet: **32,000**

- Different starbase designs per player: **10**

Although Stars! will let you know if you've reached the maximum number of designs when you try to create a new design, you're better off keeping track of the number yourself.

If you've reached the design limit of 16 and wish to create a new design, you'll have to delete an existing design first. To delete a design, use the Ship Designer dialog. Develop strategies for deciding when to create new designs and when to obsolete older designs.

Stars! will gray the **Copy Selected Design** button in the Ship Designer once you reach 16 designs.

Pick a design that is no longer useful (too slow, ineffective weapons). Before you delete the design, think of the most advantageous way to get rid any existing ships of that design. For example:

- You could send each ship of the design to planets that need minerals. Set the waypoint task at each planet to **Scrap Fleet**. A portion of the minerals will be returned to the surface supply on that planet. If you use this method, you'll have to wait until all the affected ships reach their assigned waypoints.

- Delete all the ships at in one stroke using the Ship Designer dialog. You'll be warned that all the ships of that design will be destroyed. When you delete ships this way you receive NO minerals.

- If the ships of the type you wish to delete use any weapons, use them in a large battle as distracting cannon fodder, possibly keeping your more advanced ships safer a little longer.

Click here to learn how to count your total number of designs or all ships of a single design.

Counting the Number of Ship Designs

To learn the total number of designs you've created:

1. Select the menu command, **Commands** (**Ship Design**), to open the Ship Designer dialog.

2. Select **Existing Ship Designs**.

   Click on the dropdown next to the ship picture and count the number of designs.

To learn how many ships of a single design are in play:

1. Select **Existing Ship Designs**.

2. Click on the ship name in the dropdown:

3. Look at the number displayed on the plaque under the drop down:

   1 of 1 The first number shows how many ships of that type still exist, the second shows how many you built since creating the design. Here, one ship was built and is still in play.

   Tip: You can locate all ships of one type using the Ship Design Filter in the Scanner pane.

Adding Ship-based Scanners

To gather any planet details from orbit or space, or the details of an opponents' fleet from a distance, most fleets must have a ship-based scanner. Scanning a planet you don't own will supply data about the planet's environment and subterranean mineral content only. Ships without scanners must send down a robot miner to gather the same information and can only detect an opponents' ship if it is at the same X,Y coordinates.

Minerals Above the Surface
You learn how many minerals are on the planet surface and available for immediate use only after colonizing the planet.

Scanner Types

There are three basic types of ship-based scanners: those that scan planets from orbit; those that scan planets from orbit and fleets from a distance; and those that scan both planets and fleets from a distance. One scanner, the Chameleon, doubles as a cloaking device.

Scanners for Pirates
The Pick Pocket scanner can see the contents of an enemy fleet's cargo holds. The Robber Baron scanner can see surface minerals on enemy planets. These scanners aid the modern pirate in making wise choices on issues concerning pillage and plunder.

Your First Scanner

You start the game with the Bat scanner, a low-tech device that detects planet details only from orbit, and has no long-range fleet-detection capability. You'll want to browse the more advanced models. For a description of all the different scanners, take a look inside the Technology Browser (press F2).

Scanners are Cumulative

Multiple scanners on a single ship are cumulative. Fleets are still limited to the range of the best ship in the fleet, but a particular ship's scanner range is a modified sum of the ranges of its scanners. The formula for calculating a ship's scanner range is the 4th root of the sum of each scanner to the 4th power.   Let's say you have a ship design with two 100 light year scanners and one 60 light year scanner. $(100^4 + 100^4 + 60^4) \wedge ¼ = 120$ light years.   The same calculation applies to planet penetrating scanners.

Learn more about:

Adding Cloaking Devices

A cloaking device reduces the range at which your opponents' scanners can detect your fleets. There are several different types of cloaks, each reducing opponents' scanner range by a specific percentage. The higher the percentage, the more the range is reduced. Cloaks on a ship can all be the same strength or of different strengths. Cloaking is shared by an entire fleet: every ship not carrying a cloak is covered until it leaves the fleet.

You can add a cloaking device to any slot labeled **Special** or **Scanner/Special**. To learn how cloaking is calculated for a ship and a fleet, and how to use a cloaking device to your best advantage, read about Cloaking. To learn more about specific cloaks, open the Technology Browser (press F2) and view the Special category.

> Races with the Inner Strength primary racial trait can learn how to build Tachyon Detectors. This device has the ability to reduce the effectiveness of other player's cloaking devices.

Learn more about:

Engines

There are two basic types of Engines: the standard engine, which requires the Fuel available at all full-serve starbases; and the ramscoop engine, which scoops its fuel from the stuff of the universe. Both engines types have an absolute maximum speed of Warp 10. Each type has advantages and disadvantages, and several require the presence or absence of certain race traits. For details on a specific engine, see the Engines section of the Technology Browser.

Standard, Fuel-hungry Engines

Engines that require Fuel will serve you well in the early stages of the game. If you chose the secondary race trait, No Ramscoop Engines, when you created your race, you'll use standard engines during the entire game. In this case, the Interspace-10 will be available to you.

Ramscoop Engines

Ramscoops draw their fuel from space, making them the cheapest engines to operate. The Radiating Hydro-Ram Scoop engine radiates massive quantities of radiation and shouldn't be used for colonist transportation, unless your race's OPTIMAL radiation level is AT LEAST 85mR. For example, a range of 80 to 90mR would work, as would a range of 70 to 100mR--as long as the midpoint is 85mR or higher. If the range is, say, 35 to 95mR, it won't work, because the optimal level for that race would be 65mR.

> **IMPORTANT POINT**! The optimal radiation level is the CENTER point of the habitat range for Radiation. Use the **View** (**Race**) command to learn your race's optimal radiation level.

Ships with ramscoops incur greater damage when struck by mines than other ships.

You won't be able to build ramscoop engines if your race possesses the secondary race trait, No Ramscoop Engines.

Overthrusters

Overthrusters give you an advantage in battle and help compensate for any movement penalties caused by hull and cargo mass. One Overthruster gives the ship one extra half square of movement per round of battle, with each additional Overthruster providing an additional half-square. Overthrusters are described further in the Mechanical section of the Technology Browser.

Maneuvering Jets

Like Overthrusters, Maneuvering Jets give you an advantage in battle. One Maneuvering Jet gives the ship a speed bonus of one-quarter extra square of movement per round of battle. Each additional Maneuvering Jet provides an additional one-quarter square of movement. Maneuvering Jets are described further in the Mechanical section of the Technology Browser.

Learn more about:

Learning About Enemy Hulls

More about Ship Design

Playing Stars!

When you encounter an opponent's ship, you automatically detect its basic hull type. If you enter into a battle with the ship, you learn which components are used in the design as well. To review enemy hull designs:

1. Select **Enemy Hulls**.

2. Click in the hulls dropdown and select a design.

    Tip: You can use **Copy Selected Design** to clone a known enemy ship design (although the results may not be perfect).

A schematic of the ship displays its details. If you've encountered the ship in passing, only an empty schematic is displayed. If you've met that devil in battle, all the components are displayed. Right-click on a component to display further details.

The War Mongers possess the nasty ability to know all ship designs the second they see them and don't have to fight them in battle to figure things out.

Managing Fleets

A fleet is a distinct group of one or more ships, and can be any mix of ship types. Fleets can be created, merged, and split at any point in the game. You design the ship types, add them to production queues, create fleets, then assign waypoints and tasks. Fleets can be used for exploration, defense and offense, colonizing, remote mining, and transporting minerals and people.

Read more about Fleets:

Assembling Fleets

Each player can have up to 32,000 ships of each design in a fleet, with up to 16 different designs, and up to 512 fleets.

For some tasks a fleet with a single ship is sufficient. For example, exploration and colonization usually only require one ship outfitted with the appropriate technology. However, for moving large quantities of minerals around, for defending your planets and for attacking other players it's very useful to have large groups of ships in a single fleet.

You can merge and split fleets as you wish. The only stipulation is that the affected ships must be in the same location.

Warp Speed

A fleet's warp speed determines the number of years it takes to reach a waypoint, as well as fuel usage. You set the speed in the Fleet Waypoints tile, using warp units. Actual distance traveled is the square of the warp speed. For example, a fleet traveling at Warp 8 will move up to 64 light years each turn.

The Fleet Waypoints tile always suggest an optimum speed to reach the waypoint, using the least amount of fuel to deliver the fleet in the shortest amount of time. If a stargate is present and safe to use for travel between waypoints, it is automatically selected. If the fleet has Scrap Fleet or Colonize orders, or includes a hull with a colony pod, the fleet travels at the maximum possible speed for its engine and fuel supply.

Maximum Speed

All engines have an absolute maximum speed and an optimum speed.

The absolute maximum safe speed for most ships is warp 9. You can push your fleet to warp 10, but you'll have a 10% chance of losing each ship in the fleet at that speed. Only ships using Warp 10 capable engines can travel safely at warp 10. You can tell if an engine is warp 10 capable by viewing it in the Technology Browser and seeing if the area between Warp 9 and 10 is covered with a warning pattern or not.

For standard engines the optimum or best warp speed is the maximum speed at less than 120% fuel usage. For Ramscoop engines the best warp speed is the maximum speed that the engine can travel using no fuel. To learn the best speed for a specific engine, visit the Engines section of the Technology Browser. The Fuel Usage vs. Warp Speed graphs in the Browser shows this speed for each engine. The following graph shows that the best warp speed for this engine is warp 7.
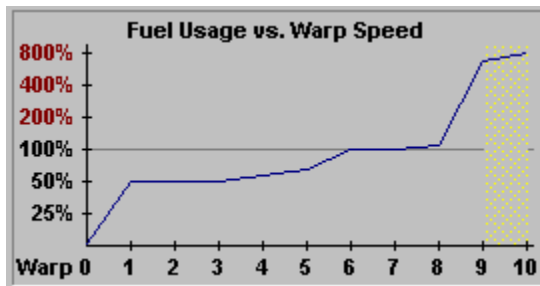
The yellow grid between warp 9 and 10 shows that the ship using that engine has a 10% chance of self-destructing while traveling at warp 10.

Learn more about

Finding a Single Fleet

The simplest way to locate a planet or fleet is to use the Find command. Use either the **Command** (**Find**) menu command, or press CTRL-F.

To find a fleet of your own

⇒   Enter the fleet number using any format (i.e. fleet #58, fleet 58, #58, 58, etc..).

⇒   Enter the full name of the fleet.

To find another player's fleet

⇒   Enter the fleet identification using this format:

   race_name "fleet"   "#"(fleet_number)

   Example: tritizoid fleet #125

If Stars! says it cannot find a planet or fleet by that name, try again, making sure you type the correct name or number, or that you used the correct format for finding another player's fleet. If you still can't find a fleet, it may not exist any more.

Finding a Specific Fleet Composition

If you are looking for a fleet with a specific composition:

1. Select the Ship Design Filter overlay in the Scanner.

2. Select the type of ship you're looking for from the list that appears. Only fleets that contain that type of ship will appear in the Scanner.

3. Double-click on the fleets shown in the Scanner. If more than one fleet is at a location, continue to click. As you click, the fleets will cycle through the Command pane. You can also use the **Next** or **Prev** buttons on the Fleet tile.

   The composition of each fleet will be listed in the Fleet Composition tile.

Switching Between Fleets

More about Fleets

Playing Stars!

Switch between fleets using one of the following methods:

⇒ Using the Find command (CTRL-F), then clicking on the ship in the Scanner pane.

⇒ Pressing the **Prev** and **Next** buttons on the Fleet tile to scroll through all your fleets in the Command pane. The fleets are enumerated in the current sort order of the Fleet Summary Report.

⇒ Click a location where more than one fleet is present. Right-click on the spot and select another fleet from the popup list. Or just continue to click in the location until the fleet appears in the Fleet tile.

⇒ In the Other Fleets Here tile, select a fleet from the dropdown list.

Naming Fleets

1. Select the fleet you wish to rename, displaying it in the <u>Fleet tile</u>.

2. Click on the **Rename** button in the Fleet tile.

3. Replace the existing text with your own more descriptive label.

4. **OK** the Rename dialog. The new name appears in the Fleet tile and anywhere else you'd expect the name to be displayed.

You can use either the new name or the original fleet number when searching for a fleet with the <u>Find dialog</u>. Other players see only the original fleet number, not the new names.

Using Fuel

Fuel is made of antimatter and is weighed in milligrams (mg). This means it isn't counted in calculating the ship's mass (and thus, fuel usage). It's a manufactured commodity that can only be found at starbases.

Fuel is shared by all ships in a fleet. The fuel capacity of a fleet is the sum of the fuel capacity for each ship in the fleet. The rate at which fuel is used is based partially on the mass of the all ships and cargo in the fleet.

Fuel usage is also based on the rate at which each ship in the fleet uses fuel. All ship types can move at any speed, but they each burn different amounts of fuel to achieve that speed. The total fuel usage for the fleet is the sum of the fuel usage for all the individual ships.

Fuel usage between waypoints is shown in the Fleet Waypoints tile. The amount shown for reaching the selected waypoint is always exact.

> **Tip:** Since fuel is shared by the entire fleet, you can help guarantee that a ship with a low fuel capacity reaches its destination by merging it into a fleet with a large fuel capacity.

Refueling

To refuel, simply visit one of your planets with a starbase in orbit. You'll be refueled automatically. Fuel can also be transferred between fleets.

Fuel and Combat

Ships don't use fuel while in combat.

Fuel Transports

Fuel transports produce 200 mg of fuel each year, regardless of how far they travel.

> **Tip**: Fuel transports also cause damaged ships in the fleet to heal 5 or 10% faster, depending on the hull type.

Fuel and Ramscoop Engines

Ramscoop engines draw fuel from surrounding space, allowing them to travel up to a certain speed at no cost. If you load fuel on a fleet using ramscoop engines and set a speed greater than that allowed for "free" travel, the fleet will travel at the set speed until it runs out of fuel, then slow to the maximum possible speed for that ramscoop. Ramscoops generate fuel when traveling at "free" speeds. Traveling at speeds below the maximum free speed can generate even more fuel.

> **Speed for Free**
> Each type of Ramscoop has a different maximum speed for travel without using Fuel. See the Engines section of the Technology Browser for more information.

Fuel, Stargates and Wormholes

Ships don't use fuel while traveling through a stargate or a wormhole. However, with a stargate you're limited to fleets that do not carry cargo (other than Fuel).

Wormholes are unstable and can wander. Be sure that any fleet using a wormhole has enough fuel to return to a friendly planet should the opposite end of the wormhole travel and deposit the fleet far from the expected location.

Running Out of Fuel

Even the best of us occasionally runs out of gas. The same is true for you as an Emperor. For ships with Ramscoop engines this isn't a problem as they will automatically slow down and continue their journey at their fastest free speed. For ships with normal engines you have several choices. If they are worth saving you can send a fleet to rescue them. If they aren't worth saving then you can either just ignore them or scrap them.

> **Fuel Warning in the Fleet Waypoints Tile**
> When you choose a waypoint you can't reach given the current speed and fuel supply, the Fuel Usage amount

turns red.

Routing Fleets

Routing automatically sends fleets from one planet to another. Stargates are used, if they are available. If the destination planet is yours, and it has a route destination, the fleet can be passed automatically to the next point.

Routing is most useful in large universes where you are regularly distributing new ships from specialized production centers to other points in your empire. Routing can also be used to send existing fleets from one side of your empire to the other, specifying only one waypoint within fuel range..

To set a route destination:

1. Click on the **Route** button in the planet's <u>Production tile</u>.

2. Move your cursor to the scanner and click on the route destination. A line appears between the origin and destination. Any ship that has route orders will be sent to this destination, as well as any newly built fleet.

To change the route destination:

⇒   Click on the **Route** button, then click on the new destination.

To remove a route:

⇒   Click on **Route**, then click on the planet of origin.

To pass fleets from route destination to route destination:

1. Set a route destination for each planet in your circuit or path.

2. Select the fleet to be routed.

3. Using the Waypoint Tasks tile, assign the fleet <u>Route orders</u>. When it arrives at a planet with a route destination, it will automatically be passed along. If the planet has a starbase, the fleet is automatically refueled as well.

Route Behavior

If the route destination is an uncolonized planet and fleet includes remote miners, its orders are automatically changed at the destination to <u>Remote Mining</u>. If the route destination is a planet with your mining fleet already in orbit, the final waypoint task is automatically changed to <u>Merge with Fleet</u>.

Route will not auto-colonize at the destination. You must specify colonization orders upon the fleet's arrival.

Rendezvousing Fleets

More about Fleets

Playing Stars!

It's useful to specify one fleet as a destination for another if you are transferring cargo between fleets (for example, between a remote miner and a freighter), merging fleets, or chasing an opponent's fleet.

To rendezvous one fleet with another, just select the current position of the destination fleet as the waypoint for the fleet that wishes to intercept it. As long as the destination fleet can be detected by the pursuing fleet's scanner, this fleet will follow the destination fleet until it overtakes it or runs out of fuel. If the fleet in pursuit loses sight of the destination fleet, it travels to the destination fleet's last known position.

How to Pick a Fleet Out From a Crowd

When two or more fleets are at the same location or close together, and you want to send another fleet to meet with one of them, do one of the following:

⇒   If the fleets are close together, zoom in using the plus (+) key until you ca see everything clearly. Then set the waypoint on the fleet you wish to rendezvous with. Press the minus (-) key to zoom out.

⇒   If two fleets are in the same location and you wish to target one specifically, or target an opponent's fleet in orbit, click on the blue diamond in the Fleet Waypoint tile, then select the destination fleet from the popup list.

⇒   If the goal is to refuel the destination fleet or join with the destination fleet then you can use the Merge with Fleet waypoint task. This task requires that you specify the destination fleet as the waypoint.

Learn about

Transferring Fuel and Cargo to other Ships

Jettisoning Cargo

Splitting and Merging Fleets

More about Fleets

Playing Stars!

Splitting Fleets

To split a fleet, click on the **Split** or **Split All** button in the Fleet Composition tile. If you choose **Split**, the Ship Transfer dialog opens, allowing you to transfer any number of ships between the fleet under command and the fleet selected in the Other Fleets Here tile. If you choose **Split All**, all the ships in the fleet will divide into separate fleets based on ship design. You can also click on the **Merge** button in the Other Fleets Here tile to open the Ship Transfer dialog.

◆ The **Split** and **Split All** buttons are disabled when you reach 500 fleets.

◆ The **Split All** button will fail if it the result will be more than 500 fleets.

Merging Fleets

To merge entire fleets with others, click on the **Merge** button in the Fleet Composition tile. This opens the Merge Fleets dialog which allows you to merge any combination of fleets at the same location.

You can also merge fleets using the Merge with Fleet waypoint task.

> If you would like to transfer some but not all ships between the fleet under command and a selected fleet at the same location, click on the **Merge** button on the Other Fleets Here tile.

Scrapping Fleets

Scrap or destroy a fleet by merging it with a colony fleet or by choosing the Scrap Fleet waypoint task. Scrapping allows you to regain a percentage of the minerals used in the ship's construction and all the mineral cargo on board. This is a good way to get rid of ships built using a hull design that is no longer useful. You can scrap fleets at any planet or even in deep space.

The construction minerals you recover are added to the minerals at the planet where the fleet is scrapped. The percentage of minerals recovered depends on the following circumstances:

- **Colonization mission** -- leaves 75% of the minerals used in construction on the surface of the planet.

- **Scrap Fleet at a starbase** -- leaves 80% of the minerals used in construction on the surface of the planet.

- **Scrap Fleet at any planet without a starbase** -- leaves 33% of the minerals used in construction on the surface of the planet.

- **Scrap Fleet in deep space** -- all construction minerals are lost.

   Ultimate Recycling Races
   Races with the Ultimate Recycling racial trait recover 90% of the minerals and 70% of the resources when scrapping at a starbase. Scrapping at a planet gives 45% of the minerals and 35% of the resources.

Feeding Scraps to other Players

You can exchange technology with another player by scrapping a fleet at that player's planet. The other Player has the same chance of learning the technology as they would have if they'd met you in battle. They also get the recycled minerals.

Navigation

You cause a fleet to move by assigning it one or more destinations or waypoints. You can assign a task at each waypoint, such as transport, attack, colonize, remote mine or scrap fleet. When fleets reach their last waypoint they stop.

Read more about waypoints:

There are shortcuts through the Stars! universe in the form of stargates and wormholes.

Read about celestial shortcuts:

Adding Fleet Waypoints and Tasks

To add a fleet waypoints and a task to accomplish at that waypoint:

1. Select the fleet into the Command pane. Just double-click on its location in the Scanner, or right-click on it and choose the fleet from the popup list.

    You can follow a fleet currently at your location by right-clicking on the diamond in the Fleet Waypoints tile and selecting that fleet from the list. This fleet appears as the waypoint.

2. SHIFT-click on the destination waypoint. This can be any point in space. A green line appears between your current location and the new waypoint.
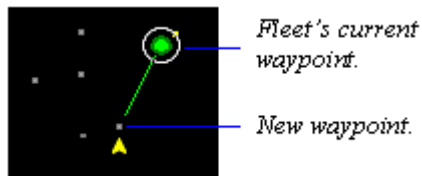
3. Assign an appropriate task from the Waypoint Task tile. If there's no work to be done at that waypoint, choose No Task Here.
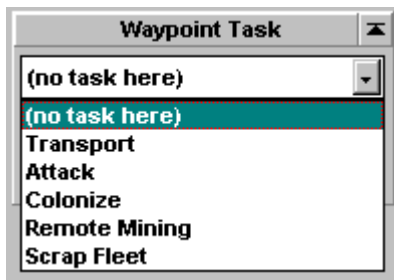
    You can also right-click on the blue diamond in the Waypoint Task tile and choose an pre-defined Zip Order, or create your own custom Zip Order.
4. Repeat steps 2 through 4 to add more waypoints.

5. If the final waypoint is the same as the original starting location you can check **Repeat Orders** in the Waypoint Task tile to cause the fleet to continually repeat the entire series of tasks until the fleet is interrupted.

Notes and Tips

Distance and the Scanner "Grid"
When you set a waypoint, notice that the Scanner snaps to a "grid". The grid snap is one light year, and can't be redefined. Vertical or horizontal distance is measured in whole years. Diagonal distance between coordinates is a decimal amount slightly larger than one light year.

Selecting One Object from Many at the Same Location
If there are multiple objects at the location, click on the blue diamond in the Fleet Waypoints tile and select the object you wish to make the waypoint.

White Fleet Paths
The fleet path appears in white if two or more legs of the route are identical; for example, if you set a return path along the same route.

Don't Choose the Same Waypoint Twice in a Row
You can't add two consecutive waypoints at the same location.

Moving Fleet Waypoints

If you want to move a waypoint from one place to another, move the cursor over the point you want to move, and the cursor will change to a hand. Click the mouse and the hand will close. Drag the mouse to the new destination. You will notice that the destination will snap to objects when you get close to them to help you avoid missing a planet. If you really want to set a waypoint really close to an object but not at the object, hold down on the SHIFT key while dragging in order to disable the snap-to-object behavior.

Deleting Fleet Waypoints

There are two ways to remove a waypoint:

⇒   Click on the waypoint you want to remove, then press either the Backspace or Delete key.

⇒   Click on the waypoint, then drag it to the next or previous waypoint and release.

Stargate Navigation

You must have a stargate at the source planet and at the destination planet. You can navigate using your stargates and Friend's stargates. Stargates have limitations on the mass they can transfer and the distance they can transfer it.

To send a fleet through a stargate:

1. Select the fleet to take through the gate. Make sure it isn't carrying anything other than Fuel.

2. Click in the Warp Speed gauge, dragging to the end of the gauge. The speed will change to **Use Stargate**. That's it. On the next turn, your fleet will appear at the destination planet.

Use the Technology Browser to display statistics for each type of stargate. Just press F2 and select Orbital Devices from the dropdown list.

Range (how far fleets can jump safely)

This is determined by the range of the source stargate.

You can exceed the normal range by up to five times the distance and possibly still arrive at the other gate. The fleet will, however, always take damage.

Mass Capacity

Each type of stargate has a maximum ship size limitation. Only ships that do not exceed the safe mass capacity of both the source or destination stargate will arrive safely.

You can exceed the acceptable mass capacity by up to five times the amount and possibly still arrive at the other gate. The ship will, however, always take damage.

Learn more about:

Wormhole Navigation

Wormholes are spacial anomalies that appear and disappear at whim. There are several types, some more stable than others. Wormholes offer you free travel across huge distances of space and have no mass limitations.

Wormholes appear only in deep space, being somewhat repelled by the gravity wells caused by a planet.

Wormhole stability ranges from Rock Solid to Very Unstable. Rock Solid wormholes can stay in one general area for 30 years or more. Very Unstable wormholes tend to move to a different area within about five years.

Each end of the wormhole moves independently. Due to their complex nature, wormholes "jiggle" a bit every year. Their exact location is always shifting.

⇒ To navigate a wormhole, select it as a waypoint. Your fleet will enter the wormhole as soon as it reaches the opening, and appear at the other end in the same year.

⇒ Clicking on a wormhole in the Scanner displays its destination (if known) and stability range in the Selection Summary pane.

Detecting Wormholes
Similar to a cloaked fleet, a wormhole is hard to see. To normal scanners, a wormhole will be less visible by 75%. Once you discover a wormhole it will no longer be cloaked to you.

Colonization

Colonize planets that are immediately habitable by you or that have a negative value but can be terraformed to become habitable. You should colonize as many planets as possible in order to increase the rate at which you gain [resources](#), which you need to build better technology and more fleets. At the same time, don't pull people off your home world so fast that you begin to lose significant resources. Try to find a balance between the planet's growth rate and the rate at which you send colonists off-planet.

Read more about Colonization:

[Choosing Planets to Colonize](#)

[Colonizing an Uninhabited Planet](#)

[Shuttling Colonists with Freighters](#)

[Hey, that Planet's Already Inhabited!](#)

Choosing Planets to Colonize

Planets come in three basic flavors:

- **Planets you can inhabit immediately**. These have a positive value, and appear green in Planet Value view in the scanner. The better the planet, the higher the value, and the larger the green dot. The higher the value, the faster your colony will grow.

- **Planets that have a negative value but can be terraformed by you**. These planets appear yellow in the Planet Value view. The larger the yellow dot, the better the planet will be after you finish terraforming.

- **Planets that will just plain kill you**. These have a negative value, and appear red in Planet Value view. The bigger the red dot, the more deadly the planet. You don't have the ability to terraform these planets, although, if you can increase your level of terraforming technology, you may see that red dot change to yellow.

Two items in the selection summary pane can also help you determine which planets are good candidates for colonization:

The Planet Value: Two numbers will appear here if you have the technology to terraform the planet. The first number is the planet's current value. The second number (in parentheses), is the potential value of the planet if it were to be terraformed to the extent your current level of technology allows.

If you don't see the second number, you either can't terraform this planet or the selection summary pane has been narrowed too much for it to display.

The Environment Graph: Click on each of the three variables displayed   in the environment graph. A popup will tell you the potential increase in planet value if you modify that variable to the limit defined by your current level of technology.

Colonizing an Uninhabited Planet

To colonize an uninhabited planet:

1. Fill the colony ship(s) with colonists and fuel.

2. Assign the new planet as a waypoint.

3. Set Colonize as a waypoint task.

The colonists will dismantle the colony ship when they land, regaining any leftover fuel and cargo, and some of the minerals used in the ship construction, to start the colony.

It's usually a good idea to minimize the number of ships in the colonization fleet. You can always transport additional colonists using a freighter once the colony is established (colonists are unloaded, and the freighter proceeds to its next waypoint). If you have old, out-of-date ships you no longer have use for you can send them along on a colonization mission as a form of recycling (although ships may be scrapped at any time).

Shuttling Colonists with Freighters

Freighters can shuttle colonists to a planet that has already been colonized. If you're heading for a planet owned by an opponent, expect a fight, and be sure to carry enough colonists to overwhelm your foe. Use as many freighters as necessary, setting their orders to unload the colonists as soon as they reach the waypoint:

1. Specify orders for transporting colonists in the Waypoint Task tile. For the waypoint where you'll load colonists, specify Transport as the action and Colonists as the cargo, then specify the amount you wish to load.

2. At the waypoint or waypoints where you'll drop colonists, specify Transport as the action and Colonists as the cargo, then specify the amount you wish to unload. Be sure not to unload more colonists than the planet can support.

   Transporting Alternate Reality Colonists
   Alternate Reality races can take damage while traveling in space. Speeds higher than Warp 4 kills 3% of any colonists in the fleet per year.

Hey, that Planet's Already Inhabited!

You can't colonize a planet that's already inhabited. Colonizing means to make an uninhabited planet your own. If you transfer the colonists using Transport orders, you'll automatically initiate ground combat with the current inhabitants. At this point your colonists become ground troops. If more than one player lands ground troops on the planet during the same year/turn, everyone will fight until only one side is left.

You cannot invade any planet that has a starbase in orbit. This means you'll need to destroy any starbase with your war armada before you can beam down.

Alternate Reality Races and Invasion
Since Alternate Reality races inhabit starbases and not planets, destroying their starbase makes the planet open for colonization. Alternate Reality races also cannot invade other player's worlds.

Mining

Most of a planet's minerals lay under the surface, unavailable for use until your colonists mine them. You can build mines on your own worlds, or use robot miners to mine uninhabited worlds.

The mineral content of a planet is shown in the [Selection Summary pane](#) and the [Minerals on Hand tile](#). The number of mines that have been built and that can be operated also appear in the Minerals on Hand tile.

Read more about Mining:

[Mining Colonized Worlds](#)
[Remote Mining](#)

Read about Mines:

[Mines, Mineral Concentration and Player Efficiency](#)

Mining Colonized Worlds

To build a mine, just add it to the production queue. You can do this manually or by using the auto-build feature of the Production dialog. These mines will be built, and the minerals within will be mined and made available immediately to the locals.

> **Alternate Reality Race and Mining Colonized Worlds**
> Since Alternate Reality races live on starbases and can only perform a small amount of innate mining, they must remote mine their own worlds.

To determine how much more of a mineral a new mine will produce:

1. Turn to page 5 of the View Race dialog and see how efficient your race is at building and using mines and factories. Cancel the dialog when you've finished.

2. Look at the mineral concentration information in the Selection Summary pane and the Minerals on Hand tile. Click on the mineral name or value in either of these locations to display information on the density of each mineral under the surface.

3. Calculate productivity using this formula:

   (potential productivity)(mineral concentration) = (actual productivity)

   For example, you learn from the View Race dialog that 10 mines produce up to 10 kT per year and from the Mineral Content graph in the Selection Summary that mineral concentration is 50 percent. Then 100 mines will produce 50 kT of each mineral in the next year. In this case, you would have to add two mines for every 1 additional kT of each mineral you want each year.

Read more about Mines:

Mines, Mineral Concentration and Player Efficiency

Remote Mining

Remote mining is the use of specialized mining ships to remove minerals from uninhabited planets for transfer to your needy, inhabited worlds. You can only perform remote mining on uninhabited worlds, using mining ships that carry robot mining modules. You need to research the technology to create both the hulls and the modules, then design the ships using a miner hull. Place mining modules in the Mining slots when you design the hull. When you're ready to mine, add Mining ships to your production queue.

Alternate Reality Race and Mining Colonized Worlds
Since Alternate Reality races live on starbases, they must remote mine their own worlds.

Remote mining fleets actively engaged in mining report annually on the planet's environment and mineral situation. These ships do not need scanners, unless you want them to be able to detect enemy fleets as well.

Use the Technology Browser (press F2) to learn the research and production requirements for remote miners: look in the Hulls category for the miner hulls, and in the Mining category for the modules.

Read more about:

Creating a Robot Mining Fleet

Creating a Robot Mining Fleet

Robot miners can't carry much fuel. To assemble and launch a robot mining fleet:

1. Merge your mining ships into a fleet with at least one freighter. The freighter typically will be able to carry enough fuel for the fleet to reach its destination.

2. Assign the planet to be mined as the waypoint, with orders to carry out remote mining.

3. When the fleet reaches the planet to be mined, split the miners and freighters back into separate fleets.

4. Select the freighter fleet and assign a circuitous route with waypoints at the planet(s) to receive the minerals, ending with the mining fleet as the last waypoint. At the mining fleet waypoint assign a transport order that causes the minerals to be loaded from the miner to the freighter in the most optimum way possible.

   When you set the mining fleet as the waypoint instead of the planet the mining fleet is orbiting, the freighter will automatically follow the mining fleet wherever you send it.

Transporting Freight

You can transport minerals, fuel and colonists from waypoint to waypoint. These waypoints can be either planets or fleets. Freight is either carried in ships that have cargo holds or modules, or flung across space using mass drivers. For a description of different cargo modules and mass drivers, refer to the Technology Browser (press F2).

Read about these Freight topics:

Shipping Freight

Transferring Fuel and Cargo to other Fleets

Jettisoning Cargo

Creating a Custom Transport Zip Order

Flinging Mass Packets

Shipping Freight

To get the transport process started:

1. Select the fleet that will carry the cargo.

2. Add a waypoint or series of waypoints in the Scanner pane.

3. In the Fleet Waypoints tile, select the waypoint where you want to load or unload cargo.

4. In the Waypoint Task tile, specify the Transport orders:
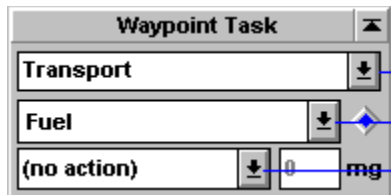
For a description of each action, read about the Transport task.

> **Zip Orders**
> You can also use Zip Orders to speed things up a bit. Just right-click on the blue diamond in the Waypoint Task tile and select one of the sets of orders listed. Left-click on the diamond for a description of the pre-defined orders. You can also create your own custom Zip Orders.

Repeat this process for each waypoint where you'll load or unload freight.

Repeat Orders

If you want to set up the fleet to endlessly follow a route until you specify otherwise, check the **Repeat Orders** box in the Fleet Waypoints tile. If you want to the fleet to return to its planet of origin as part of the route, be sure to specify that planet again as a waypoint.

Remember that you can specify another fleet as a waypoint. For example, if you want to set up a route between a remote mining fleet and one of your mineral-needy production planets, specify the mining fleet as the first waypoint and the production planet as the second waypoint. At the first waypoint, the mining fleet, set Transport orders for each mineral you plan to load, specifying QuikLoad using the Zip Orders diamond. At the second waypoint, specify the QuikDrop Transport Zip Order for each type mineral you load from the miner.

If you want to set up regular transport routes and you're playing a large universe, consider using fleet routing to send your ships from planet to planet.

Learn about:

Transferring Fuel and Cargo to other Fleets

Fuel, minerals and colonists can be transferred between fleets. These fleets can belong to you or an opponent. Once given, the fuel or cargo can not be taken back. This opens up possibilities for trade (as part of a diplomatic strategy).

If you transfer colonists to an opponent's fleet (or in this case, your ally's fleet), they are assimilated into that player's race. For example, if the Croutonian and Octovegan fleets meet in space, and the Croutonian fleet transfers 100 colonists to the Octovegan fleet, the colonists become Octovegans.

Fuel and minerals can also be transferred from any player's fleet to any player's planet. However, if one player attempts to transfer colonists to another player's planet (regardless of their relationship), that's called an invasion, and dealt with in the expected manner.

Transfer cargo using one of the cargo transfer dialogs. These are accessible from several tiles in the Command pane.

Jettisoning Cargo

As indicated by the Location tile shown here, you must be in deep space to jettison cargo. Do this if you don't have enough fuel, must reach your destination or make a fast getaway, and can't wait for another ship to reach you with fuel.

Transferring cargo to an opponent's ship or a planet you don't own effectively does the same thing: you lose the cargo.

Jettisoned cargo is lost to the cosmos.

Creating a Custom Transport Zip Order

A Zip Order is a common Transport order you wish to specify many times in a game, just by selecting the Zip Order name. Stars! provides four pre-defined Zip Orders (including Clear). You can't change the pre-defined orders, but you can add up to four custom zip orders.

Once you create a Custom Zip Order, it's available in all your games until you delete it. Here's how to create one:

1. Specify the Transport order in the Waypoint Task tile.

2. Set up the order you wish to add to the Zip Order list by selecting the appropriate cargo items and operations.

3. Right-click on the blue diamond in the Waypoint Task tile.

4. Select **<Customize>** from the popup menu. The Custom Zip Orders dialog appears.

5. Select a Custom Order slot in the dialog.

6. Click on **Import**. This copies in the current transport orders from the Waypoint Task tile.   The Rename Zip Order dialog appears.

7. Type the name, and **OK** the dialog. The new order appears in the Custom Order dialog.

8. **OK** the Custom Order dialog.

9. Right-click on the blue diamond again. Your custom Zip Order appears in the popup.

Editing a Custom Zip Order

⇒ Repeat steps 1 - 5 above, and in step 5, select the order you wish to modify.

⇒ Click on **Import** and **OK** the Rename Zip Order dialog.

Flinging Mass Packets

Flinging a mass packet is a two step process:

Target the Mass Driver

This must be done before you build the packets, or the packets will disintegrate.   Of course, you must also have a mass driver on the planet's starbase.

1. Click on the **Set Dest** button on the Starbase tile.

2. Select a target by left-clicking on the target planet in the Scanner. The Scanner displays the path as a purple line.

⇒ You can also target a Mass Driver by SHIFT-clicking on the destination planet.

For the packet to arrive safely, the target must also have a driver of equal or greater capacity. If the planet has a lesser mass driver, or no driver at all, the packet will destroy some or all of the colonists and installations on the planet surface.

Build and Fling the Packets

You build packets using the Production dialog. The packets are automatically flung as soon as they're built.

1. Target the mass driver, if you haven't already.

2. Choose the packet speed. Slower speeds allow you to fling packets to planets with lower tech receiving accelerators. Higher speeds (above the rated speed) are unstable but get there quicker and do more damage.

3. Click on **Change** in the Production tile, opening the Production dialog.

4. Look at the production inventory. It contains a packet type for each mineral and a mixed packet that contains all three minerals. When you click on a packet type in the inventory the numbers below the inventory show how many kT of each mineral is required to build the packet.

5. Select the packets you want to build, then **Add** them to the queue.

The packets are flung as soon as they are built.

The Messages pane informs you each time a packet is sent. Mass packets in scanner range appear in the Scanner as a green square if they're yours or a red square if they belong to an opponent.

> You can't attack mineral packets. You can intercept them and use the Other Fleets Here tile to transfer their contents to your fleet.

Learn more about:

The Basics of Combat

Here's how to create and specify battle plans, initiate all types of combat, and watch a replay of a battle in space. In general, all you need to know about the outcome of a battle is described in the message you receive. If you lose a battle and don't know why or just want to compare your tactics to those of your enemies you can watch a replay of the battle in the battle VCR.

Turn-based versus Real-time Battles
Because Stars! is a turn-based game, there is no way for you to directly control your battles as they happen. The play here is in the strategy, not the joysticking. Use the VCR to learn how the enemy attacks, and how your attack was successful or failed.

Read more about the basics of combat:

Fleet-to-Fleet Combat

Salvage from Space Battles

Bombing Planets

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Read about the technical details of battle:

The Guts of Combat.

Fleet-to-fleet Combat

To attack an opponent's fleet, do the following:

1. Choose your fleet's battle plan from the dropdown in the Fleet Composition tile. To open the Battle Plans dialog and learn the contents of a plan, or change or create a plan, choose **Battle Plans...** in the dropdown.

2. Set a waypoint at the enemy fleet. If the enemy fleet is in orbit of a planet, you may want to explicitly target the fleet so you'll chase it if it leaves the planet. Just right-click on the blue diamond in the Fleet Waypoints tile and choose the enemy fleet from the list that displays.

Your fleet will either reach the enemy and engage them, or, if you're tackling another fleet, you'll chase them until you break off pursuit. If you do attack, you receive a message the following year describing the outcome of the battle. If you wish you can replay the battle using the Battle VCR. If you lose track of the enemy you'll receive a message saying that your fleet's waypoint has been set to their last known location. When you receive a message about a battle the **Goto** button in the messages pane will select the location of the battle in the Scanner pane and the text of the button will change to View. Pressing **View** displays the Battle VCR, allowing you to watch a reconstruction of the battle. Use the VCR to learn how the enemy attacks, and how your attack was successful or failed.

The outcome is determined by the battle plans and ship components used by your and your opponent(s).

> To learn about specific weapons, armor, shields and engines, study the Technology Browser (press F2). To learn how to research and design your offensive technology, read about how to perform research or how to use the Research dialog; then read about ship design.

Battle Orders don't Interfere with Waypoint Tasks

By default, new armed fleets start out with attack orders. Since these orders are always in effect, your armed fleets can also be assigned any waypoint task suitable for that fleet.

Firing in Passing

If a ship moves in the direction of its primary target but is still out of range, it will try and fire on any target within range. The primary target is specified in the Battle Plans dialog.

Salvage from Space Battles

Ships destroyed in battle or by minefields leave salvage. Cargo is dumped in space as a mineral packet or, if the battle took place in orbit, the cargo falls to the surface of the planet. Players who survive a battle against technologically superior ships have up to a 50% chance of automatically advancing one level in one field of technology. The technology bonus is based on sensor readings rather than salvage. In order to recover the minerals from a salvage packet for use in production:

1. Travel to the location of the salvage packets.

2. Choose the packets from the Other Fleets Here tile dropdown.

3. Click on the **Cargo** button, then use Cargo Transfer dialog to empty the packets into the holds of your fleet.

Bombing Planets

Bombing happens automatically. All you need to do is load your bombers and send them to the enemy planet. If the planet does not have a starbase, the fleet begins to bomb on arrival. (If the planet has a starbase, you'll have to destroy it before you can commence bombing.)

You specify the type of bombs a particular bomber design carries when you design the ship. Your bombers have an infinite number of bombs, allowing your fleet to bomb forever without resupplying. The number of bombs you place in each slot is the number dropped on that planet per year.

Enemy Population Count During Bombing

You may notice that the enemy population reduction doesn't always match your calculations when bombing. For example, the Summary pane reports that the population is 400,000. You receive a report saying your bombs destroyed 65,000 colonists. Now the Summary pane says the population is 410,000. What gives?

The population report of an opponent's world is always an estimate. The number shown is +/- 20% of the actual value. Since you aren't on the surface, you won't be able to take an accurate count -- until the count is zero.

Special Bombs

Claim Adjuster races can gain the Retro bomb, a type of terraforming weapon used to return the planet to it's original conditions.

Smart Bombs destroy colonists, but not Mines or Factories. They are twice as effective at penetrating planetary defenses.

> For information on bomb types and damage, take a peek at the Bombs category of the Technology Browser. To learn how to research bomber and bomb technology, read about how to perform research or use the Research dialog. To learn how to design and build bombers, read about ship design.

Mass Packet Bombardment

If your starbase has a mass driver, you can fling mineral packets against planets with no mass driver or a lesser mass driver. This will destroy colonists and installations, and is cheaper than building and sending bombers (as long as you can afford to throw away the minerals).

You can defend against this type of attack by building a mass driver to catch the packets. If the sending driver is more powerful, you'll at least slow the packets down and reduce the damage. The next best thing is to have good planetary defenses. (These are described in the Planetary section of the Technology Browser.) If you're fast enough you may be able to intercept the packets in flight (assuming it will take the packet more than one year to reach its destination) and transfer their load into your cargo holds.

Read more about Mass Drivers:

Ground Combat

To invade another player's planet and initiate ground combat:

1. Build a fleet with one or more freighters.

2. In the Waypoint Task tile, use the Transport task to load colonists onto the fleet. Try to load what you think will be an overwhelming number.

3. Set a waypoint to your opponent's planet.

4. Use the Transport task to drop all colonists at the new waypoint.

If the planet has a starbase, you'll have to destroy it before you can transfer your troops to the surface.

You'll lose some of your colonist troops when you transport them through the planetary defenses. Planetary defenses are 75% effective against enemy colonist drops. Your troops that make it to the surface and your opponent's colonists fight until only one side remains. If everyone is killed, the planet is up for grabs to the first player who colonizes it. Such planets must be recolonized using a colonization fleet.

Capturing a planet in this way allows you to keep any surviving mines and factories.

If the planet is not habitable by your colonists, have the fleet load all of them up the next year. This prevents you from losing colonists to the elements.

If you plan to use ground combat extensively, consider creating a race with the primary racial trait of War Monger before you start the game.

You cannot invade any planet that has a starbase in orbit. This means you'll need to destroy any starbase with your battle ships before you can beam down.

Alternate Reality Races and Invasion
Since Alternate Reality races inhabit starbases and not planets, destroying their starbase makes the planet open for colonization. Alternate Reality races also cannot invade other player's worlds.

Minefields

You can string minefields around your planet or anywhere else in the universe. Minefields are typically a defensive strategy. However, they can also be used as a last-ditch offensive weapon by remotely detonating them (preferably when they enclose enemy fleets) if you have the Space Demolition primary trait. They require the use of ships that carry mine layers.

Players Affected by Minefields

Mines are not set off by fleets belonging to you or your friends. Only neutral and enemy fleets will have trouble navigating the field.

Cloaks and Minefields
Cloaks do not protect ships from mines. Minesweepers may be cloaked if you wish to disguise minesweeping activity for as long as possible.

Minefields in the Scanner

To view minefields, use the Scanner pane's Mine Fields overlay. Minefields are displayed in the Scanner as circular grids, blue for your minefields, yellow for people you've declared as friends, red for your enemies. Only those minefields within scanner range will appear. Mine fields are partially cloaked until you hit them the first time. Minefields are always cloaked 82% from non-penetrating scanners.

You can see both the center and radius of an opponent's minefields under these circumstances:

◆ The center of the minefield is in range of your penetrating scanner, OR

◆ You have hit the minefield at least once and the center is in range of your normal scanners.   OR

◆ You are currently IN the mine field.

Minefields as Scanners
Minefields act as normal scanners for players with the primary trait of Space Demolition. These scanners do not detect fleets orbiting planets.

Read more about Minefields:

Laying Minefields

Only a ship with a mine layer can lay minefields. Mine layers are described in the Mine Layers section of the Technology Browser. You'll need to research Energy and Biotechnology for mines that explode, and Propulsion and Biology for those sticky Speed Trap mines. Once you've gained the technology, use the ship designer to add mine layers to a ship hull. Build the ship and you're ready to go.

To lay a minefield:

1. Select the fleet, bringing it into the Command pane.
2. Click in the Scanner, selecting the target planet or point in space as the waypoint.
3. If necessary, click in the Warp Factor gauge in the Fleet Waypoints tile, and adjust the warp speed.
4. In the Waypoint Task tile, click on the dropdown and select **Lay Mine Fields**.
5. Specify the number of years to lay mines.

The Waypoint task tile notes how many mines that fleet can lay per year. Stars! supports laying up to 1,000,000 mines in a field, at a rate of more than 32,000 mines a year.

Minefield Coverage

Use the Scanner's Mine Fields overlay to show the area of space covered by the field. Click on the field to display the mine type, field size and decay rate in the Selection Summary pane.

Minefield Decay

Minefields decay at a rate of 2% a year for most races. If you belong to the Space Demolition Race, your mine fields will decay at a rate of 1% a year. In either case, you should plan to replenish the fields as needed. (If enemy or neutral ships thin them out, you'll need to rebuild as well.)   Mine fields decay an additional 4% a year for each planet they contain. The maximum decay rate for a mine field is 50%.

Learn how to:

Sweeping Minefields

Ships and Starbases with beam weapons can sweep minefields. You can only sweep minefields belonging to Neutrals and Enemies. Sweeping minefields happens automatically. If you're flying through a neutral or enemy minefield and your fleet carries beam weapons with a range of 1 or greater, you'll start clearing a path. If an opponent builds a minefield around your planet and your starbase has beam weapons, the starbase will start clearing space to the limits of its weapons.

Sweeping mines happens before movement, so a fleet in a minefield sweeps mines the year it moves out of the field.

To display minefields your know about, turn on the Scanner pane's Mine Fields overlay.

Calculating a Fleet's Mine Sweeping Capability

To determine how many mines a beam weapon can sweep each year, multiply the weapon's Power by the square of its Range. Add up all the beams in the fleet and you know how many mines you'll sweep each year. If the fleet is in more than one mine field, it sweeps this number simultaneously from each mine field.

Gattling weapons are even more effective at sweeping mine fields. Consult the Technology Browser to learn their exact level of effectiveness.

Speed trap mines are swept at only 1/3 the normal rate.

Look in the Beam Weapons section of the Technology Browser to learn the power and range of each beam weapon.

Learn how to:

Remotely Detonating Minefields

You must be playing a Space Demolition race to remotely detonate your minefields. You can detonate only minefields made of Standard Mines. Once set to blow, the field will detonate at the END of the next turn.

To remotely detonate a minefield:

1. Select the minefield in the scanner. If more than one object is present, right-click on the field and select it from the popup list.

   A summary of the field appears in the Selection Summary pane.

2. Check **Detonate Mine Field Next Year** in the Summary pane.

ALL ships in the field take damage as if they hit a mine.

Starbase Combat

Starbases take part in combat. They don't move but have an initiative of 10 - 18. They are separate from the planet and any fleets, and thus must be targeted separately.

A planet cannot be bombed or invaded if it is orbited by a starbase. A starbase can be designated as the primary target using the Battle Plans dialog but is also included in the Armed Ships target.

Declaring Enemies and Friends

In a single player game, everyone is your enemy. In a multi-player game, you designate who you do and don't wish to attack.

⇒ Select **Player Relations** from the **Commands** menu to specify your enemies, your friends, and races you have no feelings for whatsoever (neutral).

When you give a fleet attack orders you can choose who to attack: all enemies, all neutrals and enemies, everybody or a just a specific opponent.

Friends are also immune to your mine fields, automatically refuel at your starbases and are allowed to use your stargates.

Fleets with the waypoint task of Patrol will only attack Enemies.

Unwilling Participants and Innocent Bystanders

If you declare another player to be your friend you may be unexpectedly drawn into battles. If a friend of yours is attacked and you have a fleet at the same location your fleet will automatically join the battle even if it does not have attack orders. Yegads.

If both players are your friends, you can sit on the sidelines and watch or be on your merry way. Same thing if both players are your enemies.

Battle Plans

Battle plans specify the behavior of your ships in a confrontation. When you specify attack orders, you choose a battle plan that defines the attack and defense. Modify or delete an existing plan or create a new plan using the Battle Plans command (in the Commands menu).

All new ships start out with the Default battle plan. Battle plans for a fleet are selected in the Fleet Composition tile, and are in effect regardless of the fleet's waypoint task.

Read more about Battle Plans:

Targeting

For each attacking token, or group of ships of the same design in a fleet, for each round of battle, Stars! looks at all the other tokens in the battle, trying to pick the right target. Cloaked tokens are treated the same as all other tokens. Each potential target is compared with the primary target type: Any, Starbase, Armed Ships, etc. If no target is found, Stars! looks for targets matching the secondary target type, attacking the first matching target found. If no target is found, the token disengages.

When picking targets, Stars! tries to avoid targeting tokens already targeted by another player.

Starbases

Starbases use a primary target of Armed Ships and a secondary target of Any.

Targeting Examples

Primary target: Bombers/Freighters; Secondary target: Fuel Transports
Any enemy bombers and freighters are targeted first. Once they are gone, the attacker looks for and tries to destroy enemy Fuel Transports. This tactic is useful for crippling enemy battle groups while attempting to avoid their heavy guns.

Primary target: Armed Ships; Secondary target: None/Disengage
This would try to take out all enemy armed ships and the armed enemy starbase, leaving unarmed ships alone. This is useful if you plan on stealing cargo from the unarmed ships (assuming you survive).

Primary target: Armed Ships; Secondary target: Bombers/Freighters
This ignores anything that isn't armed, or a bomber or freighter. This prevents you from wasting shots on harmless ships.

Battle Tactics

A fleet's battle plan lists a tactic for each general target type: Any, Armed Ships, Starbase, etc. Tactics fall into three styles: disengage, minimize personal damage, and maximize opponent damage. Each tactic determines how much damage each token, or group of ships of the same design, in your fleet will attempt to both inflict and expose itself to.

In all cases except Disengage the token will attempt to get closer to the target if it is currently outside maximum range. If the token runs out of primary and secondary targets it will automatically switch to Disengage. If a token can no longer do any damage it will automatically Disengage. For example if the attacking token has shield buster weapons only and none of the enemy tokens have shields, the attacker will disengage.

Making a New Battle Plan

1. Select an existing battle plan from the **Plan** dropdown.

2. Click on the **Copy** button to copy an existing plan. If the list is full (14 plans), select an existing plan you are willing to replace.

3. In the **Target** dropdown, select a primary target for the fleet to attack. If there are no targets that match this setting, your fleet will attack the nearest target belonging to whoever you have ordered the fleet to attack.

4. Under **Have All**, select a battle tactic for each type of ship.

5. Click on the **Rename** button and type in a new name.

6. Click on **OK**. The new plan will appear in the Waypoint Tasks tile the next time you choose an Attack task.

Changing the Contents of a Battle Plan

You may find that your battle plans need fine tuning over time. Here's how to change one:

1. Select an existing battle plan from the **Plan** dropdown.

2. To assign a new primary target for the fleet, click in the **Target** dropdown and select a ship type.

3. Choose a Secondary target for your ship to attack if the primary target type is not present.

4. When you finish, **OK** the dialog. Your changes take affect that turn.

Viewing a Battle in Space

After a while you will find that there is no need to view most battles. There are times, however, when you were sure that you had overwhelming forces and still got your rear kicked. That's where the Battle VCR comes in to play. It is a great place to learn about the characteristics of your opponents' fleets and to determine your opponents' battle strategy.

You start the VCR from the Messages pane. When a battle has taken place, you receive a message summarizing the event. If you click the **Goto** button, the scanner selection moves to the location of the battle and the button turns to **View**. If you click on **View**, the VCR appears.

Viewing Enemy Fleets in the Summary Pane

More about Combat

Playing Stars!

To learn about an opponent's fleet that appears in the Scanner pane:

⇒   If your opponent's fleet is in space, left-click on the fleet symbol. If there is more than one fleet at the location, right-click and select the enemy from the popup list.

⇒   If your opponent's fleet is orbiting a planet, right-click on the planet, then select the fleet from the popup list.

The fleet appears in the Selection Summary pane. The number of ship types in the fleet are indicated by the ship in the picture in the Summary pane and the total number of plus (+) symbols in the corners of the ship picture. Display the fleet's composition by clicking on the picture in the Summary pane. Right click on the picture to display the hull layout of the primary ship.

> **Tip**: If the enemy fleet is in orbit, you can also click on the planet, then click on the yellow arrow in the Summary pane until the fleet's summary is displayed.

Viewing Enemy Ship Designs

Any ships you have fought can be examined in the Ship Designer dialog. Select **Enemy Hulls**, then select the design you want to view.

Ships you have not seen in battle will have no details other than the hull type. If you have fought the ship type before the dialog displays full details, including armor and shield strengths.

Patrolling

While on Patrol, your fleet will automatically intercept and attack any incoming enemy fleets within a specified range. Fleets on patrol will not target neutrals or friends.

Assigning Patrol Orders

To place a fleet on patrol duty:

1. Give the fleet one waypoint in the scanner.

2. In the Waypoints Task tile, select the Patrol task.

3. Select an Intercept Range. Your fleet will only attempt to intercept enemy fleets it detects within the specified range.

4. Set the intercept speed using the warp factor gauge, or accept the default of Automatic. The default chooses the optimum speed (attempting a speed that uses the least amount of fuel to intercept in the shortest possible time). You will be notified when a patrolling fleet is given a new target and can adjust the warp speed or retarget it before the intercept happens.

5. Set any additional waypoints. The Patrol order will be carried out automatically for each waypoint, until you assign a different task.

⇒ To station a patrol at a particular location, send the fleet to that location and then give it the Patrol task and check the Repeat Orders checkbox. The fleet will only target enemies within its Intercept Range from that point and will automatically return there after the intercept.

Patrol Targets Enemies Only

Fleets on patrol will only intercept and attack Enemy fleets. In a single player game against AIs, all other players are your enemies. In a multi-player game, you can choose who is your enemy, friend or a neutral.

To make a player your enemy in a multi-player game:

1. Choose **Commands** (**Player Relations**), opening the Player Relations dialog.

2. Select the player in the dropdown list, then click on **Enemy**.

3. **OK** the dialog.

Patrol does not immediately target an enemy fleet. Targeting occurs after all players move, as one of the last tasks in generating a new turn. This allows you to receive a message and inspect the patrol order that was given, altering it if necessary before the ship commits to the attack.

If you want the ship to patrol and attack a particular enemy fleet you see right now, simply add a waypoint at the enemy fleet with orders to Patrol at that ship.

Learn more about:

Battle Plans

Scanning the Universe

Scanners tell you about:

◆ planetary environments

◆ enemy fleets

◆ minefields

◆ mass packets in transit

◆ salvage

◆ wormholes

Both planets and ships can have scanners. You create a planet-based scanner by adding it to your production queue. Ship-based scanners must be included in the hull design.

All fleets detected by your scanners appear in the Scanner. Fleets can use cloaking devices to reduce a scanner's range and thus increase the chances of escaping detection. You can display your scanner coverage and determine any weak areas using the Scanner pane's Radar Overlay.

Read more about Scanning:

Scanner Technology
Selecting Fleets in the Scanner pane
Scanning Planets
Cloaking Fleets
Detecting an Opponent's Fleets

Scanner Technology

Like all other technology, the science behind scanners and cloaking devices must be researched. The research requirements and features of planet-based scanners are described in the Planetary category of the Technology Browser; ship-based scanners are described in the Scanners section; cloaking devices are described in the Special section.

Planet-penetrating scanners

These scanners can detect fleets in orbit around a planet. They also can tell you planetary statistics from a distance.

Normal, Non-penetrating Scanners

These scanners cannot penetrate a planet. Any object orbiting the planet is hidden from your radar. Minefields are cloaked 82% from this type of scanner.

Minefields as Scanners

Minefields act as non-penetrating scanners for the players with the Space Demolition racial trait. These scanners do not detect fleets orbiting planets.

Scanners are Additive

The formula for calculating a ship's scanner range is the 4th root of the sum of each scanner to the 4th power. Let's say you have a ship design with two 100 light year scanners and one 60 light year scanner: $(100^4 + 100^4 + 60^4)^{1/4}$ = 120 light years. The same calculation applies to planet penetrating scanners.

Scanners and Primary Traits

Some races have extra scanner technology. For example, if you've chosen Packet Physics as your primary trait, all your mass packets will act as planet-penetrating scanners. If you choose Space Demolition all your minefields act as normal scanners.

Selecting Fleets in the Scanner pane

More about Scanning

Playing Stars!

Fleets in orbit are indicated by a circle around the planet. To select a fleet that's orbiting a planet:

1. Right click on the planet in the Scanner pane.

2. Select the enemy fleet from the popup list.

Follow the same procedure to select a fleet from a group in deep space.

If you own the ship, it'll appear in the Command pane.

Enemy Fleet Summaries and Estimated Paths

The Scanner displays the estimated path of a selected enemy fleet as a line with the fleet triangle pointing in the approximate direction of travel. Tick marks appear on the line indicating how far the fleet will move in a year at its current speed. The enemy fleet summary appears in the Selection Summary pane.

Using the fleet summary and the path, you can guess at the location of an opponent's origin and what type of activities they're up to. For example, if you select a fleet of attack ships, you can meet them in battle, and have a better idea of where those attack fleets are coming from and thus, where to aim your own big guns, or lay minefields. If the selected fleets tend to be scouts, miners or colonists, you'll have a clue to their strategy and possible needs.

Scanning Planets

When you scan an uninhabited planet, you'll be able to detect the environment and the concentration of each mineral under the planet surface, but not the minerals stored on the surface. If you attempt to scan a planet inhabited by an opponent, you can detect only the environment, underground mineral concentration and an estimate of the population (plus or minus 20%).

If the planet's starbase has cloaks, the distance at which you can detect the enemy's starbase is reduced.

Cloaking, or Hiding from an Opponent's Scanners

Cloaking devices allow you to reduce your opponent's effective scanner range in detecting your cloaked fleet or planet. Cloaking devices do not make your fleet or planet invisible: no matter how strong the cloak, the object will always be visible to another fleet at the same location.

Cloaking reduces your opponent's scanner range by a specific percentage. The higher the percentage, the more the range is reduced. Cloaking is shared by an entire fleet. The cloaking percentage of a fleet is displayed in the Fleet Composition tile, except when in small screen mode.

Cloak Effectiveness

Cloaking percentage is calculated as follows:

In order for matter to be cloaked, it requires a certain number of cloaking units per kT:

100 units/kT	50%	cloaked
300 units/kT	75%	cloaked
600 units/kT	87.5%	cloaked
1000 units/kT	93.75%	cloaked

Cloaking can never exceed 98%

Between those reference points, cloaking percentage is linear. 40 units cloak at 20%, 180 units cloak at 60%, etc.

Ship Cloak units are the sum of all cloaking devices on the ship:

Transport Cloak (50%)	100 units/kT
Stealth Cloak (40%)	80 units/kT
Super-Stealth Cloak (65%)	220 units/kT
Ultra-Stealth Cloak (80%)	20 units/kT
Chameleon Scanner (20%)	40 units/kT

The total number of Cloaking units for a ship is obtained by multiplying the Cloak units by the weight of the ship without cargo.

To determine the percentage a fleet is cloaked, sum up the total number of cloaking units in the fleet and divide by the mass of the fleet, including fuel and cargo.

For example, a small freighter with a Quick Jump 5 engine, Tritanium Armor, and a Transport Cloak weighs 90kT empty. This freighter has 100 units/kT * 90kT = 9000 units of cloaking.

By itself, empty, the freighter is visible to enemy scanners at only 50% of their maximum range. If you completely fill the freighter with fuel and cargo, the ship now weighs 360kT. Its cloaking units/kT are 9000 / 360 = 25 units/kT. The freighter is now only 12.5% cloaked.

Now assume that the empty freighter is placed in a fleet with an empty scout that has a Quick Jump 5 engine, Laser, and a Bat Scanner, which weighs 15kT when empty. The entire fleet weighs 105kT, so traveling together, this fleet would be 9000 / 105 = 85.7 units/kT approximately 43% cloaked.

Tachyon Detector Defeats Cloaks

A Tachyon Detector reduces other player's cloaks and allows you to target cloaked ships on the first pass of targeting. The Tachyon Detector is described in the Special section of the Technology Browser and in Detecting an Opponents Fleets.

Advantage of a Second Cloak

Cloaks are completely additive. Additional cloaks reduce your fleet's visibility.

Types of Cloaks

There are several types of cloaking devices, and one ship-based scanner, the Chameleon, that doubles as a low-level cloak. Multiple cloaks on the same ship can all be of the same or different strengths. You add one or more cloaks when you create the ship design. To learn more about a specific cloak, open the Technology Browser (press F2) and view the Special category.

Cloaked Starbases

Adding cloaks to a starbase hull cloaks only the starbase, not the planet.

Detecting an Opponent's Fleets

Scanners

Having scanners on as many planets as possible reduces the chance that cloaked fleets will sneak past. For example, if your opponent has 75% cloaking, and your scanners normally detect fleets at a range of 200 light years, your scanning range will be reduced to 50 light years. If your scanners are close together, whether they be planet-based, ship-based, or a combination, you'll create a gauntlet that opponents' ships aren't as likely to sneak through undetected.

Also consider placing sentry ships at uninhabited planets along your border. They will help prevent any unseen planet-hopping by your opponents. Even if a ship is cloaked, you will still detect it when it passes by.

The X series of planet-based scanners and certain ship-based scanners can detect both fleets in deep space and fleets in orbit. Both these ranges are affected by cloaking. For example, if you are using a Snooper 250X planet-based scanner against a 75% cloak, the scanner will have effective ranges of 62 light years and 31 light years.   If the ship is in orbit of a planet 32 light years away, you won't see it.

With the Scanner pane in Radar mode, ask yourself, "Will there be gaps in my coverage if each scanner only saw half as far? What about one-fourth as far?"

> **Minefields as Scanners**
> Minefields act as normal scanners for the players with the Space Demolition racial trait.

Tachyon Detector

This device reduces the effectiveness of other players cloak by 5%. The reduction is only seen by the fleet carrying the detector. The affect of multiple detectors is additive. If a fleet has two detectors, the first lowers the effectiveness of the opponent's cloak to 95%, the second detector takes the 95% and reduces it almost another 5%, down to 90.2%. This makes it significantly harder for enemies to sneak past fleets carrying this device. A great option for ships on regular patrol duty.

> This device requires the Inner Strength primary racial trait.

Displaying Enemy Fleet Paths

Click on an enemy fleet to display its estimated path. The arrow representing the fleet points in the approximate direction of travel. Since a fleet travels in a straight line from waypoint to waypoint, you can use this path to determine the direction of the enemy fleet's last waypoint and potentially, its point of origin.

Pirating using Stealth-based Scanners

You need the Super Stealth primary race trait and a fleet with the Pick Pocket or Robber Baron scanner to steal cargo from an opponent's hold. Just set the opponent's fleet as a waypoint, and set the Transport order, to Load the amount you want to heist. The theft will automatically take place as soon as your pirate fleet reaches its victim.

You can steal only cargo, not colonists.

Diplomacy and Trade

This version of Stars! has features that allow you to practice simple diplomacy in multi-player games. Use the Message pane to communicate with other players, arranging such things as alliances, rendezvous, trade agreements and non-aggression pacts.

Stars! does not require one winner. When you're setting up the game, you can specify winning conditions that encourage diplomacy by allowing for multiple winners.

You can declare neutral and friendly players using the Player Relations dialog. This prevents you from attacking the wrong people and allows you to automatically come to a friend's aid if they're under fire. Friends can also pass through each other's mine fields without harm, automatically refuel at their starbases and are allowed to use their stargates. So it's worth while to set up alliances, even if they're temporary.

You can also trade with other players, sending messages to arrange the trade, then rendezvousing with the other player's fleet to give or receive minerals or fuel. Minerals can also be given to another player's planet using a fleet-to-planet transfer or by flinging mineral packets at a planet with a mass driver of equal or greater strength.

The next major release of Stars! will include a wide range of features that integrate diplomacy directly into the game.

Read about:

What You Need to Play

General Playing Topics

Here's the minimum software and hardware you'll need to play Stars!

Operating System: Either Microsoft Windows 3.x, Microsoft Windows NT or Microsoft Windows 95.

Memory requirement: 4 Mbytes RAM. 8 Mbytes is preferred.

Disk space requirement: 6 Mbytes for program and help files.

Video display: Color displays only, 256 colors recommended.

The higher the resolution the better: use 1024x768 (or higher!) if possible.

800 x 600 is the minimum resolution allowing all tiles to be opened. Still very playable.

640 x 480 is playable but cramped: you'll need to close and open tiles as needed.

Tuning Stars to Your Display Resolution

The higher your screen resolution, the better Stars! will look. However, it will run on any color VGA display.

640 by 480 (VGA)

This is the **minimum required** resolution.

1. Use this menu command: **View** (**Window Layout > Small**).

2. Resize each of the windows to optimize the information you need to see at a glance.

3. Collapse tiles in the Command pane, expanding them when needed.

4. If the screen still seems too cramped try hiding the Toolbar using the menu item **View** (**Toolbar**). Most of the Toolbar functions are available using shortcut keystrokes.

800 by 600

This is the **minimum recommended** resolution.

1. Choose the menu item, **View** (**Window Layout > Medium**). If you're using large fonts, you may find that the small window layout works better for you.

2. Resize each of the windows to optimize the information you need to see at a glance.

3. If the screen still seems too cramped try hiding the Toolbar using the menu command View (Toolbar). Most of the Toolbar functions are available using shortcut keystrokes.

1024 by 768 (or better)

For maximum playing pleasure.

⇒ Use this menu command: **View** (**Window Layout > Large**).

⇒ If you use large fonts, you may need to specify **View** (**Window Layout > Medium**).

Setting Up Play

You can play Stars! alone against one or more AI (computer) players, against other human players or a mix of human and AI players, on a single machine, a network, over a modem, email or bulletin board.

Read more about Setting Up Play:

Starting a Single Player Game

Starting a Multi-Player Game

Creating a Default Password

Playing with a Custom Race

Hosting a Network Game

Transferring Game Files using a Modem or Email

Starting a Single Player Game

1. Click on **New Game** on the opening screen or on **File** (**New**) from the Stars! main menu.

   In the New Game dialog, select the universe size, difficulty level and race to play. To learn about or modify the attributes of your race, click on Customize Race in the dialog. The Custom Race wizard appears. When you're done setting up your game, click on **OK**. The Choose Game Name dialog opens.

2. You'll be prompted for a game name. Enter any name up to eight characters long (don't worry about typing an extension). Stars! creates a set of files containing data for that game and for each human and computer player in the game. You can save the game wherever you wish. By default, game files are saved in the Stars! install directory.

3. The game begins, with your home world displayed on the screen and in the Command, Scanner and Selection Summary panes. For the first turn, the Messages pane contains tips that help you get started. Once you finish the turn, select the menu command **Turn** (**Generate**) or press the F9 key. Your next turn will generate immediately.

4. To quit, select **File** (**Exit**) or **File** (**Close**). If you've made changes since the start of the turn, Stars! prompts you to save. If you don't save, you'll start the same turn over the next time you open the game.

   IMPORTANT: The first time you play Stars!, exit using the **File** (**Exit**) command. This writes the stars.ini file to the Windows directory, saving game options and helping to prevent that pesky registration number dialog from appearing again.

5. When you wish to continue the game where you left off, click on **Continue Game** on the opening screen. You can also click on **Open Game**, selecting *gamename*.m1 from the directory containing your saved games.

Starting a Multi-Player Game

In a multi-player game, designate one person as the host. This person is in charge of generating turns and generally administering the game. A player can also act as host. The following steps apply whether the game is played on a single machine, over a network, by modem, email or a bulletin board service (BBS).

> **Note**: The unregistered version may host both registered and unregistered players. Registered players can progress up to tech level 26, while unregistered players will be limited to tech level 10. AIs are also limited to tech level 10 if the host is unregistered.

Read more about Starting a Multi-player Game:

What the Host Needs to Do

Setting Up Play

As the host, you'll need to do the following steps, some with the help of the other players:

1. Click on **New Game** on the opening screen or on **File** (**New**) from the Stars! main menu. The New Game dialog appears.

2. Click on **Advanced Options**, then specify options such as the universe size, difficulty level, relative starting positions, accelerated play for BBS games, and the number and type of players. If you wish, learn about or customize the race for each human player. Each player should choose and customize their own race without being watched by the other players. Alternately, a player can load a customized race file.

   The order of players listed in step 2 of the dialog becomes part of the filename for each player. Keep track of this, telling each player their number. They'll need it when they start to play.

3. You'll be prompted for a game name. Enter any name up to eight characters long (don't worry about typing an extension). Stars! creates a set of files containing data for that game and each player in the game. You can save the game wherever you wish. By default, Stars! will save the game files in the Stars! install directory.

4. The Stars! Host Mode dialog appears. Create a password, if you want to prevent other players from opening the game file. If you're playing over a network, click on **Auto Generate**. If you're transferring files using email or modem, click on **Close**.

5. If you're playing as well as hosting, you'll probably find it easier to start a second instance of Stars!, playing from one and using the other to handle host duties.

6. Follow the guidelines for organizing network play or play by transferring files using a modem or email.

Read about:

What Each Player Needs to Do

Files Used in Stars!

What Each Player Needs to Do

Once the host creates the game, do the following on the machine where you'll play:

1. Obtain the *gamename*.xy and *gamename*.m*N* files, where *gamename* is the name entered by the host in the File Save dialog and *N* is your player number; for example, game.m1.

   Playing over a network -- just access the shared play directory (sharepoint) set up by the host.

   Playing via a BBS/modem or email -- you need to obtain these files from the host and place them in an arbitrary playing directory you've created on your own system.

2. Place your game files in the same directory each turn. The directory location is your choice--we recommend creating a play directory under the Stars! directory to keep things simple.

3. Start Stars! and click on **Open Game** from the opening screen. Open your player file, *gamename*.m*N*.

   Your game begins, with your home world displayed on the screen and in the Command, Scanner and Selection Summary panes. For the first turn, the Message pane contains tips that help you get started.

4. **Network/single machine players** -- Once you finish the turn, select the menu command **Turn** (**Wait for New**). Stars! will minimize, waiting for a new turn. When the new turn is ready, it will beep once and flash, while displaying the text "Turn available".

   Modem players -- Select **File** (**Save and Submit**), then **File** (**Exit**). Or, if you're trading turns quickly or leave your computer on for long periods of time, you can also use **Turn** (**Wait for New**)--a much simpler scenario.

   All players -- If you wish, you can exit the game before or after you finish the turn.   You can save your changes or start the turn again if you don't like the way things are going. Read Exiting Stars! for more information.

5. If you are playing over a modem or email, upload or email only your log file, *gamename*.x*N* file to the host system. If you plan to be absent for a turn or more, follow the instructions in Being Absent from Play.

Read about:

What the Host Needs to Do

Creating a Password

Multi-player games only

Create or change a password for the current game using the Change Password command (Commands menu).

You can create a default game password using the following option in the [Misc] section of **stars.ini** file:

DefaultPassword=<password>

<password> is the password you wish to use. If you are sure that your opponents will not have access to your stars.ini file you can set this to your password. Whenever you open a game file that is protected by this password you will not be prompted to enter it. If DefaultPassword is not present in stars.ini, type it in under the [Misc] heading.

The stars.ini file is written into your Windows directory the first time you save a Stars! game. It doesn't exist before that time.

Playing with a Custom Race

Setting Up Play

General Playing Topics

You can use one of the races provided with Stars! or build you own, saving it to a file you can use and modify as often as you wish.

Learn the necessary procedures for custom races:

Creating and Saving a Custom Race

Adding an Existing Race to a New Game

Editing an Existing Custom Race

Creating and Saving a Custom Race

Playing with a Custom Race

Setting Up Play

There are two ways to create a race, each depending on your level of experience, your preferences and objectives.

From the Basic New Game Setup

If you're using the New Game dialog to create a basic, single player setup (recommended for new players):

1. Click on **Customize Race**. The Custom Race wizard appears.

2. Select the options you'd like to try, then click on **Finish** in the wizard.

This race can be played only in the current game, and won't be saved to a race file. If you're new to Stars!, we recommend you play the race to see if it successfully matches your style of play.

If you find you like this race and wish to save it:

1. Run the **View** (**Race...**) command, opening the View Race dialog.

2. Page through the dialog, writing down the race settings on a piece of paper.

3. Run the **File** (**Custom Race Wizard...**) command, opening the Custom Race wizard.

4. Select the options you prefer and save your race to a file for use in future games.

From the Advanced Setup

If you are creating a new game using the advanced setup, use the following steps to create and save a custom race:

1. Click on **Advanced Game** in the New Game dialog.

2. Go to step 2 of the New Advanced Game dialog.

3. Left-click on the blue diamond next to the player position you wish to play. This can be an existing or empty position.

4. Select **Custom Race>New...** from the menu that appears. The Custom Race wizard opens.

5. Select the options you prefer and save your new race to a file.

Learn about:

Using the Custom Race wizard and saving the race to a file.

Adding an Existing Race to a New Game

This is for single player games using the advanced setup or multi-player games. In a multi-player game, only the host performs this action. You can add a custom race to a game only during the setup.

Open the race file in step 2 of the New Advanced Game dialog:

1. Click on the blue diamond next to a player number.

   Player #4: ◆ --- No Player ---

2. Select **Custom Race**, **Open...**

Predefined Race ▶	
Custom Race	New...
	Open...
Computer Player	
✓ No Player	
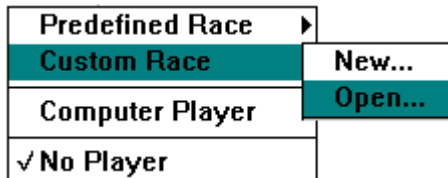
3. Highlight a race filename, then click **OK**.

Open

   File **N**ame: **D**irectories:

   villian.r1   c:\stars

   hillbily.r1
   villian.r1

   📂 c:\
   📂 stars
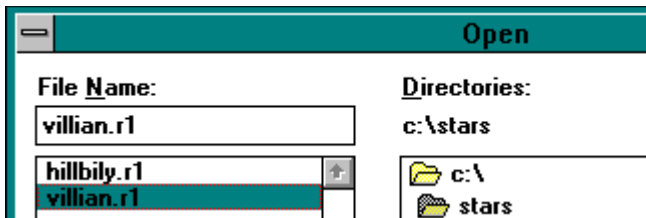
4. That race will be assigned to the chosen player position.

   Player #4: ◆ The Villians (VILLIAN.R1)

5. If the selected player position followed any unused positions, those positions will also be assigned to that race.

Editing an Existing Custom Race

You can edit any number of custom races at any time during play. You won't be able to use the changes until the next game, though.

1. Run the **File** (**Open**) command. The Open File dialog appears.

2. Navigate to the directory containing the race file.

3. Click on the file (i.e., *racename.rx*), and **OK** the dialog.

The Custom Race wizard appears, with the race loaded and ready for editing. When you finish, the Save File dialog will appear to save your changes.

Hosting a Network Game

If you haven't run Stars! before, make sure you read Starting a Multi-player Game to help you understand hosting a game.

Set up the game on a shared directory (sharepoint) accessible to all players. Select **Auto Generate** in the Host dialog once you've set up the game. The Host dialog will minimize, waiting for all players to submit their turns. Once that happens, Stars! will automatically generate a new turn, then return to wait mode.

If you want to force a new turn to be generated, even if all players have not yet submitted their turns, double-click on the Stars! host icon, then select **Generate Now** from the Host dialog. To cause Stars! to auto-generate turns again, select **Auto Generate** again. The dialog will minimize and wait for players as before.

The sharepoint can be on any type of network, as long as the player's machines are running Microsoft Windows (in order to run Stars!).

If you're hosting and playing, you may find it easier to run a second instance of Stars! to handle the host responsibilities.

Transferring Game Files using a Modem or Email

Stars is turn-based, not interactive. This means modems can be used to transfer turn files once they are generated. You can do this through a BBS, email, upload/download from an FTP site, or using any other method you wish to transfer files from the host to player systems. There aren't any special transfer protocols for modem users--you're just uploading or downloading files.

If you're hosting or playing a game where the host is connected to player systems using Remote Access Software (RAS) or other network software, see Hosting a Network Game.

If you haven't run Stars! before, make sure you read Starting a Multi-player Game to help you understand hosting this type of game. The following applies to games where turn files are manually transferred between a remote host and player machines, using modem file transfer software or email.

> **Tip:** Notice the Accelerated BBS Play option in the Advanced Game setup. You may wish to check this option during setup to jump-start the game.

Before the first turn each player needs to download the universe file, *gamename*.xy, and their player file, *gamename*.m*N* (where *N* is the player number), for the newly created game. Alternately, you can upload or email *gamename*.xy and *gamename*.m*N* to each player. These files will be located in the same directory in which you saved the game.

After each player has submitted their   turn (in the form of the log file, *gamename*.x*N*) do the following:

1. Open the host file, *gamename*.hst, then select **Generate Now** from the Host dialog. If it is convenient for you to keep an instance of Stars! running, the game may be played as on a network.

2. Once the turn is generated, notify the players that the new turn is available. You can email or upload each newly updated *gamename*.m*N*   file or allow each player to download it themselves.

Using a Timer App?

If you use a timer application to launch Stars! on the host system, take a look at the variety of command line options that will do such things as start Windows and Stars!, generate the new turn and exit both programs.

Submitting Your Turn

Single player games

Press F9 or select **Turn** (**Generate**).

Multi-player games

Do one of the following:

⇒ Select **Turn** (**Wait for New**). Stars! will minimize, waiting for a new turn. When the new turn is ready, it will beep once and flash, while displaying the text "Turn available".

⇒ Select **File** (**Save and Submit**), then **File** (**Exit**). Or select **File** (**Exit**). You'll be prompted to save and submit before Stars! exits.

Saving Your Game--What it Means

Default Save Behavior

By default, saving a game saves only the current state of the current turn. The previous turn's data is saved in a directory called Backup, under the directory in which you're saving the game. Stars! creates the Backup directory automatically. Each time you generate a turn, the old data in the Backup directory is overwritten with the previous turn's data.

Saving More than One Previous Turn

If you'd like to be able to save more than one previous turn for review or any other purpose, do the following:

1. Open the **stars.ini** file for editing. It's a plain text file in your Windows directory.

2. Under the [MISC] section, set the **Backup** option to a number of turns, between 1 and 999. If the Backup option isn't present, go ahead and type it in:

   Backup=<number of turns to save>

Backup directories will be named Backup1 to BackupX. Old game files will be stored there according to the turn number. For example when Backup=4 then the first turn would be backed up to the directory backup1, the second to backup2, the third to backup3, the fourth to backup4, the fifth to backup1 and so on.

The stars.ini file is written into your Windows directory the first time you save a Stars! game. It doesn't exist before that time.

Being Absent from Play

Multi-player games only

What to do when you're away and the game doesn't stop.

Playing While Absent

If you're a player:

⇒ Tell the person acting as the game host that you plan to miss one or more turns. The host can substitute a "housekeeper" AI to take your place until you return. This AI will keep planets and fleets active,   making sure your production queues are busy, etc. This AI does not develop any strategy for you.

The next two steps apply to modem, email or BBS players only:

1. Give the host a copy of your history file, *gamename*.h*N*. This will allow the host to update the universe for you while you're gone.

2. Be sure that the person playing host returns the history file and new turn file to you before you open your game. You won't be able to open your turn until this time.

If you're a host:

1. Open the Host dialog, if it's not open yet. Use **File** (**Open**), selecting *gamename*.hst.

2. Right-click on the blue diamond next to the name of the player who's absent. Choose **Human (Currently inactive**).

3. When the player returns, right-click on the diamond and select **Human Controlled**. You'll have to do this before the player can open their player file, *gamename*.m*N*.

4. If you're running the game over a modem, email or BBS, return the updated history file, *gamename*.h*N*, and player file, *gamename*.m*N*, to the player.

Missing Turns

If you miss one or more turns and don't follow the instructions for absent players described above, Stars! will continue to follow any existing orders. All messages and data for the missed turns, such as planets discovered or battles fought, will be present the next time you load a turn.

Winning

You can specify one or more winning conditions. Check out step 3 of the Advanced New Game wizard. You can also accept the default conditions provided by Stars!. To view the default conditions once the game has begun, run the **View** (**Race**) menu command, then turn to page 3 of the View Game Parameters dialog that appears.

Because you can control the variety and combination of winning conditions, more than one player can be declared the winner. All players are notified in a message when someone wins. You can continue to play past this point, or end the game.

Options for Launching Stars!

None of the following options are required to launch a game of Stars! All the options must be used with either a player or host file name argument. Stars! may also be started using only the player or host file name as the only argument.

-t -- try, then exit. If you specify a player file, this opens the newly generated turn. If the turn hasn't been generated yet, then Stars! exits. If you specify a host file, this checks to see if all players have submitted their changes for the turn. If they have, Stars! generates the new turn and exits. Otherwise, it just exits.

-w -- wait. If you specify a host file, this auto-generates the new turn as soon as all players have submitted their changes. If you specify a player file, this waits for the new turn to be generated. This option does not cause Stars! to exit.

-g -- generate and exit. Specify a host file only. This forces the turn to generate regardless of whether all players have submitted changes, then exits. You can't load a player file when you use this option.

-p *password* -- supplies the password on the command line. You can use this with a host file or a password-protected player file.

-x -- Exit Windows when Stars! exits. This is a good match with the **-b** option if you wish to create a script that automatically starts Windows, generates the new turn, then exits Windows.

> The **-x** flag is for 16-bit Windows only (3.1 or 3.11). Behavior of the **-x** option on OS/2, Windows NT, or Windows 95 is undefined and probably not what you want.

-b *gamelist_file* -- Generate turns for each game listed in the supplied file name.

Examples

stars! *Filename*	Load a player or host file.
stars! -w *gamename*.**hst**	Load the host file and enter Auto Generate mode.
stars! -w *gamename*.**m***N*	Load the specified player file and wait for the host to generate a new turn.
stars! -t *gamename*.**m***N*	Load the specified player file; quit if the host has not yet generated a new turn.
stars! -g *gamename*.**hst**	Load the host file, force a new turn and quit.
stars! -w -g *gamename*.**hst**	Load the host file, wait for all players to submit turns, generate and quit.
stars! -t -g *gamename*.**hst**	Load the host file, generate a new turn only if all players have submitted turns, then quit. If it generates the turn the return value is 1; if the turn is not generated the return value is 0.
stars! -t -b *gamelist_file*	Conditionally generate turns for a list of games.
stars! -x -b *gamelist_file*	Generate turns for each game listed in the supplied file name, then exit Windows. Useful for BBS play.

For example if your BBS is OS/2, NT or Windows-based you can launch Stars! with the **-b** *gamelist_file* parameter to batch generate turns for multiple games.   Stars! will automatically exit when the last turn has been generated. The file listing the games must contain one game name per line including the full path:

> c:\games\stars!\play\frenzy.hst
> c:\games\stars!\play\game.hst
> c:\user\jeff\stars!\killer.hst

You can name this games list file anything you want. If you are running a DOS-based BBS but have Windows installed on the machine, you can launch Windows and Stars! from a nightly maintenance script similar to this:

win c:\games\stars!\stars!.exe -x -b c:\games\stars!\gamelist.txt

This will launch Windows and Stars!, generate a turn for each game listed in gamelist.txt, then exit Stars! and Windows.   This method is optimal for Windows 3.1.

If you have Windows for Workgroups installed (Windows 3.11) you need to use the **win /n** option:

win /n c:\games\stars!\stars!.exe -x -b c:\games\stars!\gamelist.txt

This will prevent Windows from loading any of its network drivers and suppress its login prompt. If you only need to generate a turn for a single game you can still use the **-g *gamename*.hst** parameter with or without **-x** (use -x with Windows 3.1 or 3.11only).

Exiting Stars!

Select **File** (**Exit**) or **File** (**Close**.). If you've made changes since the beginning of the turn, Stars! will prompt you to save or save and submit your turn.

If you want to erase the changes you've made that turn, before you submit, you can exit without saving, then select **Continue Game** from the opening screen. You'll be back at the start of the turn you just left.

IMPORTANT: The first time you play Stars!, exit using the **File** (**Exit**) command. This writes the stars.ini file to the Windows directory, saving game options and helping to prevent that pesky registration number dialog from appearing again.

Music and other Sounds

There is no sound in space, or cheesy electronic music (and let's face it, you're going to have to search to find games that don't offer something you want to turn off after a few minutes of play). So this version of Stars! is as silent as the hum of your hard drives.

This means you have total freedom of choice when you choose a soundtrack for Stars!. Just pop in your favorite music CD, tape or (if you're as arcane as we are) drop your favorite album onto the turn-table when you start the game. That way, you'll hear the tracks that fit your style of play (that's what we do).

We spent this release making Stars! the best multi-player, strategy-based space conquest game on the market. Now we're laying out the features for the next release, including sounds that fit a strategy game of this type, and music that does the same. (We also heard that you wanted diplomacy--that's coming, too.)

Full Text Search Help

General Playing Topics

We produce a free Full Text Search version of this player's guide for non-Windows 95 players. You can download it from our Web site at **www.webmap.com/stars!**, or our FTP site at **beast.webmap.com**. You'll be downloading a ZIP file containing the help file and DLLs required for the full text search, and a readme file with instructions for installing the DLLs.

If you wish, you can also use our full-text search version with Windows 95. It's a bit faster and provides more information than the full text search provided with Windows 95 help.

Printable Documentation

Stars! help is just that--online help. However, it's large and detailed, with plenty of topics you might like to read about away from the screen. You'll find printable documentation at the Stars! Web site, **www.webmap.com/stars!**, and the FTP site, **beast.webmap.com**, in both formatted ASCII text and Microsoft Word versions. You'll need to have access to MS Word 6.x or better to view and print the Word version, or have a word processor with a filter for importing that type of document. Both files are free.

Customer Support

Support is available by email at **stars@webmap.com**. You can also request support or send feedback from the Stars! Web page:

http://www.webmap.com/stars!

If you receive bad media (on a floppy or have trouble downloading from an Internet provider such as WebMap Internet Services), please contact the distributor you purchased the game from.

Submitting Bug Reports

1. Write a description of the suspected bug in a text file.
2. Zip all the relevant game files and the text file:

   pkzip -exp gamename.zip gamename.*   backup\gamename.*   bugnotefile

3. Send us the zip file in one of the following ways:

   ◆ FTP the zip file to **beast.webmap.com/pub**. You should also send mail to **stars@webmap.com** notifying us when you upload the file.

   ◆ E-mail the zip file to **stars@webmap.com** along with a description of the problem.

We appreciate the time and effort it takes to send these files. It helps us a great deal to have the actual files when trying to determine if a bug exists. Thanks for taking the time to help Stars! maintain it's reputation as one of the most stable and bug-free games on the market.

Registration and Copy Protection

SAVE YOUR REGISTRATION NUMBER. Put it in a safety deposit box, write it above your bellybutton (upside down), however you typically save information essential to your well being. That said....

When the Registration dialog appears, you'll need to enter the number you received when you purchased your registered copy of Stars!. If you ordered a disk copy, you'll find this 8 character number on the disk label. If you ordered Stars! over the Internet (for example, from WebMap Internet Services), enter the numbers provided to you by that distributor. (If you haven't received or have lost this number and purchased your copy from WebMap, send mail to **support@webmap.com** with a description of the problem. If you purchased a disk copy and are having problems with the registration number, please contact the distributor.)

You'll also be prompted with the Registration dialog if your system configuration has changed or Stars! thinks it has been reinstalled (typically, this means the stars.ini file located in your Windows directory has been deleted or was not written--stars.ini is written the first time you actually save a game). In this case, just re-enter the number.

The Registered Version is Copy Protected

Each computer running the registered copy of Stars! must use a copy with a unique and correct serial number. This serial number is provided with your registered copy. The copy protection activates *only* when the following happens:

- If you cancel the serial number dialog instead of entering a valid number. Typically, you'll only be asked for a serial number the first time you run Stars!.

- If two players each submit turns written by TWO DIFFERENT COMPUTERS, with each player's turn bearing the SAME SERIAL NUMBER. This only affects these players. The host and one player are allowed to run from the same copy.

The latter case means two people are sharing the same registered version on two different computers, and playing in the same game. In this case, Stars! will ask for a legitimate serial number from both players.

If play continues without providing separate serial numbers, random, disadvantageous events and messages are generated in both players' games. In multi-player games, only the players sharing the duplicate numbers are affected.

The host doesn't need a serial number. A registered host can use the same serial number as *one* other player without affecting the host or the player. The person running the host session can also cancel the serial number dialog and set up the game without affecting play.

Unregistered Version

An unregistered host can also successfully host games without limiting anyone's play.

The unregistered version is not copy protected, and does not require or request a serial number.

UNinstalling Stars!

Should you choose to do the unthinkable:

1. Delete the Stars! install directory and its contents.
2. Delete the stars.ini file from your Windows directory.

That's it.

About Data Tables

These tables list statistics on each piece of technology available in Stars!. Use the following guide to to determine the unit of measure for a statistic:

◆ If the category is a technology, such as Energy, the unit is in levels of technology successfully researched.

◆ If the category is weight or a mineral name, the unit is in kilotons (kT).

◆ dp or Dmg measure damage in points or percentage to a hull, people or surface installations.

◆ Range is number of squares on the battle board (displayed in the VCR).

◆ Fuel # indicates the percentage of standard fuel usage for that engine at the warp speed indicated by the number.

◆ Ability refers to different things for each type of technology. For a description of an ability, open the technology browser and view the page for that item.

Here are the tables:

Armor	Orbital Devices
Beam Weapons	Planetary Installations
Bombs	Scanners
Electrical Devices	Shields
Engines	Ship Hulls
Mechanical Devices	Starbase Hulls
Mine Laying table	Terraforming
Mining	Torpedoes

Armor table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Tritanium	0	0	0	0	0	0
Crobmnium	0	0	0	3	0	0
Carbonic Armor	0	0	0	0	0	4
Strobnium	0	0	0	6	0	0
Organic Armor	0	0	0	0	0	7
Kelarium	0	0	0	9	0	0
Fielded Kelarium	4	0	0	10	0	0
Depleted Neutronium	0	0	0	10	3	0
Neutronium	0	0	0	12	0	0
Valanium	0	0	0	16	0	0
Superlatanium	0	0	0	24	0	0

Name	Wt	Resources	Ironium	Boranium	Germanium	DP
Tritanium	60	10	5	0	0	50
Crobmnium	56	13	6	0	0	75
Carbonic Armor	25	15	0	0	10	100
Strobnium	54	18	8	0	0	120
Organic Armor	15	20	0	0	12	175
Kelarium	50	25	9	1	0	180
Fielded Kelarium	50	28	10	0	2	175
Depleted Neutronium	50	28	10	0	2	200
Neutronium	45	30	11	2	1	275
Valanium	40	50	15	0	0	500
Superlatanium	30	100	25	0	0	1500

Beam Weapons table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Laser	0	0	0	0	0	0
X-Ray Laser	0	3	0	0	0	0
Mini Gun	0	5	0	0	0	0
Yakimora Light Phaser	0	6	0	0	0	0
Blackjack	0	7	0	0	0	0
Phaser Bazooka	0	8	0	0	0	0
Pulsed Sapper	5	9	0	0	0	0
Colloidal Phaser	0	10	0	0	0	0
Gatling Gun	0	11	0	0	0	0
Mini Blaster	0	12	0	0	0	0
Bludgeon	0	13	0	0	0	0
Mark IV Blaster	0	14	0	0	0	0
Phased Sapper	8	15	0	0	0	0
Heavy Blaster	0	16	0	0	0	0
Gatling Neutrino Cannon	0	17	0	0	0	0
Myopic Disruptor	0	18	0	0	0	0
Blunderbuss	0	19	0	0	0	0
Disruptor	0	20	0	0	0	0
Syncro Sapper	11	21	0	0	0	0
Mega Disruptor	0	22	0	0	0	0
Big Mutha Cannon	0	23	0	0	0	0
Streaming Pulverizer	0	24	0	0	0	0
Anti-Matter Pulverizer	0	26	0	0	0	0

Name	Wt	Resources	Ironium	Boranium	Germanium	Range	DP	Initiative
Laser	1	5	0	6	0	1	10	6
X-Ray Laser	1	6	0	6	0	1	16	7
Mini Gun	3	10	0	16	0	1	13	5
Yakimora Light Phaser	1	7	0	8	0	1	26	8
Blackjack	10	7	0	16	0	0	90	3
Phaser Bazooka	2	11	0	8	0	2	26	8
Pulsed Sapper	1	12	0	0	4	2	82	14
Colloidal Phaser	2	18	0	14	0	3	26	8
Gatling Gun	3	13	0	20	0	1	31	5
Mini Blaster	1	9	0	10	0	1	66	9
Bludgeon	10	9	0	22	0	0	231	4
Mark IV Blaster	2	15	0	12	0	2	66	9
Phased Sapper	1	16	0	0	6	2	211	14

Heavy Blaster	2	25	0	20	0	3	66	9
Gatling Neutrino Cannon	3	17	0	28	0	1	80	5
Myopic Disruptor	1	12	0	14	0	1	169	10
Blunderbuss	10	13	0	30	0	0	592	5
Disruptor	2	20	0	16	0	2	169	10
Syncro Sapper	1	21	0	0	8	2	541	14
Mega Disruptor	2	33	0	30	0	3	169	10
Big Mutha Cannon	3	23	0	36	0	1	204	5
Streaming Pulverizer	1	16	0	20	0	1	433	11
Anti-Matter Pulverizer	2	27	0	22	0	2	433	11

Bombs table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Lady Finger Bomb	0	2	0	0	0	0
Black Cat Bomb	0	5	0	0	0	0
M-70 Bomb	0	8	0	0	0	0
M-80 Bomb	0	11	0	0	0	0
Cherry Bomb	0	14	0	0	0	0
LBU-17 Bomb	0	5	0	0	8	0
LBU-32 Bomb	0	10	0	0	10	0
LBU-74 Bomb	0	15	0	0	12	0
Retro Bomb	0	10	0	0	0	12
Smart Bomb	0	5	0	0	0	7
Neutron Bomb	0	10	0	0	0	10
Enriched Neutron Bomb	0	15	0	0	0	12
Peerless Bomb	0	22	0	0	0	15
Annihilator Bomb	0	26	0	0	0	17

Name	Wt	Resources	Ironium	Boranium	Germanium	% Kill	% Destroy
Lady Finger Bomb	40	5	1	20	0	6	2
Black Cat Bomb	45	7	1	22	0	9	4
M-70 Bomb	50	9	1	24	0	12	6
M-80 Bomb	55	12	1	25	0	17	7
Cherry Bomb	52	11	1	25	0	25	10
LBU-17 Bomb	30	7	1	15	15	2	16
LBU-32 Bomb	35	10	1	24	15	3	28
LBU-74 Bomb	45	14	1	33	12	4	45
Retro Bomb	45	50	15	15	10	0	0
Smart Bomb	50	27	1	22	0	13	0
Neutron Bomb	57	30	1	30	0	22	0
Enriched Neutron Bomb	64	25	1	36	0	35	0
Peerless Bomb	55	32	1	33	0	50	0
Annihilator Bomb	50	28	1	30	0	70	0

Electrical Devices table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Transport Cloaking	0	0	0	0	0	0
Stealth Cloak	2	0	0	0	5	0
Super-Stealth Cloak	4	0	0	0	10	0
Ultra-Stealth Cloak	10	0	0	0	12	0
Multi Function Pod	11	0	11	0	11	0
Battle Computer	0	0	0	0	0	0
Battle Super Computer	5	0	0	0	11	0
Battle Nexus	10	0	0	0	19	0
Jammer 10	2	0	0	0	6	0
Jammer 20	4	0	0	0	10	0
Jammer 30	8	0	0	0	16	0
Jammer 50	16	0	0	0	22	0
Energy Capacitor	7	0	0	0	4	0
Flux Capacitor	14	0	0	0	8	0
Energy Dampener	14	0	8	0	0	0
Tachyon Detector	8	0	0	0	14	0
Anti-matter Generator	0	12	0	0	0	7

Name	Wt	Resources	Ironium	Boranium	Germanium	Ability
Transport Cloaking	1	3	2	0	2	100
Stealth Cloak	2	5	2	0	2	70
Super-Stealth Cloak	3	15	8	0	8	140
Ultra-Stealth Cloak	5	25	10	0	10	420
Multi Function Pod	2	15	5	0	5	60
Battle Computer	1	6	0	0	15	20
Battle Super Computer	1	14	0	0	25	30
Battle Nexus	1	15	0	0	30	50
Jammer 10	1	6	0	0	2	10
Jammer 20	1	20	1	0	5	20
Jammer 30	1	20	1	0	6	30
Jammer 50	1	20	2	0	7	50
Energy Capacitor	1	5	0	0	8	10
Flux Capacitor	1	5	0	0	8	20
Energy Dampener	2	50	5	10	0	4
Tachyon Detector	1	70	1	5	0	5
Anti-matter Generator	10	10	8	3	3	50

Engines table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Settler's Delight	0	0	0	0	0	0
Quick Jump 5	0	0	0	0	0	0
Fuel Mizer	0	0	2	0	0	0
Long Hump 6	0	0	3	0	0	0
Daddy Long Legs 7	0	0	5	0	0	0
Alpha Drive 8	0	0	7	0	0	0
Trans-Galactic Drive	0	0	9	0	0	0
Interspace-10	0	0	11	0	0	0
Trans-Star 10	0	0	23	0	0	0
Radiating Hydro-Ram Scoop	2	0	6	0	0	0
Sub-Galactic Fuel Scoop	2	0	8	0	0	0
Trans-Galactic Fuel Scoop	3	0	9	0	0	0
Trans-Galactic Super Scoop	4	0	12	0	0	0
Trans-Galactic Mizer Scoop	4	0	16	0	0	0
Galaxy Scoop	5	0	20	0	0	0

Name	Wt	Resources	Ironium	Boranium	Germanium
Settler's Delight	2	2	1	0	1
Quick Jump 5	4	3	3	0	1
Fuel Mizer	6	11	8	0	0
Long Hump 6	9	6	5	0	1
Daddy Long Legs 7	13	12	11	0	3
Alpha Drive 8	17	28	16	0	3
Trans-Galactic Drive	25	50	20	20	9
Interspace-10	25	60	18	25	10
Trans-Star 10	5	10	3	0	3
Radiating Hydro-Ram Scoop	10	8	3	2	9
Sub-Galactic Fuel Scoop	20	12	4	4	7
Trans-Galactic Fuel Scoop	19	18	5	4	12
Trans-Galactic Super Scoop	18	24	6	4	16
Trans-Galactic Mizer Scoop	11	20	5	2	13
Galaxy Scoop	8	12	4	2	9

Name	Fuel 1	Fuel 2	Fuel 3	Fuel 4	Fuel 5	Fuel 6	Fuel 7	Fuel 8	Fuel 9	Fuel 10
Settler's Delight	0	0	0	0	0	0	140	275	480	576
Quick Jump 5	0	25	100	100	100	180	500	800	900	1080
Fuel Mizer	0	0	0	0	35	120	175	235	360	420
Long Hump 6	0	20	60	100	100	105	450	750	900	1080

Daddy Long Legs 7	0	20	60	70	100	100	110	600	750	900
Alpha Drive 8	0	15	50	60	70	100	100	115	700	840
Trans-Galactic Drive	0	15	35	45	55	70	80	90	100	120
Interspace-10	0	10	30	40	50	60	70	80	90	100
Trans-Star 10	0	5	15	20	25	30	35	40	45	50
Radiating Hydro-Ram Scoop	0	0	0	0	0	0	165	375	600	720
Sub-Galactic Fuel Scoop	0	0	0	0	0	85	105	210	380	456
Trans-Galactic Fuel Scoop	0	0	0	0	0	0	88	100	145	174
Trans-Galactic Super Scoop	0	0	0	0	0	0	0	65	90	108
Trans-Galactic Mizer Scoop	0	0	0	0	0	0	0	0	70	84
Galaxy Scoop	0	0	0	0	0	0	0	0	0	60

Mechanical Devices table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Colonization Module	0	0	0	0	0	0
Orbital Construction Module	0	0	0	0	0	0
Cargo Pod	0	0	0	3	0	0
Super Cargo Pod	3	0	0	9	0	0
Fuel Tank	0	0	0	0	0	0
Super Fuel Tank	6	0	4	14	0	0
Maneuvering Jet	2	0	3	0	0	0
Overthruster	5	0	12	0	0	0
Beam Deflector	6	6	0	6	6	0

Name	Wt	Resources	Ironium	Boranium	Germanium	Ability
Colonization Module	32	10	12	10	10	0
Orbital Construction Module	50	20	20	15	15	20
Cargo Pod	5	10	5	0	2	50
Super Cargo Pod	7	15	8	0	2	100
Fuel Tank	3	4	6	0	0	250
Super Fuel Tank	8	8	8	0	0	500
Maneuvering Jet	5	10	5	0	5	1
Overthruster	5	20	10	0	8	2
Beam Deflector	1	8	0	0	10	10

Mine Laying table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Mine Dispenser 40	0	0	0	0	0	0
Mine Dispenser 50	2	0	0	0	0	4
Mine Dispenser 80	3	0	0	0	0	7
Mine Dispenser 130	6	0	0	0	0	12
Heavy Dispenser 50	5	0	0	0	0	3
Heavy Dispenser 110	9	0	0	0	0	5
Heavy Dispenser 200	14	0	0	0	0	7
Speed Trap 20	0	0	2	0	0	2
Speed Trap 30	0	0	3	0	0	6
Speed Trap 50	0	0	5	0	0	11

Name	Wt	Resources	Ironium	Boranium	Germanium	Mines/Year
Mine Dispenser 40	25	45	2	10	8	4
Mine Dispenser 50	30	55	2	12	10	5
Mine Dispenser 80	35	65	2	14	11	8
Mine Dispenser 130	50	80	2	18	15	13
Heavy Dispenser 50	10	50	2	20	15	5
Heavy Dispenser 110	15	75	2	30	25	11
Heavy Dispenser 200	25	115	2	45	40	20
Speed Trap 20	100	60	30	0	15	2
Speed Trap 30	135	72	32	0	16	3
Speed Trap 50	200	90	40	0	20	5

Mining table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Robo-Midget Miner	0	0	0	0	0	0
Robo-Mini-Miner	0	0	0	2	1	0
Robo-Miner	0	0	0	4	2	0
Robo-Maxi-Miner	0	0	0	7	4	0
Robo-Super-Miner	0	0	0	12	6	0
Robo-Ultra-Miner	0	0	0	15	8	0
Orbital Adjuster	0	0	0	0	0	6

Name	Wt	Resources	Ironium	Boranium	Germanium	kT/Year
Robo-Midget Miner	80	50	14	0	4	5
Robo-Mini-Miner	240	100	30	0	7	8
Robo-Miner	240	100	30	0	7	12
Robo-Maxi-Miner	240	100	30	0	7	18
Robo-Super-Miner	240	100	30	0	7	27
Robo-Ultra-Miner	80	50	14	0	4	25
Orbital Adjuster	80	50	25	25	25	0

Orbital Devices table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Stargate 100/250	0	0	5	5	0	0
Stargate any/300	0	0	6	10	0	0
Stargate 150/600	0	0	11	7	0	0
Stargate 300/500	0	0	9	13	0	0
Stargate 100/any	0	0	16	12	0	0
Stargate any/800	0	0	12	18	0	0
Stargate any/any	0	0	19	24	0	0
Mass Driver 5	4	0	0	0	0	0
Mass Driver 6	7	0	0	0	0	0
Mass Driver 7	9	0	0	0	0	0
Super Driver 8	11	0	0	0	0	0
Super Driver 9	13	0	0	0	0	0
Ultra Driver 10	15	0	0	0	0	0
Ultra Driver 11	17	0	0	0	0	0
Ultra Driver 12	20	0	0	0	0	0
Ultra Driver 13	24	0	0	0	0	0

Name	Resources	Ironium	Boranium	Germanium	Ability 1	Ability2
Stargate 100/250	400	50	20	20	100	250
Stargate any/300	500	50	20	20	-1	300
Stargate 150/600	1000	50	20	20	150	600
Stargate 300/500	1200	50	20	20	300	500
Stargate 100/any	1400	50	20	20	100	-1
Stargate any/800	1400	50	20	20	-1	800
Stargate any/any	1600	50	20	20	-1	-1
Mass Driver 5	140	24	20	20	5	0
Mass Driver 6	288	24	20	20	6	0
Mass Driver 7	512	24	20	20	7	0
Super Driver 8	512	24	20	20	8	0
Super Driver 9	648	24	20	20	9	0
Ultra Driver 10	968	24	20	20	10	0
Ultra Driver 11	968	24	20	20	11	0
Ultra Driver 12	1152	24	20	20	12	0
Ultra Driver 13	1352	24	20	20	13	0

Planetary Installations table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Viewer 50	0	0	0	0	0	0
Viewer 90	0	0	0	0	1	0
Scoper 150	0	0	0	0	3	0
Scoper 220	0	0	0	0	6	0
Scoper 280	0	0	0	0	8	0
Snooper 320X	3	0	0	0	10	3
Snooper 400X	4	0	0	0	13	6
Snooper 500X	5	0	0	0	16	7
Snooper 620X	7	0	0	0	23	9
SDI	0	0	0	0	0	0
Missile Battery	5	0	0	0	0	0
Laser Battery	10	0	0	0	0	0
Planetary Shield	16	0	0	0	0	0
Neutron Shield	23	0	0	0	0	0

Name	Resources	Ironium	Boranium	Germanium	Ability
Viewer 50	3	0	0	3	50
Viewer 90	12	1	1	12	90
Scoper 150	21	2	2	30	150
Scoper 220	28	3	2	35	220
Scoper 280	28	3	2	35	280
Snooper 320X	100	10	10	50	-320
Snooper 400X	250	15	15	70	-400
Snooper 500X	500	25	15	90	-500
Snooper 620X	500	25	15	90	-620
SDI	25	5	5	5	10
Missile Battery	25	5	5	5	20
Laser Battery	25	5	5	5	24
Planetary Shield	25	5	5	5	30
Neutron Shield	25	5	5	5	38

Scanners table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Bat Scanner	0	0	0	0	0	0
Rhino Scanner	0	0	0	0	1	0
Mole Scanner	0	0	0	0	4	0
DNA Scanner	0	0	3	0	0	6
Possum Scanner	0	0	0	0	5	0
Pick Pocket Scanner	4	0	0	0	4	4
Chameleon Scanner	3	0	0	0	6	0
Ferret Scanner	3	0	0	0	7	2
Dolphin Scanner	5	0	0	0	10	4
Gazelle Scanner	4	0	0	0	8	0
RNA Scanner	0	0	5	0	0	10
Cheetah Scanner	5	0	0	0	11	0
Elephant Scanner	6	0	0	0	16	7
Eagle Eye Scanner	6	0	0	0	14	0
Robber Baron Scanner	10	0	0	0	15	10
Peerless Scanner	7	0	0	0	24	0

Name	Wt	Resources	Ironium	Boranium	Germanium	Range
Bat Scanner	2	1	1	0	1	0
Rhino Scanner	5	3	3	0	2	50
Mole Scanner	2	9	2	0	2	100
DNA Scanner	2	5	1	1	1	125
Possum Scanner	3	18	3	0	3	150
Pick Pocket Scanner	15	35	8	10	6	80
Chameleon Scanner	6	25	4	6	4	160
Ferret Scanner	2	36	2	0	8	185
Dolphin Scanner	4	40	5	5	10	220
Gazelle Scanner	5	24	4	0	5	225
RNA Scanner	2	20	1	1	2	230
Cheetah Scanner	4	50	3	1	13	275
Elephant Scanner	6	70	8	5	14	300
Eagle Eye Scanner	3	64	3	2	21	335
Robber Baron Scanner	20	90	10	10	10	220
Peerless Scanner	4	90	3	2	30	500

Shields table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Mole-skin Shield	0	0	0	0	0	0
Cow-hide Shield	3	0	0	0	0	0
Wolverine Diffuse Shield	6	0	0	0	0	0
Croby Sharmor	7	0	0	4	0	0
Shadow Shield	7	0	0	0	3	0
Bear Neutrino Barrier	10	0	0	0	0	0
Gorilla Delagator	14	0	0	0	0	0
Elephant Hide Fortress	18	0	0	0	0	0
Complete Phase Shield	22	0	0	0	0	0

Name	Wt	Resources	Ironium	Boranium	Germanium	DP
Mole-skin Shield	1	4	1	0	1	25
Cow-hide Shield	1	5	2	0	2	40
Wolverine Diffuse Shield	1	6	3	0	3	60
Croby Sharmor	10	15	7	0	4	60
Shadow Shield	2	7	3	0	3	75
Bear Neutrino Barrier	1	8	4	0	4	100
Gorilla Delagator	1	11	5	0	6	175
Elephant Hide Fortress	1	15	8	0	10	300
Complete Phase Shield	1	20	12	0	15	500

Ship Hulls table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Small Freighter	0	0	0	0	0	0
Medium Freighter	0	0	0	3	0	0
Large Freighter	0	0	0	8	0	0
Super Freighter	0	0	0	13	0	0
Scout	0	0	0	0	0	0
Frigate	0	0	0	6	0	0
Destroyer	0	0	0	3	0	0
Cruiser	0	0	0	9	0	0
Battle Cruiser	0	0	0	10	0	0
Battleship	0	0	0	13	0	0
Dreadnought	0	0	0	16	0	0
Privateer	0	0	0	4	0	0
Rogue	0	0	0	8	0	0
Galleon	0	0	0	11	0	0
Mini-Colony Ship	0	0	0	0	0	0
Colony Ship	0	0	0	0	0	0
Mini Bomber	0	0	0	1	0	0
B-17 Bomber	0	0	0	6	0	0
Stealth Bomber	0	0	0	8	0	0
B-52 Bomber	0	0	0	15	0	0
Midget Miner	0	0	0	0	0	0
Mini-Miner	0	0	0	2	0	0
Miner	0	0	0	6	0	0
Maxi-Miner	0	0	0	11	0	0
Ultra-Miner	0	0	0	14	0	0
Fuel Transport	0	0	0	4	0	0
Super-Fuel Xport	0	0	0	7	0	0
Mini Mine Layer	0	0	0	0	0	0
Super Mine Layer	0	0	0	15	0	0
Nubian	0	0	0	26	0	0
Meta Morph	0	0	0	10	0	0

Name	Wt	Resources	Ironium	Boranium	Germanium	Fuel	Cargo	DP	Initiative
Small Freighter	25	20	12	0	17	130	70	25	0
Medium Freighter	60	40	20	0	19	450	210	50	0
Large Freighter	125	100	35	0	21	2600	1200	150	0
Super Freighter	175	125	45	0	21	8000	3000	400	0
Scout	8	10	4	2	4	50	0	20	1

Ship									
Frigate	8	12	4	2	4	125	0	45	4
Destroyer	30	35	15	3	5	280	0	200	3
Cruiser	90	85	40	5	8	600	0	700	5
Battle Cruiser	120	120	55	8	12	1400	0	1000	5
Battleship	222	225	120	25	20	2800	0	2000	10
Dreadnought	250	275	140	30	25	4500	0	4500	10
Privateer	65	50	50	3	2	650	250	150	3
Rogue	75	60	80	5	5	2250	500	450	4
Galleon	125	105	70	5	5	2500	1000	900	4
Mini-Colony Ship	8	3	2	0	2	150	10	10	0
Colony Ship	20	20	10	0	15	200	25	20	0
Mini Bomber	28	35	20	5	10	120	0	50	0
B-17 Bomber	69	150	55	10	10	400	0	175	0
Stealth Bomber	70	175	55	10	15	750	0	225	0
B-52 Bomber	110	280	90	15	10	750	0	450	0
Midget Miner	10	20	10	0	3	210	0	100	0
Mini-Miner	80	50	25	0	6	210	0	130	0
Miner	110	110	32	0	6	500	0	475	0
Maxi-Miner	110	140	32	0	6	850	0	1400	0
Ultra-Miner	100	130	30	0	6	1300	0	1500	0
Fuel Transport	12	50	10	0	5	750	0	5	0
Super-Fuel Xport	111	70	20	0	8	2250	0	12	0
Mini Mine Layer	10	20	8	2	5	400	0	60	0
Super Mine Layer	70	80	55	3	9	2200	0	1200	0
Nubian	100	150	75	12	12	5000	0	5000	2
Meta Morph	85	120	50	12	12	700	300	500	2

Starbase Hulls table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Orbital Fort	0	0	0	0	0	0
Space Dock	0	0	0	4	0	0
Space Station	0	0	0	0	0	0
Ultra Station	0	0	0	12	0	0
Death Star	0	0	0	17	0	0

Name	Resources	Ironium	Boranium	Germanium	Dock Cap	DP	Initiative
Orbital Fort	80	24	0	34	0	100	10
Space Dock	200	40	10	50	200	250	12
Space Station	1200	240	160	500	-1	500	14
Ultra Station	1200	240	160	600	-1	1000	16
Death Star	1500	240	160	700	-1	1500	18

Terraforming table

Name	Energy	Weapons	Propulsion	Construction
Total Terraform ±3	0	0	0	0
Total Terraform ±5	0	0	0	0
Total Terraform ±7	0	0	0	0
Total Terraform ±10	0	0	0	0
Total Terraform ±15	0	0	0	0
Total Terraform ±20	0	0	0	0
Total Terraform ±25	0	0	0	0
Total Terraform ±30	0	0	0	0
Gravity Terraform ±3	0	0	1	0
Gravity Terraform ±7	0	0	5	0
Gravity Terraform ±11	0	0	10	0
Gravity Terraform ±15	0	0	16	0
Temp Terraform ±3	1	0	0	0
Temp Terraform ±7	5	0	0	0
Temp Terraform ±11	10	0	0	0
Temp Terraform ±15	16	0	0	0
Radiation Terraform ±3	0	1	0	0
Radiation Terraform ±7	0	5	0	0
Radiation Terraform ±11	0	10	0	0
Radiation Terraform ±15	0	16	0	0

Electronics	Bio-Tech	Resources	% Terraform
0	0	70	3
0	3	70	5
0	6	70	7
0	9	70	10
0	13	70	15
0	17	70	20
0	22	70	25
0	25	70	30
0	1	100	3
0	2	100	7
0	3	100	11
0	4	100	15
0	1	100	3
0	2	100	7
0	3	100	11
0	4	100	15

0	1	100	3
0	2	100	7
0	3	100	11
0	4	100	15

Torpedoes table

Name	Energy	Weapons	Propulsion	Construction	Electronics	Bio-Tech
Alpha Torpedo	0	0	0	0	0	0
Beta Torpedo	0	5	1	0	0	0
Delta Torpedo	0	10	2	0	0	0
Epsilon Torpedo	0	14	3	0	0	0
Rho Torpedo	0	18	4	0	0	0
Upsilon Torpedo	0	22	5	0	0	0
Omega Torpedo	0	26	6	0	0	0
Jihad Missile	0	12	6	0	0	0
Juggernaut Missile	0	16	8	0	0	0
Doomsday Missile	0	20	10	0	0	0
Armageddon Missile	0	24	10	0	0	0

Name	Wt	Resources	Ironium	Boranium	Germanium	Range	DP	Initiative	% Hit
Alpha Torpedo	25	5	0	20	3	3	5	0	75
Beta Torpedo	25	6	0	26	4	3	12	1	75
Delta Torpedo	25	8	0	32	5	4	26	1	75
Epsilon Torpedo	25	10	0	40	6	4	48	2	75
Rho Torpedo	25	12	0	48	8	5	90	2	75
Upsilon Torpedo	25	15	0	58	9	5	169	3	75
Omega Torpedo	25	18	0	72	12	5	316	4	75
Jihad Missile	35	13	0	54	9	5	85	0	20
Juggernaut Missile	35	16	0	66	11	5	150	1	20
Doomsday Missile	35	20	0	80	13	6	280	2	20
Armageddon Missile	35	24	0	92	16	6	525	3	20

Troubleshooting:
What to Do when the Ship Hits the Fan

Here's a description of the problems customers and testers have reported and how you can resolve them. These problems are relevant to version 2.5 only. After May 5, 1996, new troubleshooting information will be posted to our Web site at www.webmap.com/stars!.

General Protection Fault error

Problem: Stars! crashes with a General Protection Fault in XXX, where XXX has the number 256, 1024, or ends in DRV.

Solution: This error indicates an out-of-date Windows video driver. Contact your video card manufacturer or, possibly, Microsoft for an upgrade to the newest driver. Upgrading the driver has fixed all errors of this type that have been reported.

Shortcut Keystrokes don't always work

Problem: Pressing a shortcut key does nothing.

Solution: Click on any tile that doesn't have a listbox, on a button in the Messages pane, or in the Scanner pane, then try the keystroke again.

Serial Number dialog comes back

Problem: You always seem to be getting that pesky dialog asking for a serial number.

Solution: Expect to re-enter the serial number under the following conditions:

◆ if you cancel the serial number dialog

◆ if you've exited only from the opening "splash" screen. The copy protection looks for a stars.ini file, which isn't written until you actually exit Stars! from within game. Open or start a game and choose **File** (**Exit**) to write the file.

◆ if the stars.ini file has been deleted, renamed or moved from the Windows directory, or if the Windows directory has been moved. Start or open a game, and choose **File** (**Exit**) to write a new stars.ini file.

◆ if you make a change to your computer's hardware after Stars! has been installed.

◆ if you move Stars! to a new computer

◆ if you install an upgrade patch

◆ if you are using the same registered copy on multiple machines, in the same multi-player game

◆ if you are running more than one version of Windows on the same computer, and thus are using a separate Windows directory for each version, you'll be asked for the number the first time you start Stars! under each operating system.

Read more about copy protection and Stars!.

"Partially Done" Turn message

Problem: You're hosting a game and receive a message that a player has submitted a turn that is "partially done".

Solution: Go ahead and generate the new turn. The difference between the player's turn being marked as "done" or "partially done" is the submitted bit. When you save your turn you can choose Save, or Save and Submit. If you have used Save then the Host program considers the turn as "partially done". This is useful in network games when you want to save your work but don't want the host to Auto-Generate too soon. In a Play-By-Mail games it doesn't matter because the turn is generated manually.

What's New in Stars! Version 2.5

Stars! players -- we listened to your feedback and here's our response - a new version of Stars! that's packed with features you asked for:

Race Creation

Primary Racial Traits

There are now two additional Primary Racial Traits

Claims Adjuster

Alternate Reality

> Overview
>
> Full description

Secondary Racial Traits.

The following secondary traits are new or have been improved:

Improved Fuel Efficiency

Bleeding Edge Technology

Ultimate Recycling

Generalized Research

Cheap Engines

Other New Custom Race Features

◆ Research may now be adjusted to cost either 75% extra or 50% less.

◆ Races may improve colonist efficiency to 1 resource per 700 colonists.

◆ The cost of environmental bands and immunity more accurately reflects usefulness, allowing a wider range of races.

Minefields

◆ The maximum safe speed for speed trap mines is now Warp 5.

◆ The maximum safe speed for Heavy Mines is now Warp 6 and affects ALL ship weights.

◆ Mine fields can now only be swept to the depth your fleet is in the mine field. No more sticking your toe in the water and sucking the pond dry.

Scanner Technology

Scanners are less additive using a 4th root function.

Engines

Ramscoop Improvements

There is a new high-end, Warp 10 capable Ramscoop engine, the Galaxy Scoop. It is available to races that choose improved fuel efficiency.

Starbase Enhancements

New Starbase Hulls

There is one new starbase design and the others have had their load-out modified slightly:

◆ Death Star: the ultimate in comfort for the Alternate Reality race.

Stargates and Mass Drivers

Stargates

◆ Players you have marked as friends may now use your stargates.

Mass drivers

◆ Claim Adjuster packets are only 1/3 as effective in killing enemy colonists, but have the ability to terraform worlds upon impact.

Battle

Almost everything you know about battle has changed.

- Battle Plans
- Weapons
- Movement
- Initiative

Fallout from battles

Cargo is dumped as a mineral packet (salvage).

Salvage is free game for anybody nearby with a freighter.

Survivors of battles in which ships beyond their tech level in one or more fields got killed have up to a 50% chance to advance one tech level in one field.

Weapons Adjustments

Beams:

◆ Beam weapons now have a range of 3 or less.

◆ Beam weapons are now spread over the entire 26 tech level range.

◆ Beam weapons tend to be more powerful.

Torpedoes:

◆ Torpedoes tend to be less powerful.

◆ 1/2 all torpedo damage applies directly to armor, 1/2 to shields.

◆ Now only 1/8 of all torpedo damage is applied as collateral damage.

◆ Collateral damage affects shields only.

Area weapons:

◆ Replaced by Gattling beam weapons.

New Ship Components

Jammers deflect incoming torps and are additive. Battle computers counter jammers and increase firing initiative. There are also devices that increase the power of beam weapons and others that deflect beam weapons.

Waypoint Tasks Changes

◆ NEW - Remote Terraforming

◆ NEW - Route

◆ GONE - Attack is no longer a waypoint task and happens automatically now.

◆ GONE - Sweep Minefield is no longer a waypoint task and happens automatically now.

◆ CHANGED - Patrol is smarter about staying in the assigned area and allows you to specify an intercept speed.

Ship Hulls

New Hulls

◆ Nubian – and you thought the Meta Morph was incredible!

Existing Hull Enhancements

◆ Fuel Transports now produce a constant amount of fuel, whether they are moving or not.

◆ Almost every hull has been touched in one way or another. See the Tech Browser for details.

Scanner Pane

◆ A toolbar makes it easy to select your scanner view.

◆ Enemy fleet filtering is based on hull class.

◆ A new View shows each planet's mineral concentration.

Misc. but Significant Improvements/Changes

Production Templates

New production template model allows you to create default and custom production templates, removing the need to add one type of item at a time to the queue.

Auto Build

Auto Build items are now listed in the production inventory, can be added to production templates, and remain visible in the queue. Terraforming is now an auto-build item.

Defaults dialog

This dialog is now obsolete and has been removed. We;ve replaced it with improved auto-build features, production templates, and built-in default behavior for fleets.

New Anti-matter Fuel model

◆ Fuel is no longer mined or stored on planets.

◆ Starbases with ship-building capabilites have an infinite supply of fuel. They now double as orbiting Texacos, automatically refueling all friendly fleets who visit each year.

◆ Fuel weighs in milligrams instead of kilitons, no longer affects ship mass (and thus does not factor

into fuel usage).

- Fuel consumption is increased by a factor or four, with tank size increased to compensate.
- Fuel consumption values for waypoints are now a running total.

New Mineral Model

- Planets have unlimited minerals.
- Before you get TOO excited (or annoyed): As you mine minerals, the concentration decreases.
- The rate of extraction is tied to the number of number of mines and their years in existence, and not to the rate of extraction (player efficiency).

Additional AIs

- New computer players to quell the cries from advanced Stars! players for a harsher universe.

Parts/Tech Browser

Many changes here. Don't assume any parts are untouched. In general, parts are now spread over the entire 26 tech levels.

Universe Creation

Advanced Starting Options

No Random Events - Comet crashes and other unpredictable occurrences are disabled for the strategy purist.

Density: **Packed** - Crams even more planets into all but the HUGE universe.

Keyboard

New keyboard Shortcuts:

- '**1**' through '**9**' select scanner modes from the toolbar.
- '**,**' and '**.**' decrease and increase your warp speed for the current waypoint.
- '**q**' opens the production queue.

Welcome to the new Stars! universe: deeper, darker, and more complex (and treacherous) than ever. Enjoy -- we look forward to hearing from you (stars@webmap.com).

Ordering the Retail Version

Sure, the unregistered, shareware version is great--more developed than most (if not all) shareware games you'll find--but it's not enough. You can order the full-blown, retail version by phone, mail or over the World Wide Web. Whenever you order Stars!, you are always purchasing the *latest* version.

Read About:

[Giving the Unregistered Shareware Version to Your Friends](#)

[About Shareware](#)

[What's in the Retail Version?](#)

[Ordering the Retail Version](#)

Giving the Unregistered Shareware Version to Your Friends

You can evaluate the unregistered version of Stars! for 30 days; however if you plan to continue using it after 30 days, you must purchase the retail version. Please feel free to distribute the unregistered shareware version to anyone you wish. Just make sure you give them everything that was included in the original .zip file:

- stars!.exe
- stars!.hlp
- readme.txt
- order.txt
- license.txt
- commdlg.dll

Please read license.txt for additional information about distributing Stars!

Read About Ordering the Retail Version:

About Shareware
What's in the Retail Version?
Ordering the Retail Version

About Shareware

Millions of computer users have found shareware to be the safest and most risk-free way to buy software. Independent software authors, like Stars! authors Jeff Johnson and Jeff McBride, use the shareware distribution system to allow you to try out a program and make sure it suits your needs before you buy. Anyone can obtain a shareware copy of Stars! free of charge from the Internet (Web or FTP site), a BBS or a friend, or for a small charge from a shareware disk vendor or retail store. If you enjoy playing the shareware version of Stars! and plan to continue using it after the 30 day evaluation, then we ask that you purchase the full-featured, retail version from an official Stars! distributor or delete the shareware version from your system.

You can obtain a list of Stars! distributors by sending email to **stars@webmap.com**. Both a mail order and online distributor are described in Ordering the Retail Version.

Read About:

Giving the Unregistered Shareware Version to Your Friends

What's in the Retail Version?

Ordering the Retail Version

What's in the Retail Version?

In addition to the large number of features already in the unregistered version, you'll find you have access to technoogy all the way up to level 26. You'll also be able to create larger universes, have access to more advanced universe creation options, and create and save custom races.

If you'd like to learn more about the technology available in the retail version, see what's in the Technology browser, and read the technology data tables and What's New.

Read About:

Giving the Unregistered Shareware Version to Your Friends

About Shareware

Ordering the Retail Version

Ordering the Retail Version of Stars!

Stars! comes in a (inexpensive) single-user, (really inexpensive) four-user or a (dirt cheap) eight-user license pack. If you order by phone or mail, you receive Stars! on a 3.5" disk. If you order over the World Wide Web, it's delivered directly to your hard drive.

Use these topics to help you order:

[Ordering by Phone or Mail](#)

[Ordering Over the World Wide Web](#)

Ordering by Phone or Mail

The following describes Star Crossed Software, our primary U.S.-based mail-order distributor. For a list of other mail-order distributors, see the file *order.txt*.

The following prices include US postage:

Single user copy: $34

Four user license pack: $80 ($20 a copy)

Eight user license pack: $136 ($17 a copy)

International Postage

Add the following to each order if you're ordering from outside the United States:

Canada: $1

Anywhere else: $6

Upgrade Price

A single user copy must be upgraded as a single user copy. An eight user pack can be upgraded as a four or eight-user pack. **You must purchase your upgrade from the original distributor**.

$5 for anyone upgrading a single user copy or an eight user license pack purchased *on or after* October 1, 1995.

$15 for anyone upgrading a single user copy purchased *before* October 1, 1995.

$64 for anyone upgrading an eight user license pack purchased *before* October 1, 1995 to an eight-user pack.

Contact your distributor for information on upgrading to a four-user pack.

Phone

512-218-1905

Hours are Central Standard Time, GMT -6
Monday through Thursday, 7 AM to 10 AM, and 4 PM to 8 PM
Friday, 7 AM to 10 AM

For phone orders, Star Crossed Software accepts Visa, Mastercard, check or money order.

Mail

See the file, **order.txt**, for an order-by-mail form.

For mail orders, send your check or money order to:

**Star Crossed Software
119 Bon Wood Dr
Round Rock, TX 78681**

Ordering Over the World Wide Web

You can order Stars! over the World Wide Web, at **http://www.webmap.com/stars!**. This allows you to get your hands on the retail version within 24 hours. The web site also contains other official Stars! product and player information.

Here's what it costs:

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Eight user license pack: $136 ($17 a copy)

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