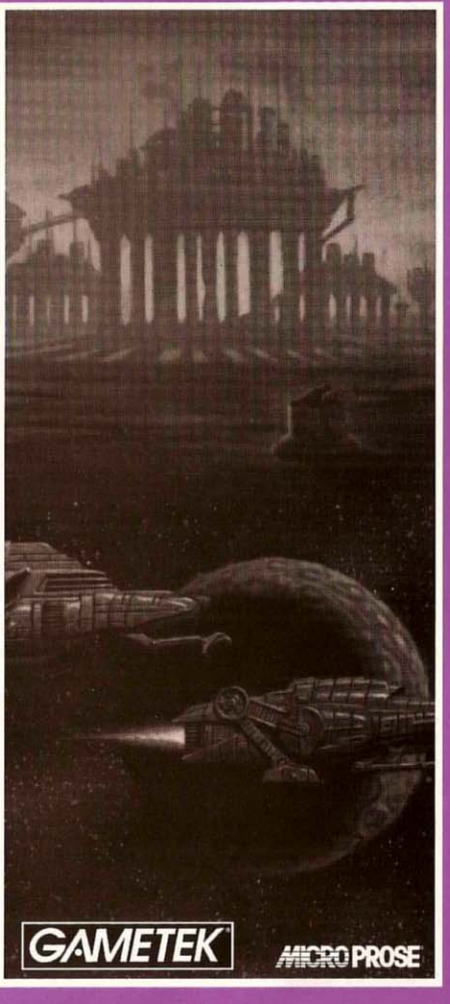

MASTER OF ORION™

GAMETEK

MICROPROSE

MASTER OF ORION

VERSION 1.2.



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Master of Orion

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Master of Orion

Introduction



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By the beginning of the 23rd century, ten races had emerged with the technology necessary to colonise deep space. For nearly a century, population growth on all planets had outstripped planetary resources, and soon all the races were forced to expand and discover new worlds to colonise. As history has proven time and time again, unrestrained expansion inevitably leads to war.

Even though each race is very different from the others, all have legends of a master race that once controlled the galaxy. It is said that the Masters left behind a world that contained marvellous secrets and wondrous technology, and protected it with a powerful Guardian. The loremasters call it Orion and it is written in legend that he who masters Orion masters the universe.

Master of Orion is a competitive game of interstellar conquest that combines exploration with conflict. You are cast as the immortal emperor who shapes the future of your race, as contact is made with the neighbouring races. Your objective is simple: control a majority of the known galaxy and eliminate all who stand in the way.

As ruler you must ultimately decide the destiny of your race as you make decisions on how planetary resources are allocated, where star fleets will be deployed, which races to fight, and which races to ally with. You begin with control of your home planet, from which you can explore and colonise nearby star systems. Your first decisions will centre around the rapid development of colonies into productive worlds, what types of technology to focus on, and which star systems to colonise. However, the true challenge begins when contact is made with other races, and complex strategies must be formulated to manage diplomacy, sabotage, espionage, trade, and interstellar combat.

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Part 1 — Technical Supp & Reference

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MINIMUM SYSTEM REQUIREMENTS

INSTALLATION

Our **Master of Orion** package should contain a manual including a Technical Supplement with a registration card, and a set of 3.5" floppy disks or a CD-ROM.

4 MB RAM

256 Colour Macintosh

13" or larger colour monitor

System 7.0 or higher

68020 or better processor

12 MB hard disk space (FLOPPY VERSION ONLY)

Macintosh compatible CD-ROM drive (CD-ROM VERSION ONLY)

For CD-ROM installation

1. Turn on your computer and CD-ROM drive.
2. Insert Master of Orion into the CD-ROM drive.
3. Double-click the CD-rom icon.
4. To run, double -click the Master of Orion icon.

You may save Master of Orion onto your hard drive. To do this, drag the Master of Orion icon from its folder over to the hard drive.

For floppy installation

1. Insert the disk labelled "Mac disk 1"
2. A Master of Orion installer icon will appear on your screen
3. Double-click the Master of Orion installer icon and follow the directions
4. Double-click the Master of Orion to run the game.
5. Double-click the saved game file to play a previous game.

Display README> TXT file: The README.TXT file contains information too recent to be included in this manual or this Technical Supplement.

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Playing Master Of Orion

Your goal in **Master of Orion** is nothing less than conquest of the galaxy. To do this, you must:

- Use the resources of your planets to develop their industry, defence, research, ecology, and ship production.
- Send out ships to discover and colonise new planets.
- Deal with other races that you encounter in space through diplomacy, trade, espionage, sabotage, and warfare.
- Research new technologies in Computers, Force Fields, Planetology, Construction, Propulsion, and Weapons.
- Design new ships with new technologies, to aid you in accomplishing your goals.

Your First game

If this is your first game, we recommend that you play in a Medium sized galaxy (not Small), at Simple difficulty, with 3 other Races. Play as the Klackons; their special advantage is the easiest for new players.

Online Help

Most game screens in Master of Orion have built in help displays to explain the controls. To see the help displays for any screen, press the F1 Function key on your keyboard.

Game Controls

We highly recommend the use of a mouse to play Master of Orion. The left mouse button is always used to select an option, and the right mouse button to cancel a selection.

The numeric keypad can be used instead of a mouse, to move the pointer. Be sure that the Numlock is turned on. Pressing Enter selects an option, and pressing the **Esc** key cancels a selection. To scroll the game map, hold down the **Ctrl** key while pressing the numeric keys.

Most buttons on screen can be activated by pressing the keyboard key corresponding to the first letter of the button's name. There are a few exceptions to this rule:

Control Screen:

RELOCATE – 'L'

F1 – Online help.

F2 – Next colony.

F3 – Previous colony.

F4 – Cycle to next newly created fleet

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F5 – Cycle to previous newly created fleet

F6 – Cycle to next fleet

F7 – Cycle to previous fleet

F8 – Cycle to next colony that has enemy ships enroute (requires improved or advanced scanners

F9.Previous planet with enemy fleets approaching

F10. Instantly saves the game to continue game file

TRANSPORT – 'X'

B – Scrap Planetary Missile Bases.

C – Report on spies caught.

[Alt]-C – Centres the screen on the current planet.

[Alt]-M – Turns a map grid on/off. The grid marks every 5 parsecs.

[Alt]-R – Changes all RELOCation destinations to the selected planet.

[Alt]-P – Changes all emperor personalities at random

[Alt]-"Events" –Toggels random events on/off

Fleet Screen: SPECS – 'V'

Tech Screen: – '=' – sets all research allocations to the same amount.

Combat: SPECIAL – 'X'

Many screens: (down arrow) – '<' (up arrow) = '>'

The Main Screen

The main game screen includes a large window displaying a portion of the galaxy, a right side panel with planetary information and/or control displays, and a row of buttons at the bottom of the screen to access other control and information screens.

In the galaxy window, you can select stars or fleets of ships. If you select a star that you have colonised, the right panel can be used to allocate its resources, build ships in its docks, relocate completed ships to other colonies, or transfer population to other star systems. If you click again on an already selected star system, the display will change to show you more information about that star.

If you select a star that you have not colonised, the right panel displays what information you have about that star system.

If you select a fleet orbiting a planet, the right panel lets you order ships from that fleet to other star systems. If you select a fleet already in space, the panel displays its composition, destination, and ETA.

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Ratio bars

You control the allocation of your planetary spending, and the distribution of your research efforts, using ratio bars. A group of ratio bars shows how a resource is being divided among several different areas. The total value of all the bars must always equal 100% of the resource being allocated. Therefore, if you reduce one bar, another will lengthen; lengthen a bar, and another must get shorter.

To change the setting of a ratio bar, you simply click in the bar area at the position you want the setting to be. Other bars will change their settings to compensate, so that the total values of all the bars still adds up to 100%. You may have finer control over bar settings by pressing the arrows on the left and right of the bars, or by using + and - keys when the ratio bar is selected.

If you wish to lock down a bar's setting, so that changing other ratio bars does NOT affect its setting, click on the bar's title, at the left of the bar you wish to lock. The title will change colour, and changing ratios in other bars cannot affect the locked bar's resources. You can unlock the ratio bar setting by clicking on the title again.

Other Game Functions

Buttons at the bottom of the Main screen access other screens with more detailed information and control displays:

Game: lets you save and load games, change settings for sound, and quit the game.

Design: lets you design new types of ships. You can have no more than six types of ships active at any one time.

Fleet: shows you where all of your ships are, what their specifications are, and lets you choose any ship types to scrap to make room for newer designs.

Map: displays an overview of the entire galaxy.

Races: controls your interactions with other races you have contacted. Here you can speak to their ambassadors, send out spies, and see how your race stands compared to others.

Planets: summarises information about all of your colonies, and your empire's economic status.

Tech: shows you the technological advances you have, and allows you to set the ratios for your six areas of research.

Next Year: ends this turn, and sends the game onto the next one.

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Quick Start Questions and Answers

If you are familiar with mouse-based interfaces, and want to leap immediately into the game without reading the manual, the following answers cover many of the basic "how to" concepts you'll need to play Master of Orion.

How do I send my ships to another planet?

Select one of your ship icons in orbit around a planet. The right panel will display which ships are in orbit around that world. Use the arrow buttons by each ship type to change the number of ships you will send. Choose a destination planet for your fleet, then select the ACCEPT button. See page 16 of the manual for more information.

How do I create a new colony?

Send a colony ship there (i.e. a ship equipped with a special colony base device). If the planet is habitable (see pages 17-18 of the manual), you will automatically be asked if you want to land and establish a colony there. Your colony ship is disassembled and its parts used to establish the colony. Once you have set up your colony base, you should immediately transport more colonists to that planet, to help it grow more quickly.

How do I TRANSport my colonists to another planet?

Select the planet you wish to transport your people FROM. Select the TRANS button from the panel on the right, then select the planet you wish to send your people to. After you have chosen the destination planet, you can use the slider bar on the right panel to decide how many people you want to send, up to half the population of your source planet. Note that you cannot send people to a planet that has not yet established a colony base, and you cannot transport to a planet you have not yet explored.

If you are sending transports to an enemy colony, you do the same thing. The people you send to an enemy world are automatically armed with the latest technology for ground combat. Note that enemy ships and missile bases can destroy your transports before they can land. This combat happens automatically when your transports arrive at their target world, and you see only the results. For more information, see pages 20 and 60 of the manual.

Why can't my colony ships travel as far as my scouts do?

Your scouts are equipped with a special device called "Reserve Fuel Tanks" that let them travel to planets 3 parsecs farther away than your other ships can. At the start of the game, your scouts can reach any star within six parsecs of any of your colonies, but your other ships can only reach planets 3 parsecs away.

Note that when you are moving ships from one planet to another, all that matters is how far the destination star is from the nearest friendly colony. Your ships do not actually stop at one of your

Reference Manuel

colonies to refuel. Also, when your scientists discover a new fuel type that increases your range, all of your ships immediately benefit from the discovery. You do not need to design new ships to use that fuel.

How do I change the destination of my fleets in space?

At the start of the game, once your ships have left orbit to go to another planet, their destination cannot be changed. If you change your mind during the same turn you gave orders, you can select the ship icon in orbit at the LEFT of the planet, and direct it to a new planet or back to its original planet. Once you develop Hyperspace Communications (34th level Computer Technology), you can change the orders of any ships en route to other planets at any time.

I just signed a Non-Aggression Pact with another race, and he attacked my planet the very next turn. What gives?

Just like you, the other races cannot change the orders of their ships and transports en route. The attacking forces were probably sent to your planet before the pact was signed, and did not know that you are now on friendly terms.

I just got the technology for Controlled Barren (or Tundra, Inferno, etc.) Landings. Why can't my colony ships land on those planets now?

Once you discover the technology for landing on a hostile planet type, you must design a new type of colony ship with the special base device for landing on that environment. However, that new type of colony transport can also land on any less hostile planet. For instance, a ship equipped to land on inferno planets can also colonise dead, tundra, barren, and standard planet types.

How do I conquer an enemy's planet?

You do not need to send a colony ship. You just transport enough people to that planet to defeat the populace there and capture their colony. However, since missile bases and enemy ships in orbit can destroy transports before they land, we recommend that you send battle fleets to your target planet first, to eliminate any threat to your transports.

What does RELOC do?

The RELOC button lets you automatically send the ships that one planet builds to another planet. This is useful to assemble your fleets at one common staging point. To RELOCate your ships' destination, select the RELOC button, then select the planet you wish to send your completed ships to. A blue line will appear, connecting the worlds. To cancel the RELOCation, select the RELOC button, then select the same source planet as the "destination" (i.e. relocating your ships to where they started.)

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Can I refit my existing ships to use new technologies?

No. If you wish to equip ships with new technologies, you have to design a new class of ship to use them. If you already have six classes in use, you may have to make a tough choice to scrap some older ship types to make room for the new design.

What is this Guardian thing that keeps destroying my ships?

Legends hold that the Ancient Ones built terrible automated war machines to protect Orion from invaders. So, if you find a planet protected by The Guardian, you have probably found Orion. Needless to say, you will need a large fleet with advanced technology before you can defeat the Guardian, and capture Orion.

Why can I research some high level technology, when I did not get a choice to discover lower level advances? For instance, I can research "Deuterium Fuel Cells (Range 5)", but I never got to choose "Hydrogen Fuel Cells (Range 4)"?

The technologies that your scientists can research are partially based on random chance (the muse of scientific inspiration is fickle). If you cannot research a particular device, you may have to acquire it through espionage or diplomatic exchange. You can also get new technology by capturing enemy planets, provided that you have left some of their factories intact. The more factories, the greater chance of finding technology.

SPECIAL THANKS:

The Master of Orion team would like to thank the following people who provided design suggestions, caught bugs, and otherwise helped to polish v1.2 of the game: Don Aldrich, Gail & Patrick Barnes, Ken Fishkin, Tom Holsinger, Tim Jordan, William Kutscher, Marvin Lamb, Kelly McCauley, Stephen Mintenko, Jerry Pournelle, and David Weinstein.

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Part 2 — Reference Tables

Technology Development Table

Technology Level	Computers	Construction	Force Fields
1.	Battle Computer Mark I	Titanium Armor	Class I Deflector Shield
2.	ECM Jammer Mark I		
3.		Improved Industrial Tech 9	
4.	Deep Space Scanner		Class II Deflector Shield
5.	Battle Computer Mark II	Reduced Industrial Waste 80%	
6.			
7.	ECM Jammer Mark II		
8.	Improved Robotic Controls III	Improved Industrial Tech 8	Personal Deflector Shield
9.			
10.	Battle Computer Mark III	Duralloy Armor	Class III Deflector Shield
11.		Battle Suit	
12.	ECM Jammer Mark III		Class V Planetary Shield
13.	Improved Space Scanner	Improved Industrial Tech 7	
14.		Automated Repair Units	Class IV Deflector Shield
15.	Battle Computer Mark IV	Reduced Industrial Waste 60%	
16.			Repulsor Beam
17.	ECM Jammer Mark IV	Zortrium Armor	
18.	Improved Robotic Controls IV	Improved Industrial Tech 6	
19.			
20.	Battle Computer Mark V		Class V Deflector Shield
21.			Personal Absorption Shield
22.	ECM Jammer Mark V		Class X Planetary Shield
23.	Advanced Space Scanner	Improved Industrial Tech 5	
24.		Armored Exoskeleton	Class VI Deflector Shield
25.	Battle Computer Mark VI	Reduced Industrial Waste 40%	

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Technology Level	Computer Tech	Construction Tech	Force Fields
26.		Andrium Armor	
27.	ECM Jammer Mark VI		Cloaking Device
28.	Improved Robotic Controls V	Improved Industrial Tech 4	
29.			
30.	Battle Computer Mark VII		Class VII Deflector Shield
31.			Zyro Shield
32.	ECM Jammer Mark VII		Class XV Planetary Shield
33.		Improved Industrial Tech 3	
34.	Hyperspace Communications	Tritanium Armor	Class IX Deflector Shield
35.	Battle Computer Mark VIII	Reduced Industrial Waste 20%	
36.		Advanced Damage Control	
37.	ECM Jammer VIII		Stasis Field
38.	Improved Robotic Controls VI	Improved Industrial Tech 2	Personal Barrier Shield
39.			
40.	Battle Computer Mark IX	Powered Armor	Class XI Deflector Shield
41.			
42.	ECM Jammer Mark IX	Adamantium Armor	Class XX Planetary Shield
43.			Black Hole Generator
44.			Class XIII Deflector Shield
45.	Battle Computer Mark X	Industrial Waste Elimination	
46.	Oracle Interface		Lightning Shield
47.	ECM Jammer Mark X		
48.	Improved Robotic Controls VII		
49.	Technology Nullifier		
50.	Battle Computer Mark XI	Neutronium Armor	Class XV Deflector Shield

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Technology Level	Planetology	Propulsion	Weapons
1.	Ecological Restoration	Retro Engines (Warp 1)	Lasers and Nukes
2.	Terraforming +10		Hand Laser
3.	Controlled Barren Landings	Hydrogen Fuel Cells (Range 4)	
4.			Hyper-V Rockets
5.	Improved Eco Restoration	Deuterium Fuel Cell (Range 5)	Gatling Laser
6.	Controlled Tundra Landings	Nuclear Engines (Warp 2)	Anti-Missile Rockets
7.			Neutron Pellet Gun
8.	Terraforming +20		Hyper-X Missile
9.	Dead Planet Landings	Irridium Fuel Cells (Range 6)	Fusion Bomb
10.	Death Spores	Inertial Stabilizer	Ion Cannon
11.			Scatter Pack V Rockets
12.	Controlled Inferno Landings	Sub-Light Drive (Warp 3)	Ion Rifle
13.	Enhanced Eco Restoration		Mass Driver
14.	Terraforming +30	Dotomite Crystals (Range 7)	Merculite Missiles
15.	Controlled Toxic Landings		Neutron Blaster
16.	Soil Enrichment	Energy Pulsar	Anti-Matter Bomb
17.	Bio Toxin Antidote		Graviton Beam
18.	Radioactive Landings	Fusion Drive (Warp 4)	Stinger Missiles
19.		Uridium Fuel Cells (Range 8)	Hard Beam
20.	Terraforming +40	Warp Dissipator	Fusion Beam
21.	Cloning		Ion Stream Projector
22.	Atmospheric Terraforming		Omega-V Bomb
23.		Reajax II Fuel Cells (Range 9)	Anti-Matter Torpedoes
24.	Advanced Eco Restoration	Impulse Engines (Warp 5)	Fusion Rifle
25.			Megabolt Cannon

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Technology Level	Planetology	Propulsion	Weapons
26.	Terraforming +50		Phasor
27.	Doom Virus	Star Gates	Scatter Pack VII Rockets
28.			Auto Blaster
29.		Trilithium Crystals (Range 10)	Pulson Missile
30.	Advanced Soil Enrichment	Ion Drive (Warp 6)	Tachyon Beam
31.			Hand Phasor
32.	Terraforming +60		Gauss Auto Cannon
33.			Particle Beam
34.	Complete Eco Restoration	High Energy Focus	Hercular Missiles
35.			Plasma Cannon
36.	Universal Antidote	Anti-Matter Engines (Warp 7)	
37.			Distruptor
38.	Terraforming +80	Sub space Teleporter	Pulse Phasor
39.			Neutronium Bomb
40.	Bio Terminator	Ionic Pulsar	Hellfire Torpedoes
41.		Thorium Cells (Unlimited Range)	Zeon Missiles
42.	Advanced Cloning	Interphased Drive (Warp 8)	Plasma Rifle
43.		Sub Space Interdictor	Proton Torpedoes
44.	Terraforming +100		Scatter Pack X Missiles
45.		Combat Transporters	Tri-Focus Plasma
46.		Inertial Nullifier	Stellar Convertor
47.			Neutron Stream Projector
48.		Hyper Drive (Warp 9)	Mauler Device
49.			
50.	Terraforming +120	Displacement Device	Plasma Torpedoes

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Weapons Tables

Beam Weapons

Weapons	Level	Damage	Cost	Size	Power	Notes
Laser	1	1-4	3	10	25	
Heavy Laser	1	1-7	9	30	75	2 space range
Gatling Laser	5	1-4	9	20	70	fires 4 times per turn
Neutron Pellet Gun	7	2-5	3	15	25	halves enemy shield strengths
Ion Cannon	10	3-8	4	15	35	
Heavy Ion Cannon	10	3-15	11	45	105	2 space range
Mass Driver	13	5-8	9	55	50	halves enemy shield strengths
Neutron Blaster	15	3-12	6	20	60	
Heavy Blast Cannon	15	3-24	18	60	180	2 space range
Graviton Beam	17	1-15	6	30	60	damage carries over from one target to another
Hard Beam	19	8-12	12	50	100	halves enemy shield strengths
Fusion Beam	20	4-16	7	20	75	
Heavy Fusion Beam	20	4-30	21	60	225	2 space range
Megabolt Cannon	25	2-20	8	30	65	+3 levels to hit
Phasor	26	5-20	9	20	90	
Heavy Phasor	26	5-40	26	60	270	2 space range
Auto Blaster	28	4-16	14	30	90	fires 3 times per turn
Tachyon Beam	30	1-25	9	30	80	damage carries over from one target to another
Gauss Autocannon	32	7-10	28	105	105	fires 4 times per turn, halves enemy shields
Particle Beam	33	10-20	15	90	75	halves enemy shield strengths
Plasma Cannon	35	6-30	12	30	110	
Disruptor	37	10-40	21	70	160	2 space range
Pulse Phasor	38	5-20	25	40	120	fires 3 times per turn
Tri-Focus Plasma	45	20-50	25	70	180	
Stellar Converter	46	10-35	50	200	300	3 space range/hits all four shields
Mauler Device	48	20-100	55	150	300	

Bombs and Biologicals

Weapons	Level	Damage	Cost	Bombs	Size	Power	Notes
Nuclear Bomb	1	3-12	3	10	40	10	
Fusion Bomb	8	5-20	4	10	50	10	
Death Spores	10	1 population	10	5	100	10	biological weapon
Anti-Matter Bomb	16	10-40	5	10	75	10	
Omega-V Bomb	22	20-50	8	10	140	10	
Doom Virus	27	2 populations	15	5	200	10	biological weapon
Neutronium Bomb	39	40-70	10	10	200	10	
Bio Terminator	40	3 populations	20	5	300	10	biological weapon

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Missiles and Torpedoes

Weapons	Level	Dmg	Cost	Size[1]	Power[1]	Bonus	Speed[2]	Range[3]	Notes
Nuclear Missiles	1	4	7	50	20	0	2	4	
Hyper-V Rockets	4	6	9	70	20	0	2.5	5	
Hyper-X Missiles	7	8	12	100	20	+1	2.5	4	
Scatter Pack V Rockets	11	6	18	115	50	0	2.5	5	splits into five warheads
Merculite Missiles	14	10	13	105	20	+2	3	6	
Stinger Missiles	18	15	19	155	30	+3	3.5	7	
Anti-Matter Torpedoes	23	30	30	75	300	+4	4	8	
Scatter Pack VII Missiles	27	10	28	170	50	+2	3	6	splits into seven warheads
Pulson Missile	29	20	20	160	40	+4	4	8	
Hercular Missiles	34	25	26	220	40	+5	4.5	9	
Hellfire Torpedoes	40	25	50	150	350	+6	5	10	hits all four shields
Zeon Missiles	41	30	30	250	50	+6	5	10	best missile for missile bases
Proton Torpedoes	43	60	50	100	400	+6	8	10	
Scatter Pack X Missiles	44	15	30	250	50	+3	3.5	7	splits into ten warheads
Plasma Torpedoes	50	150	150	150	450	+7	6	10	loses 15 strength/space

1. Values for size and power apply to 2 rack missile launchers. Five rack launchers are 50% larger and more expensive than 2 rack launchers.
2. Two rack missiles have a +1 speed bonus and +2 range.
3. Planetary missile base launchers have double the normal range.

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Part 3 — Playing Master of Orion

The Main Game Menu

The main menu allows you to continue currently running games, load previously saved games, and start new games.

Continue Game: Any time you exit a game from the game options screen, the game will be automatically saved. The continue game option then loads and runs the most recently played game.

Load Game File: This option allows the user to restart a previously saved game.

New Game: This option generates a completely new universe with random placement of the stars, different planetary environments, and up to five opponents.

Quit To DOS: Exits the program and returns control back to DOS.



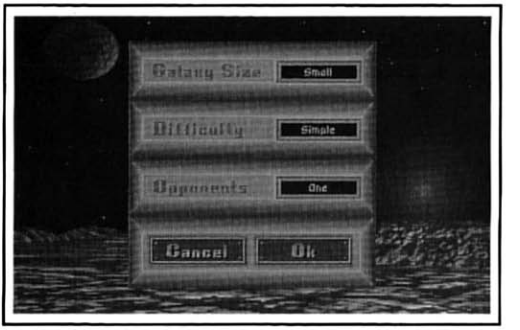
New Game Options

When creating a new game, you have a great deal of control over the actual game play by deciding what size galaxy you want to play in, the number of opponents, and the intelligence of your adversaries.

Size:

Small – 24 stars. A quick game, and contact with other races is almost immediate. This is actually more difficult than playing in larger galaxies.

Medium – 48 stars. Long enough to develop most technologies.



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Large – 70 star systems.

Huge – 108 stars. For epic games with huge empires and massive star fleets. Note that the game can be very slow in a huge galaxy.

Difficulty: The difficulty setting affects several components of the game, including your opponents' production rates, expansion rate, technology development, and willingness to ally with you. It also determines the size of your initial fleet.

Opponents: Choose the number of opposing races in the galaxy, from 1 to 5. The fewer opponents you have the longer you will have to develop your empire before contact is made.

Race Choice: Races are chosen from the following:

- The Alkaris – an avian race of superior pilots.
- The Bulrathis – a large bearlike race with superior ground troops.
- The Darlok – shape-changing spies.
- The Humans – outstanding diplomats and traders.
- The Klackons – productive insect workers.
- The Meklars – cybernetic masters of automated production.
- The Mrrshan – a catlike race with accurate gunners.
- The Psilons – brilliant researchers.
- The Sakkra – prolific lizards.
- The Silicoids – crystalline beings immune to hostile environments.

For more information, see the chapter "The Alien Races."

Choose Banner: Your choice of banner will determine the colour used to represent your space fleets and colonies during the games. This also determines the style of ship icons you can use.

Your Name: The name of your Emperor.

Home World: Customise the name of your home world or use the default value given.

Cancel: Returns to the Main Menu.

OK: Accepts the settings currently displayed and starts the new game.

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The Control Screen

The galaxy movement screen is the most commonly used display in the game. From this screen you can move starships, view star systems, and manage planetary production. You can also examine unexplored star systems, scan incoming enemy fleets, and view enemy colonies.

Galaxy Map: The galaxy map contains a variable number of star systems and nebulas. Most of the star systems will have one planet that can support life. The type and size of the planet depends on the colour of the primary star. Yellow stars provide the most habitable planets, while planets around purple neutron stars are more likely to be mineral rich. When play begins, each star system will remain unknown until scouted by one of your ships. The only information that you will have until then will be the colour of the star. One of your first objectives should be to explore all nearby systems in order to decide where to begin colonisation.



When a star system has been colonised, the name of that star system will appear below the picture of the star, in the colour of the race that colonised it. If the star is outside of your scanner range, its name will appear in a dark colour. You will only be able to see ships that are within the range of your scanners.

Nebulas: Nebulas are great particle clouds of matter. Starships travelling through a nebula are reduced in speed to warp 1 (one parsec per year), and perhaps more importantly, deflector and planetary shields do not function inside nebulas. However, nebulas increase the chance of planets inside being mineral rich. Nebulas are illustrated on the galaxy maps as great purple clouds.

Changing Current Star System: The star system currently being viewed is surrounded by a green pulsating border. The information on the right side panel will refer to that star system. To change the currently viewed star system, click on the intended star. If you have colonised the star system, the right side panel will be replaced by the Planet Production panel. You will be able to change the type of starship being constructed and alter the distribution of resources. If you do not have a colony in the

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system, only the planet's environment, size, and special characteristics will appear on the right side panel. If you click on a star system that is already selected you will see the Planet View Screen, a full screen view of the planet with all the information concerning that planet.

Viewing Starships: Scanners allow you to view incoming enemy starships or any of your own fleets. Clicking on a fleet icon will replace the right side panel with the Fleet Scan panel.

Moving Starships: Click the mouse on the fleet that you intend to move. If it is currently in orbit, the Fleet Deployment panel will appear on the right side panel. If the fleet is currently in transit you will only get a report on its composition, destination and ETA.

FUNCTION BUTTONS

The row of buttons along the bottom of the screen are used to perform various game functions and access reports.

Game: This button invokes the game and sound options menu, where you can save the current game, load a previously saved game, quit to the main menu or change the current sound setting.

Design: Allows you to design new ship types for construction. You can only maintain six ship designs at one time. If you already have six ship types, you will first have to scrap one to create space for the new design.

Fleet: This button brings up the Fleet Screen, a report on all your currently operating fleets. It shows each fleet's location or destination and allows you to examine the specifications of every design.

Map: The map screen gives you an overview of the entire galaxy. The player can see the distribution of colonies, environment types, or the location of any planets with special characteristics.

Races: This screen gives you an overview of your relations with all races you are in contact with. It shows any treaties that you have signed as well as the race's current attitude towards you. You may also initiate diplomatic contacts from this screen. You can ask for new treaties, threaten to break old ones, or offer an exchange of technologies.

Your intelligence forces are controlled from this screen. You may build new spy networks in each enemy empire and assign them a mission. If you have at least one spy in an empire you can get an intelligence report on their current technology levels. Finally, you may also set the percentage of resources that will go towards strengthening internal security.

Planets: The planet screen gives you a quick summary of the

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vital data on all of your colonies. It also serves as a convenient method of going directly to one of your colonies to change their production settings. A breakdown on your maintenance costs and income is shown along the bottom of this screen.

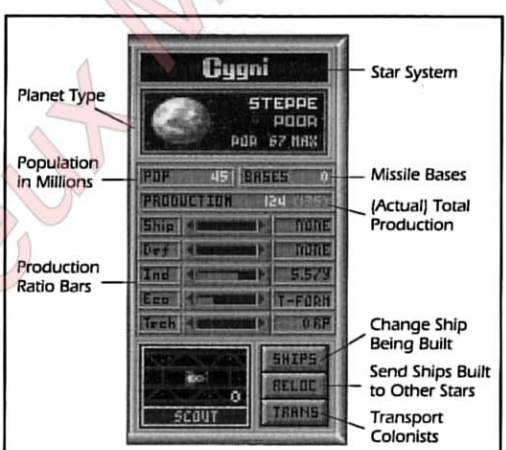
Tech: This option will allow you to review the technologies that you have already discovered. A short description of the effects of each technology is available. Allocation of your research points to six technology areas is also accomplished from this screen.

Next Turn: The next year button sends the game to the next turn. Transports and ships will move, spies will attempt to steal technology and sabotage enemy colonies, ground and space conflicts will be resolved, and new ships and bases will be built.

PLANET PRODUCTION

Planetary production is measured in BC's (billions of credits) and is a measure of a star system's resources and building potential.

The production can be used to build new ships and missile bases, create new factories, improve your planet's environment, and research new technology. Production is displayed immediately above the production ratio bars in terms of actual and total resources. The total resources are shown inside parentheses. The total represents not only the sum of colonists and factory production, but also the revenues from existing trade routes and other player tribute, plus revenues transferred to that planet from the Planetary Reserve. The actual production is the amount of resources remaining after maintenance, trading, tribute, espionage, security, and colony transport costs are deducted from the planet's total production. Actual production is the amount of resources that can actually be used to build ships, bases, and industry.



Production Ratio Bars: The ratio bars automatically divide the planet's total production into five areas: starship production, planetary defence, new factory construction, ecology, and

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technological research. To make large adjustments in the current ratios, place the mouse pointer in the appropriate bar and press the button. For incremental adjustment click on the arrows on either end of the ratio bar. The full length of the bar represents 100% of the planets production, and the total allocations between the five areas cannot exceed the 100% limit. Therefore, increasing the production in one area will decrease the production in another. If you want to lock the production so that it cannot be altered, press the ratio description to the left of the bar. This will change the colour of the bar to red and you will no longer be able to alter that production ratio bar. Press the description again to unlock the ratio bar.

Ship (SHIP): Resources allocated toward ship production are used to construct new starships or stargates. Each planet can only build one type of ship at a time. The type of starship built is shown inside the star dock in the lower right portion of the screen. Once you have developed stargate technology you can build stargates instead of ships. You select the stargate as if it were another type of ship.

The rate at which the selected ships are constructed depends on the cost of the ship, how large a percentage of resources has been allocated, and the star system's total production. The number shown to the right of the bar indicates the number of years left remaining to produce the ship given current levels of production. If the star system is capable of producing more than one ship per year, the time will be 1 year, and the number of ships produced will be shown by the ship's picture. New starships will either be placed in orbit around the planet, or sent to another colony if you have specified a destination for relocation (see Relocate button).

Defenses (Def): Resources allocated to planetary defenses are used to upgrade existing bases, build planetary defence shields, and construct new missile bases, in that order. Missile bases will always be equipped with the most advanced technology available. When new weapons technology is discovered that can be placed in a missile base, the current missile bases must be upgraded to include the new weapons. If the defence ratio is insufficient to cover the costs of upgrading the missile bases, the word **UPGRD** will appear to the right of the ratio bar. Any remaining resources will be used to build planetary defence shields if you have the necessary technology. The word **SHIELD** will appear for those planets that are in the process but have not yet completed construction of planetary shields. Otherwise remaining resources will be used to build new missile bases with the number of years left to build the next base shown to right of the ratio bar.

Industry (Ind): Resources allocated to industry will be used to build new factories. You can build more factories than the

colonies can operate, but you will be warned with the message MAX in the construction box to the right of the ratio bar. Be careful not to build too many factories without the technology necessary to clean up the waste generated by the factories. When the game begins, colonists can operate two factories each. With advanced technology though, the level of control can be raised up to seven factories per colonist. If you have built as many factories as your planet's maximum population can support, any excess spent on Industry will go to the Planetary Reserve (see The Planets Screen) and be displayed as RESERV.

Ecology (Eco): Resources allocated to ecology are used to improve the planet's environment by cleaning up industrial waste, expanding the habitable regions with terraforming, converting the atmosphere, and enriching the soil, in that order. Ecology resources are first used to eliminate industrial waste. If you have not allocated enough resources to completely clean up the planet, WASTE will appear by the ratio bar. The Ecology allocation will automatically be set to the minimum amount needed to maintain a clean environment. If any resources remain and you have the technology to terraform the planet beyond its current size, convert the atmosphere from hostile to standard, or enrich the planet's soil to a gaia, resources will be allocated to the appropriate terraforming operation in that order. ATMOS will appear in the construction box when atmospheric terraforming is being conducted and SOIL when soil enrichment is being performed.

If you do not have any new terraforming technology to build and all the waste has been removed, CLEAN will be shown in the construction box. Remaining resources will be used to improve the existing ecology and increase the growth rate of the colony's population. If sufficient resources have been allocated to increase the normal growth rate, +#POP will displayed indicating the number of additional colonists being born. (For additional details on population growth, see the Colonising Planets.)

Technology (Tech): Resources allocated to technology are used to fund research projects to develop new and useful devices. Resources are converted to research points that are then combined with the research from all your other planets and are used to achieve higher technology levels.

You will get more benefit from research by investing a few points in technology over several turns than by allocating a large amount in a single turn.

Ships Button: Each planet is allowed to produce only one type of starship at a time. To change the current starship to another design, press this button. You can cycle through the list of starship designs until you find the one you prefer. If you have the technology necessary to build star gates, you will also be given the option to build a star gate instead of a ship.

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Relocate Button (Reloc): The relocate button allows you to direct the planet's newly built ships to another star system that you control. There will be an appropriate delay from production to arrival since the ships must travel to the new destination normally. This allows you to produce starships in a far corner of your empire and then redirect those ships to a system along an enemy border without having to move each ship yourself. A blue line will appear on the star map to indicate those planets which are redirecting ship production to other planets.

Colony Transports Button (Trans): You may transport colonists to any planet where a colony has been established. No more than half of a planet's population can be transported in a single turn. Before sending colonists to uninhabited planets, you must send a ship with a "Colony Base" Special Device to establish a Base on that planet. Some planets will have hostile environments that require advanced technology to land on. Colonists may also be sent to assault enemy colonies if you have the technology to land there. When your colonists arrive they will battle the enemy population for control of the planet.

FLEET MOVEMENT

The **Fleet Deployment Panel** is used to give your fleets movement orders. It is invoked by clicking on a friendly fleet in orbit.



Each ship type has its own section and control buttons. The number at the lower right of the ship picture is the number of ships that are being moved. The ">" button increases this number by one while the "<" button decreases this number. If there are a large number of ships of one type the ">" and "<" buttons change the number in increments of 5% of the total number. The ">>" button allocates all ships of that type and the "<<" button sets the number to 0.

To set a destination simply click on the desired star. Your destination must be within fuel range of one of your colonies, for all ships in that fleet. If the target is within range a green line will be drawn from your present location to your destination. If for any reason the move is illegal a red line will be drawn and you will receive a message giving the reason.

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You can change your mind after selecting a destination, as long as it is BEFORE you go to the Next Turn. Select the fleet now at the left of the planet, and give it new orders. If you want it to remain at the same planet, select that planet as its destination.

Cancel Button: will return you to the main movement screen with no orders being given.

Accept Button: accepts the current settings. The moving ship icon is moved from the top right of the star system to the top left.

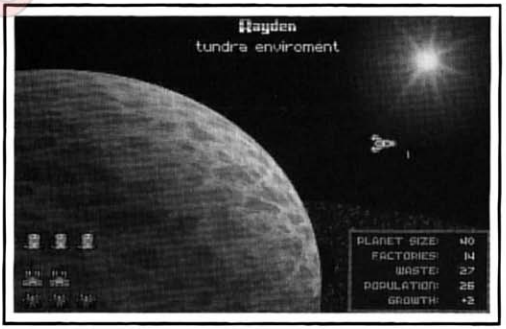
Scan Fleet Panel



The Scan Fleet Panel shows the composition of any fleet within scanner range of a colony or fleet. If you have advanced scanners or you are scanning one of your own fleets, this panel will also show the fleet's destination and how many turns it will take to get there.

Planet View Screen

The Planet View screen provides a summary of current population, population growth, industrial waste, factories, planetary defence shields, and orbital fleets. Each icon on the planet is equal to 10 units of whatever the icon represents.



Planetary Environments: There are 14 environmental types in Master of Orion. The type of planetary environment dictates the size of the planet, which in turn determines how many colonists the planet can support and how fast the population will grow. Hostile environments (barren, tundra,

Colonising Planets

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dead, inferno, toxic, and radiated) halve the normal population growth and require advanced technology to colonise. Hostile environments are also the systems most likely to have mineral rich resources that double or even triple ship, defence, and factory production.

- **Terran** planets are earth-like and can support the largest number of colonists.
- **Jungle** planets are young, undeveloped worlds reminiscent of the Dinosaur Age on earth.
- **Ocean** planets have very few land masses and are almost completely covered by water.
- **Arid** planets have only about one quarter of their surface covered by water.
- **Steppe** planets have rugged terrains that are difficult to clear for a colony.
- **Desert** planets have very scarce water supplies and are plagued by violent dust storms.
- **Minimal** planets can barely support life with an oxygen poor atmosphere and little water.
- **Barren** planets have no surface water supplies and little to no atmosphere.
- **Tundra** planets are basically huge balls of ice with sub-zero temperatures year round.
- **Dead** planets have no water supplies or atmospheres whatsoever.
- **Inferno** planets are similar to Venus with excruciatingly hot environments.
- **Toxic** planets have corrosive atmospheres which destroy most types of equipment.
- **Radiated** planets are constantly bombarded by solar radiation.

Planetary Specials: Not all planets have the same industrial potentials. Some have special environments that modify population growth while others may have abundances of important metals for construction.

- **Mineral Poor** planets lack sufficient amounts of the heavy metals necessary for construction. Ship production, missile base construction, and new factory construction is halved. However, ecology and research are unaffected.
- **Ultra Poor** planets are the same as mineral poor planets, but production is reduced to one-third.
- **Artifact** planets have relics and devices left by ancient races. Your scouts may discover new technology there.

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Research spending at artifact colonies is also twice as effective.

- **Mineral Rich** planets have abundant supplies of heavy metals. Starship production, missile base production, and new factory construction are all doubled on mineral rich planets. Ecology and technology research is unaffected.
- **Ultra Rich** planets are the same as mineral rich planets except that production is tripled.
- **Hostile** planets have harsh environments that halve the normal population growth rate and require advanced technology to even land on.
- **Fertile** planets are easier to colonise than normal. Population growth is 1.5 times normal.
- **Gaia** planets are ecological paradises. Population growth is twice normal rate.

Planet Size: The size of the planet indicates how many colonists can populate the planet. The size shown on this screen includes the effects of industrial waste as well as terraform expansion. At the start of the game, the planet size is determined by the planet's environment. Terraforming technology can eventually be used to increase the base size of the planet and allow more colonists to live on the planet.

Planetary Defence Shield: Planetary defence shields protect populations, industrial factories, and military bases from enemy attacks. Planet shields are the only defence that populations and factories have from space attacks. Without a shield both take full damage from attacks. Missile bases add the planetary shield to their force fields when absorbing damage. Planetary shields are automatically built when the proper technology is acquired and sufficient resources have been allocated to defence spending.

Factories: Each factory must be operated by people and the number of factories that can be controlled by colonists is limited by the player's level of robotic technology. The better the robot controls the more factories that can be operated by each colonist. You must be careful not to build too many factories without the technology to either clean up the resulting industrial waste or reduce the amount produced by each factory. Otherwise, you will be spending a considerable amount of your resources just removing the pollution and keeping your populations from dying off.

Industrial Waste: Waste reduces the habitability of a planet and may actually kill colonists if the amount grows too large. Each factory produces roughly one unit of waste, modified by the amount of waste already present on the planet. The amount of waste each factory generates can be reduced by advanced construction technology while the cost of cleaning up existing

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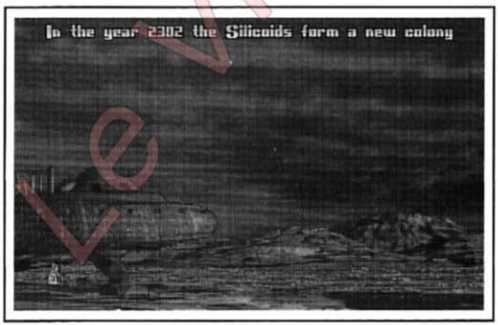
waste can be decreased with advanced planetology tech.

Planetary Missile Bases: Missile bases are marvellous for planetary defence. Although they are immobile, bases are per unit the cheapest military unit. Unlike starships, missile bases are always equipped with the best available technology: missiles, force fields, ECM jammers, and battle computers. Note that missile bases do require maintenance, and although they are not as costly to maintain as starships, they nevertheless can be expensive if too many are built.

Population: Colonists provide two functions: generating production to build starships, missile bases, technology etc., and operating industrial factories to provide even more production. Generally, the larger the population, the more the colony can build in a single year.

Population Growth: Each year your colonies will grow an amount that depends on the current number of colonists, the maximum planetary population (including industrial waste), and the planet's environment. You grow the most people when the planet's population is at half of its maximum size. Should the population maximum ever fall below the current population, the growth rate goes negative and colonists begin to die off. Hostile environments (barren, tundra, dead, inferno, toxic, and radiated) slow population growth while fertile and gaia environments increase it. Technology will eventually allow you to convert hostile environments to standard environments and standard environments to fertile and gaia environments.

Orbital Fleets: The ships shown circling the planet represent the space fleet currently in control of the planet. The count shown to the lower right indicates how many of each type of ship are in that group.



COLONY TRANSPORTS

Colony transports can be used to move populations and ground troops to assault enemy worlds. In both cases, you must have the required ship range to reach the star system and the appropriate planetology tech if the planet has a hostile environment. No more than half of a planet's population may be transported to the new star system and only a single destination may be chosen per turn.

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Transport Speed: Colony transports move at one less than the maximum speed of your best known engine type. For example, if you have developed Sub-Light engines which move starships at warp 3 (three parsecs per turn), your transports would then move at warp 2.

Forming A New Colony: The first step in colonising a new planet is to create a ship design that includes a colony base as one of its special devices. When a ship with a colony base is in orbit around an unclaimed planet that you can land on, you will be given the option to start a colony on that planet. If you choose to do so, the ship will be scrapped and the materials used to build the new colony. You may now transport more colonists to the planet to enable the colony to grow faster. In addition, you can now use the planet as a base for starship operations, allowing your ships to move deeper into the galaxy.

Invading Enemy Planets: Only star systems that have been explored can be invaded. Enemy starships in orbit and missile bases on the ground can destroy colony transports attempting to land on an enemy planet. If you intend to land on another player's planet, you should eliminate the ground and space forces first. Otherwise, a significant number of the colonists will be destroyed. Once the transports have landed, both sides engage in ground combat with the winner retaining control of the planet. Space combat is resolved prior to transport landings.

Ground Combat: Ground combat is resolved in a series of engagements until one side has been completely eliminated. Each side receives a bonus according to any ground combat technological advances it has acquired. The Bulrathi also have a natural advantage in ground combat.

Taking an Enemy World: There are several advantages in capturing enemy colonies, compared to colonising unoccupied planets. First, you do not need to build a ship with a colony base to start the colony. Second, you can use the factories that were previously owned by the enemy player (enemy factories must be refit, however). Finally, there is a chance that you will discover some advanced technology that you did not already have.

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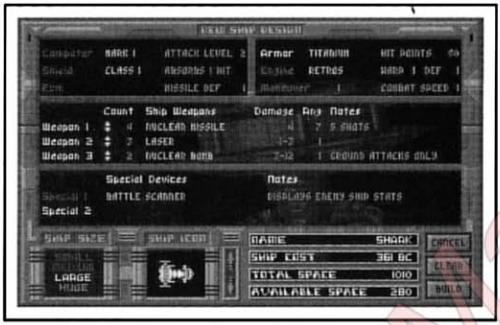
The Ship Design Screen

As you develop technology you will want to design new ships to take advantage of the advanced weapons, force fields, computers, and engines that you have developed. Only six designs can be in commission at one time, and you may have to scrap other ships to make room for the new designs.



Technology is not the only consideration in ship design. Ship size also limits how many devices can be mounted on the ship and cost determines how fast the ships can be produced.

In order to change a ship's equipment, press the mouse on either the title or name of the item to alter. If the item cannot be increased in size or power due to space constraints or lack of technology, it will appear darkened. Once selected, a list of all available technology will be shown on the screen, with their cost, space, and power requirements. The total space column shows the total space requirements for the item including extra engines needed to power the item. Any item too big to fit on the ship as currently configured will be darkened.

Ship Name: Each time that you design a new ship it will have a default name that suits the current ship size and your race. If you wish to change the name, press the mouse on the name field and enter the new name.

Ship Size: The size of a starship determines how many devices can be placed on a ship, how much damage the ship can take before being destroyed, and how manoeuvrable the ship is in combat. Smaller ships are more manoeuvrable and so are harder to hit in combat while the larger ships are much easier to hit.

Battle Computers: Battle computers direct all ship's fire. The more advanced the battle computer the better the chance a ship has of hitting an enemy target. In addition, in combat better battle computers provide faster response time and improve a ship's initiative (the order in which ships move and fire).

Shields: Force fields are essential to the survival of a starship. Shields absorb damage from all incoming attacks an amount equal to their class. For example, Class V shields absorb 5 points of damage from all attacks. Obviously, a superior shield can make

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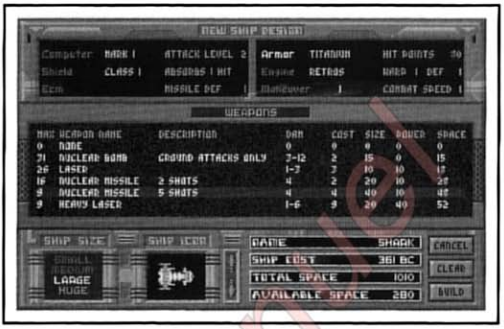
a ship nearly immune to enemy attacks.



ECM Generators: ECM units (Electronic Counter Measures) reduce the chance of enemy missiles striking the protected ship. A ship's missile defence is the sum of the ship's normal defence plus its ECM rating. Without a powerful ECM generator, most advanced missiles will almost always hit.

Armour: Armour protects a ship from all attacks by increasing the ship's total hit points. There are two type of armour for each material: standard and double hull. The standard hull always take the same amount of space, regardless of the material. Double hulls (displayed as II) increases a ship's hit points at the sacrifice of ship space.

Engines: Not only do ship engines move a starship, but they also power all of the ship's devices. On the galaxy map, each level of warp moves the starship one parsec per year, i.e. Fusion engines (warp 4) move a ship 4 parsecs per turn. In combat, a ship's manoeuvrability increases its defence against beam and missile weapons. Older engine types have a better power to space ratio than new engines so it will take less space to power all the devices on a ship if older engines are used. Unfortunately, this also means the ship won't be able to move as fast and will be easier to hit.

Manoeuvrability: Unlike galaxy map travel, combat movement requires rapid changes in direction and speed. On the galaxy map, ships can take a long time to accelerate into hyperspace. In combat, ships require more thrust to overcome inertia and alter course quickly. To do so requires more engines to provide the needed thrust. The larger the ship, the more engines that are required to move in combat. Huge ships rarely have a high manoeuvrability while small ships generally move very quickly. A ship can move one space per turn in combat for every two points of manoeuvrability it has. Manoeuvrability also affects the initiative of the ship, since faster ships react quicker than slower ones.

Weapon Types: Each ship may have up to four different types of mounted weapons. Click on each weapon row to select a weapon for that slot. Click on the small up and down arrows next to the weapon count to increase or decrease the number of weapons of that type.

Special Devices: Special devices give ships unique

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capabilities. For example, a ship with a colony base is required to start any new colonies, and ships with battle scanners can analyse enemy ships in combat. Each ship may carry up to three special devices, and no more than one of each type.

Clear Button: the Ship Design screen keeps the design settings of the last ship built, so you may modify your most recent design in building a new class of ship. If you prefer to start your design from scratch, CLEAR resets all the design settings.

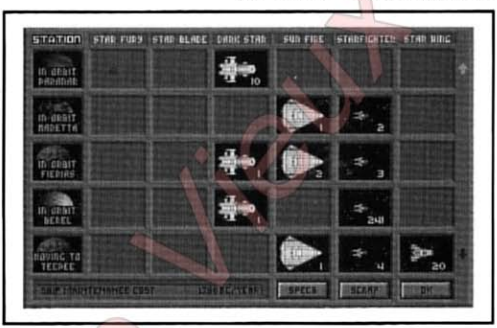
Build Button: when you are satisfied with your design, press the build button to accept the design and return to the galaxy map. You can now produce ships of that design by selecting it with the SHIPS button in a planet's Production Panel.

Cancel Button: if you change your mind and wish to leave the screen without saving the ship design, press the cancel button.

THE FLEET SCREEN

The Fleet screen is a quick and easy way to check the deployment of your space fleet. Every separate fleet will have an entry in the fleet list. The arrow keys can be used to scroll the list when you have more than five fleets.

The Station column shows the current location of the fleet, the star system it is orbiting or its destination and ETA if it is in transit. The other columns show the number of ships from each of the six ship classes.



Clicking on any box of a fleet in orbit will take you immediately to the Fleet Deployment panel for that fleet. If the fleet was in transit clicking on a box of that fleet will take you to the Scan Fleet panel.

Specs Button: will show the Ship Specs screen letting you examine the equipment and armament of each design that you have made. This is useful in identifying obsolete ship designs to scrap to make room for more modern designs.

Scrap Button: lets you select a type of ship to decommission. Every ship of the class will be scrapped. 25% of the ships' costs will be salvaged and put in the Planetary Reserve.

OK Button: will return you to the main screen.

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Ship Specs Screen

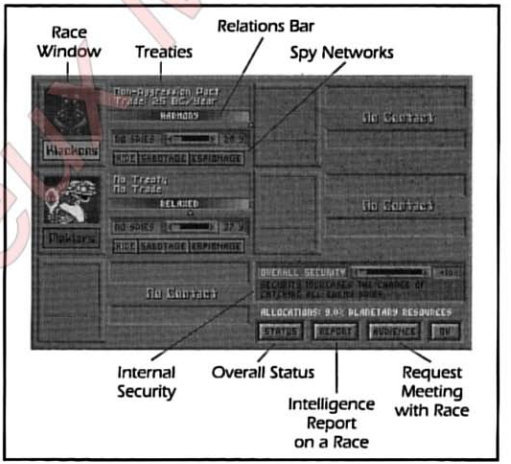


The Specs screen gives a detailed report on the equipment and armament of each class of ship that you have designed.

Scrap Button: will scrap all the ships of that design. 25% of the ships' costs will be salvaged and put in the Planetary Reserve.

The Races Screen

The Races screen displays your diplomatic standing with all the races you are in contact with. You may initiate diplomatic negotiations and receive reports on the status of all races. Allocation of production to spy activities and security is also handled from this screen.



Contact: A race's window on the screen will remain closed and "No Contact" will appear, until your starships (not including long range scouts) can reach one of your opponent's planets, and that planet is in range of your scanners.

Race Window: There is a window for each race in the galaxy on this screen. Each window shows any treaties or trade agreements with the race and that empire's current feelings towards you.

Diplomatic Relations: The multi-coloured bar shown below the ratio bars indicates the current tension level between the different races. The position of the blue triangular marker shows how that race views you. There are fifteen levels of relations, ranging from feud to harmony. The more negative the relations, the more likely the opponent is to attack. An opponent driven to feud will attack nearly every turn.

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Spies: Below the diplomatic information is a section for your espionage efforts in that empire. The production allocation bar allows new spy networks to be built in that empire. Spy networks are very expensive, so be careful not to build more than you can afford.

Missions: The three buttons below the production bar allow you to set the activity the spies will take. **Hide** reduces their chance of discovery by security forces. This can be important when you are attempting to improve diplomatic relations with that empire. **Sabotage** orders the spies to attempt to blow up either factories or missile bases in the enemy's empire or to stir up rebellion in one of their colonies. **Espionage** is an attempt to steal technology from the enemy.

Internal Security: This slider controls how much of your empire's resources you dedicate to eliminating spy networks in your empire.

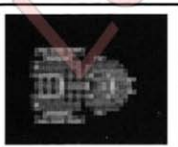
Status Button: Will bring up the Status Screen which gives a report on the state of the galaxy. Each race that you have encountered will be rated in five separate areas, as well as a combined power rating.

Report Button: gives the latest intelligence report on a race. Clicking on this button turns the mouse shape into "WHO" and then you must click on the race that you wish to investigate. This will bring up the Report Screen.

Audience Button: will allow you to conduct negotiations with any empire you are in contact with. Clicking on this button turns the mouse shape into "WHO" and then you must click on the race that you wish to talk with. The Audience Screen will then be displayed showing the areas that you may discuss.

Repeated Audiences: Emperors are very busy people. They do not have time for repeated haggling over the same topics. Every audience after the first will find the emperor less willing to be cooperative with your requests. If you continue to pester him he will become unavailable and you may not have another audience for several years.

STATUS SCREEN

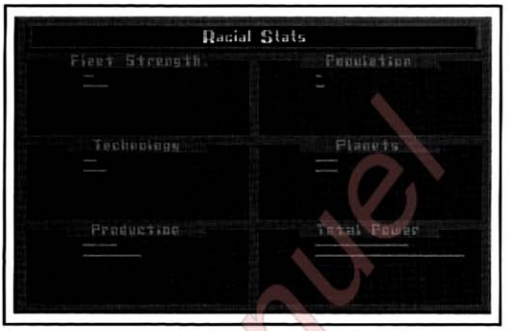


GLADIATOR

Each bar is a logarithmic representation of a race's power in each area. Only those races that you are in contact with will appear on the status screen.

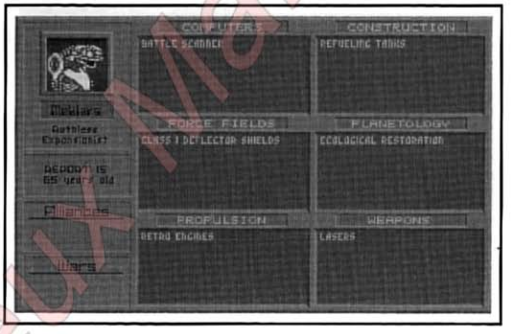
The Fleet section shows the relative strength of the starship fleets of each race. The Population section is a straight census for each player's race. The total technology level of each race can be found in the Tech section. Planets show the number of planets

each side owns that can produce at least 100 BC. Production gives the total production of each planet on a logarithmic scale. As the bar extends to the right each unit of length represents more and more production. Finally, total power is a relative rating of the strength of each race. The most powerful race is shown as a full bar and every other race is shown proportionally.



Enemy Report Screen

The report screen gives a list of the most advanced eight items of technology in each of the areas. You can also see any treaties or wars that are currently in effect for that race. The report will be updated every turn if you have at least one spy in the enemy's empire. Otherwise, the report will indicate when the last reliable report was.

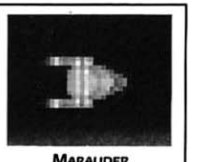


Audience Screen

The Audience screen will allow you to initiate negotiations with any race that you are in contact with. The menu at the bottom of the screen will show you the areas that you may discuss with the other empires. Any items currently unavailable for discussion will be darkened. The possible areas of negotiation are:

Propose Treaty: lets you choose the type of treaty to propose:

- A **Peace Treaty** is signed to end a state of war between races. The better the war is going for you the more likely your opponent will be to want peace. If your enemy is winning the war it is unlikely that you can get him to sign a peace treaty.

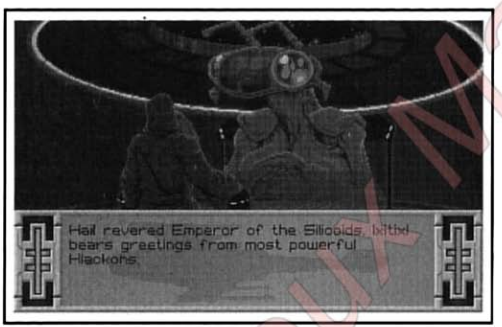


Marauder

Review Manuel

- A **Non-Aggression Pact** allows your ships to co-exist peacefully in orbit if there is not a colony in the system. Sending your fleet to the other race's colonies will still provoke an attack on those ships and could easily break the non-aggression pact.
- An **Alliance** prohibits any fighting between the two allies, and allows each ally to use the other's planets for refuelling. Allies are expected to come to each other's aid in war. Also, as long as the Alliance is in effect, any troop transports sent to an ally's world are automatically destroyed.

You can also try to influence an empire's relations with other races. You may ask an emperor to break alliances or declare war on other races.



Form Trade Agreement: Trade can be very profitable for both sides. Once both empires have at least 100BC in total production a trade agreement can be made. It will be several turns before trade will actually produce any income. As the length of time the two empires have been trading together increases, the profit will increase until finally equalling the value of the treaty.

Threaten/Break Treaty and Trade: lets you break any treaties you have made with other empires. The other emperors will remember every treaty you have broken with them, so do not break any treaties lightly. You may also threaten to attack another race in order to extort tribute from them. Depending on the relative strengths of the empires, the other empire may ignore you, give tribute, or declare war.

Offer Tribute: is the quickest way to improve relations with another empire. You may give tribute in either BC's or technology. Technological tribute is very effective and will have long lasting effects on relations. Monetary tribute is drawn from your Planetary Reserve.


GLADIATOR

Exchange Technology: allows the trading of technology between empires. The other emperor will give you a list of technologies that he would be willing to trade. After you choose which technology you are interested in, your opponent will give you a list of what he will accept in trade for that knowledge.

Le Veux Manuel

The planet report screen provides not only a full planet summary for all the star systems that you control and a breakdown of your maintenance costs, but also allows you to instantly look up and move to any planet of your choice by name. Furthermore, a quick scan of this screen will reveal which planets have the best population growth and which ones are losing colonists to pollution.



When first entering the screen, the planet that you were previously viewing will be highlighted. Selecting any other planet's row will send you to that selected planet in the Main Control screen.

Arrow Icons: If you have more than 12 planets under your control, the arrow keys will allow you to scroll the list up and down to find a particular planet.

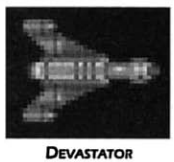
Population: The current colony population is shown in the left box. If the population has changed since last turn an arrow will be displayed in the right box (red for decrease and green for increase) along with the amount of change. Unless the colony has been engaged in combat, a red arrow is a sure sign that industrial waste is killing off your population. (For details on population growth, see Colonising Planets.)

Planetary Shields (SHD): Planetary shields defend both populations and military bases from enemy space bombardment. The rating of the shield, V–XX, indicates how many points of damage are absorbed from each attack. Missile bases are protected by both Planetary Shields and their own Deflector Shields.

Factories (FACT): Industrial factories are the main source of colony production, but each factory requires at least one colonist unit to operate. Eventually advanced robotics technology will allow colonists to operate multiple factories. Any factories beyond the control of the colonists can not be operated.

Missile Bases (BASE): Missile bases are a cheap alternative to space fleets for planetary defence.

Industrial Waste (WST): The industrial waste shown beside the number of factories reduces the maximum number of colonists that can live on a planet. The report screen is quite



DEVASTATOR

Strategy Manuel

useful for identifying those planets that are having pollution problems and then jumping to them so that you can increase their ecology spending.

Production (PROD): The total production of a planet indicates how much a colony can build in a single turn.

Space Dock: The type of ship currently under construction in the planetary space dock. This entry will be blank if the planet is not building any ships.

Notes: Planets with special environments or heavy mineral deposits modify the planet's population growth and production. For details on the different types of environments, see the planetary view screen. The (*) indicates that the planet has a star gate.

Maintenance Costs: The spending shown at the bottom is a breakdown of maintenance spending for ships, missile bases, trade treaties and tribute.

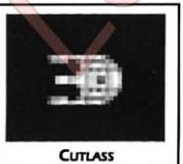
Spending Costs: Show the costs for your spy network, security, ship and base maintenance.

Income: "Planets" includes all production from your colonies and any tribute being given to you by your opponents. "Trade" is the gross income from all of your trade treaties.

Planetary Reserve: The Planetary Reserve lets you stockpile resources for emergency uses, or anytime you decide a colony needs a quick influx of BC's. You may set a "tax" of up to 20% on each planet's production, which puts 1 BC into your Planetary Reserve for every 2 BC collected from your planets.

Transfer: The funds in your Planetary Reserve may be transferred to any colony in need of extra BC's. The amount of transferred funds that a colony can use in a year is limited to its total production, effectively doubling its available resources that year. Any excess funds transferred to that colony will be used in subsequent years.

THE TECHNOLOGY SCREEN



CUTLASS

Technology plays a key role in your ability to win Master of Orion. Even if you have developed a powerful industry and a large fleet, a more advanced race can destroy you as surely as the Spanish Conquistadors did the Aztecs.

There are six areas of science in Master of Orion: computers, construction, force fields, planetology, propulsion, and weapons.

Computer technology is used to develop battle computers, ECM jammers, deep space scanners, improved robotic controls, and the technology nullifier. Furthermore, your computer tech level improves your chances for success in espionage missions and sabotage operations.

Le Version Planet

Construction technology not only reduces the base cost of building starships, missile bases, and factories, but it is also used to develop technology that will create improved materials for armour, reductions in the amount of waste produced by each factory, and automated repair units. Do not underestimate the value of construction technology. Without it, you will not be able to produce ships quickly and efficiently.



Force Field technology is used to develop deflector shields, planetary defence shields, repulsor beams, stasis fields, lightning shields, and the cloaking device. One of the most effective ways of achieving military superiority is to develop force fields that are stronger than your rival's weapon technology.

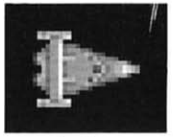
Planetology focuses on technology related to the environmental improvements. Planetology develops advanced ecological restoration, terraforming to expand the size of a planet, controlled environmental units to land on hostile planets, biological weapons, advanced cloning techniques, and soil enrichment to increase population growth rates. Improved Planetology also makes your populations happier and more productive.

Propulsion technology develops faster starship engines, increased ship ranges, inertial stabilisers, warp dissipators, subspace teleporters, pulsars, and high energy focus units. Propulsion technology is probably the most important at the beginning of the game because without increased range you may not be able to reach any other planets to colonise.

Weapons technology is used to develop advanced weaponry for your ships, missile bases, and ground troops.

Acquiring New Technology: Technology can be acquired in several ways: resource points spent on technology research, stealing technology from other races, exchanging technology with other races, or finding remnants of technology from conquered enemy planets.

Review Technology: A list of advances acquired in each area of technology can be displayed by clicking on the respective button in the upper left corner of the screen. The button highlighted in red is currently active. The advances acquired in the active area are listed in the section below the buttons. Clicking

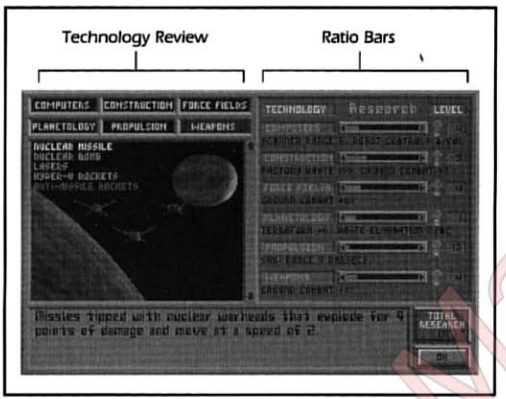


SKY HAWK

Abandonware

on a particular technological advance will give a detailed description of that advance at the bottom of the screen.

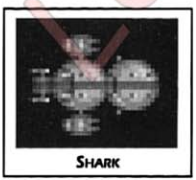
Technology Ratio Bars: The technology ratio bars on the right allow you to divide up the total research points accumulated from all of your planets between the six areas of science. To adjust the current ratios, click the mouse icon on the appropriate bar position that you wish to change. The arrows at either end of the bar can be used for exact adjustments. The full length of the bar represents 100% of the total research points and the total allocations between all six sciences cannot exceed the 100% limit. Therefore, increasing allocations for one science will decrease the ratios for the other areas.



If you wish to lock an area so that it cannot be altered, press the ratio description to the left of the bar. This will change the description and bar colours to red signifying that you can no longer change that technology ratio bar. Press the description again to unlock the ratio bar.

Each device has a base research cost that must be spent before the device can be completed. The light bulbs by each technology bar show how close you are to reaching that cost by filling up. Each year you spend money on research after the light bulbs are filled, you get a chance, shown as a %, of your scientists completing that device. The % chance continues to go up as you continue to allocate research to that area, but stops entirely if you stop spending on that field.

Reduced Costs and Miniaturisation: Advances in technology will reduce the cost and the size of technological devices. The higher your technology is above the minimum required level, the less it costs to build and the less space it takes on your ships. Although there are no new devices above the 50th level, you can still decrease the size and costs of producing existing technology.



SHARK

A space battle ensues anytime fleets from different races enter the same star system. The conflict is resolved immediately and continues until one side is totally destroyed, decides to retreat, or 50 turns have elapsed, forcing the attacker to retreat. If the defender does not have an orbital fleet, he can still defend the

planet with ground missile bases.

Ship Facing: All of your ships begin on the left side of the screen, facing right, and all enemy ships begin on the opposite side. The number of ships in the group is indicated below each ship icon. When the ship count for a group drops to zero, the group is eliminated. In the case of planets, the count indicates the number of remaining missile bases.



Initiative: The order in which ships move and fire is determined by their initiative ratings. A ship's initiative is based on manoeuvrability and the ship's battle computer. Ship's with the highest initiative move first. A ship with a higher initiative can also fire first when enemy ships come into range. There are two exceptions to the firing order: ships utilising a subspace teleporter or a cloaking device fire first after moving or de-cloaking.

Current Ship: When it becomes time for a ship to move it will be shown surrounded by a shimmering red box. The ship can then move and fire its weapons. After firing all of its weapons the ship is assumed to be finished with its turn and will no longer be able to move until the next round.

Movement Icons: The type of action a ship executes when you click the mouse is determined by the current icon shape shown above the space.



The move icon indicates that the ship can legally move to that space. A ship can move as many spaces in a turn as its combat speed. After clicking the mouse button, the ship will travel to the specified space. If the ships move into the range of an enemy's weapons, the enemy may fire its weapons at its first opportunity.



The cross hairs icon appears over enemy targets that are within range of your weapons. Clicking the icon fires all available weapons that are in range. If some of your beam weapons have a shorter range, they will not fire, and may be used against other, closer targets, or as defensive fire if enemy ships move into their range.



The question mark icon appears when the mouse is placed over one of your ships. Clicking the icon allows you to



DARK STAR

Warp Manuel



view the specifications for the ships in your fleet.

The red slashed-circle icon indicates that no valid action can be performed in that space.

Auto Button: turns control of your fleet over to the computer. The computer will continue to automatically move and fire your ships until you click the mouse again.

Done Button: ends the turn of the currently moving ship. If the ship has not yet fired its beam weapons, it may still fire if enemy ships move into range later.

Missile Button: turns missiles on or off for the currently moving ship. Since ships are equipped with only a limited number of missiles, you may want to fire your other weapons without also launching your missiles. The missile button can then be toggled to turn your missiles on or off.

If your planetary missile bases have Scatter Pack missiles, the MISSILE button can be used to toggle between firing regular missiles and scatter packs. In Auto-Combat mode, the computer automatically selects the more effective type.

Retreat Button: removes the current ship from combat. The enemy will have one turn to fire on your ship as it retreats off the screen. If you are victorious the ships will rejoin your fleet immediately after combat.

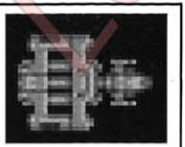
Scan Button: may be used if at least one of your ships is equipped with a battle scanner, or if the combat is taking place at one of your colony planets. The scan button allows you to view all specifications of the enemy fleet.

Special Button: is used to activate and deactivate certain special devices, such as Stasis Fields and Pulsars.

Wait Button: delays the currently moving ship until all other ships have moved. At the end of the turn, the ship may utilise any remaining movement and fire any weapons that have not already been used during the turn.

Defensive Fire: If a ship has already had its turn, did not fire all of its beam weapons, and an enemy ship moves into range, the waiting ship gets an opportunity to fire its beam weapons first before the moving enemy ship can fire.

Victory and Defeat: The last player to have surviving ships or missile bases remaining on the combat screen is the victor. If any of the loser's ships retreated, they will set course for the nearest colony on their side. Any of the victor's ships that retreated during combat will rejoin their fleet.



CYCLOPS

Le Version Finale

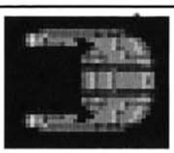
Winning The Game

To win in **Master of Orion**, the High Council must declare you to be High Master of the Galaxy by a 2/3rds majority vote. The High Council is formed once 2/3rds of the planets have been colonised, and after that meets every 25 years, in years that end in a 00, 25, 50, or 75. Each race has 1 vote for every 100 units of population it controls. You can win by conquering 2/3rds of the population yourself. However, more diplomatic players can also win by having enough allies to provide the 2/3rds majority vote needed. Races also tend to side with whomever controls Orion.

Once the High Council has voted in a High Master, you may either accept their vote at that time, or challenge it. If you decide to reject their decision, they will then jointly declare war on you in a battle to the bloody end.

We recommend the following strategies to win the game:

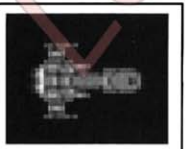
- When the game starts, quickly send scout ships to explore nearby star systems. If you do not have any habitable planets within range, you should allocate your resources to propulsion technology to increase your ship's range.
- Do not expand recklessly. Give your colonies time to build factories and defenses before colonising new planets.
- Choose your new colonies wisely. To form a new colony you must build a ship equipped with a colony base. It may be quite a while before recouping the cost of building a colony ship.
- Heavily defend colonies with mineral rich deposits. They will certainly be targets for enemy attacks.
- Do not allow industrial waste to accumulate. Closely monitor waste build up and never allow the waste to grow beyond 10.
- Do not fall behind in the technology race. An entire fleet can be defeated by a handful of ships equipped with superior technology.
- If you are missing a key piece of technology, (robotic controls, industrial waste reduction, or improved waste elimination) attempt to steal the technology from another player with your spies. Likewise, if your technology is superior, raise your internal security to protect your technology from other players.
- Do not pay more than 30% in starship maintenance. When maintenance costs grows too large, dismiss obsolete ships.
- Attempt to capture planets with ground forces. Not only will you gain the planet's factories, but you also have an opportunity to find technology that you are lacking.



PANTHER

Le Vieux Manuel

- Maintain a Planetary Reserve at all times to aid in building new colonies and deal with unexpected crises.
- Concentrate on a single opponent. Declaring war on multiple players will dramatically increase the difficulty of winning.
- Trade with your allies. Not only do you get an economic benefit, but your relations improve as well.
- Periodically house clean by raising your security level to maximum. This will serve to eliminate a large number of spies within your empire even if they are hiding.



CORVETTE

Le Vieux Manuel

Growing Your Empire

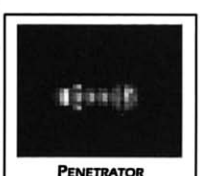
Population Growth: The growth of your population depends on the current number of colonists, the maximum planetary population (including industrial waste), and the planet's environment. The closer to the population maximum the colony is, the smaller the percentage of growth. You grow the most people when the planet's population is at half of its maximum size. At this point, the growth is about 10% of the current population. Should the population maximum ever fall below the current population, the growth rate goes negative and colonists die off. Hostile environments (barren, tundra, dead, inferno, toxic, and radiated) halve the population growth, fertile environments increase the growth by 50% and gaias double it. Technology will eventually allow you to convert hostile environments to standard environments and standard environments to gaias.



Sakkra
reproduce at a prodigious rate

If additional resources are spent on ecology above and beyond those required to clean up a planet's industrial waste, you are temporarily improving the environment and increasing the population growth rate. Each 20 BC spent on this form of improvement increases growth by one colonist unit. With cloning technology, the cost is reduced to 10 BC per colonist, and with advanced cloning the cost is reduced even further to 5 BC each. Additional growth can never exceed one-fourth the current population per year.

Planetary Production: Planetary production is measured in BC's (billions of credits) and is a measure of a star system's resources and building potential. The production can be used to build new ships and missile bases, create new factories, remove industrial pollution, and research new technology. The production is displayed on the right side of the screen in terms of actual and total resources. The total resources are shown inside parentheses. The total represents not only the sum of colonists and factory production, but also the revenues from existing trade routes and funds transferred from the Planetary Reserve. The actual production is the amount of resources remaining after maintenance, trading, tribute, security, espionage, sabotage, and colony transport costs are deducted from the planet's total production. The actual production are the resources that can actually be used to build ships, bases, and industry.



Penetrator

Colonies produce one unit of production for each working factory and half a unit for each colonist. When the game starts, only two factories can be manned by each colonist. Any excess factories beyond the control of the population can not be

Strategy Manual

operated and generate no production. Improved robotic controls will allow the colonists to control more factories, but they must first be researched.

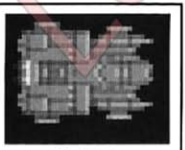
The total planetary production is reduced by the amount of ship maintenance, trading, tribute, espionage, and sabotage that the player has allocated. Be careful not to allow the ship maintenance to grow to a point where colonies cannot afford to produce any new ships or missile bases.

Planetology technology increases the amount each worker produces. In the beginning, each worker produces only one-half a BC per year, but by the time the 50th level of planetology is reached, each worker is producing two BCs per year. This extra production bonus is particularly useful when forming new colonies.

Mineral rich planets have an abundance of heavy metals necessary for construction. Ship production, missile base construction and new factory construction is doubled on rich and tripled on ultra rich planets. However, ecology and technology spending are unaffected. Mineral poor planets, on the other hand, have constructions halved on poor and cut to one-third on ultra poor planets.

Factory Costs: Each factory costs a base of 10 BCs to build. In order for colonists to operate more than two factories, special controls must be built that dramatically increase the factory's building costs. To take advantage of Robotic Controls, you must first REFIT your existing factories. The cost for refitting existing factories is the difference between the factory's current cost and the cost of building new factories with the higher level of Robotic Controls.

Improved Factory Tech (construction technology) decreases the base costs of factories to as little as 2 BCs each. In general, without the factory improvements, it will be very expensive to build robotic factories.



PUNISHER

Diplomatic Relations

Diplomatic relations are a measure of the other players' tolerance and reactions to your actions. The worse the relations, the more likely the opponent is to attack. The better the relations, the easier it will be to form treaties and trade technology.

Altering the diplomatic relations depends on your actions. Attacks will worsen relations, while trade and tribute will improve them. At the end of the year, if you do nothing to change relations, the diplomatic scale will move back toward the neutral setting for both races.

Negative Diplomatic Actions:

- espionage
- sabotage
- excessive military build up along borders
- attacking a fleet
- completely eliminating any race
- killing off planetary populations
- possessing too many planets
- using biological weapons against ANY race
- previously broken treaties
- voting against a candidate, or abstaining in the High Council vote



Klackon workers are incredibly productive.

Positive Diplomatic Actions:

- non-aggression pacts and alliances
- trading
- attacking a mutual enemy
- voting for a candidate in the High Council
- tribute

An accidental encounter over an uncontrolled star system will damage relations, but attacking an enemy colony almost certainly leads to war. Furthermore using biological weapons will make all races distrust you.

Enemy emperors will remember your actions. Every time war is declared or a treaty is broken, a permanent diplomacy penalty is assigned to any future dealings. Therefore, if you consistently break treaties and attack an opponent, he will be very unwilling to form new treaties and will only accept trades which benefit him more than you.

Non-aggression pacts and alliances do not immediately effect your diplomatic relations, but instead improve the relations as long as the treaty is enforced. Trade also improves relations, but not as much as a non-aggression pact or alliance.

Finally, there will come a time when one empire recognises its superior position and will attempt to eliminate all weaker competitors to win the game. At this time no amount of tribute will prevent the enemy from attacking.



Black Widow

Vieux Manuel

Declarations of War: Once war has been declared, the enemy withdraws their ambassadors and existing treaties and trade agreements are broken. Until relations stabilise, the ambassadors will not return to even talk over peace agreements. You can increase your opponent's willingness to sue for peace by successfully attacking ships and destroying his colonies. On the other hand, if they are succeeding, they will not be eager to discuss peace. If neither side attacks for a while, relations will eventually stabilise, ambassadors will return and be willing to negotiate for peace.

Starting Diplomatic Relations: When play begins, each race starts with a diplomacy rating that reflects their suspicions and prejudices concerning the other races in the game. Then, as the game goes and the diplomacy ratings change, relations will always gravitate back toward the starting diplomacy setting. Therefore, if you wish to remain allied with another race, you must continually perform positive diplomatic actions. The table below shows the starting diplomatic relations for each race. Note that the Humans in general are the most favoured, while everyone hates the Darloks.

Races	Alkari	Mrrshan	Humans	Klackons	Meklars	Psilons	Darloks	Sakkra	Silicoids	Bulrathi
Alkari	——	Restless	Relaxed	Unease	Neutral	Neutral	Unease	Unease	Neutral	Neutral
Mrrshan	Restless	——	Relaxed	Unease	Neutral	Neutral	Unease	Wary	Neutral	Unease
Humans	Relaxed	Relaxed	——	Relaxed	Relaxed	Relaxed	Relaxed	Relaxed	Relaxed	Relaxed
Klackons	Unease	Unease	Relaxed	——	Neutral	Neutral	Unease	Unease	Unease	Neutral
Meklars	Neutral	Neutral	Relaxed	Neutral	——	Neutral	Unease	Unease	Relaxed	Neutral
Psilons	Neutral	Neutral	Relaxed	Neutral	Neutral	——	Unease	Neutral	Neutral	Neutral
Darloks	Unease	Unease	Relaxed	Unease	Unease	Unease	——	Unease	Unease	Unease
Sakkra	Unease	Wary	Relaxed	Unease	Unease	Neutral	Unease	——	Neutral	Neutral
Silicoids	Neutral	Neutral	Relaxed	Relaxed	Relaxed	Neutral	Unease	Neutral	——	Neutral
Bulrathi	Neutral	Unease	Relaxed	Neutral	Neutral	Neutral	Unease	Neutral	Neutral	——



DESTROYER

TRADE AND TRIBUTE

Trade: By exchanging trade goods with your opponents, you are actually receiving needed resources that will increase your total income while improving your relations with the race that you are trading with. As long as you are not actively engaged in a war with a race, you will be able to trade with them.

By signing a trade treaty, you agree to exchange a specified amount each year, up to 25% of the lesser player's production total. Both players then receive a percentage return based on the number of years the treaty has been established.

Since establishing trade requires an initial investment for organising patrolled trade routes and establishing customs, your income from a trade treaty begins at –30% of the treaty amount. Each turn thereafter, your trade income increases by +0–5%, so you usually do not generate a positive income until after 10–12 years. The trade revenues are then divided up among your planets in proportion to their productions. Your income percentage continues to increase until it reaches a maximum of 100% of the treaty amount. Humans get an additional +25% on all trade returns.



HUMANS are trusted diplomats and canny traders

For example, you could control two planets that have a combined production total of 500 BC while your neighbour has three planets with a production total of 400 BC. The maximum that you could trade would then be 100 BC per turn (25% of your neighbour's production). You both agree to exchange the maximum. After twenty turns the percentage return has reached 25%, indicating that you and your neighbour are making a profit of 25 BC per turn from the trade. The profits are distributed proportionally among your planets. If one of your planets was producing 200 BC per year and the other 300 BC per year, the first would receive 10 BC trade profit and the second 15 BC profit.

If an already existing treaty is in effect, the percentage return begins as the average of your current return and –30%. This new return rate is then applied to the new treaty amount. For example, you have a trade agreement for 100 BC per year, currently at a 50% return rate and you establish a new agreement for 200 BC a year. The percentage return becomes 10% (the average of 50% and –30%), applied to the new treaty amount of 200 BC, generating a trade income of 20 BC. The return rate continues to grow again at +0–5% per turn, until reaching 100% of the new amount.

Breaking a trade treaty not only reduces the trade amount to zero, but also drops the percentage return back to –30%. Restarting trade relations requires rebuilding the trade routes from



WARBIRD

Beta Test Manual

scratch. Think twice before breaking a profitable trade treaty with another player.

Tribute: When faced with imminent threat of war, you may attempt to appease a rival with an offer of tribute. While trade may be more cost-effective for improving relations with allies, antagonised opponents are unlikely to trade with you. Tribute may be one of the only ways to improve relations and end a war. You can donate up to the total in your planetary reserve. The amount of improvement depends on what percentage of the rival's resources you donate. Generally, a donation of 10% of your rival's production will shift the diplomacy scale half a level. Alternatively, you can offer needed technology as tribute. This will more dramatically effect relations, particularly if it was useful technology. If you are faced with several opponents all attacking at once, you should most certainly try buying peace from at least one.

ESPIONAGE AND SABOTAGE

In Master of Orion, you can finance both espionage and sabotage operations. The resources you allocate build spy networks, but your opponent is also spending resources on internal security to uncover and eliminate your spies. Spies ordered to perform Espionage steal technology from the laboratories of other races. Sabotage undermines a specific colony by destroying missile bases and factories, or inciting rebellion among the populace.

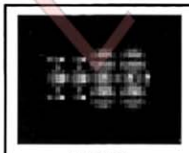


DARLOKS are stealthy spies and saboteurs.

As long as you have any spy networks in an empire, your Report on their current technology (see the Races screen) will be current.

Costs: The first spy network placed in an empire costs 25 BC, plus 2 BC per level of Computer Technology. Additional spies in each empire cost twice as much as the previous spy network, so a second spy costs twice the base amount, a third costs four times, a fourth costs eight times the base, etc. Darlok spies cost only half as much as other races.

Internal Security: Internal Security is used to uncover, thwart, and eliminate spy activity in your empire. Your empire's base security level is equal to its Computer Tech level. You can also increase the Security Bonus by 2% for every 1% of your empire's production you allocate to security.



PIRANHA

Capturing Spies: Each year, your vigilant counter-intelligence forces are attempting to eliminate any spy activity in your empire. For EVERY spy network in your empire, your security forces get a roll of 1–100, plus your Internal Security Bonus (see the Races Screen). Darloks get an additional +20 as part of their Security Bonus. If your Computer Tech level is higher than your

opponent's, the difference is also added to that roll. If the enemy spies are hiding, though, the roll is reduced by 30.

Roll	Result
0	mistaken identity, another race may be framed
1–30	spy not discovered
31–50	spy identified, infiltration attempts not stopped
51–70	spy infiltration attempt stopped, but spy escapes
71–99	spy infiltration stopped, and spy eliminated.
100+	spy confesses, stops all other spies that year.

If no spies confess, then all spies who were not stopped from infiltrating make ONE roll to successfully infiltrate. If the spies have a higher Computer Tech level than the target empire, the difference is added to their roll. Also, Darlok spies get an additional +30 bonus to their rolls.

Roll	Result
0–84	infiltration failed
85–99	successful infiltration
100+	successful infiltration, and another race is framed

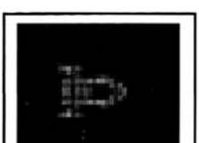
If your spies succeed, they can perform their assigned missions:

Espionage — You can select an area of technology to steal. Each spy that infiltrated makes a roll from 1 to the opponent's Tech Level in that field. The highest roll determines the highest piece of technology your spies find.

Sabotage Missile Bases — Each spy has a 50% chance of destroying a missile base, for every 10 levels of Weapons Technology you have. You should probably sabotage missile bases on planets you intend to attack soon.

Sabotage Factories — Each spy destroys 1–5 factories for every 10 levels of Weapons Tech you have.

Inciting Rebellion — Each spy can cause up to 10% of the population to rebel. If the total exceeds 50%, the colony goes into rebellion.



BANSHEE

Lexmux Manuel

THE ALIEN RACES

When playing as a particular race, you should take advantage of your race's special abilities. They can have a drastic effect on your decisions. A winning strategy for one race can spell quick defeat for another.



MEKLARS have mastered robotic control of factory production.



Alkari — The Alkari are descended from large birds and are still capable of limited flight. From an early age Alkari learn to master the subtleties of flight and three dimensional motion. As a result, Alkari make superior pilots: their ships are very difficult to hit and, given equivalent designs, their ships will move before any others except the Mrrshan. Alkari pilots add three levels of defence to any spacecraft they pilot in combat and add +3 to their ship initiatives.

To take full advantage of the Alkari's combat bonus, Alkari players should build small and medium ships. The defensive bonus tremendously reduces the amount of damage taken.



Bulrathi — The Bulrathi are a fierce bear-like race that possess incredible strength and constitution. No other race can match the Bulrathi in personal combat, giving the Bulrathi a +25 bonus in all ground attacks.

Bulrathi players should always attempt to take colonies with ground forces even if outnumbered.



Darloks — The Darloks are a ruthless race of shape shifters capable of taking on the form of nearly any living being. This unusual ability to change forms makes them superior spies and allows them a bonus to all sabotage, espionage, and security functions. Darlok spy networks cost only half as much as other races' spies. The Darloks add +30 to their Spy Fate rolls and add +20 to their security. Of course, no one trusts a Darlok.

Darlok players should concentrate on one or two areas of technology for a technological advantage and steal the rest.



HYDRA



Humans — While man may be physically weaker than many of the other races, his talent for trading and generally amiable nature has made him one of the best diplomats in the universe. Humans receive an additional 25% profit when trading, double the effect of good diplomatic actions, and add +5 diplomatic levels when offering treaties and trade agreements, and in the High Council.

Since the Human's advantage is gained from interaction, human players should immediately begin making deals with other races.



Klackons — The Klackons are a large ant-like race with an extremely ordered society. Each individual is born to serve a single purpose, and does so without question. As a result, the Klackons are mobilised into an industrious society where each unit of population produces double the output of other races. The Klackon's bonus is cumulative with planetology bonuses. Klackons excel in quickly making productive new colonies.



Meklars — For centuries the Meklars have developed and worn powered exoskeletons to compensate for their physical weakness. As a result, the Meklars are the acknowledged masters of cybernetic interfaces and are able to control two additional factories per population above and beyond their normal technological limit. Also, Meklars also do not need to pay to refit factories for Robotic Control.

Since Meklars can create powerful industries, Meklar players do not need to expand as quickly as the other races.



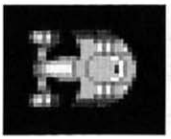
Mrrshan — The Mrrshans are descendants of very large hunting cats, and although they have in general been able to curb their aggressive impulses, the Mrrshans still retain a keen hunter nature. Their sheer ferocity and natural instincts make Mrrshans the best gunners in the universe. Mrrshan ships move first in most situations and add four levels to their attack rolls. Mrrshan ships equipped with multiple fire weapons can be particularly nasty.

Like the Alkari, Mrrshan players should begin the game in an offensive posture and should attack their enemies almost immediately.



Psilons — The Psilons are a brilliant, unemotional race devoted solely to hard logic and the quest for knowledge. Their superior minds and research techniques allow them to gain a +50% bonus to all their research efforts. They can also select from a greater number of devices to research than other races.

Psilon players should invest heavily in research, then guard their discoveries with high internal security. Technological advantages should be used as quickly as possible against more primitive races.



CHEETAH

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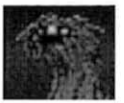
Sakkra — The Sakkra are a race of cold-blooded reptiles which are hatched from eggs like their dinosaur ancestors. Sakkras reproduce at twice the normal rate, and also get that reproduction bonus in addition to the benefits from Fertile or Gaia planets. They even receive the bonus when cloning.

Sakkra players should never allow their planets to fill up. Their advantage is in their growth rate and they should constantly expand and create new colonies.



Silicoids — The Silicoids are a race of rock-beings. They are immune to the effects of waste and can land on star systems with any type of environment. Silicoids do not benefit from fertile or gaia environments. Due to their crystalline nature, Silicoid populations grow at only half the rate of other races.

Even though the Silicoids already possess many of the planetology tech advantages, Silicoid players cannot ignore planetology altogether. Planetology is necessary to expand the size of planets, and the additional production bonus is always important.

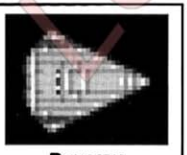
THE ALIEN LEADERS

Emperor Personalities and Objectives: Leader personalties strongly modify reactions to a diplomatic situations. Xenophobes, for example, always react harshly to negative diplomacy and reduce the effects of positive actions such as tribute. Pacifists will sooner sue for peace after war is declared.

Every time a new game is created, the leaders from each race are endowed with personality traits and objectives that will dictate how they will develop their star systems, what types of technology will be emphasised, and how they will react to certain diplomatic situations. Each race has certain tendencies for leader personalities, and leaders may change through the course of a game.

The personality of the leader reflects the emperor's diplomatic outlook when dealing with neighbouring races:

- **Ruthless** leaders attack with little or no provocation and are quite willing to sacrifice starships and people to achieve their goals.
- **Erratic** leaders are totally unpredictable.. One year they may be peaceful and non-violent, while the next year they will go to war over any little excuse.
- **Aggressive** leaders will attack any time they are put in a favourable situation.



DREADSTAR

- **Pacifistic** leaders are eager to maintain peaceful relations even after being attacked.
- **Honourable** leaders will never attack anyone that they are on good terms with. However, they will react twice as strongly to unprovoked attacks and sabotage.
- **Xenophobic** leaders hate everyone, halving the effects of positive diplomacy and doubling the diplomatic effects of hostile actions.

The leader's objectives determine how the emperor will allocate resources and focus technological research:

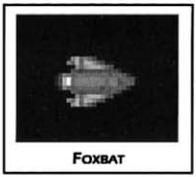
- **Diplomats** concentrate resources on trade with allies and espionage with enemies. Otherwise they seek a balance between military build up, ecological maintenance, and technological research.
- **Militarists** seek to develop new and innovative weapons technology. They will build and maintain a large star fleet at all times.
- **Technologists** will focus resources on the development of new technology with little emphasis placed on any one single area.
- **Ecologists** wish to develop and maintain star systems which provide the best environments for population growth. They will concentrate technological research on planetology and construction above all other sciences.
- **Industrialists** seek to not only build the most factories possible, but to also acquire technology that will allow industry to grow and improve.
- **Expansionists** are primarily interested in expanding territory. They will spend considerable resources on developing propulsion and planetology technology. Furthermore, expansionists are more likely to send out transports to colonise new worlds.

Racial Tendencies: Each race has a tendency towards certain personalities and objectives for their rulers. Although actual ruler personalities and objectives will vary from game to game, and even within a game, these types will show up more often within their race, and rarely will a leader have a type of personality or goal that is diametrically opposed.

- Alkaris — Honourable Militarists
- Bulrathis — Aggressive Ecologists
- Darloks — Aggressive Diplomats
- Humans — Honourable Diplomats
- Klackons — Xenophobic Industrialists



SILICOIDS are capable of living in any environment.



FOXBAT

Beyond Warfare

- Meklars — Erratic Industrialists
- Mrrshans — Ruthless Militarists
- Psilons — Pacifistic Technologists
- Sakkras — Aggressive Expansionists
- Silicoids — Xenophobic Expansionists

Revolts: From time to time emperors will be overthrown by their people and replaced with new ones. Those races which are doing poorly in the game are more likely to revolt. The new leader will generally have a new personality and objective that should address the empire's current dilemmas. For example, if a race is lagging far behind in technology, the emperor will most likely be replaced with a Technologist. Revolts are very disruptive not only to diplomatic relations but also to established trade routes. When an empire revolts all trade and treaties will be broken, and relations between your races are shifted toward neutral.

CRISES AND DISASTERS

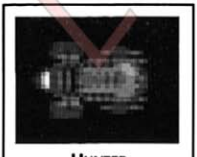
From time to time, every leader will be faced with disasters that will strike their star systems. Each year there is a chance that a disaster will occur, with the chance growing more likely the longer it has been since the last crises. In all cases, a disaster requires some sort of intervention to solve the situation. The following is a list of the potential crises that may occur during a game.



Ancient Derelict: You discover an ancient derelict which contains superior force field and weapons technology.

Climate Change: A sudden shift in the planet's axis changes its environment to be more fertile. Population growth increases by 50%.

Comet: A comet is discovered to be on a direct collision course with one of your colonies. If the comet hits, the colony will be completely destroyed. Your star fleet can be moved into the system to destroy the comet. The more ships, the faster the comet will be obliterated.


HUNTER

Computer Virus: A highly destructive computer virus strikes your primary research centres, destroying years of research in a specific technology. Although you will not lose technology that you have already obtained, you will lose several levels of research

Leisure Manual

that will have to be repeated to advance any further.

Diplomatic Blunder: One of your ambassadors to another race commits a disastrous blunder and seriously jeopardises your relations with the rival empire. In some cases, the blunder can even set you at the brink of war.

Donation: A wealthy merchant willing to support the cause makes a substantial donation to your Planetary Reserve.

Earthquake: a major quake strikes one of your colonies killing colonists and damaging industry. Once the earthquake has hit, you may have to redirect resources to repair the damaged factories.

Industrial Accident: A major industrial accident pollutes an entire colony with radioactive waste, setting the industrial waste to maximum for that planet. You should attempt to clean up the waste as soon as possible or the pollution will begin to kill off your colonists.

Mineral Discovery: Deep mining exploration reveals a huge previously undetected deposit of neutronium, making the planet Mineral Rich.

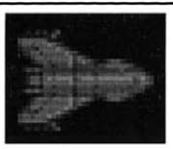
Mineral Depletion: Your planet exhausts its heavy metal deposits, making the colony Mineral Poor.

Piracy: Pirates begin raiding your colonies and disrupting your trade routes. Until dealt with the pirates will reduce the resources that you obtain from trade revenues. The main pirate holdout will be located within a particular star system, and the pirates can be eliminated by moving enough ships into the star system to patrol.

Plague: A deadly virus strikes one of your colonies, slowly killing off your colonists until a cure can be found. All research points obtained from the afflicted colony are automatically directed to finding a cure for the plague. In addition, the planet is quarantined, prohibiting transports from leaving the colony for fear of spreading the disease.

Rebellion: One of your planets has gone into revolt, and production on that planet has stopped. Rebellion sometimes occurs naturally, but is often the result of enemy saboteurs. To end the Rebellion, you must transport colonists from another of your worlds to the rebel colony, to fight the rebel troops. Until the rebels are defeated, you cannot affect the colony's development, and their population does not count for votes in the High Council.

Space Monster: An enormous space monster invades the galaxy and threatens to destroy your colonies. Until defeated by your star fleet, the monster will go from system to system, destroying all of the colonies within. The space monsters are terrific adversaries and will take quite a number of ships to defeat.



HORNET

Unofficial Manuel

Super Nova: The primary star of one of your systems threatens to go super nova unless you can find a scientific solution. If the star does nova, most of the inhabitants of the planet will be killed and nearly all of the industry will be destroyed. Research points obtained from the star system are automatically directed to finding a solution to the problem.

SHIP DESIGNS

Technology is not the only consideration in ship design. Ship size also limits how many total devices can be physically mounted on the ship and cost restricts how fast the ships can be produced.

Cost: The cost of a ship depends not only on what types of devices the ship has been equipped with, but also the designer's current level of technology. Every ten levels of technology that you have above the item's level halves the cost of producing that device. For example, lasers which are first level weapons technology cost only half their normal price once you have reached the 11th level of weapons tech, one-quarter at level 21, and one-eighth at level 31. Likewise, the cost of battle computers drops with increases in computer tech. Even after designing the ship, the price will still fall as technology improves. When designing a ship, the cost displayed includes the cost of the engines needed to power the ship and physical space for the devices.



ALKARI are skilled pilots, able to evade enemy fire.

Ship Size: The size of a starship determines how many devices can be placed on a ship, how much damage the ship can take before being destroyed, and how manoeuvrable the ship is in combat. Every level of construction technology that you have increases the ship's available space by 1%.

Note that the defence modifier shown below is added to both the ship's beam defence and missile defence in combat.

Ship Size	Space (tons)	Hits	Defense	Cost (BC)
Small	40	3	+2	6
Medium	200	18	+1	36
Large	1000	100	+0	200
Huge	5000	600	−1	1200



STAR BLAZER

Space: With the addition of each device, the ship's total space will be reduced according the physical size of the device and the space required for the engines to power the device. Higher levels of technology reduce the physical size of a device (miniaturisation) just like technology reduces cost. Each ten levels of technology above the minimum required level decreases the size of the device by 25%. Weapons miniaturise at a rate of 50% for every 10 levels.

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Computers: Battle computers direct all ship's fire. The more advanced the battle computer the better the chance a ship has of hitting an enemy target. In addition, better battle computers provide faster response time and improve a ship's combat initiative (the order in which ships move and fire). For the precise effects of battle computers in combat, see the section on space combat.

Shields: Force fields are essential to the survival of a starship. Shields absorb damage from all incoming attacks an amount equal to their class. For example, Class V shields absorb 5 hits of damage from all attacks. Obviously, a superior shield can make a ship nearly immune to enemy attacks.

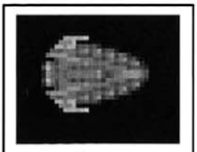
ECM Generators: ECM units (Electronic Counter Measures) reduce the chance of enemy missiles striking the protected ship. A ship's missile defence is the sum of the ship's beam defence plus its ECM rating. Without a powerful ECM generator most advanced missiles will almost always hit.

Armour: Armour protects a ship from all attacks by increasing the ship's total hit points. There are two types of armour for each material: standard and double hull. The standard hull always take the same amount of space, regardless of the material. Double hulls (displayed as II) on the other hand require twice the normal amount of space and increase the hit points of the ship by an additional 50%. Refinements in designs from improved technology reduces the size of armour just like all other devices (50% per ten levels).

Engines: Not only do ship engines move a starship, but they are also responsible for powering all of the ship's devices. Each engine generates 10 units of power times its warp rating, i.e. a fusion engine produces 40 units of power. On the galaxy map, each level of warp moves the starship one parsec per year, i.e. Fusion engines (warp 4) move a ship 4 parsecs per turn. In combat, a ship's manoeuvrability increases a ship's inherent defence against beam and missile weapons.

So why not always choose the best warp engine available since you move faster on the galaxy map and have a better defence in combat? The answer is space. Since nearly every device on a ship requires power, a miniaturised engine (lower level) will allow you to fit quite a bit more on a ship.

Manoeuvrability: Unlike galaxy map travel, combat movement requires rapid changes in direction and speed. On the galaxy map, ships can take a long time to accelerate into hyperspace. In combat, a ship requires more thrust to overcome inertia and alter course quickly. To do so requires more engines to provide the needed thrust. The actual number of engine units needed to move a ship 1 space per turn depends on the ship's size. The larger the ship, the more thrust required to move in



KNIGHT

combat. The engine units shown to the right of the combat speed is the total number of engines that are required to power all ship's systems and move the starship in combat. Your combat speed increases by one for every two levels of manoeuvrability.

Weapon Types: Each ship may have at most four different types of mounted weapons. The following list details and explains weapon attributes.



MRRSHAN gunners have fast reflexes and uncanny accuracy.

- **Beam Weapons** are direct fire weapons that strike the target instantly. Damage is shown as a range, with the minimum damage being scored if the attacker rolls the minimum to hit and maximum damage being scored when the attacker rolls maximum (100). Unless otherwise specified, beam weapons have a range of only one.
- **Heavy Cannons** are larger versions of the same technology. These cannon inflict greater damage and have greater range, but require considerably more power and space.
- **Missile Weapons** are fast travelling drones mounted with explosive warheads. Unlike beam weapons, when a missile hits, it scores its full damage. Each missile is also equipped with a targeting computer that improves its chance to hit (its rating is added to the firer's battle computer). However, ECM jammers will reduce the missile's chance to hit. Each missile rack has a limited number of missiles that can be used in a single combat. The number of shots is shown in the description.
- **Torpedoes** are energy based missile weapons except that they fire every other round and have an unlimited number of shots. Since they are composed of energy and diffuse in atmosphere, they are not as effective against planetary targets as missiles are.
- **Bombs** require no power and are only effective against ground based targets. Since missile bases add planetary shields to their force field, bombs may be the only way to penetrate their shielding.
- **Biological Weapons** kill populations outright and reduce the habitability of the planet by up to the maximum damage listed. Be cautious in the use of biological weapons. All players will be extremely angered when they are released.
- **Autofire** weapons such as Gatling Lasers fire multiple times during a single combat round. The shots can be fired against a single target or spread out to several enemies.
- **Continuous fire** weapons such as Graviton Beams can destroy a target and inflict remaining damage to additional targets.



KRAKEN

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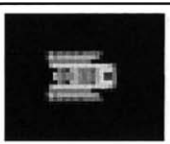
- **Projectile** weapons such as Neutron Pellet Guns and Mass Drivers, pierce force fields with increased effectiveness, halving the class of the defender's shield.
- **Enveloping** weapons such as Hellfire Torpedoes surround the enemy targets with an energy field that strikes from all directions. If the weapon hits, the target suffers the effects of four attacks, with the target's shielding being applied to each attack.
- **Extended range** weapons have their maximum range extended out beyond the normal one space range of most direct fire weapons.
- **Wide beam** weapons such as the Megabolt Cannon increase the change of hitting their target by +3.

Special Devices: Each ship may carry up to three special devices. Only one type of each device may be mounted, and only those devices which can fit in the remaining space will be listed.

- **Advanced Damage Control** units automatically repair ships that have suffered damage but have not been destroyed. Up to 50% of the ship's hits may be restored at the end of each round of combat.
- **Anti-Missile Rockets** destroy incoming missile attacks 35% of the time, reduced by 1% per tech level of the missile.
- **Automated Repair** units automatically repair damaged ships at the end of each turn. If the ship has suffered damage and was not destroyed, the ship is "healed" up to 25% of its total hits.
- **Battle Scanners** reveal all technical specifications of enemy ships. In addition, ships equipped with battle scanners receive a +3 initiative advantage and add +1 level to hit.
- **Black Hole Generators** create an energy field that destroys all life. Enemy ships in the target space will have 25–100% of their crews slain outright. Deflector shields reduce the amount killed by 2% per level of shielding.
- **Cloaking Devices** mask the ship from sight and scanners. Cloaked ships add +5 to their beam and missile defence until they fire their weapons. Decloaking ships always attack first, regardless of initiative. The ship must then wait one complete turn without firing any weapons before it may re-cloak. Cloaking shields are very effective for penetrating enemy lines and attacking heavily defended planetary targets.
- **Colony Base** contains the necessary survival gear and population to set up a colony base on an uninhabited world. To create a new colony, you must send a ship



AVENGER

Le Vieux Manuel

with this special device to an uninhabited planet with an environment that you can survive in. Once there, you will be asked if you want to set up a colony on the planet. If you choose to do so, the entire ship will be dismantled, and the parts used to create the first settlement on the planet. Once the colony is established, you may then transport additional colonists to populate the planet. Note that you do not need a colony ship if you are assaulting a planet with an established alien colony.

- **High Energy Focus** units increase the effective firing range of all beam weapons by three spaces in combat. This device is particularly effective for ships primarily armed with beam weapons.
- **Ion Stream Projectors** hit all ships in a group, and reduce their current armour by 20% + 1/2% for every attacking ship up to a maximum of 50%.
- **Inertial Nullifiers** generate an damping field that negates the effects of inertia, making the starship more manoeuvrable and adding +4 to the manoeuvrability and +2 to the combat speed.
- **Inertial Stabilisers** reduce the effects of inertia and add +2 to the ship's manoeuvrability and +1 to the combat speed.
- **Lightning Shields** surround the ship in a devastating energy field that destroys incoming enemy missiles 100% of the time, reduced by 1% per tech level of the missile.
- **Neutron Stream Projectors** hit all ships in a group and reduce their current armour by 40% +1 for every attacking ship.
- **Oracle Interfaces** focus all of your ship's beam weapons into a simultaneous attack at a single point on the enemy ship. This effectively halves the target's shielding for all your beam weapons.
- **Pulsars** are waves of energy generated by specially modified engines. They damage all ships adjacent to yours. The maximum damage an Energy Pulsar can do is 5 points plus 1 point for every two ships firing pulsars. For Ionic Pulsars, the damage can be up to 10 points plus one for each attacking ship.
- **Repulsor Beams** hurl enemy targets back 1 space away from the firing ship each turn.
- **Reserve Fuel Tanks** increase the range of ships by three parsecs.
- **Stasis Fields** trap one group of enemy ships in a time vortex for one turn of combat. While trapped the enemy ships cannot fire or be fired upon. Ships equipped with



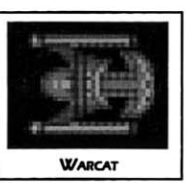
MANTA

Le Visionnaire

stasis fields are automatically assumed to use their stasis fields against the first enemy that they attack each round, unless you intentionally turn off the stasis field.

- **Subspace Teleporters** teleport ships to any space they want and give them first firing opportunity regardless of enemy initiative. Planets with Subspace Interdictors can nullify Subspace Teleporters.
- **Technology Nullifiers** overload enemy computers and ECM generators. Effected targets temporarily lose 1-3 classes of battle computer and ECM, rolled separately for each. The effect is cumulative, and after a ship has been hit several times, its ability to attack will be severely impaired. If the victim ship survives, the damage will be automatically repaired when the battle ends.
- **Warp Dissipators** disrupt the normal operations of ship engines and reduce enemy target combat speeds by 1 each shot. If the disrupted ships survive the battle, the warp engines will be restored after combat.
- **Zyro Shields** surround the ship in an energy field that destroys incoming missile attacks 75% of the time, reduced by 1% per tech level of the missile.

Le Vieux Manuel



WARCAT

Combat Resolution



Bulrathi are incredibly strong and tough in ground combat.

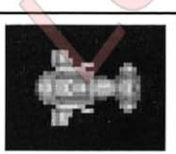
Initiative: The order in which ships move and fire is determined by their initiative ratings. A ship's initiative is the sum of its manoeuvrability plus the level of the ship's battle computer. In addition, ships equipped with battle scanners add +3 to their initiative. Ships with the highest initiative then move first, ties being resolved randomly by the computer. Furthermore, a ship with a higher initiative can fire first if an enemy ship moves into range. There is one exception to the firing order. Ships utilising a subspace teleporter to move or a cloaking device to surprise an enemy always fire first after moving or decloaking.

Beam Weapon Attacks: Beam weapons generally have a range of one space and strike enemy targets instantly. The probability that the weapons hit depends on the attack level of the firer, the defence level of the defender, and the firing range. The attack level is determined by the type of battle computer aboard the firing ship. If the ship also has a battle scanner, +1 is added to its attack level. The defender's manoeuvrability is the basis for his defence level.

The size of the ship also modifies the defence level as well as special devices such as the inertial stabilisers and inertial nullifiers. For those weapons with extended range, +1 is added to the defender's defence level for each space beyond one. Cloaked ships that have not fired their weapons also receive an additional +5 levels of defence.

Each weapon attack is resolved separately. The table below indicates the probability of a weapon hitting given the attacker's attack level and the defender's defence level. A roll of 1–100 is made. If the roll is equal to or exceeds the weapon hit probability shown below, the weapon hits. The same roll also determines the amount of damage scored. The higher the roll, the more damage that is inflicted. A roll equal to the base hit probability does the minimum damage listed for the weapon. A roll of 100 does the maximum damage. Any roll in between is interpolated for the amount of damage scored.

For example, an attacker with an attack level of 2 fires a laser at an enemy ship with a defence of 2, giving a 50% chance to hit. The laser, which does 1–3 points of damage, rolls a 75, midway between the 50% needed to hit and the 100% maximum. The laser hits and does 2 points of damage.



Escort

Note that attacks with negative hit probabilities always hit, and the roll is used solely to determine damage. For example, an attacker with a fusion beam (10–25 points of damage) has a base to hit of –50 and rolls a 50. The fusion beam scores 20 points of damage.

Leviathan

WEAPON MIN ROLL TO HIT												
Attack Level	Defender's Defense Level											
	0	1	2	3	4	5	6	7	8	9	10	11
0	50	60	70	80	90	95	95	95	95	95	95	95
1	40	50	60	70	80	90	90	95	95	95	95	95
2	30	40	50	60	70	80	90	95	95	95	95	95
3	20	30	40	50	60	70	80	90	95	95	95	95
4	10	20	30	40	50	60	70	80	90	95	95	95
5	0	10	20	30	40	50	60	70	80	90	95	95
6	-10	0	10	20	30	40	50	60	70	80	90	95
7	-20	-10	0	10	20	30	40	50	60	70	80	90
8	-30	-20	-10	0	10	20	30	40	50	60	70	80
9	-40	-30	-20	-10	0	10	20	30	40	50	60	70
10	-50	-40	-30	-20	-10	0	10	20	30	40	50	60

Missiles and Torpedo Attacks: Unlike beam weapons, missiles may be fired at long range, but missiles must track and follow their target before hitting. If the missile has not hit within its duration turns, the missile will run out of fuel and be automatically eliminated.

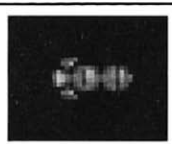
The hit probability of missiles is the same as beam weapons except that the attacker adds the targeting value of the missile to the attack level, the defender adds his ECM rating to the defence level, and the effect of range is ignored. If the missile or torpedo hits, full damage is scored, regardless of the attack roll.

When you are moving, missiles that are targeted on you will begin to flare. Then as your ships move, the missiles will track and follow.

Deflector Shields: After the damage has been calculated, the defender applies his force field to the damage. The shield rating is subtracted from the weapon damage of each attack. For example, the fusion attack that scored 15 points of damage would only do 5 points to a ship equipped with a Class X Shield.

Destroying Ships: Each weapon shot is resolved individually. When the accumulated damage exceeds the hit points of the target ship, one ship is destroyed. The process continues until all weapons fire has been resolved. Therefore, a large ship firing one huge weapon can only destroy one enemy at a time, even small fighters. Continuous fire weapons, however, can apply damage leftover after a target is destroyed to new targets in a group.

Attacking Planets: Missile bases take 50 hits to destroy, possess an unlimited supply of missiles, and have an inherent defence of 1. Missile bases also add the planet's planetary defence shield to their force fields for absorbing damage. Furthermore,



NEMESIS

Beta Test Manuel

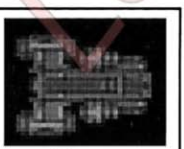
planetary atmospheres are quite difficult to penetrate, halving the damage from all beam weapons and torpedoes. Bombs and missiles are sometimes the only way to effectively eliminate surface missile bases.

Colonists and industry are also susceptible to bombardment from space. Attacks against missile bases kill one million colonists for each 400 points of damage scored against missile bases, and one factory is destroyed for each 100 points. Once all missile bases have been destroyed, and fire can be concentrated on the population centres, the kill rate is doubled for both colonists and factories. Planetary defence shields protect the colonies whether or not missile bases are still present.

Biological weapons are the most effective means of attacking planets. Not only are populations slain outright, but the habitability rating of the planet is reduced. However, all races frown on their use and your diplomatic relations will be severely damaged every time one is employed.

Attacking Colony Transports: Each colony transport has a base of 15 hits modified by the best available armour, has no shields, and moves at a speed of one less than your best known warp speed. For example, if you have developed Sub-Light engines which move starships at warp 3 (three parsecs per turn), your transports would move at warp 2. Combat speed is one-half their warp speed. When a transport attempts to land on an enemy planet, the transports are attacked by all enemy ships in orbit and any ground missile bases. Combat involving transports is automatically resolved with the transport attempting to reach the planet before being destroyed. In this case, combat speed is very important. Not only are transports with faster speeds harder to hit, but they reach the planet much faster and therefore are attacked fewer times. Transports equipped with combat transporters have a 50% chance of getting their troops off the transport before combat even begins.

Ground Combat: Ground combat is resolved in a series of attacks until one side has been completely eliminated. Each attack consists of a roll made by each side, with the highest roller killing off one unit of the loser's population. In the case of a tie, both sides lose one unit. The attack consists of a roll from 1–100 and adding the race's current best ground combat technology bonuses for armour, shields and weapons. Defenders get 5 points added to their rolls, and the Bulrathi get +25 added to all ground combat rolls. Significant differences in ground combat technology will give one side a decided advantage. A mere +10 bonus difference will yield a 3 to 2 kill ratio.



WARBEAR

TECHNOLOGY

Technology plays a key role in your ability to win **Master of Orion**. Even if your have developed a powerful industry, without advanced technology you will be unable to compete effectively with your rivals. There are six areas of science in **Master of Orion**: computers, construction, force fields, planetology, propulsion, and weapons. Only the first 50 levels actually contain new inventions. Levels above 50 refine and miniaturise your existing technology.

Acquiring New Technology: Technology can be acquired in three ways: researching from resource points spent on technology, stealing technology from other races, or finding remnants of technology from conquered enemy planets.

To acquire a new device in one of the six sciences, you must accumulate enough research points. Each colony converts resources devoted to technology to research points. The points are then combined with the research from all your other planets and are divided up into the six areas according the ratios that you specify on the technology screen.

Each device that you research has a Base Cost of research points that must be invested in it before your scientists can achieve a breakthrough and "discover" that device. The Base Cost of developing a Technology is the device's tech level squared, multiplied by a factor that depends upon the game's difficulty setting.

Each year that you invest research points in a device, you also get "interest" on the amount you have invested. The interest is either 15% of your total, or an amount equal to what you are adding this year, whichever is lower. This encourages a steady investment in your research, as opposed to a "crash" funding.

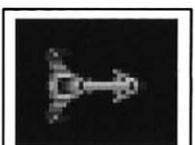
After the Base Cost has been invested in its research, your scientists have a chance of a breakthrough, as long as you continue to fund that research. Your chance of breakthrough increases by 1% for every 2% of the Base Cost you invest in addition.

So, for example, if the base cost of a device were 100 RP, you would get a chance to have a breakthrough after that 100 RP has been invested. By the time you invested a total of 150 RP, your chance of breakthrough that turn would be 25% (100 spent on the Base Cost; 50 more RP divided by 2 gives you a 25% chance).

If your research spending in a given technology drops to 0, you have effectively shelved the research for that device, and get no chance of discovery on that turn. In addition, you lose 10% of the amount already invested each turn, until you begin research again.



PSILONS are brilliant scientists, dedicated to research.



SCORPION

Your Technology Level in a given area is based upon 80% of the level of your most advanced device, plus the total number of devices in that field you have discovered. For instance, if you have discovered 5 weapons, the most advanced of which is level 20, your overall Weapons Technology Level is 21 (80% of 20, plus 5 devices).

Artifact Planets and Orion: Planets with artifacts tremendously enhance technology research, doubling the research output on those planets. Orion is a scientist's wonderland and research there is quadrupled.

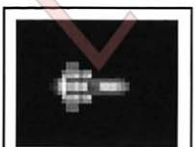
Reducing Costs and Size: Advances in technology will reduce the cost of building existing ships and missile bases. For every ten levels above the minimum required level of technology that you have, the cost of producing that device is halved. For example, a particle beam (15th level weapons technology) costs 13 BC when it is first developed. When you reach level 20, the weapon costs 9.75 BC and at level 25 it costs only 6.5 BC. Although there are no new devices at higher than 50th level technology, you can still decrease the costs of producing existing technology.

Along with reduced cost, advances in technology also allows you to reduce the size of existing devices so that you can fit more on your starships. The mass of a device is decreased by 25% per 10 levels of technology above the minimum required level. Weapons, however, reduce by 50% for every 10 levels. For example, the particle beam normally requires 20 tons of space to mount on a ship. At level 25 the weapon takes 10 tons of space, and at 35th level it takes only 5 tons of space. Miniaturisation works on computers, ECM jammers, armour, force fields, ship engines, weapons, and most special devices.

Racial Differences in Technology Development: Each race has placed different priorities on developing technology in different areas. As a result, some races pay a lower Base Cost for developing technologies in their specialties, while areas of technology they are poor in cost more to research. The table below summarises each race's strengths and weaknesses in research:

Race	Computers	Construction	Force Fields	Planetology	Propulsion	Weapons
Alkari	—	—	Poor	—	Excellent	—
Bulrathi	Poor	Good	—	—	—	Good
Darlok	Good	—	—	—	—	—
Human	—	—	Excellent	Good	Good	—
Klackon	—	Excellent	—	—	Poor	—
Meklar	Excellent	—	—	Poor	—	—
Mrrshan	—	Poor	—	—	—	Excellent
Psilon	Good	Good	Good	Good	Good	Good
Sakkra	—	—	—	Excellent	—	—
Silicoid	Good	Poor	Poor	Poor	Poor	Poor

The Base Cost of developing a device is multiplied by the race's multiplier:
Poor = 125% of the standard Base Cost. Good = 80% of the standard Base Cost.
— = Standard Base Cost. Excellent = 60% of the standard Base Cost.

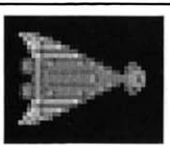


SEEKER

COMPUTER TECHNOLOGY

Computer Tech deals with the development of specialised electronic devices and computer systems. Computer tech produces such devices as battle computers, ECM jammers, robotic controls, space scanners, and the infamous technology nullifier.

- **Battle Computers** direct all starship weapons fire. The mark of the battle computer determines not only the attack level of the starship when it is firing its weapons, but also is added to the ship's manoeuvrability to calculate initiative.
- **Battle Scanners** provide starships with exceptionally detailed information on enemy starships. If any ship in a fleet is equipped with a battle scanner, you can view all the technical specs of the enemy fleet. In addition, the equipped ship gains a +3 initiative bonus, and +1 to its attack level. Note that all planetary missile bases are automatically equipped with battle scanners.
- **ECM Jammers** confuse incoming enemy missiles, reducing the chance of a missile hitting. The mark of the jammer is added to the ship's defence level for all missile attacks.
- **Hyperspace Communications** allow you to communicate with ships already en route and change their destinations.
- **Improved Robotic Controls** allow colonists to operate multiple factories. The number following the title indicates the number of factories that can be controlled by each unit of population. Robotic controls are expensive. Each robotic level above the first increases the cost of building factories by +50%.
- **Oracle Interfaces** focus all of your ship's beam weapons into a simultaneous attack at a single point on the enemy ship. This effectively halves the target's shielding for all your beam weapons.
- **Space Scanners** alert your colonies to the movements of enemy space craft. When the game starts, each of your colonies has space scanner that can identify enemy starships in hyperspace up to 3 parsecs away. Deep space scanners extend the range to 5 parsecs. Improved scanners reach 7 parsecs, and can determine ship destinations. Advanced scanners can determine planet types and have a range of 9 parsecs. They also increase your ships scanning range, from 0 at the start up to 3 parsecs with Advanced Scanners. If you have Improved or



CONDOR

Le Vieux Manuel

Advanced Space Scanners, your Control Screen will display red lines to enemy ships approaching the currently selected star system.

- **Technology Nullifiers** overload enemy computers and ECM jammers. The weapon generates a field that temporarily reduces the mark of enemy battle computers and ECM jammers by 1–3 levels, determined separately. Technology nullifiers have a range of 4 spaces.

CONSTRUCTION TECHNOLOGY

Construction Tech is a generalised form of engineering primarily dealing with advanced structures and materials. Construction tech can be used to develop advanced armours, reduce industrial waste emissions, and decrease the cost of building new factories. In addition, for each level you have attained in construction tech, the amount of available space on a starship increases by 1%.

- **Automated Repair Units** automatically repair damaged ships at the end of each round of combat. Automated repair units can repair up to 15% of the ship's original hits in damage each turn. Advanced damage control units can repair 30%.
- **Improved Industrial Tech** reduces the cost of building new factories. The number following the title indicates the cost of new factories in billions of credits (BCs). Since factories which exceed a planet's population cost an additional 50% for each level of robotic control, improved industrial tech can be very important if you wish to have a large factory to colonists ratio.
- **Powered Armours** provide troops with superior power and mobility by mechanically magnifying their natural strength. Troops equipped with Battle Suits gain a +10 bonus in ground combat, +20 with Armoured Exoskeletons, and +30 with Powered Armour.
- **Reduced Industrial Waste** decreases the amount of pollution generated by operating factories. Normally, each factory produces 1 unit of pollution. With reduced industrial waste, the amount of waste is decreased to the amount following the title. For example, "Reduced Industrial Waste 80%" only produces 8 units of waste per 10 factories.
- **Reserve Fuel Tanks** increase a ship's range by three parsecs.
- **Starship Armours** increase the damage capacity of starships and transports. Each level of armour increases



SUN FIRE

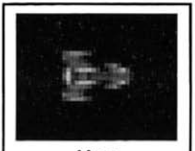
Le Vieux Manuel

the base hits of a starship by +50%. Armour, like devices, can be miniaturised at 25% reduction for every 10 levels of Construction Technology.

FORCE FIELD

Force Field sciences involve the practical applications of advanced field physics such as deflector shields, repulsor beams, stasis fields, damage shields, and the black hole generator.

- **Black Hole Generators** create fields that destroy all life. The generator has a 1 space range. Once fired, 25–100% of the targeted enemy ships will have their crews killed, eliminating the ships from the battle. Deflector shields reduce the kill ratio by 2% per class of shield.
- **Cloaking Devices** hide ships from enemy scanners and detection devices. As long as the cloaked ship does not attack, it can add +5 to its defence. When the ship does attack, it strikes first regardless of initiative. Once the ship has attacked though, it must wait one complete turn before recloaking.
- **Deflector Shields** reduce the damage taken from all enemy attacks. The shield can absorb its class in hits, i.e. a Class X deflector shield reduces all attacks by 10 hits. Shields do not function within star systems that are in nebulas.
- **Lightning Shields** surround ships in a powerful energy field that can prematurely detonate incoming enemy missile and torpedo attacks. Zyro shields destroy the missiles 75% of the time while Lightning shields destroy them 100% of the time. Their effectiveness is reduced by 1% per tech level of the missile.
- **Personal Shields** provide individual ground troops with protection of a force field and reduces their chances of being hit by enemy fire. Personal Deflector Shields add +10 to troops' combat bonus, Personal Absorption Shields add +20, and Personal Barrier Shields add +30.
- **Planetary Defence Shields** act like deflector shields, except that the force field protects missile bases, colonists, and factories from space attacks. The planetary shields are automatically built once the technology has been obtained, with the resources being supplied from each planet's defensive spending. As with deflector shields, planetary shields do not function within star systems that are inside nebulas. Planetary shields cost 100 BC per class to build.



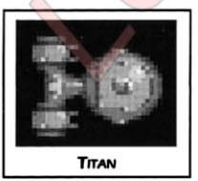
VIPER

- **Repulsor Beams** push adjacent enemy starships one space away.
- **Stasis Field Generators** trap enemy ships in a time bubble. While trapped, the ships cannot attack or be attacked until the following turn. The stasis field generator has a range of one space.

PLANETOLOGY

Planetology involves the analysis and development of alien worlds. Planetology can be used to develop technology that will eliminate waste more efficiently, expand the livable terrain of planets, and allow colonists to land on planets with hostile environments. Planetology improves colonists' productivity, increasing their production from one half BC per colonist to two BC per colonist at 50th level. It is also responsible for weapons that can destroy the ecology of a target planet, eliminating millions of colonists.

- **Atmospheric Terraforming** converts hostile environments to standard environments changing the population growth rate to normal levels. The conversion costs 200 BC. Once the technology has been developed, any surplus ecological resources allocated by planets with hostile environments will be devoted to terraforming the atmosphere.
- **Biological Weapons** kill populations and reduce the habitability of planets. The damage rating for a biological weapon indicates the maximum number of colonists killed by each attack and the amount that planet's population maximum is reduced.
- **Biological Weapon Antidotes** are broad spectrum anti-bacterial chemicals that reduce the casualties from biological attacks. Bio-toxin antidotes can protect one million people from each attack. Universal Antidotes save two million people each attack. Antidotes only reduce population loss. They do not affect the damage to the planet's habitability.
- **Cloning** lets you spend on ECOlogy to "buy" new colonists at a cost of 10 BC per clone. Advanced Cloning reduces that cost to 5 BC. Clones cannot increase a planet's population by more than 25% per year.
- **Controlled Hostile Environments** permits colonists to land on planets with hostile environments. Developing a specific controlled environment allows you to also land on all lesser environmental types. For example, developing controlled inferno landings allows you to



TITAN

Le Vick Model

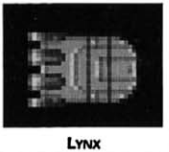
colonise planets with inferno, dead, tundra, and barren environments. This technology is particularly important because hostile planets are more likely to be mineral rich. Controlled hostile environments is also necessary for troop invasion on enemy worlds with hostile environments.

- **Colony Bases** must be placed on a starship and then moved to the unoccupied star system where the ship can be dismantled to form a new colony.
- **Ecological Restoration** reduces current levels of pollution. When the game starts, you can eliminate two units of waste for 1 BC. Improved ecological restoration eliminates 5 units of waste per BC, advanced ecological restoration eliminates 10 units of waste per BC, and complete ecological restoration eliminates 20 units of waste per BC.
- **Soil Enrichment** converts standard environments to fertile environments that increase population growth rates by +50%, and increase the planet's base size by +25%. The conversion costs 150 BC and is automatically built from surplus ecology spending above the necessary amount to clean up industrial waste. Advanced Soil Enrichment converts standard and fertile environments to gaias with double normal population growth and 50% larger base size, for a cost of 300 BC.
- **Terraforming** increases the effective size of a planet by improving their habitability. The bonus following the title indicates how much the planet size can be increased by. Terraforming costs 5 BC per unit of size increase. Advanced terraforming techniques eventually decrease the cost to 2 BC per size increase. If your planet can be terraformed beyond its current maximum, a "+" is displayed next to its POP MAX # on the Control Screen.

PROPULSION TECHNOLOGY

Propulsion sciences are used to develop new and more powerful ship engines, extend ship ranges, and construct special power systems such as inertial nullifiers, subspace teleporters, and high energy focus units.

- **Combat Transporters** provide instantaneous teleportation of ground troops to planet surfaces at great distances. Colony transports equipped with these teleporters have a 50% chance of landing troops on enemy planets before the transport enters combat in orbit.
- **Displacement Devices** shift your ships into and out of



LYNX

Levin Emanuel

subspace several times per second, making all weapons (but not Special Devices) miss 1/3rd of the time.

- **High Energy Focuses** increase the range of a ship's weapons by three spaces. A fusion beam normally has a 1 space range. Ships equipped with a high energy focus can attack out to 4 spaces with their fusion beams. The ship still takes the normal range penalties for firing beyond 1 space.
- **Increased Ship Ranges** allow your starships to travel deeper into the galaxy. At the start of the game your ships can move 3 parsecs from colony worlds. Through improvements in fuels, your range increases until eventually you can move anywhere on the galaxy map.
- **Inertial Stabilisers and Nullifiers** create a sub-space field that reduces or negates the effects of inertia. Ships mounted with inertial stabilisers add +2 to their manoeuvrability. Ships with inertial nullifiers add +4.
- **Pulsars** are waves of energy generated by specially modified engines. They damage all ships adjacent to yours. The maximum damage an Energy Pulsar can do is 5 points plus 1 point for every two ships firing pulsars. For Ionic Pulsars, the damage can be up to 10 points plus one for each attacking ship.
- **Star Gates** provide instantaneous movement of your ships and transports between any two star systems equipped with star gates. Travel time takes only one year regardless of distance. A star gate is built like a ship, costs 3000 BC to build, and 100 BC per year to maintain.
- **Starship Engines** control the speed at which starships move on the galaxy map and the base defence the starships have in combat. Engine speeds are measured in units of "warp" which translate to one parsec of movement per year. Furthermore, for each level of warp an engine has, it produces 10 units of power to supply to other systems.
- **Sub Space Interdictors** create intense gravity walls around your planets. They are automatically added to your planet's defenses, and prevent ships from using subspace teleporters.
- **Subspace Teleporters** teleport ships to anywhere on the space combat map instead of normal movement. In addition, the teleporting ships always attack first after moving, regardless of initiatives. Subspace teleporters are nullified near planets with Sub Space Interdictors.
- **Warp Dissipators** disrupt enemy starship engines, reducing their combat speed by up to 1 each shot. The weapon has a 3 space range, and damaged engines are repaired after the combat is over.

Le Viking Player

Weapons Tech deals exclusively with the development of advanced weapon systems. Weapons are divided into four groups: beams, missiles, bombs, and hand weapons.

- **Anti-Missile Rockets** intercept and destroy incoming enemy missiles 35% of the time minus 1% per level of the missile .
- **Beam Weapons** are direct fire trans-light weapons that strike their targets almost instantly. Damage for beam weapons is given in a range with the lowest value being scored with a minimum roll needed to hit and maximum damage being scored with the best to hit roll. Beam weapon damage is explained in more detail in the space combat section.
- **Hand Weapons** are personal energy weapons that ground troops can use in enemy assaults. Hand Lasers provide a +5 bonus in ground battles, Ion Rifles +10, Fusion Rifles +20, Hand Phasors +25, and Plasma Rifles +30.
- **Bombs** can only be used against ground based targets. They carry extremely heavy warheads capable of inflicting much more damage than their beam weapon and missile counterparts. Ships equipped with bombs each carry a supply sufficient for ten attacks.
- **Missiles and Torpedoes** are seeking drones that track and follow enemy starships, detonating on contact. If the missile or torpedo hits, the full damage of the warhead is scored against the target. Each missile is equipped with a targeting computer that improves its chances of hitting. The computer rating is added to the launching starship's battle computer mark for calculating the effective attack level of the missile. Ships equipped with missiles have a limited supply of drones, chosen when the ship is designed. Missile supplies are replenished after combat. Torpedoes, on the other hand, can fire endlessly, but the launchers only fire every other turn. Missiles are fully effective against planetary targets, but the damage of torpedoes is halved when penetrating the atmosphere.
- **Stream Projectors** affect all ships in a group, stripping away their armour. Ion Stream Projectors reduce armour by 20% plus an addition 1/2% for every attacking ship, up to a maximum of 50%. Neutron Stream Projectors reduce armour by 40%, plus 1% for every attacking ship, up to a maximum of 75%.

Users Manuel

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Technical Assistance

You can reach Gametek by:

Phone

Please review the Trouble Shooting section before you call. For customer service and technical support, you can call Gametek at 01753 553445 between 9.00am and 5.00pm. We hope you can begin play as fast as possible , so for greatest speed and efficiency, please be at your computer when you call. If you can't be at your computer, then please write down the following information about your computer:brand name and type, sound card type, largest executable program size, and mouse type.

FAX

You can reach technical support by fax at 01753 554340. On your fax please include your phone number and fax number, your computer information 9see above0 and as many details as possible about the problem you are having with the game.

MAIL

If you would like to contact us by mail, write to:

Customer Service Gametek (UK) Ltd
5 Bath Road
Slough
SL1 3UA

Please include your return address, your computer information 9see above), and as many details as possible about the problem you are having with the game.

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Credits

MicroProse Staff

Designer:
Stephen Bardia

Producer:
Jeff Johannigman

Programmers:
Stephen Barcia, Maria Barcia, Ken Burd

Artists:
Maria Barcia, Jeff Dee, George Purdy, Frank Vivirito, Bill Willingham

Music Producer:
The Fat Man (George Alistair Sanger)

Music Composer:
Dave Govett

Sound Software:
John Miles, John Ratcliffe

QA Manager:
Michael Craighead

Lead Testers:
Frank Brown, Destin Strader

Testers:
Jen MacLean, Mike Rea, Tom Lu, Hamilton Chu, Jeff Dinger, John Possidente, Vaughn Thomas, Mick Uhl

Manual Writer:
Stephen Barcia

Manual Design & Layout:
Decarol Smith, Joe Morel

Director of Publications:
Joe Morel

Manual Art:
Bill Willingham

Product Manager:
John Dreibelbis

Package Design:
John Emory

Package Art:
Erik Olson

Special Thanks to Alan Emrich and Tom Hughes
for their invaluable design critiquing and suggestions.

Take-Two Interactive Software, Inc. Staff

Executive Producers:
Ryan Brant, Mark Seremet

Mac Programmers:
Glenn Dill

Quality Assurance:
Tom Rigas, Director, Steve Glastetter, Scott Shust, Don Dillinger, Linda J.Bouck

Marketing & Publicity:
Micheal Glorieux, Lance Seymour

Production:
Kiera Rielly

Graphic Design:
Juan Abad

GameTek Inc. Staff

Producers:
Ben Tuszynski (UK), Travis Williams (US)

Testers:
Ian Gray

Production:
Charlene Carty

Marketing:
Adrian Cale

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AVERTISSEMENT SUR L'ÉPILEPSIE

À IIRE AVANT TOUTE UTILISATION D'UN JEU VIDÉO PAR VOUS-MÊME OU VOTRE ENFANT.

Certaines personnes sont susceptibles de faire des crises d'épilepsie ou d'avoir des pertes de conscience à la vue de certains types de lumières clignotantes ou d'éléments fréquents dans notre environnement quotidien. Ces personnes s'exposent à des crises lorsqu'elles regardent certaines images télévisées ou lorsqu'elles jouent à certains jeux vidéo. Ces phénomènes peuvent apparaître alors même que le sujet n'a pas d'antécédent médical ou n'a jamais été confronté à une crise d'épilepsie.

Si vous-même ou un membre de votre famille avez déjà présenté des symptômes liés à l'épilepsie (crise ou perte de conscience) en présence de stimulations lumineuses, veuillez consulter votre médecin avant toute utilisation.Nous conseillons aux parents d'être attentifs à leurs enfants lorsqu'ils jouent avec des jeux vidéo. Si vous-même ou votre enfant présentez un des symptômes suivants: vertige, trouble de la vision, contraction des yeux ou des muscles, perte de conscience, trouble de l'orientation, mouvement involontaire ou convulsion, veuillez IMMÉDIATEMENT cesser de jouer et consulter un médecin.

PRÉCAUTIONS À PRENDRE DANS TOUS LES CAS POUR L'UTILISATION D'UN JEU VIDÉO

- Ne vous tenez pas trop près de l'écran. Jouez à bonne distance de l'écran de télévision et aussi loin que le permet le cordon de raccordement.
- Utillisez de préférence les jeux vidéo sur un écran de petite taille.
- Evitez de jouer si vous êtes fatigué ou si vous manquez de sommeil.
- Assurez-vous que vous jouez dans une pièce bien éclairée.
- En cours d'utilisation, faites des pauses de dix à quinze mintues toutes les heures.

Le Virtual Master



Gametek (UK) Ltd
5 Bath Road Slough SL1 3UA

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