COSMOS SciFi

Stellar Conflict game rules

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Contents

1 Introduction **6**

1.1 The game and how to win it . . . 6

1.2 About these rules . . . 6

2 Orders **6**

2.1 Administration limit . . . 7

2.2 Command range . . . 9

2.3 Default orders . . . 9

2.4 Diplomatic broadcasts . . . 10

3 The turn report **10**

3.1 Initial turn report (set-up) . . . 11

4 Inter-racial relations **11**

4.1 Primitives . . . 12

5 The map **12**

5.1 Star systems . . . 12

5.2 Stellar dust . . . 15

5.3 Black holes . . . 15

5.4 Mapping radius . . . 15

6 Planets **15**

6.1 Planet size . . . 16

6.2 Minerals & industrial production . . . 16

6.3 Planet frequencies . . . 16

6.4 Planet IDs and names . . . 16

6.5 Home planets . . . 16

7 Population **16**

7.1 Population growth . . . 17

8 Colonies **17**

8.1 Colony IDs . . . 17

8.2 Installations . . . 17

8.3 Happy colonies . . . 19

8.4 Industrial production . . . 19

8.5 Initial colony . . . 20

8.6 Empty colonies . . . 20

8.7 Primitive colonies . . . 21

9 Starships and fleets **21**

9.1 Building ships . . . 21

9.2 Fleets . . . 22

9.3 Movement . . . 23

9.3.1 Graviton drives . . . 24

9.3.2 The jump drives . . . 24

9.4 Cloaking . . . 24

9.5 Ship combat . . . 25

9.5.1 Fleeing combat . . . 26

9.5.2 Weapon and shield types . . . 26

9.6 Repair and upgrades . . . 26

9.7 Special ships . . . 27

9.7.1 Loading and unloading cargo and population from ships . . . 28

9.7.2 Reserving *i.p.* to load on ships . . . 29

9.8 Initial ships . . . 30

9.9 Giving ships (and colonies) to your allies . . . 30

10 Exploration and colonization **31**

10.1 Sharing map information with allies . . . 31

10.2 Colonization . . . 32

11 Colony conquest **32**

11.1 Bombing a colony . . . 32

11.2 Planetary defences . . . 33

11.3 Probing colony defences . . . 34

11.4 Salvage of installations and *i.p.* . . . 34

11.5 Enslaving a colony . . . 34

12 Slaves **36**

12.1 Slave revolts and anarchy . . . 36

13 Gas giant mining **37**

14 Research and technology **38**

14.1 Technology trade between allies . . . 39

14.2 Description of technologies . . . 40

14.2.1 Basic technologies . . . 40

14.2.2 Advanced Technologies . . . 40

14.2.3 Super advanced technologies . . . 41

14.2.4 Exotic technologies . . . 42

15 Working overtime **43**
15.1 Overtime production of research points . . . 43
15.2 Overtime production of administration points . . . 43

16 Race types **44**
16.1 Industrialist . . . 44
16.1.1 Double industrialist . . . 45
16.2 Researcher . . . 45
16.2.1 Double researcher . . . 45
16.3 Administrator . . . 45
16.3.1 Double administrator . . . 45
16.4 Survivor . . . 46
16.4.1 Double survivor . . . 46
16.5 Megaworlder . . . 46
16.5.1 Double megaworlder . . . 46
16.6 Traveller . . . 46
16.6.1 Double traveller . . . 47
16.7 Warlord . . . 47
16.7.1 Double warlord . . . 47
16.8 Diplomat . . . 47
16.8.1 Double diplomat . . . 48
16.9 Slaver . . . 49
16.9.1 Double slaver . . . 49
16.10Xenophobe . . . 50
16.10.1 Double xenophobe . . . 50

17 Initial resources **50**

18 Advanced orders **51**
18.1 Clearing and modifying old orders . . . 51
18.2 Aliases . . . 52
18.2.1 Counting aliases . . . 54
18.3 Timing and coordinating actions . . . 54
18.4 Passing orders to others . . . 55
18.5 Repeating orders . . . 55

19 Complete list of orders **55**

20 Turn event sequence **58**
20.1 Order priority . . . 59
20.1.1 Order priorities, colonies . . . 60
20.1.2 Order priorities, gas giant mining colonies . . . 60
20.1.3 Order priorities, ships . . . 60

21 The team game variant **61**

21.1 The teams . . . 61

21.2 Special restrictions in team games . . . 61

21.3 Team game victory points . . . 61

22 Tips for new players **61**

22.1 Starting positions . . . 62

22.2 Victory points . . . 62

22.3 Population growth . . . 62

22.4 Industrial growth . . . 62

22.5 Research . . . 63

22.6 Colonization . . . 63

22.7 Command range . . . 63

22.8 Combat . . . 63

22.9 Defence . . . 64

22.10 Invasions . . . 64

22.11 Alliances . . . 65

22.12 Finding out where other races are . . . 65

22.13 Administration points . . . 65

23 Tables **68**

List of Tables

1 Types of planets and their characteristics. . . . 68

2 Chances of finding the different types of planets in different systems. . . . 68

3 Ship attacks. . . . 68

4 Ship types. . . . 69

5 Basic technologies. . . . 70

6 Advanced technologies, requires *General Science I*. . . . 70

7 Super advanced technologies, requires *General Science II*. . . . 71

8 Exotic technologies, requires *Exotic Science*. . . . 71

9 Efficiency of industries operatable by one unit of working population. . . . 71

1 Introduction

In COSMOS SciFi: *Stellar Conflict* you play one of a number of galactic races competing for control of habitable planets. The goal of the game is to colonize as many planets as possible and get as large a population as possible. Each race starts off with a single home planet and a few starships. During the game, you must explore star systems to locate habitable planets, send your population to the best planets to found new colonies, develop your colonies to obtain the resources needed for further colonization, develop your military to defend your colonies or attack those of other races, and develop new technology to further colonization and conquest.

1.1 The game and how to win it

The game ends after 12 to 14 turns, the exact length of the game being unknown to the players (until you develop the "technology" *Deep Secrets of Cosmology*). Each turn consists of first 12 action/combat phases and then a special production phase. Each action/combat phase (hereafter referred to just as a phase) consists of first an action part and then a combat part. During the action part of a phase colonies may build installations or new starships and ships may perform various actions such as moving, exploring, founding new colonies, *et cetera*. During the combat part of each phase any space battles are resolved. During the production phase, the populations of the colonies grow, industrial points are produced (these can be used in later turns) and research points are produced (these must be used for research the following turn).

At the end of the game, a victory point score is computed for each player. Points are awarded for colonies on certain types of planets (50 points for terran planets and 20 points for sub-terran), for population (1 point for each population unit in colonies) and for happy population (1 further point for each happy population unit). There are also certain special bonus points you can earn depending on your race type. The winner is the player with the highest score. In your turn report each turn, your current victory point total will be stated (this would be your score if the game had ended that turn). Each player is told only his or her own point score and what all the point scores are, but not which player has which score.

Example: In a 14-player game player NN at the end of turn 4 has 3 colonies on terran planets and 103 units of population, none of which is "happy". He or she can read in the turn report that this is worth 253 victory points and that the scores of all players are, from highest to lowest, 276, 255, 253, 253, 250, 219, 214, 188, 179, 175, 170, 163, 163 and 150. NN can thus see that he or she currently shares a 3rd place with another player.

1.2 About these rules

These rules are all you need to know to play COSMOS SciFi: Stellar Conflict. You need to read all the rules and at least familiarize yourself with the mechanisms for expanding your colonies and founding new ones. This means at least learning the orders construct (section 8.2), build (section 9.1), move (section 9.3), explore (section 10) and colonize (section 10.2).

Wherever an order is explained in these rules, the order format will be shown with the order name in **bold** and any arguments to the order in *italics*, like this:

order-name *argument1 argument2*

Many of the more important rules are repeated in several different sections. This hopefully makes it easier to find a specific rule you are looking for, when using the rules for reference during the game.

Section 22 contains some tips on how to play which may be useful to new players.

The important tables of ship types and technologies are near the end of the rulebook, in section 23.

Last in the rulebook is an index giving page references for important key words.

2 Orders

You control your race by giving orders to your space fleets and to your colonies. Each turn, you can give a limited number of orders. To receive orders, your space ships must (at least initially) be within a short distance of your colonies. Section 19 is a complete alphabetical list of all the orders in the game, with references to the relevant sections where the orders are described in detail.

General orders are orders which you can give to your race as a whole. This includes orders that specify which other races are your enemies and which are your allies, orders about which technologies to research, and orders to (re)name colonized planets.

Colony orders are orders which you can give to your colonies such as orders for building or repairing starships or orders to build new industries or research centres.

Fleet orders are orders which you give to your fleets of starships. This will typically be movement orders, invasion orders or special orders that can only be given to special types of ships (such as the *colonize* order, which can only be given to fleets with colony transports or exodus ships, or the *load* and *unload* orders, which can only be given to fleets with freighters or ships capable of loading passengers).

You specify your orders as follows: First you write your general orders (orders given to the race as a whole). Then you write orders for your colonies and fleets in any order you wish. Orders for each colony must be preceded by the colony ID and orders for each fleet must be preceded by the ID of the starship that acts as flagship for the fleet.

If a fleet or colony has orders left over from the previous turn (because its orders took longer than 12 phases to execute), they will be listed in your status report. New orders given to the fleet or colony will be appended to the orders it already has. If you do not wish this but want the new orders to replace the old orders, you should use the *break* or *clear* order described in section 19.

The following is an example of a (small) set of orders for race number 1. This example uses the example map in figure 1 (see section 5 for an explanation of the map and the term "hex"). C138 is a colony in hex H1414, S0100 is a Corvette in hex H1415, S0101 is a Scout in hex H1417 and S0103 is an Explorer in hex H1211:

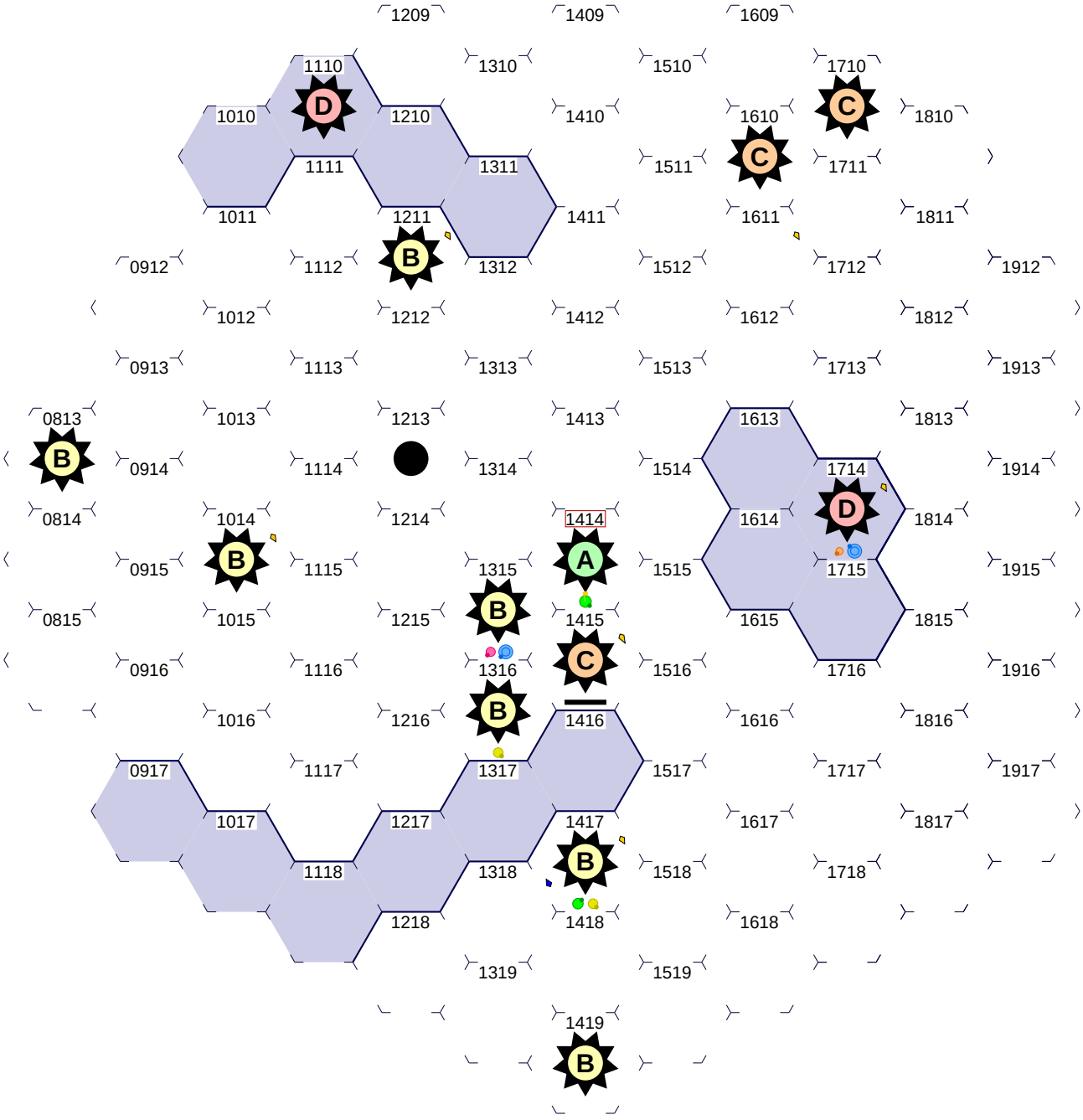
```
race 1:
research "Improved Industrial Engineering"

C138:
  build "colony transport"
    orders:
     farmove H1417
     colonize
    .
  construct research 5
  construct industries

S0100: @ corvette
  farmove H1417

S0101: @ scout
  farmove H1419
  explore

S0103: @ explorer
  explore
  move H1210 H1110
  explore
```

The first order (*research*) is a general order, then follows 3 orders (with two embedded orders in the *build* order) for the colony C138: Build a Colony Transport (and tell it to go to hex H1417 and found a new colony), construct 5 research centres and finally construct industries for any resources left. The orders of the ship S0100 are to move to hex H1417 (presumably to protect the Colony Transport when it gets there). The orders for S0101 are to move to H1419 and explore that hex. S0103 is told to explore the hex it is in and then move to H1110 (via H1210) and explore.

2.1 Administration limit

You can only give a limited number of orders each turn. Initially you have an *administration limit* of 20 orders (unless you play an *administrator* race, see section 16.3) and later this may be increased to an administration limit of 28 by developing

Figure 1: An example map. This is what your map could look like after the first turn has been played (if you play a *traveller* and build a few *explorers*).



Superlogistics. All orders count against your administration limit, except as specified below. Note that orders embedded in other orders (such as in *build* or *repeat* orders) count as separate orders.

Some orders are *free orders*. You can give any number of free orders each turn, they do not count towards your administration limit. The following orders are free: *research*, *name*, *policy*, *alias*, *myalias*, *repair*, *reserve*, *cloak*, *uncloak*, *type* (used only in turn 1) and *spy* (only available to *diplomat* races). All these except *myalias*, *repair*, *reserve*, *cloak* and *uncloak* are general orders.

The first two (non-*repair*/*reserve*) orders (per turn) given to each colony do not count against the administration limit. Any (non-*repair*/*reserve*) order in excess of the two do count. These extra "free" colony orders cannot be transferred to other colonies or to fleets. Embedded orders count as separate orders for this purpose, thus if the first order for a colony is a *build* with some embedded orders to be given to the ship to be built, then the *build* will be the first "free" order and the first embedded order will be the second "free" order.

All orders (except *myalias*, *cloak* and *uncloak*) given to fleets count against your administration limit, except that fleets composed entirely of *scouts* and/or *explorers* get one "free" order per turn. This applies even to scouts and explorers who are broken out of a fleet to receive their own orders.

Example: For the order example given above, the first order is free, the *build* order for C138 and its embedded *farmove* order are not counted but the embedded *colonize* order and the two construct orders are, and four of the six orders for the three ships are also counted while the first order for the scout and the first order for the explorer are not. This means a total of 7 orders counted against the administration limit of race number 1.

Orders which are being carried over from a previous turn (such as a *move* that has not finished) do not count against your administration limit. Only new orders count (i.e. those that are entered that turn).

If your administration limit is exceeded, the last of the orders you have written will be ignored. The online order checker will warn you when this happens.

Note: Apart from determining which orders will be skipped in case you exceed your administration limit, the order in which you write your fleets and colonies with their orders is not important. The order in which you write the orders for each individual fleet or colony *is* important however, as it indicates in which order the orders should be executed. So in the example orders above it does not matter whether the orders for C138 are written before or after the orders for S0100, but the order of the three orders for C138 matters as it specifies in which sequence the colony should build and construct things (and thus spend its resources).

You may temporarily increase your administration limit by "buying" more administration points with the *overtime* order, see section 15.

2.2 Command range

At the start of the game (and until you develop the *Tachyon Communicator*), you can only give orders to fleets which are within 5 hexes of one of your colonies (this limit is 7 hexes if you play a *traveller* race, see section 16.6). You may order your ships to move beyond the command range, but once they are out of range, you cannot give them new orders, until either they are back within range, a colony has been established within 5 (or 7) hexes of the fleet, or you develop the *Tachyon Communicator*.

The range of 5 (or 7) hexes is measured inclusive the hex where the ship is located but exclusive the hex of the colony. Orders to fleets outside command range are ignored, but they *do* count against your administration limit. The order checker will warn you if you try to give orders to ships which are out of range.

Fleets which consist entirely of scouts and/or explorers are not limited by the command range.

In the special case where you have lost all your colonies (and have not developed the *Tachyon Communicator*) but you still have colony transports or exodus ships left, you may give orders to fleets which contain ships of one of these types (but not to other fleets, except scout/explorer fleets).

2.3 Default orders

If, for some reason, your orders are not in by the deadline, those of your colonies which do not have orders carried over from last turn will execute a set of default orders:

1. Your colonies build as many *colony transports* and/or *exodus ships* as required to allow maximum population growth without risk of exceeding maximum colony size. Exodus ships will only be built if the colony has a size 30 or bigger starport. If the starport size is less than the 10 required to build a colony transport, the *starport* is expanded first.
2. For any remaining resources, colonies will construct *industries*, up to the maximum which may be operated on the planet (with the available technology), but only if their potential accumulated production until the end of the game exceeds their cost. Then *defence bases* will be constructed, up to the maximum allowed, and then *planet shields*, if the technology is available and any resources remain. Finally, *research centres* will be constructed, up to half the number which can be supplied by the maximum production.

Your fleets will not receive or execute any default orders.

2.4 Diplomatic broadcasts

You can enter messages to be "broadcast" in the turn reports of all players (or just specific players) with your orders. Details on how to do this are at the game web site at:

`http://www.pbem.dk/help/messages.html`

(or just choose "Help!" from the left hand site menu at `pbem.dk` and find the link to "Diplomatic messages").

3 The turn report

Each turn you will receive a turn report. A turn report consists of the following parts:

A map. See section 5.

Map notes. These notes list what you have seen in the galaxy, in hex ID order. A hex is only listed if you have seen ships or planets in it, or if you have explored it (see section 10). All planets and colonies you have ever seen are listed (as these are not capable of moving around). Only ships seen during the same turn are listed (i.e. those only seen in previous turns are not listed). A ship may have a phase number after it: this is the last phase in which you saw it. If no phase is specified, it means you can still see it at the end of the turn. Furthermore it may be listed what a ship was/is doing (if it is obvious), i.e. "moved to H0423", "moving towards H0423", *et cetera*. You may check the event report (described below) for the phase in question for further details.

Status report. This gives an overview of the status of your race. It is composed of several parts:

Victory points: The number of victory points you have.

Race type: The race type you play, see section 16.

Administration: How many administration points you have for giving orders next turn (and how much it costs to buy more with the *overtime* order, see section 15).

Research: The number of research points available next turn (and how many you can at most get with the *overtime* order, see section 15), followed by how many you used this turn. Then follows an overview of the technologies you have developed and those you can research next turn, see section 14.

Industrial production: An overview of the industry points (abbreviated *i.p.*) you produced and used in the turn and how many are available next turn (you must look in the section describing your units in detail to see exactly how the available *i.p.* are distributed).

Population: A summary of population status and growth this turn.

Policies: Your policies towards other races.

Units: A list of all your colonies (and gas giant mining colonies) and ships, starting with colonies. This list gives you details of population, resources, installations, ship technologies, cloaked ships and fleets which are out of command range. Fleets are listed by flagship ID. If a unit has orders which it has not yet finished, these are listed after the unit. The first order may have a "(begun-*x*)" appended, where *x* indicates the phase in which something happens next with that order, assuming nothing disturbs the unit (e.g. for the move order this is the phase in which the fleet will enter the next hex).

Units dissolved: A list of the colony transports and exodus ships which have been dismantled in colonization during this turn.

Units lost: A list of all your ships destroyed in combat (and colonies destroyed by invasions) during this turn. The phase and place of destruction are listed for each unit.

Event report. This report states how many orders you gave this turn and how many were counted against your administration limit. Then follows a phase-by-phase description of the events of the 12 action/combat phases. Last in the event report are statistics on victory point scores, production, research, population, number of colonies and fleet sizes. For each statistic the figures are sorted by value, not by player number, so it is not possible to tell exactly which players have which statistics. Finally, the combined *i.p.* value of all ships destroyed during the turn is listed.

Notes & Messages. This part of your turn report contains your orders as processed by the game engine (so you may check them against what you think you wrote). It also contains the diplomatic messages broadcast by yourself and other races and any special messages from the game master.

3.1 Initial turn report (set-up)

With your set-up you will receive a turn report labelled "Turn 0". This is like a normal turn report, except there is no event report. As you receive the turn 0 report before you choose race type (see section 16), the information on your ships and resources show only the "standard" set-up. The turn 0 report will contain some hints on the immediate surroundings of your home system (such as the number of terrans and sub-terran worlds within 4 hexes, if any).

4 Inter-racial relations

Whenever ships of one race encounters ships of another race, they will normally fight each other. However, if both races have declared each other neutral or allied, no combat will take place. From the start of the game all races are by default declared neutral by you, except if you play a *xenophobe* race, in which case you consider all other races enemies at all times (and therefore cannot use the *policy* order).

To declare another race allied, neutral or enemy, use the *policy* order (this is a free general order):

policy *race-number policy*
The policy specified by this order (either "ally", "neutral" or "enemy") immediately becomes the new policy of your race towards the specified race. Instead of the race number you may give the one to three letter abbreviation used for the race in the event report and map notes.

The main effect of being *allied* is that it allows some limited trade in *i.p.* and technology. Freighters may unload at allied colonies (but cannot load from them, see section 9.7). Ambassador ships may teach prerequisites of technologies to allied colonies or may be taught by them (see section 14.1). Ships may also be transferred between allies (see section 9.9). There is no mechanism to ensure that allies keep their trade agreements, trade must work on mutual trust.

A side effect of being *allied* is that in battles involving cloaked enemy ships, your ships will be forewarned by any allied ships in the system carrying the *Tachyon Scanner*, see section 9.4. Allies will also try to spare your population when attacking colonies where they are being held as slaves, see section 11.5.

Policy changes are secret, so you cannot know other races' policies towards you until you encounter their ships. **Exceptions:** If you are a *diplomat* race (see section 16.8) or you have *ambassador ships* at colonies of allies (see section 9.7), you are able to monitor other races' policies towards you.

An "allied" or "neutral" race is automatically declared "enemy" at the end of a phase in which its ships attack your ships or colonies. However, during this phase your ships (and colonies) will be totally unprepared for combat against that race and will therefore not be prepared to defend themselves. Furthermore, such "surprise attacks" have greater effect than normal attacks, see section 9.5 and Table 3.

Diplomat races get victory points for each race allied to them, see section 16.8.

4.1 Primitives

Some of the planets of the universe are inhabited by less developed races who have not yet discovered how to travel between the stars, so-called *primitives*. Specifically, all *terran* type planets will be inhabited by primitives at the start of the game. As there is no reason to distinguish between the many different primitive races of the universe, all primitive colonies (and late in the game their orbital defences) are for game purposes owned by one race: race number 99 "Primitives" with abbreviation *Pr*.

Primitives are xenophobic and consider all races their enemies, except *double diplomat* races who always have neutral relations with primitives; see section 16.8.1.

Primitives never develop any technology enabling them to leave their start systems or to colonize other planets within their systems. They do, however, develop some weapon technology over the course of the game: In turn 4, primitives develop *ion cannons*, in turn 5 the *energy shield*, in turn 6 *antimatter guns*, in turn 8 the *graviton shield* and in turn 11 the *antimatter shield* (see section 9.5.2).

See section 8.7 for more about primitives and their colonies.

5 The map

Every turn you get an updated map of the portion of the galaxy you have explored so far (or that your allies have disclosed information about). The galaxy is divided into hexagons (called *hexes* for short). The number of hexes varies depending on the number of players in the game. As you explore more and more of the galaxy, your map will expand. An example map is shown in figure 1 and a map legend in figure 4. You can get the map in several "flavours" depending on your preferences: in colour for on-screen viewing or colour printing, in grayscale for a non-colour printer, with dark background or white background.[1]

Hexes are identified by ID codes of the form "Hccrr", where cc is a two-digit column number and rr a two-digit row number, e.g. "H1204" for the fourth hex of column 12. These ID codes are used for specifying movement and for identifying hexes in the turn reports. On the map, hex ID numbers are shown without the initial "H" to make them easier to read, and you can in fact omit the "H" when you write hex ID numbers in your orders (but be careful to no confuse hex ID numbers with ship ID numbers which are also four digits but prefixed with an "S"). If you have a colony in a hex, a frame will be drawn around its ID number on your map (see figures 3 and 4).

Note that the different races of the galaxy (the different players) use different coordinate systems (except in team games, see section 21), so no two races will use the same hex ID to refer to the same star system. In fact the hex ID numbers you use will always have your original home system as the centre of the universe (e.g. in a galaxy measuring 28 columns by 28 rows of hexes the centre is H1414, so every race will use a coordinate system which places their home system in H1414). This means that when you communicate with other players you cannot use hex ID numbers to identify e.g. star systems, you must use landmarks such as planets or the overall pattern of map features to find a common reference.

The galaxy wraps around at its edges so that the hexes at the top are connected to those at the bottom, and the rightmost column of hexes is connected to the leftmost column in such a way that if you move from any hex in a straight line in one of the six main directions (north, north-east, south-east, south, south-west or north-west) you will end up in your starting hex again, see figure 2.

A hex can contain either deep space (nothing), stellar dust, a star system or a black hole. Some star systems (type "D" systems) are in hexes with stellar dust.

5.1 Star systems

There are four types of star systems: "A", "B", "C" and "D". This represents different types of stars with different sizes and temperatures. Type "A" systems are those star systems that are most likely to have habitable planets orbiting them, this chance decreases as system types go from "A" to "D".

Once a star system is explored, its planets will be shown on the map below the star symbol (see figure 3 and figure 4). A planet is drawn so that its area is proportional to the population that the planet may support (the planet size). The type of planet is indicated by its colour. A moon is also drawn, its placement indicating the *mineral content* of the planet: upper

[1] The dark background maps may look more like interstellar space than the white background maps, but printing them out will eat away your printer supplies, so they are primarily meant for on-screen viewing.

Figure 2: Illustration of wrap-around at the edges of a (small) 6 by 6 galaxy. If you start in any hex (such as H0403) and travel 6 hexes in any one direction you will end up in the same hex again. The east/west wrap-around is displaced by half the column height to yield this geometry. In this example, when you go north-east from H0602 you do *not* end up in H0102 but rather 3 hexes displaced in hex H0105.

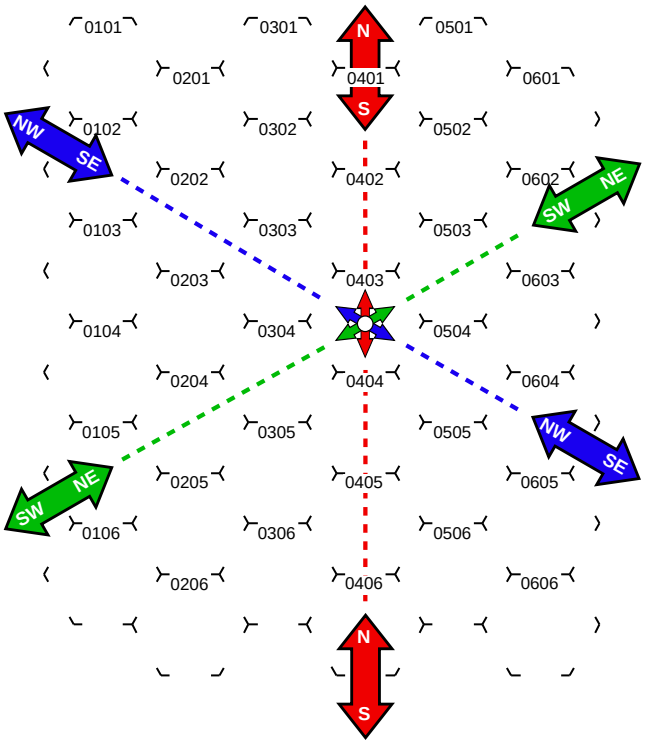


Figure 3: The anatomy of a (star system) hex on the map.

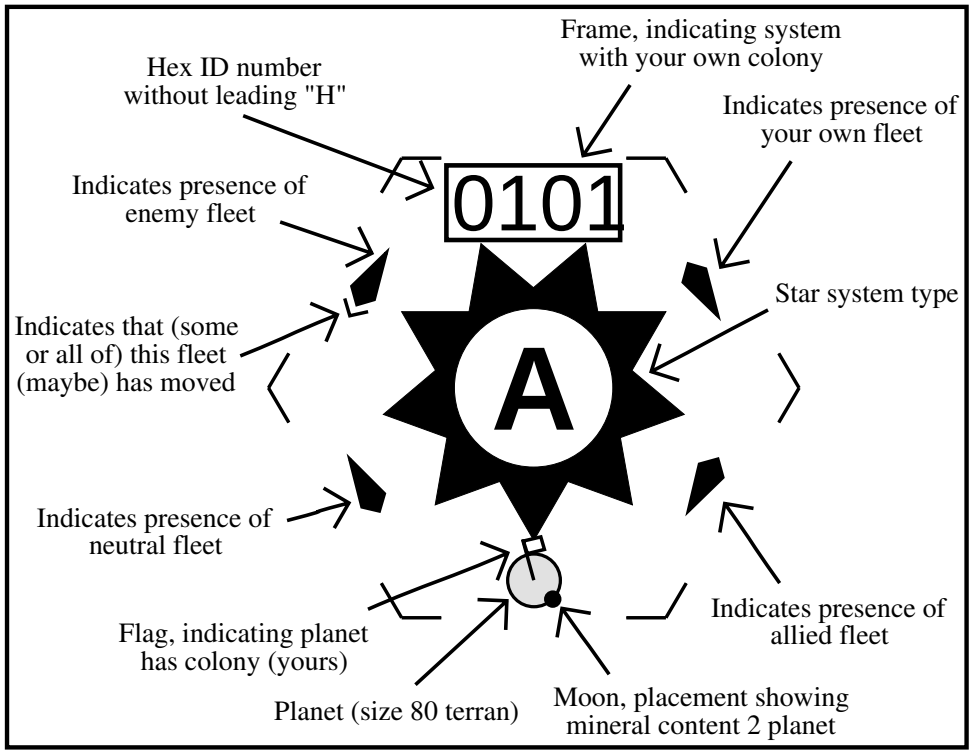
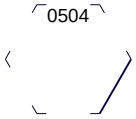
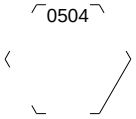
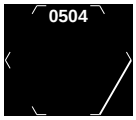
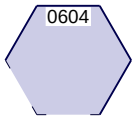
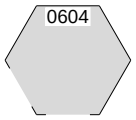
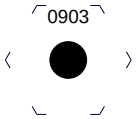
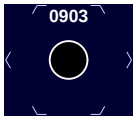
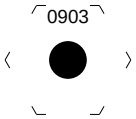
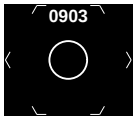
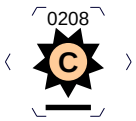
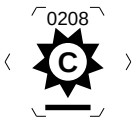
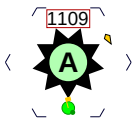
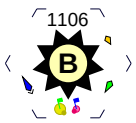


Figure 4: Map symbols shown for the four different map flavours.

Colour		B/W		Explanation
Normal	**Dark**	**Normal**	**Dark**	(Planets listed with *size*/*minerals*)
				**Empty space**, SE edge bordering on *stellar dust* or a *D system*.
				**Stellar dust**, S and SW edges bordering other dust hexes and the rest bordering non-dust hexes.
				**Black hole.**
				Type A system, not yet explored.
				Type B system containing two planets: a **terran** 70/1 (left) and a **gas giant** –/3 (right).
				**Type C system** containing no usable planets.
				Type D system containing two planets: a **minimal terran** 40/2 (left) and a **barren** 30/3 (right).
				A terran 80/2 planet with **your colony**; **your ships** (2 guns total). Note the framed hex ID indicating you have a colony in the system.
				A **sub-terran** 60/2 with an **allied colony** (left); a barren 20/3 with a **neutral colony** (right); your ships (0 guns); **allied ships** (8 guns); **neutral ships** (32 guns, moved).
				A minimal terran 40/3 with an **enemy colony** (left); a barren 55/3 (middle); a gas giant –/4 (right); **enemy ships** (1000 or more guns, may have moved).

right means 1, lower right 2, lower left 3 and upper left 4. If you know of a colony on the planet a small flag is drawn, its colour indicating whether the colony is yours or belongs to an ally, a neutral or an enemy. All this information is also present in the "map notes" section of your text report, so if you cannot make out all the little symbols (or need to know the exact planet size) you can refer to that.

All interaction between ships takes place in star systems (and in hexes with black holes) - empty space is simply too big for ships to find each other. Ships of different races in empty space hexes will not sight each other and cannot fight each other.

If ships are present in a hex, one or more ship markers are drawn on the map (see figure 3). The size of the ship marker(s) increases with increasing firepower of the fleet(s) in the hex, maxing out at 1000 guns or more. It may sometimes happen that ships are spotted in a hex during the turn but that you do not observe them at the end of the turn and in this case the corresponding ship marker gets a chevron after its tail, indicating that (some of) the ships in that fleet (maybe) moved away.

5.2 Stellar dust

The only effect of stellar dust is that starships moving through hexes with stellar dust have to slow down. See section 9.3.

5.3 Black holes

Black holes are stellar objects which are so dense that not even light can escape them. Initially, no starships can enter hexes containing black holes. However, if a race develops the *Graviton Drive*, the ships of that race may enter a hex with a black hole and use the enormous gravity field to *flip* to another point in space.

5.4 Mapping radius

Your map will expand as you push outwards from your initial colony. All ships will map the hexes in a one hex radius around them, *explorers* will map a two hex radius. Each new colony you found will map a radius of four hexes around its system. The *Graviton Scanner* technology will increase the mapping radius of all your colonies and those of your ships equipped with the scanner by 1. Similarly, *Tachyon Scanner* technology will increase mapping radius by 2 (in total, not cumulative with the *Graviton Scanner*).

Note that the mapping performed by colonies and ships gives you only the basic types of hexes, not information on planets or colonies or ships of other races. To get this information you need to *explore* hexes, see section 10.

Map information can be shared with your allies using the *disclose* order, see section 10.1.

6 Planets

Most stars (in this game anyway) have planets orbiting them. The object of the game is to colonize as many good planets as possible and get as large a population as possible. There are 5 types of planets:

Terran planets are planets which are very much like the Earth - very habitable. Each terran planet that you colonize is worth 50 victory points.

Sub-terran planets are not quite as perfect as terran planets but are still habitable. The technology *Terraforming II* allows a colony on a sub-terran planet to convert it to a terran planet, permanently. A colony on a sub-terran planet is worth 20 victory points.

Minimal terran planets are planets barely able to support life, but a colony may struggle through on a minimal terran planet anyway. The technology *Terraforming I* allows a colony on a minimal terran planet to convert it to a sub-terran planet, permanently. Colonies on minimal terran planets are not worth any victory points.

Barren planets are uninhabitable rock balls where mining colonies can be established. Barren planets are always very mineral rich. Colonies on barren planets are not worth any victory points.

Gas giants are giant planets like Jupiter or Saturn, mainly made up of gasses. They are not habitable, but with *Gas Giant Mining* they may be mined for raw materials.

6.1 Planet size

Each planet has a "size" which determines the maximum size of a colony on that planet. It is not a physical size but a measure of how large a population the planet can sustain. Planet sizes are always multiples of 5. Table 1 lists the size ranges for the different types of planets.

6.2 Minerals & industrial production

Each planet has a *mineral content* which determines the possible industrial output from industries placed on the planet. Each *industry* in a colony produces a number of industry points (*i.p.*) equal to the mineral content of the planet.

On terran, sub-terran and minimal terran planets, colonies will have an industrial output even without industries. This is independent of the mineral content. On barren planets, there is no such extra output as everything is needed to keep the colony alive.

Table 1 lists possible mineral content for each planet type, as well as the extra industrial output for each point of colonists (fractions are rounded down).

6.3 Planet frequencies

The different types of planets are found in the different types of star systems with different frequencies. There may be more than one planet in a star system, but at most one planet at each star will be a terran planet. Gas giants never occur alone (as a colony is needed to exploit a gas giant). A few star systems have no usable planets at all.

Table 2 specifies the probability of finding at least one of the different planet types in the different types of star systems.

6.4 Planet IDs and names

Each planet has an unique ID of the form "Pxxx", where xxx is three numerical digits, e.g. "P314" or "P003". This ID code identifies the planet and is used in orders referring to the planet.

Each planet also has a name. This name cannot be used to identify the planet, as different planets may have the same name. The planet names merely add spice to the map notes and the turn reports.

At the start of the game all planets have random alphanumeric codes as names. It is possible, once a planet has been colonized, to rename the planet. This is done with the free general order *name*, as follows:

name *planet-number name*

Names may not contain any characters that are not either letters, numerical digits, spaces or one of the special characters "−" (dash) and "′" (apostrophe), and they must be between 2 and 32 characters long. Numbers are only allowed in names if they are at most three digits long and are immediately followed by a letter (such as in "2nd Home").

6.5 Home planets

Each race (player) starts off with a colony on a special terran home planet of size 80 and mineral content 2. There are no other planets in home systems. On your own home planet you have an extra production (see section 8.4) of 2 *i.p.* per population unit while you will only have an extra production of 1.5 *i.p.* per population unit on other races' home planets, if you should ever establish colonies there.

All home systems are type "A" systems. They are at least 6 hexes apart, and yet there is at most 8 hexes to the nearest neighbour (counting the hex of the home system of the neighbour but not counting the hex of your own home system).

7 Population

All your population is in your colonies (including gas giant mining colonies) and in your *colony transports* (or *exodus ships* and *stasis transports*). You will be out of the game if you ever lose your entire population or you have population only in *stasis transports* or gas giant mining colonies and no regular colonies to unload them to.

Population is measured in "population units", an abstract measure where each unit represents several million individuals.

At the end of the game, you receive 1 victory point for every population unit in your colonies, including gas giant mining colonies. Population in spaceships is not counted for scoring purposes, so it is vital that all your population is in colonies at the end of the last turn (unless you play a *double traveller* race, see section 16.6.1).

You receive 1 additional victory point for every *happy* population unit in your colonies. Happy population is population living in *happy colonies*, see section 8.3. Population in gas giant mining colonies or spaceships is never happy (not even *travellers*).

7.1 Population growth

In the production phase at the end of each turn, before industrial production, the population may grow in colonies on terran and sub-terran worlds. The population on terran worlds grows by 20% each turn. On sub-terran worlds it grows by 10% (unless you play a *survivor* race in which case it grows more, see section 16.4).

Assume, for example, that a colony on a sub-terran world has a population size of 47. 10% of 47 is 4.7, so the colony grows with at least 4 points. The last 0.7 is converted to a 70% chance that the colony grows by a fifth point (so in this example there is a 70% chance that the colony grows by 5 points and a 30% chance that it only grows by 4 points).

The population of a colony will never grow beyond the maximum size of the colony (so excess population growth will be lost). To maximise your victory points and your production potential you should always try to ensure that there is enough room for full population growth in all your colonies.

The technology of *Cloning* allows population growth on barren and minimal terran planets. The growth rate is then 10% (as for sub-terran worlds). The growth rates of terran and sub-terran colonies are not affected by *cloning*. *Survivor* races have the 10% population growth on barren and minimal terran planets even without *Cloning*, see section 16.4.

Population in spaceships never grows (unless you play a *double survivor* race, see section 16.4.1).

8 Colonies

Colonies are settlements on planets. At the start of the game, each player has one colony, located on his or her "home planet". Further colonies are founded by building *colony transports* or *exodus ships*, moving them to other star systems and having them colonize new planets. There can never be more than one colony on a planet (though there may be one colony on each planet in a multi-planet system).

8.1 Colony IDs

Each colony has a unique ID code to identify it. This number is used when giving the colony orders or to refer to the colony in orders given to fleets (such as the *bomb*, *enslave*, *load* and *unload* orders). A colony ID is always equal to the planet ID, except the leading "P" is replaced by a "C", so for example the colony on planet "P342" will have ID "C342". This means you will always know the ID of a colony if you know the ID of its planet. This is useful for example if you wish to unload cargo to a colony in the same turn you create it.

8.2 Installations

Installations are structures built by colonies. There are the following types of installations:

Industries: These are facilities for producing *i.p.* (industry points), the basic resource used to build starships and installations. The output of each industry is one *i.p.* multiplied by the mineral content of the planet. A colony cannot operate more than one industry per working population unit (although more may be built) until the development of *Robotic Industry*, after which each working population unit may operate up to 3 industries. After the development of *Advanced Cybernetics*, each working population unit may operate up to 5 industries, and with *Artificial Intelligence* each working population unit may operate up to 7 industries. At the start of the game, each industry costs a number of *i.p.* to build equal to the mineral content of the planet plus 3 *i.p.* After the development of *Improved Industrial Engineering* each industry costs only 2 *i.p.* plus planet mineral content *i.p.* to build (i.e.\ the cost is reduced by 1 *i.p.*). So e.g. in your starting colony which is on a mineral content 2 planet you must pay 5 *i.p.* per industry you build initially and 4 *i.p.* per industry after you get *Improved Industrial Engineering*.

Starport: To build starships, a colony must have a starport. This represents the facilities for transport from ground to orbit. When a colony is first founded, it automatically builds a size 5 starport (exception: the colonies of a *traveller* race build size 10 starports, see section 16.6). Thereafter the starport may be expanded, each size point costing 4 *i.p.* until the development of *Efficient Construction*, after which it costs 3 *i.p.* A colony may not build or refit ships which are larger than the size of its starport. It may repair larger ships as long as it has any starport at all, and loading and unloading of *i.p.* or population e.g. to/from freighters and gas giant mining colonies may also take place even with a minimal starport.

Defence bases: These are planetary defences used to fend off invasions of the colony (see section 11). The more defence bases, the better the colony will be able to defend itself from invasion. Defence bases also help keeping any slave population in check, see section 12.1. Each defence base costs 5 *i.p.* until the development of *Efficient Construction*, after which each base costs only 4 *i.p.* to build. After the development of *Robotic Army* defence bases cost only 3 *i.p.* to build. A defence base has an attack strength equal to one starship gun. A colony can operate at most 2 defence bases per fighting population unit until the technology *Robotic Army* is developed, after which a colony may operate up to 8 defence bases per fighting population unit, see section 11.2. A colony may not build more than 5 defence bases more than the maximum number of operable bases. In case the number of operable bases is reduced any excess defence bases will not be removed; the colony is just unable to build more. Unlike the weapons of starships, the weapons of defence bases are automatically upgraded free of cost when higher technology weapons become available. Note that defence bases *only* attack ships which are invading the colony and cannot attack enemy ships which are merely present in the star system. Defence bases cannot attack in the phase they are constructed, but they *can* be destroyed in that phase.

Research centres: These produce *r.p.* (research points). Initially each research centre converts two *i.p.* from the colony to one *r.p.* If *General Science I* has been developed, each research centre converts the two *i.p.* used to two *r.p.* and after *General Science II* has been developed, each centre converts the two *i.p.* to three *r.p.* This conversion happens immediately after industrial production at the end of the turn. Each research centre costs 3 *i.p.* to build, except for *double researcher* races who pay only 2 *i.p.* per research centre (see section 16.2.1). Research centres may be dismantled if a player finds that too many *i.p.* are being spent on research on a planet.

Shields: After the development of the *Planet Shield*, shields can be installed in any of your colonies. Each colony can have up to 200 shields. The shields protect against attacks from space (see section 11). Each shield costs 1 *i.p.*

Installations are constructed by the construct order. This is a colony order. The format is like this:

construct *installation-type amount*
construct *installation-type*
Installation type must be either “industries”, “starport”, “bases”, “research” or “shields”, and the amount (if given) is the number of installations to construct. For example, the order

```
construct industries 5
```

means construct 5 industries. If no amount is given, the colony will construct as much as it can, subject to *i.p.* and other limitations. So, for example:

```
construct industries
```

means “construct as many industries as possible”. Construction is instantaneous and the necessary *i.p.* must be present in the colony. If there are not enough *i.p.*, only as many installations as can be paid for will be constructed.

To dismantle installations, use the *dismantle* order:

dismantle *installation-type amount*
This dismantles the given amount of the given installation type, recovering 1 *i.p.* of the original cost per installation dismantled, except when dismantling *planet shields* (and except when dismantling industries in *gas giant mining colonies*, see section 13). The *i.p.* recovered may be used immediately in orders following the *dismantle* order.

8.3 Happy colonies

A well-run, balanced colony makes for a happy population. Having happy population is important on the last turn of the game because each unit of it is worth an extra victory point over the normal one point per unit.

For a colony to count as a *happy colony* in any given turn, the following conditions must be met at the end of the turn:

1. There must be at least 20 regular population units in the colony.
2. There must have been room for full population growth that turn, i.e. population growth must not have been capped by the maximum colony size. The same goes for growth of your own slave caste population for *double slavers*.
3. The colony must not have been used in an *overtime* order that turn.
4. The planet type must allow population growth for your race. That means you must play a *survivor* or have *Cloning* to achieve a happy colony on a barren or minimal terran planet.
5. If you have terraforming technologies, the planet *must* have been terraformed to its best possible type. That means a colony cannot be happy on a minimal terran planet if you have *Terraforming I* or better and cannot be happy on a sub-terran planet if you have *Terraforming II* or better.
6. The number of industries in the colony must be between one third and two thirds of the maximum operable by the working population. If e.g. you have *Advanced Cybernetics* and a colony has a working population of 43 units then the number of industries must be between 72 and 143 inclusive (as the maximum that can be operated is 215).
7. The number of defence bases must be at least equal to half the number of regular population units (rounded down).
8. The number of research centres must be at least equal to half the number of regular population units (rounded down).
9. The size of the starport must be at least equal to half the number of regular population units (rounded down). **Exception:** If you play a *traveller* ("single" or double) the colony must have a starport at least equal in size to the number of population units.
10. If your race has *Planet Shield* technology, the colony must have at least 2 shields per regular population unit (or the maximum 200 shields if the population is over 100 units).
11. If you play a *double slaver*, the colony must for every 2 regular population units have at least 1 slave population unit. Your own slave caste population counts towards this of course.

Note that colony happiness is decided on a turn to turn basis, so a previously happy colony may become unhappy due to new technologies being developed or insufficient room for growth. Note also that only the last turn really matters, but due to the limited number orders available each turn you should not expect to be able to make all your colonies happy "from scratch" in only one turn. From turn 6 the status report for each colony will indicate whether the colony is happy and if not what is needed to make it so.

8.4 Industrial production

At the end of each turn, after population growth, each colony performs industrial production.

Each *industry* operating at full efficiency in a colony produces 1 industry point (*i.p.*) multiplied by the *mineral content* of the planet. Industries are operated by your *working population*, which is the sum of the number of regular population units in the colony and half the slave population units, rounded up (see section 12 for more about slaves). Until the development of *Robotic Industry*, only one industry per working population unit may produce anything. With *Robotic Industry* up to three industries per working population unit can produce. With *Advanced Cybernetics* up to five and with *Artificial Intelligence* up to seven industries per working population unit can produce. Industries beyond the first two per working population unit work at reduced *production efficiency*. The third industry operated by a working population unit works at 90% efficiency, the fourth at 80% efficiency and so on. The technology *Self-repairing Robots* allows the operation of up to four industries by a working population unit at full efficiency and with this technology the 10% efficiency decrease per extra industry sets in at the fifth industry. See table 9 for further clarification.

Colonies on terran, sub-terran and minimal terran worlds have an extra production in addition to the *i.p.* produced by the industries. On terran worlds, 1.5 *i.p.* extra is produced for each working population unit. On sub-terran and minimal terran

worlds the extra production is 1 *i.p.* and 0.5 *i.p.* per working population unit respectively. On your original home world the extra production per population is 2 *i.p.* rather than the 1.5 *i.p.* normal for terran worlds (such as other players' home worlds).

Industrialist races have a bonus *i.p.* production in their colonies, see section 16.1.

The industry points produced are accumulated in the colonies and may be used by each colony to build installations and/or starships. A colony need not use all the *i.p.* produced, excess *i.p.* are simply stored until needed. *I.p.* may be moved by freighters to other colonies or transmitted directly if *Matter Transmission* has been developed.

Remember that *i.p.* are produced last in the turn, after all the action/combat phases, so the *i.p.* produced in a turn cannot be used or moved until the following turn.

Research centres use *i.p.* to produce research points (*r.p.*). This happens immediately after industrial production, so the *i.p.* produced in a turn are immediately available for conversion into *r.p.* in the same turn. Each centre converts two *i.p.* (if available) to one *r.p.* (until the development of *General Science I*). All the research points produced by your colonies are pooled into a racial *r.p.* pool. This pool *must* be spent immediately at the beginning of the following turn (see section 14).

Colonies of *researcher* races have a bonus *r.p.* production, see section 16.2.

Example 1: A colony has a population of 32 and has 10 industries and 5 research centres. It is located on a terran world with mineral content 1. During population growth, the colony grows to size 38. Then, during industrial production, the colony produces 10 (for industries) plus 57 (for population) *i.p.* for a total of 67 *i.p.* altogether. Of these, 10 *i.p.* are immediately converted to 5 *r.p.* by the research centres. The colony now has 57 *i.p.* to spend during the next turn or save for later turns.

Example 2: A colony on a mineral content 4 barren world has 5 population and 23 industries. The race owning the colony has developed *Advanced Cybernetics* as its most advanced industrial technology. The population does not grow at the end of the turn. The first ten industries produce at 100% efficiency, the next five at 90% efficiency, the next five at 80% efficiency and the last three at 70% efficiency. This gives a total production from industries of 4*(10+5*0.9+5*0.8+3*0.7) = 82.4 *i.p.*, which gets rounded to 82 *i.p.* There is no extra production from population because the planet is barren.

Example 3: The same colony on the mineral content 4 barren world later in the game now with 10 population and 70 industries. The race owning the colony has developed *Artificial Intelligence* as well as *Self-repairing Robots*. The first 40 industries produce at 100% efficiency, the next 10 at 90% efficiency, the next 10 at 80% efficiency and the last 10 at 70% efficiency. This gives a total production from industries of 4*(40+10*0.9+10*0.8+10*0.7) = 256 *i.p.*

Gas giant mining colonies also produce *i.p.*, but these are not automatically transferred to a colony. See section 13.

8.5 Initial colony

At start each race has a colony with 50 population, 25 industries, 5 defence bases, a size 15 starport (size 20 if you play a *traveller*, see section 16.6), 10 research centres and no shields. The colony is located on a terran planet with room for 80 population units and of mineral content 2. Thus, if no population is shipped out during turn 1, at the end of the turn the population will grow to 60 and the industrial output at the end of the turn (assuming no industries have been built) will be 170 *i.p.* (184 *i.p.* for an *industrialist*, 198 *i.p.* for a *double industrialist*). Of the 170 *i.p.*, 20 *i.p.* will be spent to run the 10 research centres (assuming you have not constructed or dismantled research centres).

In addition to the installations, the initial colony has 130 *i.p.* which may be used during the first turn for installations and starships or may be saved for later turns.

8.6 Empty colonies

It is possible but rare that a colony becomes completely empty of population. This can happen as a result of an invasion that destroyed all population but failed to destroy all defence bases, or it will happen if the entire population is shipped out to other colonies. Such empty colonies do not give any victory points, nor will they produce any *i.p.* (this is not strictly true if you are an *industrialist*). The colony will still be there and is assumed to be manned by a "skeleton crew". This means it may do any colony orders and may produce research points (provided that the needed *i.p.* are stored there). The colony will also count when checking whether a fleet is within your command range.

An empty colony may be given away to an allied race, see section 9.9.

8.7 Primitive colonies

All *terran* type planets start the game with colonies belonging to the non-player "Primitives" race (see section 4.1). A colony belonging to primitives start the game with a little less than half the population the planet can support, 1 to 10 industries and and amount of *i.p.* a little over half the planet size. From this starting point it will develop over the course of the game, although slower than most player-controlled home worlds. Population will grow only 1 per 15 units each turn. The *i.p.* available will be spent on strengthening the colony, but primitives must pay 1 extra *i.p.* for every type of installation compared to other races. Bases will be constructed at the rate of 5 each turn and the rest of the available *i.p.* will be spent on industries, until the colony is fully developed with industries. At this point the colony will start constructing bases exclusively, until it may construct no more. For the remainder of the game, all available *i.p.* will be spent on building orbital defences (and starport as needed). Generally a primitive colony will build an *orbital station* or a *starbase* on its first turn of building orbital defences (turn 7 or 8), a *starbase* or a *cluster* on the next turn and *clusters* on all subsequent turns (up to two per turn). All this is of course only as long as the colony is not destroyed or enslaved by a player.

On the game web site you can find tables of the minimal, average and maximal development of primitive colonies.

9 Starships and fleets

There are many types of starships ranging from ships for exploration over freighters and colony transports to warships. Orbital stations, starbases and clusters are special ships that cannot move but are otherwise treated just like other ships.

Each ship is assigned a unique ID when it is created. This is used to identify the ship when giving it orders or when including it in a fleet. Starship IDs have the form "S*xxxx*", where *xxxx* is four numerical digits, for example "S0119". Each race has an allotted interval of 100 starship IDs from S*rr*00 to S*rr*99, where *rr* is the race number. Numbers are assigned one by one as your ships are built, so the first ship you build will be S*rr*03 (you start with three ships already built), the second will be S*rr*04 and so on until you reach S*rr*99. If the IDs in your allotted interval are used up, your ships will be given IDs from a pool of ship IDs common to all races (i.e. the first two digits will not refer to any race).

When you have more than one colony building ships in the same phase you cannot predict the order in which ID numbers will be assigned and in that case you may have to give your ships alias IDs with the *myalias* order, see section 18.2.

9.1 Building ships

Ships are built by colonies. A colony may build as many ships in a single phase as it has *i.p.* for, subject to starport restrictions. Ship building is instantaneous.

A colony can never build a ship which has a *size* greater than the *size* of its starport, e.g. to build a *battleship* it will need a size 60 starport. Furthermore, a colony may during a single turn not build starships totalling more than its *starport capacity* in size. The starport capacity of a colony is its starport size multiplied by the *starport capacity factor* of your race. Initially your starport capacity factor is 3, so with a standard size 15 starting colony starport you can build starships of total size 45, as long as none of them are larger than size 15 (you can e.g. build 4 colony transports or 3 frigates or a combination). You can increase your starport capacity factor by developing the *Space Elevator* and/or *Efficient Ship Building*. *Administrator* races have improved starport efficiency factor over other races.

Ships cannot be built by colonies in systems where armed enemy ships are present, unless your own or allied armed ships are also present. It does not matter whether you have declared the owner of the interfering ships enemy or not, only their policy against your race matters. As combat is always until one side is eliminated or has fled, it is in fact very rare that two enemy races have armed ships in the same system at the beginning of a phase when colony orders are executed (it can only occur in the first phase of the turn and only if the two races were allied in the previous turn), so you should not hope to break a blockade by sending in ships from outside the system (unless you can eliminate the entire enemy fleet in combat). It is however possible to have warships of two alien races present in the system at once, if they are allied or neutral towards each other, and if one of the races is allied to your race, it will be possible for you to build ships. If you have developed the *Secure Launch System*, you may use the *launch* order (instead of the usual *build* order) to build your ships regardless of any enemies present.

If a colony cannot build a ship due to the presence of armed enemy ships, it will postpone the *build* order until it can build the ship (i.e. until the enemy ships are gone). All orders following the *build* will thus also be postponed (so from that point of view it is generally a good idea to write *construct* orders before *build* orders, not after).

Colony transports (and exodus ships) are special in that they require population units as well as i.p. to build. This population cost is subtracted from the population of the colony building the ship. When the ship later executes a *colonize* order, its population will be transferred to the planet colonized and the ship will be dismantled (removed from the game).

To have a colony build a ship, give the *build* or the *launch* order to that colony:

build *type-of-ship*
build *type-of-ship orders*
launch *type-of-ship*
launch *type-of-ship orders*
The *build* order builds a ship of the specified type (a list of the ship types is given in Table 4). You may specify the ship type either by number or by name (enclosing names of more than one word in quotes). The new ship may optionally be given some orders embedded in the build order (so you do not have to wait until next turn to give it orders). To embed orders in the *build* order you write the key word **orders:** on the line immediately following the *build* order, then the orders to be given to the new ship (one order per line) and finally a period on a line by itself to terminate the list of embedded orders (see the example below).

Until a ship is built, its ID code is in principle unknown and thus you cannot refer to the ship in any other orders given that turn (see section 18.2, however). The *launch* order works exactly as the *build* order but can only be used by races that have developed the *Secure Launch System*. The only difference between the two orders is that the *launch* order will build the ship even if there are enemy armed ships present and no friendly armed ships to neutralize them.

Example:

```
C138:
  build "colony transport"
   orders:
    move H1415 H1416 H1417
    colonize P155
   .
```

This order tells the colony C138 to build a colony transport ship (type 3) and to give the ship orders to move to hex H1417 and colonize the planet P155 (or add population to the colony already there).

Ship building is instantaneous (so a single colony may build as many ships as it can afford during a single phase). A ship can begin executing orders the same phase it is built.

9.2 Fleets

Ships may be bundled together in fleets. A fleet moves together like a single ship (or rather: a single ship is considered a one-ship fleet). Joining ships in fleets is the only practical way of moving many ships each turn without exceeding the administration limit.

A fleet is identified by the ID of its flagship. Any orders given to the flagship will be performed by the whole fleet. All ships in a fleet must belong to the same race. Note that only the flagship can receive and execute orders on behalf of the fleet. The other ships of a fleet cannot execute orders, and in fact any pending orders they may have when they are included in the fleet will be deleted.

If you give orders to a ship which is not a flagship it will be taken out of its fleet and become the flagship of its own fleet. This is regardless of whether the orders are given to the ship in your normal orders or by an *order* order (described in section 19). Thus you do not have to explicitly take a ship out of a fleet before giving it new orders.

There are four orders dealing with the administration of fleets:

form *list-of-ship-IDs*
A new fleet is formed with the ship itself as the flagship and including the specified ships. All the ships must be in the same hex when the fleet formation takes place. If the ship executing the *form* was already a flagship in a fleet, its old fleet is dissolved first, i.e. the ships in the old fleet become separate fleets of single ships. If any of the ships specified in the list to be included are in other fleets, they will automatically be taken out of their old fleets before being put in the new fleet, i.e. you do not have to specify *leave* orders (described below) to take them out of their old fleets. If any of the included ships were flagships, their old fleets are dissolved and any pending orders they had are deleted.

include *list-of-ship-IDs*
This is exactly like the *form* order, except that if the new flagship has a fleet already, that fleet will not be dissolved, the new ships will simply be added to it. If any of the included ships were flagships, their old fleets will be dissolved, exactly as for a *form*.

join *ID-of-fleet*
This order makes one fleet (of possibly only one ship) join another fleet (of possibly only one ship). The flagship that executes this order becomes part of the specified fleet and thus it will no longer be a flagship after the *join* order. Any orders given after a *join* will therefore be discarded if the *join* succeeds.

leave *list-of-ship-IDs*
This order instructs a flagship to take the specified ships out of its fleet. The specified ships become separate fleets of one ship each, without any orders. This order is very rarely needed as ships are automatically taken out of their fleets if they are to be included in another fleet or if you give them orders to make them new flagships of their own fleets.

Example: The ships S0100, S0101, S0102 and S0103 are in a fleet with S0100 as the flagship. The player owning these ships wishes to have S0100 and S0101 continue what they are doing and to have S0102 and S0103 move to hex H1414 via hex H1415. Thus he or she writes:

```
S0102:
  form S0103
  move H1415 H1414
```

As these orders are given to S0102, S0102 is immediately taken out of the fleet of S0100 and becomes its own flagship. S0102 starts executing its orders in the first phase of the turn and the *form* order then takes S0103 out of the fleet of S0100 and puts it in the fleet of S0102.

If a flagship is destroyed in combat or exploration, or dismantled in colonization, another flagship will be found among the remaining ships of the fleet. Any pending orders of the fleet are transferred to the new flagship.

9.3 Movement

Fleets may move from hex to hex using the *move* order or the *farmove* order. Initially, with the standard star drive, it takes 4 phases to move from one hex to the next (so a ship can move a total of 3 hexes in a turn). After the development of the *Relativity Drive*, fleets where all ships are equipped with this drive use only 3 phases to move from one hex to the next. Similarly, fleets with the *Warp Drive* use only 2 phases to move a hex and fleets with the *Hyper Drive* use only 1 phase (and can thus move up to 12 hexes per turn).

Stellar dust (and "D" systems) take longer to move through. It takes 6 phases to move from one stellar dust hex to another, regardless of drive type (exception: for *traveller* races it takes 3 phases, see section 16.6). When moving from a non-dust hex to a dust hex or vice versa, the ships pay half the cost of the dust hex and half the cost of the other hex, the total rounded up. Thus for a (non-traveller) ship with a relativity drive it takes 1.5+3=4.5 phases to move from empty space into a dust hex, rounded up to 5 phases.

Cloaked ships (see section 9.4) use double the normal number of phases to move from hex to hex.

The move order has the following format:

move *path-of-hexes*
All hexes that the fleet is to move through must be specified, in the correct order. If an in-between hex is missing, the move stops at that point. You should not specify the hex of origin.

Example: The ship S0102 is at hex H1416 and is ordered to move to hex H1618 through the hexes H1517 and H1617:

```
S0102:
move H1517 H1617 H1618
```

The *farmove* order is similar to the *move* order:

farmove *path-of-hexes*
The only difference to the *move* order is that "holes" in the movement path are allowed (i.e. you do not have to specify every hex to move through) and the fleet will automatically choose the fastest path between each two hexes in the path given. Often there will be several paths which are equally fast, in which case one of them is chosen at random.

Example: The ship S0102 is at hex H1416 and is ordered to move to hex H1618, the exact route travelled not mattering:

```
S0102:
  farmove H1618
```

Fleets always move at the speed of the slowest ship (the one with the oldest drive). Fleets containing orbital stations, starbases or clusters cannot move at all.

A fleet which is in the process of moving from one hex to another is not considered to be in any of the two hexes. The fleet will be listed in map notes and the status report as being in the hex it is moving from. If that hex is a star system or a black hole hex then the fleet will be able to observe what happens in the hex as if it was in that hex, and other fleets and colonies will be able to observe the fleet, but they cannot interact with it. The fleet cannot observe the hex it is moving into until it actually arrives in that hex, nor will observers in that hex see the fleet (except with the *Tachyon Scanner* and an explore order, see section 10).

If a move order is broken off while a fleet is "between" two hexes, the fleet is immediately considered to be back in the hex it was moving *from*.

9.3.1 Graviton drives

A ship may be equipped with a *Graviton Drive* (once this drive has been developed by your race). This is in addition to the normal drive and enables an extra form of movement, the *flip*. A *flip* can only be done by a fleet in a black hole hex (ships not equipped with a *Graviton Drive* may not enter a hex containing a black hole at all, so all ships in a fleet attempting a flip must have the drive). The destination of a *flip* may be any hex within 10 hexes of the black hole (even a new black hole). The *flip* takes only one phase, regardless of the distance travelled. The order format is:

flip *destination-hex*

9.3.2 The jump drives

Ships may be equipped with a *Jump Drive*, once this technology has been developed. This is an additional drive mounted together with the normal drive and the graviton drive (if any). The jump drive enables the ship to jump from any empty space hex (i.e. a hex without a system, a black hole or stellar dust) to any other empty space hex, anywhere on the map. This takes only 1 phase. The format of the order is:

jump *destination-hex*

All ships in a fleet must have the jump drive for the fleet to attempt a jump.

Ships may also be equipped with the *Ultimate Jump Drive*, which replaces the normal jump drive. The ultimate jump drive allows jumps between any two hexes (regardless of hex types). All ships in a fleet must have the ultimate jump drive to jump to or from hexes which are not empty space. If a ship which is not equipped with a graviton drive jumps to a hex containing a black hole, the ship will be destroyed.

9.4 Cloaking

After your race has developed the *Cloaking* technology, your ships may cloak themselves to become undetectable to the enemy. Cloaked ships can only be detected by ships equipped with the *Tachyon Scanner*, and never by colonies.

A ship is cloaked by use of the *cloak* order and may become visible again by use of the *uncloak* order:

cloak
This order makes all ships in a fleet cloak themselves, if they are equipped with a cloaking device. This takes no time.

uncloak
This order removes the cloaking of all ships in the fleet.

Both the *cloak* and *uncloak* orders are "free" and do not count against the administration limit.

A cloaked fleet automatically becomes uncloaked when it begins executing a *move*, *farmove*, *bomb*, *enslave*, *persuade*, *gift* or *teach* order. It also becomes visible if it attacks or is attacked in combat, but only for the duration of the battle.

Ships may move while cloaked, at half speed, using the *sneak* and *farsneak* orders:

sneak *path-of-hexes*
farsneak *path-of-hexes*
These orders correspond to *move* and *farmove*, but are only available to fleets consisting entirely of ships equipped with cloaking devices. The fleet will move while cloaked, and will in fact automatically cloak when it begins executing the order. Cloaked ships move at half normal speed.

A ship which is attacked by cloaked ships which it could not see will not be allowed to defend against the attacking ships, and furthermore the attacks will have increased effect (see Table 3). It may, however, attack later in the same combat segment, if it survives the surprise attacks and was not altogether unprepared for combat in that combat segment. Ships are unprepared for combat if at the start of a combat phase their side can see no enemy ships (armed or unarmed), i.e. if all enemy ships in their hex are cloaked and undetected or if they are supposedly allied. Cloaking is thus most efficient when your entire fleet is cloaked.

Cloaked ships do not prevent enemy colonies from building, repairing or refitting ships, nor do they prevent attacks on unarmed ships. Similarly, your own or your allies' cloaked ships will not neutralize the presence of (uncloaked) enemy ships for the purpose of the *build* order. It is entirely possible for two enemy cloaked fleets to coexist in the same hex and never know of each other, if neither is equipped with the *Tachyon Scanner*.

9.5 Ship combat

Combat between fleets takes place during the combat portion of the combat/action phases, i.e. in the end of every phase. When armed ships of different non-allied races are in the same hex, and that hex is a star system or a black hole, combat will occur. Ships in the process of moving out of a hex are not considered to be in any hex and thus they will not engage in combat.

Combat is resolved in battles on a hex-by-hex basis. A battle lasts until only one side remains in the hex or no side has armed ships present. A battle takes place over a number of combat segments. In each combat segment each armed ship gets to fire its guns once. The typical duration of a battle between evenly matched fleets is 2-4 combat segments.

Large ships (those with more than 10 guns) may divide their firepower between several targets and thus attack several ships in the same combat segment while smaller ships can only attack one target per combat segment.

In each combat segment, ships attack (or attempt to flee) in *initiative order*. Initiative is determined according to current ship speed (in their current hex) so that ships with faster speeds act before ships with slower speeds. Note that cloaked ships (see section 9.4) also for the purpose of determining initiative have their speeds halved. When ships are tied for speed, initiative is determined randomly.

Each ship selects its "best" target. This will be the target having the weakest protection (i.e. the one that may be damaged the most, not the one with the fewest remaining damage points or the fewest guns), except that unarmed targets are attacked only when no armed targets are available. Note that an armed but cloaked target which the ship cannot see does not prevent it from attacking unarmed targets.

The effect of an attack is determined by the number and types of guns firing and the shields (if any) and armour of the target. There is no difference between the guns carried by large ships and the guns carried by smaller ships, large ships just pack more guns. Each ship has a number of damage points that indicate how much punishment it can take before being destroyed. The damage inflicted by each attack is subtracted from the damage point total of the ship, and when the ship reaches zero, it is destroyed (only after it has had its chance to fire back though). Large ships can take more damage than smaller ships.

When a ship is attacked, it will return attack if it has not already used its attacks in that combat segment. *Exception:* Ships which are surprised by supposed allies or attacked by cloaked ships which they could not see are never allowed to return attack. Large ships that while defending manage to eliminate their attackers using only some of their guns may attack or return attack against other ships later that segment.

Table 3 specifies how much damage you can expect a single starship gun to do in a single shot. The numbers given are average values. Due to the fact that some damage "carries over" from one shot to the next, the values given are only valid after about ten shots have been fired at the same target. The first ten shots on a target are likely to inflict slightly less damage than stated in the table.

For each attack it is reported how much damage is inflicted. This may be "marginal damage", which means that de damage was too slight to inflict at least one h.p. (hull point), but it made it easier to damage the ship the next time it is attacked during that combat. An attack will never inflict no damage at all.

9.5.1 Fleeing combat

Unarmed ships involved in combat will attempt to flee, except ships which are cloaked and undetected by the enemy warships (see section 9.4). A ship is allowed to flee in a given combat segment if it gets the initiative before being attacked by any enemy ship. This could either be because the ship is faster than the enemy ships, because it is cloaked and any faster enemy ships could not detect it, because the enemy ships are busy firing at armed ships (which must be eliminated before unarmed ships can be attacked) or simply because there are so many unarmed ships that the enemy warships cannot attack them all in one combat segment.

A ship which is allowed to flee is out of the battle and cannot be attacked. When the battle is over, it is determined what happens to ships which fled.

A ship which fled is allowed to stay in the hex if there are no armed enemy ships left in the hex after the battle (or if any armed enemy ships cannot detect it because it is cloaked). A ship which is allowed to stay in the hex will remain in its fleet (if any) and keeps any orders it has (if a flagship).

A ship which fled and is not allowed to stay in the hex will start moving towards another hex in the action portion of the next phase. It will move back to the hex it originally moved into the battle hex from. If there is no such hex (i.e. if it was built in the battle hex or if it has used the *flip* or *jump* order to enter the hex) it will move to a random neighbouring hex among those it can legally move to. If it moves slower in stellar dust hexes than in other hexes it will choose a non-dust hex, if possible. The ship is taken out of its fleet (if any) and any orders the ship had are deleted. *Special rule:* Ships equipped with the *Ultimate Jump Drive* will jump rather than move.

9.5.2 Weapon and shield types

Initially, all armed ships are equipped with *lasers*. New and more deadly guns may be developed during the game. These are (from the lowest to the highest technology) *ion cannons*, *antimatter guns* and *disruptors*. All types of guns attack with the same strength but are effective against different shield technologies (see below). Against an unshielded target, all attack types are equally effective.

Initially, ships have no other protection than their armour. However, different shields may be developed. Shields reduce the effects of the attacks they affect, see Table 3. The *energy shield* protects against *lasers*, the *graviton shield* defends against both *ion cannons* and *lasers*, and the *antimatter shield* affects all guns except *disruptors*. No shield protects against *disruptors*.

9.6 Repair and upgrades

Damaged ships may be repaired in space or at colonies. Repair in space is automatic. One damage point is repaired every 4 phases when the ship is executing orders or every 2 phases if the ship does nothing. No damage is repaired in phases during which the ship was involved in combat.

Repair at colonies is performed by the *repair* order (a colony order):

repair *ship-ID amount*
This makes the colony repair the specified ship (which must be your own and must be in the colony's hex), removing the specified amount of damage. If no amount is specified, the ship is fully repaired, or repaired for as many *i.p.* as are available in the colony if there are not enough for a full repair. There must be no armed enemy ships present in the system (the presence of you own or allied ships does not change this). Repair is instantaneous but costs 1 *i.p.* for every damage point repaired. The ship to be repaired must not already be in the process of moving out of the system but may begin a move in the same phase (as ships execute orders after colonies). A colony must have at least a size 1 starport to repair ships. The *repair* order does not cost administration points, so you can give a colony any number of repair orders and repair many ships in the same turn despite each order repairing only one ship.

When a new ship is built, it is automatically equipped with the latest technology drives, guns, shields and scanners. However, when a new technology is developed, the technology of old ships is not automatically updated. An old ship can get new technology installed by a colony of its own race in its hex. The colony must have a starport big enough to build the ship and there must be no armed enemy ships present (the presence of your own or allied ships does not change this). The colony must execute a *refit* order, which is instantaneous. The cost of a *refit* is half the cost of the refitted ships, rounded up, no matter how many things are upgraded (exception: if there is nothing to upgrade the colony will refuse to refit the ship and thus nothing is paid in that case). The format of the *refit* colony order is:

refit *list-of-ship-IDs*
This refits the ships specified. Like with the *repair* order, ships to be refitted must not already be in the process of moving out of the system but may start to move in the same phase.

In the status report, the technological level of each ship is listed. For example (note that the damage status and position are also listed):

S0112 Corvette: 5 d.p. at H1417
Status: tech=wg-ig-c

The string of characters after "tech=" indicates the technology of the main drives (marked by the initial letter), *Graviton Drive* (if present marked by a "g", otherwise by a "-"), jump drives (marked by "j" for normal *Jump Drives* or "u" for *Ultimate Jump Drives*, otherwise "-"), guns and shields (marked by initials or "-"), scanners (marked with "g" for the *Graviton Scanner*, "t" for the *Tachyon Scanner* or "-" for no scanners) and cloaking device (marked by a "c" if installed, "-" otherwise), in that order. So the corvette S0112 has warp and graviton drives, no jump drive, ion cannons, a graviton shield, no scanners and a cloaking device. Initially ships have "s–l—", the ultimate high-tech ship has "hgudatc". Unarmed ships have a dash "-" for their gun technology and stationary ships (such as orbital stations) have dashes for the drives.

Note that drives, weapons, shields, scanners and cloaking devices are the only technologies requiring a refit to take effect on old ships. The *Tachyon Communicator* affects all ships immediately after its invention.

Planetary defence bases, unlike ships, are automatically updated to the latest technology weapons, at no cost.

9.7 Special ships

Orbital stations*, *starbases* and *clusters are ships unable to move, i.e. they can never leave the system in which they were built. They are otherwise like starships in all respects (except of course they are cheaper and have heavier armour).

Freighters are ships for moving *i.p.* from one planet (colony) to another. A small freighter has room for 5 *i.p.*, a medium freighter for 15 *i.p.* and a large freighter for 40 *i.p.* Industry points are loaded and unloaded at colonies using the *load* and *unload* orders.

Scouts* and *explorers are the only ships which can receive orders when they are outside command range, see section 2.2. Explorers are immune to exploration hazard, see section 10 and have a mapping radius of 2, see section 5.4.

Colony transports* and *exodus ships are ships for moving population and establishing new colonies. A colony transport transports 5 population units, an exodus ship transports 15. Note that you should *not* use the *load* and *unload* orders with these ships, the population is loaded and unloaded automatically, see section 10.

Stasis transports are also ships for moving population. They become available when you develop *Suspended Animation*. They are reusable, unlike colony transports and exodus ships. They are not automatically filled with population when built but are operated the same way as freighters, using the *load* and *unload* orders. The capacity of a stasis transport is 10 population units. If you have developed *Xenobiology* you may transport slave population on stasis transports as well (see section 12). Note that stasis transports cannot colonize like colony transports or exodus ships, they can only move population between already established colonies.

Ambassador ships are special ships which allow allied races to exchange knowledge, see section 14.1, or transfer ships and empty colonies, see section 9.9. An ambassador ship will also inform your race immediately when any allied or neutral race which has colonies in the system which the ship occupies change policy towards you to "enemy"; thus the surprise combat bonus is negated.

Pocket battleships* and *super dreadnoughts are special warships available only to warlords, see section 16.7. They have thicker armour than other warships (their armour is equivalent to that of the special stationary defence ships mentioned above).

Slave Transports are ships for transporting slave population (see section 12). They operate using the *load* and *unload* orders like freighters and stasis ships. Unlike stasis ships they do not require any special technology to be built or to load slaves. The capacity of a slave transport is 10 units of slave population.

Slaver ships are all-round ships only available to *slaver* races. They can transport up to 5 units of slave population (like a small slave transport) but are also armed and well suited to participating in enslavement of colonies (see section 11).

Slaver colony transports are special colony transports used by *double slaver* races, see section 16.9.1. They transport both population and slaves for new colonies (6 population units and up to 4 slave population units).

Gas giant mining colonies are not really ships as such, but they are built/launched like ships. See section 13.

9.7.1 Loading and unloading cargo and population from ships

Fleets containing *freighters*, *stasis transports*, *slave transports* and/or *slaver ships* can load and unload *i.p.*, population and/or slaves from your colonies and may unload *i.p.* and/or slaves to allied colonies. Colonies loaded from or unloaded to must have at least a size 1 starport. The *load* and *unload* fleet orders are used to load and unload:

load *colony-ID what-to-load*
load *colony-ID*
This order loads the specified cargo/population from the specified colony (it must be your own colony and the loading fleet must be in the hex of the colony), or as much as the fleet has room for, or as much as the colony has, whichever is less. If the specification of what to load is omitted, the fleet will try to load as many *i.p.* as it has room for (but no population or slaves even if it has capacity for that). Loading takes one phase, unless nothing is loaded, in which case it takes no time. Note that double diplomat races may not load primitives from terran worlds (see section 16.8.1).

Note: You do *not* use the *load* order to load population (and slaves) onto *colony transports*, *exodus ships*, and *slaver colony transports* - the loading of the required population for these ships is mandatory and automatically done when the ships are built.

unload *colony-ID what-to-unload*
unload *colony-ID*
This order unloads the specified cargo/population at the specified colony, or as much as the fleet has or the colony has room for, whichever is less. If the specification of what to unload is omitted, the fleet will unload its entire *i.p.* cargo (only). The colony must be either your own or must belong to an allied race (this is the only way to transfer *i.p.* and slaves between races). You can only unload your own population if the colony is also your own, but you can unload slaves to allied colonies (exception: *double diplomats* cannot unload *primitives* to allied colonies). The fleet must be in the hex of the specified colony. Unloading takes one phase, unless nothing is unloaded, in which case it takes no time.

Note: You cannot use the *unload* order to unload population (and slaves) from *colony transports*, *exodus ships* and *slaver colony transports*. The population from these ships can only be transferred to a colony with the *colonize* order, destroying the ships in the process (see section 10.2). Thus colonization ships are good for one trip only.

The colony ID may be omitted from a *load* or *unload* order if you are loading or unloading from/to your own colony and it is your only colony with a starport in the system.

You can specify exactly what to load or unload, as follows:

Industry points are specified as:
number i.p.
or just
number
for a specific quantum of *i.p.*, or just
i.p.
for all *i.p.* available or full loading capacity of *i.p.*

Population is specified as
number population
or just
number pop
for a specific number of population units; omitting the number means all population available or full loading capacity of population.

Slave population is specified as
number slaves
or just
number sl
for a specific number of slave population units of any race; omitting the number means all slaves available or full loading capacity of slaves. It is possible to specify the slave race if you have several kinds of slaves on the colony

or in the fleet:
number slaves/*race*
or just
number/*race*
where *race* is the race number of the slaves you want to move; again omitting the number means "all available" or "full capacity". Finally, you can use a shorthand for slaves of the "Primitives" race (see section 4.1) as follows:
number primitives
or just
number pr
where omitting the number has the usual meaning.

Specification of *i.p.*, population and slaves may be combined in a single *load* or *unload* order as required.

Sometimes it is necessary to be even more specific and specify which ships in the fleet should load or unload. This is possible simply by inserting the ship number before the parts of the specification pertaining to that ship. The special word "any" may be used to indicate that the following part of the specification is not specific to any ship.

Examples: A *load* or *unload* order may be as simple as

```
load
```

which means "load full capacity of *i.p.* from my only colony in this system",

```
unload C138
```

which means "unload all *i.p.* to the colony C138" or

```
load C138 8 pop
```

which means "load 8 population units from the colony C138", or as complex as'

```
load C138 S0115 8 pop and any slaves/2 and 60 i.p.
```

which means "load from colony C138 onto ship S0115 8 population and then onto any ships of the fleet full capacity of slaves of race 2 plus 60 *i.p.*", or

```
unload C251 i.p. and slaves and S0115 pop
```

which means "unload to colony C251 all *i.p.* and slaves carried by the fleet plus all population on board the ship S0115".

9.7.2 Reserving *i.p.* to load on ships

It is quite easy to forget to not use the *i.p.* intended for loading onto freighters. This is because all colony orders are executed before ship orders, i.e. before freighters get a chance to load *i.p.* The following set of orders will *not* work as intended:

```
C138:
  build "large freighter"
    orders:
     load C138
     farmove H1417
     unload
    .
  construct industries @ BEWARE!
```

With the orders above, the colony C138 will first build a large freighter and then immediately after spend all its remaining *i.p.* on industries. Thus when the freighter gets to act, which is *after* the colony has executed its orders, there will be no *i.p.* left to load. To work as intended, the orders should be changed either so that the *construct* order constructs a limited number of industries or by inserting a *reserve* order that temporarily makes the *i.p.* intended for loading unavailable for the *construct* order:

```
C138:
  build "large freighter"
    orders:
     load C138
     farmove H1417
     unload
    .
  reserve 40
  construct industries
```

With the orders above, 40 *i.p.* are temporarily taken out of the resources available to the colony. These reserved *i.p.* are put back when the colony has finished it orders for the phase and before the freighter acts and are thus available for the freighter's *load* order.

The format and exact effect of the *reserve* order are as follows:

reserve *amount phases*
reserve *amount*
This is a colony order temporarily taking the specified *amount* in *i.p.* out of the resources available in the colony. The reserved *i.p.* will "reappear" in the colony after the specified number of phases (counting the phase the *reserve* order is executed as the first). If a number of phases is not specified the reserved resources will "reappear" in the same phase but *after* colonies have acted (and before gas giant mining colonies and ships get to act). The *reserve* order is a "free" order not counting against your administration limit.

9.8 Initial ships

Initially each race has 2 scouts and a corvette (for most race types, see section 16 for exceptions). The warships all have "tech=s–l—" and the unarmed ships all have "tech=s——" (exception: *traveller* ships are equipped with relativity drives, see section 16.6). Each ship is the flagship of its own one-ship fleet (i.e. ships are not combined in fleets at game start).

9.9 Giving ships (and colonies) to your allies

You may use the *gift* order to give ships or colonies to your allies. Only ships which do not carry population and which are not *ambassador ships*, and only colonies empty of population may be gifted away. Furthermore, double diplomat races may not give away ships or colonies containing primitives, see section 16.8.1.

Your race must be declared allied to the race which is to receive the gift, and that race must be declared allied to you.

To receive the gift, your ally must have either an ambassador ship or a colony in the hex where the gift is to be given. Only one of your ambassador ships (which must be either a flagship or not in any fleet) or one of your colonies may execute the *gift* order, so the conditions for the *gift* order are the same as for the *teach* order (see section 14.1).

The format of the *gift* order is:

gift *ID-of-gift ID-of-receiver*
Here *ID-of-gift* is the ID of the ship or colony to be gifted away and *ID-of-receiver* is the ID of the ambassador ship or colony which is to receive the gift. A ship given away is taken out of its fleet and any pending orders which the gift has are deleted before it changes owner. An empty colony may gift itself away. To give orders to a ship or colony received from another player on the same turn in which it is received, you must use the *order* order described in section 18.4. The receiver must be "known" to you, so if it is a colony you must have explored the system previously and if it is an ambassador ship it must not be cloaked unless you have the required scanner technology. A cloaked ambassador ship executing a *gift* order is automatically uncloaked, but the gift (if cloaked) is not, nor is any receiving ambassador ship.

10 Exploration and colonization

The only planet you know about from the start of the game is your home planet. You need to explore other star systems to find out which planets (if any) are in those star systems. When you move a fleet into a star system, you will not automatically get any information on the planets in the system, such as their IDs, names, planet types, maximum sizes, whether there are colonies on the planets and who owns the colonies (if any). To discover these things, you need to explore the system. A fleet may use the *explore* order to explore the star system it is located in. Ships equipped with the *Graviton Scanner* or better may also explore adjacent hexes:

explore
explore *list-of-hex-IDs*
This order makes a fleet explore one or more star systems for planets. If hex IDs are not given, it means exploration of the hex the fleet is in (the only possible exploration until the development of the *Graviton Scanner*). You will be told the planet types, planet sizes (maximum population) and whether there are colonies on the planets (and their owners). If there are no armed ships and no *explorer* ships in the exploring fleet (and if you are not a *survivor* race and have not developed the *Graviton Scanner*), there is a 20% chance for each ship in the fleet that it will be destroyed (this is known as *exploration hazard*). If the entire fleet is destroyed, you will not get any information on the planets of the system. Fleets containing armed ships or explorers are not affected by exploration hazard. An *explore* order takes one phase per hex explored.

When the *Graviton Scanner* has been developed by your race, all new ships automatically become equipped with such a scanner. Old ships may also be refitted with a *Graviton Scanner* (see section 9.6). Fleets may then explore either the hex they are in or any adjacent hexes. There is no exploration hazard when using the *Graviton Scanner*.

A more advanced scanner is the *Tachyon Scanner*. It has all the effects of the *Graviton Scanner*, except its range is two hexes (rather than one) and it will in addition give more detailed reports on explored hexes and colonies. For each colony in the explored system, the current population and the amount of shields installed will be given. You will also get a list of all ships present in the explored system. In addition to this, ships equipped with this scanner will automatically detect cloaked ships (see section 9.4).

Exploring a system removes the exploration hazard in that system for your race. This means that there will be no exploration hazard on any subsequent explorations you make in the same system.

Once you have explored a system, it will be listed on your map notes as "explored". Size and mineral contents for planets in explored systems will also be listed in your map notes, as well as any colonies on them. For each planet, the turn in which you last explored the planet will be indicated. On the graphical map, icons will appear for the planets in explored systems. If another player changes the name of a planet you have seen, the name will not automatically be changed in your map notes. You will have to explore the system again to get the updated information. Likewise, if the type of a planet you have explored is changed by terraforming or if a colony is destroyed or an empty planet colonized, the new information will not be listed on your map notes until you explore the system again.

10.1 Sharing map information with allies

You may *disclose* map information to other, allied races and thus share map information with your allies. You may even disclose information on explored systems and the planets and colonies you have discovered, thereby eliminating your ally's need to explore the systems you have explored (and thus the exploration hazard associated with initial exploration).

To share map information you use the *disclose* order:

disclose *colony-or-ship-ID what*
The specified (regular) colony or ambassador ship must be in the same hex as the (regular) colony or ambassador ship executing the disclose order and must belong to an allied race. Both races must have declared the other allied. A colony can disclose information to another colony (on another planet in the same hex) or an ambassador ship which is either uncloaked or detectable by your scanner technology. An ambassador ship can disclose information either to colonies or to other ambassador ships (uncloaked or detectable). A colony doing a *disclose* order will reveal itself to the target (as if it had been discovered by exploration). Similarly, a cloaked ambassador ship will automatically uncloak when doing a *disclose* order (but a target cloaked ambassador ship will not uncloak).

The *what* argument of the *disclose* order must be one of *map*, *planets* or *colonies*:

map: Share information on hex types for all the hexes on your map but not the contents of explored systems.

planets: Share hex information as for "map" and also share planet information for all the systems you have explored. This will also eliminate exploration hazard for your ally in those systems you have explored.

colonies: Share hex and planet information as for "planets" and also share the locations of your own colonies as well as alien colonies you have discovered by exploration.

10.2 Colonization

Once you have found suitable planets, you will want to colonize them. You do this by moving a fleet containing *colony transports* and/or *exodus ships* to a system containing a planet you wish to colonize. You then colonize the planet using the *colonize* order:

colonize
colonize *planet-ID*
colonize *planet-ID orders*
colonize * *orders*
This order lets the *colony transports* and *exodus ships* of a fleet found a colony on an empty planet or add to the population of an existing colony there (if it is your own colony). If a new colony is founded, it will get a size 5 starport (size 10 if you play a *traveller*, see section 16.6). *Colony transports* and *exodus ships* are dismantled in this process and their population is placed in the (new) colony. The population of the colony may never exceed the population limit, so any *colony transports* or *exodus ships* with excess population do not take part in the colonization. If no planet ID is given, the fleet will attempt to colonize the most suitable planet. This will be done by first doing an exploration (as detailed for the *explore* order above - this does not count as an extra order towards the administration limit) to obtain data on the planets, and then colonizing the "best" planet. The "best" planet is the one closest to *terran* and, in case of several planets of the same type, the one allowing the largest population. If several planets are of the same type and size, the one with the largest mineral content is chosen. If planets are completely alike, the one with the lowest ID is chosen. If the "best" planet already has a colony, the second best is chosen, and so on. If there are no planets without colonies, the best planet containing one of your own colonies (if any) is chosen. The *colonize* order takes 1 phase, regardless of whether an exploration had to be performed and regardless of whether any colonization actually takes place. You may optionally specify orders for a new colony in the *colonize* order (in the same way as in a *build* order, see section 9.1). The colony will start executing those orders in the phase following its foundation. The colony will only be given orders specified in the *colonize* order that actually founds the colony, not any orders specified in later *colonize* orders.

Note that if the flagship of the colonizing fleet is a colony transport or an exodus ship, it will be the last ship in the fleet to colonize (in case there is not room on the planet for all the population). If there is room for the colonists from the entire fleet, the flagship will also colonize, and another ship in the fleet (if any remain) will be assigned as the new flagship and any remaining orders will be transferred to it.

Note that a system must always be explored before you can colonize in it. If you colonize in a system you have not previously explored (and that has not been disclosed to you by an ally) the colonizing fleet will always explore first, regardless of whether you specify a planet number. If you colonize a previously unexplored system you thus risk the loss of population (due to the 20% exploration hazard), unless you have warships or explorers in the colonizing fleet, play a *survivor* or has scanner technology eliminating exploration hazard.

11 Colony conquest

To take over a planet with an enemy colony, you can either destroy the enemy colony by bombing and then found a new colony, or you can enslave the enemy population and take over the existing colony. Warships in a system with an enemy colony do not automatically attack the colony. You must use either the *bomb* or the *enslave* order to make the ships attack.

11.1 Bombing a colony

You may *bomb* a colony to try to destroy it (unless you play a *double slaver* race, in which case you *have* to try to *enslave* it, see section 11.5). Note that you can only bomb colonies belonging to races you have declared *enemy*, see section 4). It is also possible (but bloody) to free the slave population of a colony by bombing until there are insufficient defence bases and master population left to keep control and the colony therefore changes owner, see section 12.1.

Bombing is done with the *bomb* order:

bomb *colony-ID*
bomb *colony-ID number-of-phases*
This orders a fleet to attempt bombing of the specified enemy colony for the specified number of phases, or until it is destroyed. All ships in the fleet with *bombing capability* will participate in the bombing. If a number of phases is not specified, the bombing will last until either there are no more ships with bombing capability or the enemy colony has been destroyed (or possible the slave population of the colony overthrow their masters and the colony changes to be owned by a race not declared enemy by the attacker, see section 12.1).

Note that to attack a colony, you must previously have explored its star system, it is not enough to have/guess the colony or planet ID number. If you have not previously explored the system, your fleet will automatically first spend a phase to explore (this phase is in addition to the number of phases you have specified in the order).

It is possible to omit the colony ID from the *bomb* order, or equivalently to just specify the hex ID instead of the colony ID. In this case, the fleet will attack the enemy colony on the most juicy planet in the system (best planet type, largest population capacity and highest minerals, in that order).

During each phase of a bombing, the following happens: First the the planetary defence forces attack the ships participating (i.e. those of the bombing fleet with actual bombing capability). Any ships surviving the attack of the defence bases proceed to destroy installations and/or population at the rate of 1 installation or population unit per point of bombing capability. **Exception:** *Slave population* of races different from the attacker's race and not declared allied by the attacker is destroyed at the rate of 2 units per point of bombing capability - they do not get the benefit of shelters and the attacker is not trying to spare them.

The following ship types have bombing capability, points listed being without/with *Smart Bombs* technology: slaver ships (2/2 points), cruisers (3/4 points), assault bombers (5/6 points), pocket battleships (5/6 points), battleships (7/9 points), dreadnoughts (15/19 points), super dreadnoughts (20/25 points) and invasion ships (25/31 points).

Example: A fleet of 2 assault bombers and a cruiser would have a bombing capability of 13.

If the colony has any planet shields, these will be destroyed first, at the rate of 1 shield point per point of bombing capability. Any excess bombing capability goes on to damage other installations and population. Each capability point is considered a separate attack and will destroy 1 point of installation or population (or 2 points of slave population of races not allied to the attacker), randomly chosen. Hits are distributed according to the following keys:
defence bases: 40%
other installations: 40% (20% if attacker has *Bio-weapons*)
population/slave population: 20% (40% if attacker has *Bio-weapons*)
If "other installations" are hit, damage is distributed as follows:
industries: 30%
starport: 60%
research centres: 10%
If population is hit, damage is distributed as follows:
regular population: 40% (60% if attacker has *Bio-weapons*)
slave population: 60% (40% if attacker has *Bio-weapons*)
The technology *Bio-weapons* changes the way bombing hits are distributed, see above.

There are no misses, so if some type of installation (or population) is not present in the colony, damage which would go to that type of installation or population is distributed among the other installations or population according to the keys above.

Example*:* In a colony with no defence bases, no research centres and no slave population, attacked by a race without *Bio-weapons*, damage will be distributed randomly with on average 44% hitting starport, 22% hitting industries and 33% hitting population.

A colony is destroyed when it has no defence bases and no population (normal or slave) left.

11.2 Planetary defences

The planetary defences of a colony consists of its population and any defence bases and/or planetary shields. The number of *defenders* (each with an attack equivalent to a starship gun) that a colony will have to defend itself against attacking ships during one action phase is equal to the number of *operational defence bases* plus one fifth the *fighting population*, rounded up. The fighting population of a colony is normally equal to the number of population units in the colony, minus any needed to keep slave population under control (see section 12.1), plus one half the primitive population if the colony

is one previously persuaded by a *double diplomat* (see section 16.8.1). The fighting population of a colony is however never less than 5 units.

The maximum number of *operational defence bases* is twice the fighting population of the colony until the development of *Robotic Army*, after which it is eight times the fighting population. The number of actual operational defence bases is the number of defence bases present in the colony up to this maximum. Any defence bases above the maximum operational in any given phase will not get to fire that phase but may come into play in later phases as bases are destroyed, and they *do* count towards keeping slave population in check.

All the defenders of a colony will generally shoot at the first fleet to attack the colony in a given phase. Only if all the attacking ships of the first fleet(s) to attack the colony are completely destroyed with defenders to spare or if the attack was merely a *probe* will there be any shots left for shooting at subsequent fleets attacking in the same action phase.

The shots of defenders are distributed randomly among the ships in the attacking fleet proportional to their sizes.

11.3 Probing colony defences

Until the development of the *Tachyon Scanner*, information about the population, installations and defences of colonies is only revealed when you attack them. Even with the scanner, you are only given limited information (the population and planet shields but not the number of defence bases). To get information on colony defences (and installations) without risking a full-scale attack you may use a *probe* attack:

probe *colony-ID*
This orders a fleet to feint an attack on a colony in order to probe its defences. The attack will last one phase only. All ships in the fleet with bombing capability will participate in the probe. Only ten defenders in the colony get the chance to attack the fleet and therefore even a single (undamaged) assault bomber will most likely succeed and with more or larger ships success is guaranteed. The probing fleet will not inflict any damage on colony installations or population. The exact population and installations of the colony will be revealed to the attacker.

Similarly to when using the *bomb* order you can omit the colony ID from the *probe* order (or just specify the hex ID instead of the colony ID) if you want the fleet to probe the enemy colony on the "best" planet in the system (best planet type, largest population capacity and highest minerals, in that order). If you probe in a system you have not previously explored, the fleet will automatically spend a phase exploring first.

Note that from the time of the probe to the time you make your attack the colony may of course build more defences. Probes are therefore most useful against primitive colonies because they will not take special steps after being probed (such as building even more defences than usual). Most players on the other hand will most probably expect an attack after being probed...

11.4 Salvage of installations and *i.p.*

When a colony is destroyed, its remaining industries, starport, research centres and *i.p.* are left on the planet. The next colony founded on that planet will automatically take over all the *i.p.* and half (rounded down) the installations on the planet, if the new colony belongs to another race than the race which had the destroyed colony. If the same race which had the destroyed colony re-colonizes the planet (and no other colonies were founded on the planet in the meantime), *all* rather than half the surviving installations will be salvaged.

Exploration of a system will reveal which installations can be salvaged but not how many *i.p.* are present on a planet.

11.5 Enslaving a colony

Wiping out the entire population of a planet in order to promote your own superior way of life may seem brutal to some (even if they *are* just worthless alien scum). Not only that; it may also seem wasteful to kill beings which, while repulsive and inferior, might have lived out their remaining life providing valuable labour. All things considered, giving the alien population of the planet a chance to live useful lives as slaves of your superior race is both the most humane and the most economically sound thing to do, rather than bombing them completely off the surface of the planet.

You may try to *enslave* the population of a colony in order to take over the colony with many of its installations intact as well as to get some slaves to work in your industries.

Note: If you play a *xenophobe* race, you cannot enslave enemy colonies, you can only bomb them. Aliens are so repulsive to xenophobes that they do not even want them as slaves...

The *enslave* order is much like the *bomb* order:

enslave *colony-ID*
enslave *colony-ID max-number-of-slaves*
enslave *colony-ID max-number-of-slaves number-of-phases*
This orders a fleet to attempt enslaving the population of the specified enemy colony and take over the colony. The attack will last for the specified number of phases, or until either the population of the colony is enslaved, the colony is destroyed or the attacking fleet no longer has the capacity to enslave the colony. All ships in the fleet with bombing capability will participate in the attack. If a maximum number of slaves is given in the order, the colony will only be enslaved when the (future slave) population of the colony has been reduced to this number or less.

Similarly to when using the *bomb* order you can omit the colony ID from the *enslave* order (or just specify the hex ID instead of the colony ID) if you want the fleet to attack the enemy colony on the most juicy planet in the system (best planet type, largest population capacity and highest minerals, in that order).

An *enslave* attack proceeds just like a *bomb* attack: The invading ships are fired upon by the defenders and those which survive proceed to destroy installations and population according to their bombing capability, see section 11.1. The difference is that usually bombing will end not when the colony is destroyed but rather when it is ready to be taken over and that bombing damage is distributed among installations and population according to a different key than when bombing to destroy. Once a colony is ready to be taken over, its original population will be converted to slaves, any slave population of the attacking race will be freed (converted to regular population) and any population in the attacking fleet will immediately be unloaded to the colony (dismantling colony transports and exodus ships in the process as with a *colonize* order). The colony now belongs to the attacker.

For a colony to be taken over by an *enslave* order, five requirements must be fulfilled:

1. All *defence bases* of the colony must have been destroyed.
2. The total *enslaving capability* (see below) of the attacking ships must be at least equal to the number of non-slave population units in the colony.
3. The colony must be viable if taken over by the attacker, *i.e.* the number of slaves after a takeover must be within the allowed number of slaves on the planet; see section 12.
4. The number of slaves after a takeover must be at most equal to the maximum number specified in the *enslave* order.
5. The attacker must have sufficient population on ships in the fleet and/or already in the colony (as slaves) to be able to control the colony when all the existing population is enslaved (see section 12.1).

The *enslaving capability* of a ship is a measure of how many troops it carries for ground assault. The following ship types have enslaving capability: pocket battleships (2 points), battleships (3 points), slaver ships (5 points), dreadnoughts (7 points), super dreadnoughts (7 points) and invasion ships (12 points).

Example: A fleet containing one invasion ship and two slaver ships has a total enslaving capability of 22 points and this can enslave at most 22 population units (33 or 44 population units if belonging to a *slaver* or *double slaver* race respectively, see section 16.9).

In an *enslave* attack, bombing damage is distributed according to the keys below, once all shields have been destroyed. Percentages are shown without/with the *Bio-weapons* technology (if only one percentage is shown it means the number is unaffected by *Bio-weapons*).

defence bases: 40% (45%/50% if attacker is a *slaver* race)
other installations: 20%/15% (25%/20% if attacker is a *slaver* race)
population: 15%/20% (15% if attacker is a *slaver* race)
misses: 25% (15% if attacker is a *slaver* race)

If "other installations" are hit, damage is distributed the same as in *bomb* attacks, as follows:

industries: 30%
starport: 60%
research centres: 10%

If population is hit, damage is distributed as follows:

regular population: 40%/60% (50%/70% if attacker is a *slaver* race)

slave population: 60%/40% (50%/30% if attacker is a *slaver* race)

If some type of installation (or population) is missing, damage which would go to that type of installation or population is distributed among the other installations or population according to the keys above.

Example*:* In a colony with no defence bases, no research centres and no slave population, attacked by a non-slaver race without *Bio-weapons*, damage will be distributed randomly with on average 22% hitting starport, 11% hitting industries, 25% hitting population and 42% hitting nothing.

12 Slaves

If you succeed in enslaving an enemy colony its population will be converted to *slave population*. If you play a *double slaver* race, you will also have some slave population in your initial colony, see section 16.9.1. Slave population in a colony help working your industries but will not take up any of the precious room for your own population in the colony.

The maximum number of slave population units a colony can support is half the number of regular population units it can support (*i.e.* half the planet size adjusted for race type and technology of the master race of the colony). Slave population occupies "extra" space in the colony, so the presence of slaves does not alter how much regular population there is room for, nor will the amount of regular population influence the capacity for slaves (it *does* however determine how large a slave population can be kept under control, see section 12.1). *Slaver* races may support additional slave population in their colonies, see section 16.9.

In your status report you will be able to see the details on the slaves kept in your colonies, including the maximum number of slaves and maximum number that can be kept under control in each colony.

Slaves are put to work in industries. For purposes of determining how many industries a colony may operate, half the number of slave population units (rounded up) is added to the regular population to yield the total *working population* of the colony, see section 8.4.

Slave population does not grow, except if you play a *double slaver* race, in which case your slave population on *terran* and *sub-terran* worlds grow at the same rate as your normal population. Note that slaves get no benefit from being of a *survivor* race, nor do your slaves benefit if you develop *Cloning*. Slave population in a colony will never grow beyond the number that your regular population of the colony can master.

Members of your own race held as slaves are automatically set free and become regular population when you retake the planet they are on (if they survive).

Slaves are never transported in *colony transports* or *exodus ships*. If you wish to move slaves, you must use either a *slave transport* (which can carry up to 10 slave population units) or a *stasis ship* (which can carry up to 10 population units, some or all of which may be alien slaves after you develop *Xenobiology*). If you play a *slaver* race you can also build *slaver ships*, which can transport up to 5 slave population units. Slave population is loaded and unloaded with the *load* and *unload* orders described in section 9.7.1.

12.1 Slave revolts and anarchy

There is a limit to how many slaves your population can master without the slaves being able to revolt and take over your colony. Normal races can master up to 2 slave population units per regular population unit, *slaver* races can master up to 4 and *double slaver* races can master up to 6. The technology *Mind Control* allows you to master three times as many as you otherwise could. The *defence bases* you have in a colony are added to your population for the purpose of determining how many slaves can be mastered in the colony.

If at the end of an action phase the number of slaves in a colony exceeds what you can master, the slaves revolt, meaning you lose control of the colony. If the slaves are sufficiently many that they can master your population as slaves in the colony, *without* the benefit of the colony defence bases, they will take over the colony (enslaving your population in the process) and the colony will be transferred to the player of the now dominant race. If there is more than one race of slaves in your colony, the most numerous one will take over the colony, provided they are enough to master the population of all the other races present. If no race has sufficiently many population present to control the colony, the colony will enter a state of *anarchy*.

In a colony in anarchy, the different races present will fight each other, resulting in death of population. Each action phase, between 1% and 5% of the population of each race present will be killed, until a new race emerges as the dominant one and takes over the colony.

13 Gas giant mining

The gas giants of a star system with their enormous gravity fields and dense atmospheres are uninhabitable. However, with the right technology, precious materials in almost unlimited amounts may be extracted from the mineral cores of exploitable gas giants. Such gas giant mining operations are carried out from huge orbital installations in space known as *gas giant mining colonies* because of the significant population working and living there. The resulting industrial output is shuttled to the inhabited planets of the system or used to expand the gas giant mining facilities.

If you develop *Gas Giant Mining* you may establish *gas giant mining colonies* in any system containing an exploitable gas giant as well as at least one of your regular colonies. A gas giant mining colony is built using either the *build* or the *launch* order, just like it was a spaceship, see section 9.1.

Gas giant mining colonies have ID numbers of the form "M*xxxx*", where *xxxx* is a four digit number. There can be any number of gas giant mining colonies in the same system, possibly belonging to different races, all exploiting the same gas giant. Gas giant mining colonies may *not* combine in "fleets".

A gas giant mining colony has some of the traits of regular colonies: It needs population and possibly also a slave population to operate and it has *industries* that produce *i.p.*

The maximum population a gas giant mining colony may support is 10 units, at most 9 of which may be slave population. Population in gas giant mining colonies never grows. Slaves in a gas giant mining colony can never revolt, but the gas giant mining colony does not produce anything unless it has at least one unit of regular population.

Each industry in gas giant mining colonies produce 1 *i.p.* per mineral content of the gas giant in the system, provided there is manpower to operate it. The working population of a gas giant mining colony is **three times** that of a regular colony, i.e. the sum of the number of regular population units plus half the slave population units, rounded up, all multiplied by three. The number of industries that may be operated per unit of working population and the efficiency at which they are operated is the same as for regular colonies, see section 8.4. Thus in gas giant mining colonies you can achieve three times the production with the same population and mineral content compared to a regular colony.

Example: A gas giant mining colony with 1 regular population unit and 9 slave population units has a working population of 18 units (1+4.5 = 5.5, rounded to 6 and multiplied by 3). With *Advanced Cybernetics* this allows the operation of up to 90 industries, the first 36 operating at full efficiency, the next 18 at 90%, the next 18 at 80% and the last 18 at 70%.

A gas giant mining colony may use the *construct* order to build industries, initially each at the cost of 3 *i.p.* over the mineral content of the gas giant (i.e. 7 *i.p.* for a mineral content 4 gas giant and 6 *i.p.* for a mineral content 3 giant). After the development of *Improved Gas Giant Mining* the cost per industry drops by 1 *i.p.* to 2 *i.p.* over the gas giant mineral content. The development of the *Graviton Pump* further reduces the cost of industry to only 1 *i.p.* over the gas giant mineral content (cheaper than possible in regular colonies). Like in a regular colony the *dismantle* order may be used to dismantle industries, recovering 1 *i.p* of the original cost per industry dismantled.

I.p. produced by gas giant mining colonies and not spent on constructing industries may using the *unload* order be transferred to colonies (or other gas giant mining colonies) in the system. *I.p.* to be used to expand the gas giant mining facilities may similarly using the *load* order be loaded from colonies (or other gas giant mining colonies) in the system. In the same fashion, population and slave population may using the *load* and *unload* orders be transferred between gas giant mining colonies or to and from regular colonies, see section 9.7.1. Fleets may also load and unload *i.p.* and/or population to and from gas giant mining colonies as if they were regular colonies. Gas giant mining colonies may hold any number of *i.p.*

Note that in each phase gas giant mining colonies always execute their orders *after* regular colonies (see section 20). This means that the *i.p.* produced by gas giant mining colonies cannot be used in a regular colony the first phase of the turn because they are unloaded (or transmitted) after the colony has acted. Colonies which want to use *i.p.* from gas giant mining colonies must generally *wait* one phase first (see section 18.3).

Gas giant mining colonies can be a little tricky to set up, so here is a "template" set of orders for doing it:

```
C123:
build "gas giant mining colony"
  orders:
   load C123 5 pop and 150 i.p.
   construct industries
  .
reserve 150
```

Note how the *reserve* order is used to set aside the *i.p.* which are to be loaded by the new gas giant mining colony.

Here is a set of orders which can be given to an already fully developed gas giant mining colony to have it unload the produced *i.p.* to the colony C123 every turn:

```
M1240:
repeat 0
  orders:
   unload C123
  .
```

14 Research and technology

Research can give you better weapons, faster ships and other advantages. Research effort is measured in research points (*r.p.*). All research point contributions from your colonies are pooled together in one joint research point pool for your race. Research points are produced during the production phase by research centres (see section 8.4), initially at the rate of 1 *r.p.* per 2 *i.p.* used. In your turn report you will see how many research points you have produced the current turn. These points must be used immediately at the beginning of the next turn.

You may also "buy" additional research points at the beginning of a turn by using the *overtime* order, see section 15. This is an expensive way to produce research points but can be very useful if it allows you to acquire some key technology one turn earlier than you otherwise would have.

Research takes place at the very beginning of the turn, before the first action/combat phase. All *r.p.* produced the previous turn *must* be used. The research order can be used to specify which technologies your race wishes to research:

research *technology*
research *technology amount*
This order specifies research for your race. Research orders do not count against your administration limit. The specified amount of *r.p.* are used towards research of the specified technology. If you do not specify an amount, all your *r.p.* or as many as are needed (whichever is less) are used (this is the usual form of the research order). You can give more than one *research* order if you wish to research several technologies (and have the necessary *r.p.*), the research will be done in the order you specify.

Note that due to limitations in the order reader you have to enclose multi-word technology names in double quotes, e.g. you have to write

```
research "Improved Industrial Engineering"
```

but you can get away with writing

```
research Cloning
```

There are four tables listing the technologies you may develop: Table 5 lists *basic technologies*, Table 6 lists *advanced technologies*, Table 7 lists *super advanced technologies* and Table 8 lists *exotic technologies*. Each table contains a list of technologies and their costs. Once you have paid the cost of a technology, you may use it immediately. Some technologies require that you have certain other *prerequisite technologies* before you may research them. These prerequisites must have been developed in an earlier turn. Some technologies are cheaper if you already have certain other technologies and those technologies were developed in an earlier turn.

There are three special technologies: *General Science I*, *General Science II* and *Exotic Science*. They are a measure of the scientific maturity of your race. You cannot research any advanced technology until you have developed *General Science I*. You cannot research any super advanced technology until you have developed *General Science II*. You cannot research any exotic technology until you have developed *Exotic Science*.

In your turn report you will find a technology report that specifies which technologies you have, which technologies you may research next turn and how much of the cost of these technologies you have already paid. You can never research a technology which is not mentioned in your latest technology report.

If you do not specify research orders, or if you have more *r.p.* than you specified research for, the excess *r.p.* goes towards the cheapest technology available. If there are several technologies of the same cost, the one mentioned first in the technology tables is chosen. If there are enough *r.p.* to develop this technology, any excess *r.p.* goes towards developing the now cheapest technology, *et cetera*. Only in the extremely rare case you still have research points left after all researchable technologies have been developed will *r.p.* be saved for next turn.

14.1 Technology trade between allies

Allies may teach each other technologies. If an ally teaches you a technology, you do not immediately acquire it, but it becomes easier for yourself to develop it. Being taught a technology has two effects:

1. You get a 20% discount (rounded up) on the *r.p.* cost of that technology, computed after other cost reductions. *Diplomat* races are better than others at communication so they bestow/get a 30% discount instead of the usual 20% when teaching or being taught. If you play a non-diplomat and is taught by a diplomat the extra 10% discount will be given in the form of 10% of the research cost being immediately added to the points you have spent on that technology. If the cost of the technology should later be reduced, the points already received this way are not reduced correspondingly, so in some cases the extra bonus for being taught by a diplomat may actually exceed 10%.
2. You do not need to have any prerequisites which are normally required to research that technology, except that you always need *General Science I* to research advanced technologies, *General Science II* to research super advanced technologies and *Exotic Science* to research exotic technologies.

If you are taught a technology you have just developed yourself in *the same turn* you will get a number of research points for use in the next turn corresponding to the 20% or 30% discount you would normally have received had you been taught the technology the turn before. That means it is possible for two or more races to save research points doing "joint development" when they develop a technology simultaneously and immediately teach it to each other.

Note that you can only be taught a given technology once and that it is the first teaching which counts. That means that if you do not play a diplomat yourself and are taught the same technology first by a non-diplomat and then by a diplomat you will not get the extra 10% from being taught by a diplomat.

If you have already spent sufficient research points on a technology to pay for its development when the teach bonus is taken into account, you will immediately develop that technology the moment you are taught about it.

You might offer other races to teach them technologies they have not yet developed in return for teaching your race about technologies you have not yet developed, or you may offer to unload *i.p.* at their colonies, give them ships, aid in war, or whatever else you may agree upon. There is no mechanism in the game to enforce trade agreements; trade partners must trust each other.

Example 1: You want to develop the *Graviton Shield*. This would normally require that you first develop the *Energy Shield*. Your trusted ally, the Einsteinians, have already developed the *Graviton Shield* and you persuade them to teach you about it. With your new information about the *Graviton Shield* your researchers no longer need to develop the *Energy Shield* before developing the *Graviton Shield*, and you get a 20% discount. You just saved 42 *r.p.* (30 *r.p.* for the *Energy Shield* and 12 *r.p.* discounted on the *Graviton Shield*).

Example 2: You have not yet developed any drive technology and your friendly ally the *Mentorians* who are playing diplomats teach you about the *Hyper Drive*. The cost of this technology is normally 120 *r.p.* and with the 20% discount you get from being taught the technology the cost is reduced to 96 *r.p.* Because the teacher was a diplomat you are entitled to a further 10% discount which is given in the form of 12 *r.p.* being noted as already spent on the technology. If you later develop the *Warp Drive* which reduces the cost of the *Hyper Drive* by 20 *r.p.* the cost will now be 100 *r.p.* minus 20%, i.e. 80 *r.p.* of which you will already have "spent" 12 *r.p.* bringing the actual cost down to 68 *r.p.*

Example 3: You and the *Einsteinians* both develop *General Science I* on the same turn and both teach it to each other. You each receive 20 *r.p.* you can spend on research next turn.

Example 4: You have already spent 40 points on developing *Gas Giant Mining*. The Einsteinians teach you this technology (normally costing 50 *r.p.*), reducing the cost to the 40 *r.p.* you have already paid. You therefore immediately develop *Gas Giant Mining* and your colonies may build Gas Giant Mining Colonies later in the same turn.

Your race does not get the benefit of the prerequisites to any technologies you are taught about, nor do you become able to research other technologies requiring the same prerequisites. Also, only technologies you actually have developed will reduce the cost of other technologies.

Example 5: If you are taught about the *Planet Shield* you do not need to develop the *Graviton Shield* first. This does not mean that you know about this prerequisite technology and thus your ships will not get graviton shields, nor can you develop any of the other graviton technologies any cheaper, nor may you develop the *Antimatter Shield* (even assuming you have already developed *Antimatter Guns*, the other required prerequisite).

Remember that the special "prerequisites" *General Science I*, *General Science II* and *Exotic Science* are not cancelled by teaching.

Example 6: If the Einsteinians teach you about *Advanced Cybernetics* it only means you do not have to develop *Robotic Industry* before researching the more advanced technology, you still need *General Science I*.

To teach another race about a technology you should use the *teach* order. This is an order that may be used only by (regular) colonies or ambassador ships (an ambassador ship must be the flagship of its fleet to execute the *teach* order). You must "know" the colony or ship to be taught - if it is a colony you must have explored its system and if it is a ship it may not be cloaked (unless you have scanners to detect it). The format of the order is:

teach *colony-or-ship-ID technology*
The specified (regular) colony or ambassador ship must be in the same hex as the (regular) colony or ambassador ship executing the teach order and must belong to an allied race. Both races must have declared the other allied. A colony can teach another colony (on another planet in the same hex) or an ambassador ship. An ambassador ship can teach either colonies or other ambassador ships. You must of course already have developed the technology that you teach. A colony doing a *teach* order will reveal itself to the target (as if it had been discovered by exploration). Similarly, a cloaked ambassador ship will automatically uncloak when doing a *teach* order (but a cloaked ambassador ship being taught will not uncloak).

Note that you can teach another race about a technology in the same turn you have developed it yourself.

14.2 Description of technologies

14.2.1 Basic technologies

General Science I. This represents basic research that furthers your research into the specific technologies. *General Science I* is required to research any of the advanced technologies from Table6. After the development of *General Science I*, your research centres start producing 2 *r.p.* per turn (still at the cost of 2 *i.p.* per research centre).

Efficient Construction. Reduces the cost of starports to 3 *i.p.* per point and defence bases to 4 *i.p.* per base. See section 8.2.

Improved Industrial Engineering. Reduces the cost of industries from 3 *i.p.* over the mineral content of the planet to 2 *i.p.* over the mineral content per industry. See section 8.2.

Efficient Ship Building. Increases your *starport capacity factor* by 1. See section 9.1.

Robotic Industry. Enables the operation of 3 industries per working population unit in a colony rather than just 1 industry per working population unit. See sections 8.2 and 8.4.

***Various drives*.** See section 9.3. Remember that you have to refit your old ships to install new drive technology.

Various weapons and shields (except planetary shield)**.** See section 9.5. Remember that you have to refit your old ships to install new weapon and shield technology.

Planet Shield. Enables you to build planet shields, at 1 *i.p.* per shield point. See sections 8.2 and 11.

Gas Giant Mining. Allows the building of *gas giant mining colonies* in systems with gas giants. See section 13.

Secure Launch System. Allows colonies to use the *launch* order instead of the *build* order. This order lets a colony launch ships even if there are enemy warships present in the system and no allied warships. See section 9.1.

14.2.2 Advanced Technologies

You need *General Science I* to research these, in addition to any other prerequisites listed in the technology table.

General Science II. Like *General Science I*, except that you may now research the super advanced technologies from Table 7 and your research centres now produce 3 *r.p.* per turn (still at the cost of 2 *i.p.* per research centre).

***Graviton and Jump Drives*.** See sections 9.3.1 and 9.3.2. Remember that you have to refit your old ships to install new drive technology.

Space Elevator. The ability to send materials into orbit or beyond by crawling up super strong cables extending from the surface of the planet and into space. Increases your *starport capacity factor* by 2. See section 9.1.

Suspended Animation. The ability to arrest the biological functions of the body, sending starship passengers to sleep on long space voyages. This technology enables you to build *stasis transports*, see section 9.7. Furthermore, the cost of a *colony transport* is reduced to 10 *i.p.* and the cost of an *exodus ship* is reduced to 25 *i.p.* If you play a *double slaver*, the cost of your *slaver colony transports* is reduced to 20 *i.p.*

Xenobiology. The biology of alien races. Enables you to transport slaves from other races on your *stasis transports*, see section 9.7. Note that you may develop this technology at reduced cost if you actually have alien slaves in at least one of your colonies or ships.

Bio-weapons. Biological weapons tailored to combat alien races. Changes the way damage is distributed when you bomb alien colonies, see section 11.

Graviton Scanner. Enables fleets to *explore* hexes adjacent to their position (rather than just their own hex) and eliminates exploration hazards even for fleets with no armed ships and no *explorers*. See section 10. Furthermore, the mapping radius of all your colonies and of those ships equipped with the scanner is increased by 1, see section 5.4. Remember that you have to *refit* your old ships to install new scanner technology.

Tachyon Communicator. Allows your fleets to receive orders beyond the command range of 5 hexes from a colony (7 hexes for a *traveller* race, see section 16.6). This is instantly installed in all ships (or rather: on all colonies). See sections 2.2.

Advanced Cybernetics. Enables the operation of 5 industries per working population unit in a colony. See sections 8.2 and 8.4.

Improved Gas Giant Mining. Reduces the cost of constructing industries in gas giant mining colonies to 2 *i.p.* over gas giant mineral content each, see section 13.

Superlogistics. This technology raises your *administration limit* (see section 2.1) from 20 to 28 administration points. For *administrator* races (see section 16.3), *Superlogistics* raises the administration limit from 25 to 35.

Hydroponics. This technology enables your colonies to hold more population than the size of their planets. Colonies on terran and sub-terran planets may hold 10 population units over the size limit and colonies on minimal terran or barren worlds may hold 5 population units over the size limit. This bonus is added before any bonus for being a *megaworlder* race is computed (see section 16.5).

Cloning. This technology enables a 10% population growth per turn on barren and minimal terran planets. See section 7.1. If you play a survivor race (see section 16.4) you do not gain anything from this technology, so developing it is a waste of research points.

Exotic Science. Like *General Science I* and *General Science II*, except that you may now research the exotic technologies from Table 8. There is no increase in research point production from developing this technology.

14.2.3 Super advanced technologies

You need *General Science II* to research these, in addition to any other prerequisites listed in table 7.

Tachyon Scanner. This is an improved version of the *Graviton Scanner*. In addition to the effects of the *Graviton Scanner* it allows ships to see cloaked ships (see section 9.4) and it gives you details on population and planet shields of colonies in the hexes you explore. It also gives a list of ships in explored hexes and thus you may check for enemy fleet strength before deciding whether to enter a system. Furthermore, tachyon scanning has a range of two hexes, so you can specify a hex to explore which is up to two hexes away, not counting the hex of the exploring ship(s). Finally, the mapping radius of all your colonies and of those ships equipped with the scanner is increased by 2 (in total, not cumulative with the increase for the *Graviton Scanner*), see section 5.4. Remember that you have to *refit* your old ships to install new scanner technology.

Terraforming I. This allows your colonies on minimal terran planets to terraform them into sub-terran planets. This is done by the colony order *terraform*:

terraform
This makes a colony terraform its planet. The cost for the colony is 100 *i.p.* which are paid when terraforming is started. Terraforming a planet takes a whole turn and must be started in phase 1 or 2 of the turn (starting in phase 2 is allowed in order to make it possible to unload or transmit *i.p.* from gas giant mining colonies or other colonies

in phase 1). The colony may execute other orders while terraforming; terraforming runs in parallel with other activities. Terraforming *permanently* changes the type of the planet but not its size or mineral content. The planet type is changed for all purposes, i.e. victory point value, population growth, hydroponics bonus, extra production and further terraforming in later turns (see below). Terraforming of course also makes the planet more attractive to other races...

Terraforming II. *Terraforming II* works like *Terraforming I*, except it allows colonies on sub-terran planets to terraform them into terran planets, also at the cost of 100 *i.p.*

Terraforming III. *Terraforming III* allows colonies on minimal terran planets to terraform them directly into terran planets in one operation, skipping over sub-terran so to speak. With this technology terraforming from minimal terran to terran takes only one turn and costs only 100 *i.p.*

Artificial Intelligence. This enables the operation of up to 7 industries per working population unit in a colony, see section 8.4.

Self-repairing Robots. This increases the efficiency of industries operated in colonies beyond the second industry per working population unit, see section 8.4.

Robotic Army. Enables the building and operation of up to 8 *defence bases* per population unit in a colony rather than the standard 2. See section 8.2.

Ultimate Jump Drive. This is an improved version of the *Jump Drive*. See section 9.3.2. Remember that you have to *refit* your old ships to install new drive technology.

14.2.4 Exotic technologies

You need *Exotic Science* to research these, in addition to any other prerequisites listed in table 8.

Graviton Pump. This device allows local partial inversion of a gravity field by utilising the field itself and thus locally neutralising gravity at low energy cost. The primary use of this is to make operations in extreme gravity environments easier in an economical way. Reduces the cost of constructing industries in gas giant mining colonies to 1 *i.p.* over gas giant mineral content each, see section 13.

Smart Bombs. Increases the bombing capability of your ships, see section 11.1.

Cloaking. Cloaking technology allows you ships to cloak themselves and hide from the enemy. See section 9.4. Remember that you have to *refit* old ships to install cloaking devices.

Matter Transmission. This technology enables you to transmit i.p. directly between your colonies and gas giant mining colonies, thus eliminating the need for freighters. To transport *i.p.* in this way, a colony or gas giant mining colony must use the *transmit* order:

transmit *colony-or-gas-mine-ID quantum*
transmit *colony-or-gas-mine-ID*
This order makes a colony or gas giant mining colony send the specified quantum of *i.p.* (or as many *i.p.* as the colony or gas giant mining colony has, whichever is less) to another colony or gas giant mining colony specified in the order. If you specify no quantum, all the *i.p.* available are transmitted. Transmission is instantaneous.

Mind Control. Allows your race to control three times more slaves per population unit. See section 12.1. Note that you can develop this technology *only if you actually have alien slaves* in at least one of your colonies or ships.

Deep Secrets of Cosmology. Knowledge of life, the universe and everything. This is not a technology as such but rather insight into the true nature of the cosmos which no being was meant to have. It gives you information about when the game ends, i.e. which of the turns 12, 13 or 14 is the final turn. After the development of this "technology" the turn number of the final turn will be listed in the research section of your status report. Note that you cannot develop this "technology" any later than turn 12.

15 Working overtime

Sometimes you may find that you need just one or two extra administration points to carry out some complicated operation such as setting up gas giant mining colonies in a system while at the same time leaving enough orders for all the other things you want to do. Sometimes you may find that you have miscalculated or some events beyond your control mean you are a few research points short of being able to develop some key technology. In these cases you can choose to have your population work overtime in order to provide you with the missing administration or research points.

The *overtime* order is used for this:

overtime *colony-ID amount what*
This is a general order (race order) specifying that the population of some colony worked overtime *the turn before* and they produced some extra research points or administration points which are therefore available now. The *overtime* order itself is a "free" order in the sense that it does not count towards your administration limit. The colony you specify must belong to you and must have sufficient *i.p.* to pay for the order. The *amount* is how many points of *what* the population colony produced working overtime, where *what* must be one of "research" or "administration".

Example: The order

```
overtime C123 5 research
```

specifies that the colony C123 produced 5 research points extra working overtime. This gives you 5 extra research points for immediate use.

Note that population working overtime is not *happy* and thus *overtime* should probably be avoided on the final turn as it may cost you victory points, see section 8.3.

15.1 Overtime production of research points

The cost of producing research points with the *overtime* order is 4 *i.p.* per research point, taken from the colony specified. If you play a "single" *researcher* you get a 10% discount on this and if you play a *double researcher* you get a 20% discount, see section 16.2.

A colony can at most produce as many research points overtime as it has research centres.

15.2 Overtime production of administration points

A colony which is to produce extra administration points overtime must have a working population of at least 20 units.

The cost of producing administration points with the *overtime* order varies with how large your industrial production is. The reason for this is that the "cost" reflects lost production (because part of your population was filling out, signing, stamping and counter-signing forms rather than being productive in your manufacturing industry). The *base cost* of producing an administration point overtime is therefore equal to twice your total production the turn before divided by your total working population, rounded up. If you have developed *superlogistics*, this base cost is *increased* by 40%. If the base cost computed this way is less than 10 *i.p.* it is increased to 10 *i.p.* Then, if you play an *administrator* the base cost is reduced 10% and if you play a *double administrator* it is reduced 20%. Your base cost of overtime administration for the next turn will always be stated in your status report.

The first administration point produced overtime in a turn costs a number of *i.p.* from the specified colony equal to the base cost. The second point produced the same turn costs four times the base cost, the third costs nine times the base cost, the fourth sixteen times the base cost and so on.

Example: You play a double administrator with a total production last turn of 2431 *i.p.* from a working population of 222 units. You have already developed *superlogistics*. Your base cost of overtime administration point production is therefore 2*2431/222*1.4*0.8 = 24.52, rounded up to 25. The first point of overtime administration will then cost you 25 *i.p.*, the next 100 *i.p.*, a third 225 *i.p.* and a fourth no less than 400 *i.p.*! You give the following orders:

```
race 1:
overtime C123 1 administration
overtime C321 1 administration
overtime C123 1 administration
```

This will give you an extra three administration points, at the cost of 25+225 *i.p.* from the colony C123 and 100 *i.p.* from the colony C321.

16 Race types

Each player race belongs to a *race type* selected at the beginning of the game. Depending on your race type you have special advantages not available to races of other types. You choose your race type when you submit your orders for turn 1. This means that before you choose race type you will know your immediate surroundings on the map (i.e. distance to nearest systems and layout of dust clouds). From your set-up report you will also have some hints about the number of certain planet types within a range of 4 hexes.

If you forget to choose a race type, your race is automatically made a *double industrialist* race.

Note that for some race type choices, the information in your initial turn report will not be correct (it assumes a "standard" race type, as you have not chosen race type yet). When you select one of the affected race types you should ignore the wrong information in your turn 0 turn report when you give your turn 1 orders.

The other players will not be told what race type you have chosen, nor will you be told their race types. Only time (and for diplomats the *spy* order) will tell which race types the other players have.

There are the following ten basic race types: *industrialist*, *researcher*, *administrator*, *survivor*, *megaworlder*, *traveller*, *warlord*, *diplomat*, *slaver* and *xenophobe*. You select a combination of two of these basic race types for your race, e.g. *industrialist-traveller* or *xenophobe-warlord*. The only restriction is that you cannot combine *xenophobe* with either of the types *diplomat* or *slaver*. It is also possible to specialize in only one basic race type by selecting a *double race type*, e.g. *double megaworlder* or *double industrialist*.

As the very first order of your very first turn you should give a *type* order:

type *first-type second-type*
This race order is only valid in turn 1 and only once. It selects your race type for the game. Specify two basic race types or the world "double" and a single basic race type.

Example:

```
race 1:
type administrator traveller
```

Or, if selecting a specialised race:

```
race 1:
type double traveller
```

The race types and their special advantages are detailed in the following sections.

16.1 Industrialist

As an industrialist, your race has a special talent for industrial production. In addition to your normal *i.p.* production, each colony produces 2 extra *i.p.* per planet mineral content plus 1 extra i.p. for every 5 (own) population units in the colony before population growth, rounded down. Furthermore, you get a 5 *r.p.* discount developing each of *Robotic Industry* and *Gas Giant Mining*, 10 *r.p.* on each of *Advanced Cybernetics*, *Improved Gas Giant Mining* and the *Graviton Pump*, and 30 *r.p.* on *Artificial Intelligence*.

Example: On your home planet (mineral content 2) you have 66 population and 55 industries. At the end of the turn, the population increases to 79. The normal industrial production is 2 times 79 plus 2 times 55 giving a 268 *i.p.* total. Because you are an industrialist, you receive an extra 17 *i.p.* (66 divided by 5, rounded down, plus 4) for a total production of 285 i.p.

This special production will mean the most at the start of the game and on new colonies. You should therefore in the early turns do your utmost to preserve your advantage by investing the extra *i.p.* in industries. The all-round usefulness of extra *i.p.* means that an industrialist is the most straightforward race type to play.

16.1.1 Double industrialist

As a *double industrialist* you simply get twice the benefits of a normal, "single" industrialist: twice the extra production and twice the research discounts.

If as a double industrialist you have at the end of the game the highest industrial production among all players you will be awarded a bonus 50 victory points.

16.2 Researcher

As a researcher, your race has a special talent for research. In addition to any *r.p.* produced by research centres, each colony will without spending any *i.p.* produce 1 *r.p.* extra for each 10 population in the colony before population growth, rounded down. You also get a 10% discount on research points bought with the *overtime* order (rounded down). Furthermore, you get a 10 *r.p.* discount on *General Science I* and a 20 *r.p.* discount on each of *General Science II* and *Exotic Science*.

Example: From the terran planet mentioned in the example for the *industrialist*, a researcher receives 6 free *r.p.* (66 divided by 10, rounded down).

As *r.p.* are initially more expensive than *i.p.*, a *researcher* race may actually, assuming the same research effort, get a an industrial capacity on its home planet comparable to that of an industrialist (the researcher can construct industries for the *i.p.* the industrialist uses for research). However, once colonization begins, the industrialist will have faster growth on other colonies (especially on high mineral content planets) and will probably need fewer freighters.

16.2.1 Double researcher

As a *double researcher* you get twice the benefits of a normal, "single" researcher: twice the extra *r.p.* production, a 20% discount on overtime research and twice the technology discounts. You also pay only 2 *i.p.* for each research centre you construct in your colonies (where others pay 3 *i.p.*).

If as a double researcher you have at the end of the game the highest research point production among all players you will be awarded a bonus 50 victory points.

16.3 Administrator

As an administrator your race has a special talent for administration and logistics. You have 25% more administration points than other races. This means you have 25 administration points before developing *superlogistics* and 35 administration points thereafter. Your base cost for buying extra administration points with the *overtime* order is also 10% less than for other races, see section 15.2. In addition, you get a 5 *r.p.* discount on each of *Efficient Construction* and *Efficient Ship Building* and a 15 *r.p.* discount on *Superlogistics*. Furthermore, as your administrative skills aid in the management of large projects, you get a 10% discount on developing each of the *Terraforming* technologies (saving 25 *r.p.* on *Terraforming I*, 30 *r.p.* on *Terraforming II* and 35 *r.p.* on *Terraforming III*). Finally, your *starport capacity factor* is one greater than normal, *i.e.* 4 rather than the normal 3, before any bonuses for developed technologies.

Note that the increased administration limit is effective from turn one, so you may give 5 extra orders over non-administrator races even on your first turn.

The administrator is especially strong in the late turns of the game. Throughout the game you should have a better chance of optimising your exploration and colonization effort and in the last turns you may better coordinate your invasions and/or your terraforming of planets.

16.3.1 Double administrator

A double administrator gets twice the research discounts of the "single" administrator, twice the discount on *overtime* administration and twice the increase in *starport capacity factor*. There is also an increased administration limit over that of "single" administrators: one extra administration point for every colony you own (including your starting colony). These extra administration points are added to your racial pool, i.e. they are not tied to the colonies that "produce" them.

If you as a double administrator at the end of the game have the most colonies of all players you will be awarded a bonus 50 victory points.

16.4 Survivor

The population of a *survivor* race is tough and can survive in almost any environment. Your ships are immune to the exploration hazard even without weapons or any of the special scanners. You can also develop *Suspended Animation* for 25 *r.p.* less than other races. Finally, your population grows 1 point for every 10 population on barren and minimal terran worlds (like other races on sub-terran worlds) and 1 point for every 7 population on sub-terran worlds. You will get no benefit from developing *Cloning* (and therefore that technology is not available to you). Population growth on terran worlds is normal.

As a *survivor* you do not need to worry too much about losing population growth because you are forced to colonize non-terran planets. If you build *explorers* it will be for their mapping range; for detailed exploration scouts will serve you just as well at half the price.

16.4.1 Double survivor

As a *double survivor* you have the same advantages as a "single" survivor, except you get 50 *r.p.* off on *Suspended Animation*. Furthermore, your population in *colony transports* and *exodus ships* will grow 20% in the production phase on their first turn in space (from 5 to 6 and from 15 to 18 respectively). Further turns in space will not give additional growth. This means that without loss of population growth you can colonize systems which two turns to travel to. You can in fact even send your population on non-terran planets on a "pleasure cruise" at the end of each turn to optimize population growth at the expense of industrial production.

As a double survivor you get victory points for colonies on barren and minimal terran planets where others get for only terrans and sub-terrans: you get 10 victory points for each.

16.5 Megaworlder

As a *megaworlder* your race has a talent for optimal utilisation of the limited resources of planets. Your population can exceed the normal planet size limit by 10%, rounded up. This bonus is computed after any bonus for *Hydroponics* is added. In addition, you can develop *Hydroponics* for 25 *r.p.* less than other race types.

Examples: On your size 80 home planet your population can be as large as 88 without hydroponics or 99 with that technology. On a size 20 barren planet you may have 22 population without hydroponics or 28 with it.

As a *megaworlder* you can postpone the expensive colonization just a little bit. You get more out of the "good" planets and can maintain a large population growth with less expansion than others. This makes your colonies potentially stronger.

16.5.1 Double megaworlder

As a *double megaworlder* your get twice the advantages of the "single" *megaworlder*: You get a 50 *r.p.* discount on *Hydroponics* and can exceed planet size with 20%, rounded up.

Examples: On your size 80 home planet your population can be as large as 96 without hydroponics or 108 with that technology. On a size 20 barren planet you may have 24 population without hydroponics, or 30 with it.

If as a double megaworlder you have at the end of the game the largest happy population (see section 8.3) of all players you are awarded a bonus of 50 victory points.

16.6 Traveller

As a *traveller* you are a race of accomplished space travellers. Your communication range is 7 hexes instead of the usual 5. Dust clouds cost only 3 phases to move through for your ships, not 6. Your initial colony starts with a size 20 starport (normal: size 15) and every new colony you found will automatically get a size 10 starport (normal: size 5). You have developed the *Relativity Drive* before the start of the game and your three initial ships have this drive installed. You get a 5 *r.p.* discount on development of the *Warp Drive*, 10 *r.p.* on both the *Hyper Drive* and the *Graviton Drive* and 20 r.p. on each of the two *Jump Drives* (all in addition to other cost reductions).

If your home system is 3 or more hexes from the nearest neighbour systems or you are surrounded by a lot of stellar dust, you should consider playing a *traveller*. Your initial ships (and any additional ships you build in turn 1) may move up

to 3 hexes and *explore* on the first turn while other races can only *explore* systems within 2 hexes on their first turn. The bigger starports are just additional bonuses allowing you to concentrate your initial resources on growth. The advantages of being a *traveller* are greatest in the beginning of the game.

16.6.1 Double traveller

As a *double traveller* you get twice the research discounts of the "single" *traveller*. Your population also enjoys space travel so much that you actually get victory points even for population on board *colony transports* and *exodus ships* (but not those in *stasis transports*) where other races get only victory points for population in colonies (including gas giant mining colonies). Furthermore, your population in *colony transports* and *exodus ships* count as *happy population* and are thus worth an extra victory point per unit.

16.7 Warlord

A *warlord* race is warlike and ruthless, bent on conquest of the galaxy (but aren't they all?). You start with a *frigate* and two *scouts* instead of a *corvette* and two *scouts*. The costs for developing weapon and shield technologies are reduced (in addition to normal cost reductions) with the following amounts: 5 *r.p.* for *Ion Cannons*, *Energy Shield*, *Antimatter Guns* and *Graviton Shield*, 10 *r.p.* for *Antimatter Shield*, 15 *r.p.* for *Disruptors*, and 25 *r.p.* for *Robotic Army* and *Smart Bombs*. Furthermore, only warlord races may build the special *pocket battleships* and *super dreadnoughts*.

As a warlord you should have an advantage in combat through the entire game. In the first few turns you have the *frigate*, later you should have superior weapons and shields, making each of your ships count twice against the enemy, and in the last turns of the games you can hopefully afford the cost-efficient *pocket battleships* and the virtually unstoppable *super dreadnoughts*. Just remember: War is expensive...

16.7.1 Double warlord

As a *double warlord* you get twice the research discounts on weapon technologies of the "single" *warlord*. Your starting ships are a *frigate* and two *corvettes*, giving you extra "punch" in the first few turns and also meaning less worries about exploration hazard.

If as a double warlord you at the end of the game have the largest war fleet of all players, counted as the number of starship guns in non-stationary ships, you are awarded a bonus of 50 victory points.

16.8 Diplomat

As a *diplomat* your race has superior diplomatic and inter-racial communication skills. You can build ambassador ships at half price and you start the game with 2 *ambassador ships* instead of the normal 2 *scouts*. You will always know when allies turn enemies and thus you are never surprised by a supposed ally. You also get and bestow a 30% discount (rounded up, computed after other cost reductions) on research of technologies which you tare taught by or teach to other races, rather than the normal 20% (see section 14.1). Diplomats pay only 30 *i.p.* to build an *ambassador ship* where other races pay 40 *i.p.* and in research diplomats get a 25 *r.p.* discount on the *Tachyon Communicator* technology. Furthermore, diplomats can use the special *spy* order once per turn, see below. Finally, you get two victory points *permanently* for each non-diplomat race that you are allied to at the end of each turn and one victory point for each "single" diplomat.

Example: If you have two non-diplomat allies at the end of a turn, you get four victory points that turn. If they become your enemies the next turn, you do not lose the four points you have already earned, but if on the other hand they continue to be your allies, you get another four points. For every non-diplomat player you convince to be your ally for the entire game you will depending on game length earn a total of 24 to 28 victory points!

The *diplomat* (especially "single") is probably the most difficult race type to play. It is totally worthless to be a diplomat if you cannot get any other races to ally with you and trade technologies with you. On the other hand: If three players beforehand agree to be allied and all play diplomats, they can with proper coordination probably out-research even the most determined researcher race and each earn 2 extra victory points per turn! Before choosing a diplomat race you should talk to potential allies and try to find out who your neighbours are (although this is very difficult as all players have very limited starting maps and hex ID numbers cannot be used as common reference). Technology trade with far-away races is not impossible, but it takes a long time to get an ambassador ship to someone far away, and when it gets there, it

is out of command range, so you may have to issue all its *teach* orders beforehand. If you play a diplomat you should be prepared to spend a lot of time talking and writing to other players.

The special *spy* order is available to *diplomat* races only:

spy *race-number*
This is a free, general order which can only be used once per turn. The *diplomat* player receives a report on the specified race, compiled by the diplomat's spy network at the end of the turn. It varies exactly which things are reported, but the following are guaranteed to be there: Race type(s), approximate population and approximate *i.p.* production. Other information which *may* be in the report is the location of the home system of the race, the approximate research point production, drive and weapon technologies developed, approximate victory point total, alliances, locations of colonies and approximate combined fleet *i.p.* value. Reports on allied races are generally more accurate and comprehensive than reports on neutral races or enemies, and reports on races with colonies close to one of your colonies are also more accurate and comprehensive than reports on races further away. If you have an *Ambassador Ship* in a system in which a colony of the target race is located it will count as if you had a colony just one hex removed. If you have never discovered a colony belonging to the target race it will mean a much less accurate spy report.

16.8.1 Double diplomat

A *double diplomat* race is extremely empathetic and abhor warfare and killing of other beings. They start the game considering themselves *allied* to all other races, including the non-player *primitives*, and the reputation of double diplomats is in fact such that primitives have *neutral* relations towards them where they consider all other races *enemy*. They can never voluntarily change their policy towards another race to *enemy* or *neutral*, only when other races declare them *enemy* do they change policy to mirror that hostile attitude (and this change is instant and automatic like for the "single" *diplomat*). Double diplomats start the game with 3 *ambassador ships* rather than the normal *corvette* and 2 *scouts*. Like "single" diplomats they get and bestow a 30% teach bonus rather than the 20% of normal races (see section 14.1) and pay only 30 *i.p.* for their ambassador ships. They get a 50 *r.p.* discount on the *Tachyon Communicator* technology. Their *spy* reports are generally more accurate and comprehensive that those of "single" diplomats. Double diplomats get *three* permanent victory points per non-diplomat race allied to them at the end of a turn (where "single" diplomats get only two victory points) but still get only one point for an allied "single" diplomat and none for allied double diplomats.

As a double diplomat can never declare war on even the non-player primitives they are unable to ever take over a *terran* type planet by attacking and eliminating or enslaving the primitive colony there. However, the diplomatic talents of the double diplomat are so developed that they can actually *persuade* a primitive colony to become "enslaved" by them, at least until the primitives become too strong and independent (persuasion works only the first 8 turns of the game). When taking over a primitive colony the double diplomat race in reality enter a mutually advantageous and almost symbiotic relationship with the original population, but in game terms it works almost exactly as if the primitive colony had been enslaved and its population converted to slave population. Important differences are that there is never any danger that the primitive (slave) population will rebel and that the primitives will participate in colony defence, see section 11.2. Furthermore, as the primitives as far as the double diplomat is concerned count more as population than as slaves, primitives may never be loaded from a terran planet nor may colonies or ships containing primitives be gifted away to other races.

To take over a colony owned by primitives, the *persuade* order is used:

persuade *colony-ID*
This is a fleet order. The double diplomat fleet executing it must have at least one *ambassador ship* per 20 population units of the target colony (rounded up), plus at least one ship carrying population that may be transferred to the colony (i.e. a *colony transport*, an *exodus ship* or a *stasis transport*) *or* population already in the colony as slaves (this is theoretically possible but extremely unlikely). In order to establish the needed government liaison, one *ambassador ship* per 20 population (rounded up) is permanently stationed in the colony (i.e. dismantled). Any *ambassador ships* in the fleet beyond the one needed per 20 primitive population will not be affected (and if the flagship is an ambassador ship it will be the last to be dismantled). The target colony, which must belong to the non-player *primitives* race (see section 8.7) and must be in the same system as the fleet, will become owned by the owner of the fleet and all population in the fleet will be transferred to the colony, up to the limit the colony can support. The original primitive population will (for game purposes) be converted to primitive "slave" population. The number of defence bases and number of industries present in the colony will be halved when it is persuaded and the starport of the colony will be changed to size 5, regardless of its previous size.

Like with the *bomb* and *enslave* orders the fleet will first spend a phase exploring the system if it has not been explored by you before, and it is possible to omit the colony ID (or specify the hex ID instead) if you want to persuade the "best"

colony of *primitives* in the system (it is very unlikely there will be more than one eligible colony in a system, so here "best" is for practical purposes the same as "only").

The *persuade* order is only available up to and including turn 8. From turn 9, primitives have become so string that they no longer see an advantage in allying with a double diplomat.

Important note: Due to the space taken up by primitives the double diplomat is limited to having a population 20 units less than the planet would normally support, *if* the planet is terran and *if* it contains any primitive population at all. Primitives from a persuaded colony may generally *not* be loaded onto ships or gas giant mining colonies except from non-terran worlds.

Note that primitives in a persuaded colony will continue to grow in number at the normal rate for primitives and that the capacity for the primitive "slave population" is always equal to the size of the planet (and not to the normal slave population capacity of the colony), minus any regular slaves in the colony.

16.9 Slaver

A *slaver* race specialises in enslaving other races. As a slaver, the bombing damage distribution in your *enslave* orders is changed so that you have fewer misses and are more likely to get a useful slave population in the end, and the *enslaving capability* of your ships is increased by 50% over non-slaver races, see section 11.5. You may also control twice the slave population in a colony compared to non-slaver races, see section 12.1, and the slave population capacity of your colonies is increased by 50% over non-slaver races, see section 12. Furthermore you get a 25 *r.p.* discount on developing *Mind Control*. As a *slaver* you may also build the special all-purpose *slaver ships* (ship type 23). Finally, you receive 1 victory point for every 3 slave population units in your regular colonies and gas giant mining colonies alike at the end of the game.

When you play a slaver you should try to get the most out of your racial advantages and enslave enemy colonies whenever possible, rather than bombing them. You actually get victory points for the population you manage to enslave!

16.9.1 Double slaver

As a *double slaver*, slavery is an integral part of your culture and you keep slaves even of your own race! Your starting population is 35 rather than the usual 50 units, but you also start with 30 units of slave population of your own race. Because part of your population will be counted as slaves throughout the game, *the maximum regular population you can have on any planet is reduced by 25%*, after any adjustments due to *Hydroponics*.

Slave population of your own race is distinguished from your normal population by being "slave caste". They can never be freed or otherwise converted to normal population. Slave caste population is of race type "minus your race number", e.g. slave caste population of race 4 is denoted race type -4. Your own slave caste slaves will never rebel against you and they are not counted towards the number of slaves that you need regular population to control (see section 12.1).

As a double slaver, your slave population in regular colonies (including your own slave caste population) will grow at the same rate as your normal population, depending on planet type and technology (*exception:* slave population of *xenophobe* races never grows). Slave population will however never grow beyond the size that your regular population in the colony may control.

As a *double slaver* you may never *bomb* enemy colonies, only *enslave* them.

Because slavery is inherent in your culture, your population rarely travels without slaves to serve them. Therefore, your race may not build regular *colony transports* or *exodus ships*. Rather, for your colonization effort you must build *slaver colony transports* (ship type 24) which carries 6 population units and 4 slave population units. Slave population will automatically be loaded from the colony when you build such a ship, with preference given to your own slave caste population. In the case where you have insufficient slave population in the colony the ship can still be built, but it will only load as many slaves as are available. A *slaver colony transport* may not freely load or unload slave population like a *slave transport*, the slave population which was loaded when it was built will be unloaded only when the ship is dismantled in colonization. In the very rare case where a *slaver colony transport* colonizes a planet and the available population capacity on the planet is sufficient to allow the regular 6 population units to be transferred but the unused slave population capacity of the colony is insufficient to receive all the slaves on the ship, the excess slaves will be lost.

You have all the advantages of the "single" slaver, some of them to a greater degree: Your bombing damage distribution in *enslave* orders is changed as for the "single" slaver. The *enslaving capability* of your ships is double that of non-slaver races, see section 11.5. You may control three times the slave population in a colony compared to non-slaver races, see

section 12.1, and the slave population capacity of your colonies is 2.5 times that of non-slaver races, see section 12. Furthermore you get a 50 *r.p.* discount on developing *Mind Control*. Finally, you receive 1 victory point for every 2 slave population units in your regular colonies and gas giant mining colonies alike at the end of the game (and thus the initial exchange of 15 regular population units for 30 slave caste population units is neutral for your victory point score).

If as a double slaver you have at the end of the game the most slaves among all players, not counting your own slave caste population, you are awarded a bonus of 50 victory points.

16.10 Xenophobe

Xenophobes hate and fear alien races and therefore have only one response towards alien life they encounter: Terminate it! You may never *enslave* alien colonies, only *bomb* them (and colonize the planet when it has been cleansed). If the unthinkable should happen and you should somehow find yourself the master of a colony with alien slaves, the slaves are immediately exterminated. You can never have any other policy than *enemy* towards other races and therefore you cannot use the *policy* order. However, you get 1 victory point for every 4 alien population units *of player races* you destroy during the game, whether by bombing colonies or destroying ships carrying population (primitive aliens, while repulsive, are no real challenge and therefore you do not receive points for destroying them).

The race type *xenophobe* cannot be combined with the race types *diplomat* or *slaver*.

As a *xenophobe* you have several restrictions and only one real advantage: The victory points. But if you plan on destroying everyone around you, you might as well play a *xenophobe* and get victory points for it. You could even win the game despite of being almost wiped out yourself if you manage to take sufficiently many aliens with you!

16.10.1 Double xenophobe

Like the "single" *xenophobe*, only more so: You get 1 victory point for every 3 alien population units of player races that you manage to destroy.

Playing a double xenophobe is for players who want to demonstrate they are so good at playing *Stellar Conflict* that not only do they not need any special advantages to grow powerful, they are in fact also capable of seriously hurting their opponents in the process.

17 Initial resources

At the start of the game, each race has a single colony with a population of 50, situated on a terran planet of size 80 and mineral content 2. The colony also has 25 industries, 5 defence bases and a size 15 starport (size 20 if you are a *traveller*, see section 16.6), 10 research centres and no planet shields. The colony has 130 *i.p.* to spend on the first turn (or save for later turns). If you play a *double slaver*, the colony will have only 35 population, but you will also have 30 "slave caste" population, see section 16.9.1.

In your home system, you will have two *scout* ships and a *corvette*. If you choose to play a *warlord* or a *diplomat*, the ships will be replaced as follows: *Single warlord*: The *corvette* is replaced by a *frigate*. *Double warlord*: Further, the 2 *scouts* are replaced by 2 *corvettes*. *Single diplomat*: The 2 *scouts* are replaced by 2 *ambassador ships*. *Double diplomat*: Further, the *corvette* is also replaced by an *ambassador ship*.

If you choose to play a *traveller*, your starting ships will automatically get the *Relativity Drive* installed, free of cost. You will also start with the *Relativity Drive* technology already developed, free of cost.

Initially, each of the starting ships is in its own fleet of one ship (i.e. the ships are not combined).

You will start with 10 research points to spend towards developing your first technology. You should therefore remember to give a *research* order. While 10 research points is in itself insufficient to develop any technology, you must still specify which technology they should go towards developing. It is also possible using the *overtime* order to get an additional 10 research points for at total of 20 research points on the first turn, which will allow immediate development of one of the cheapest technologies.

18 Advanced orders

This section contains descriptions of some "advanced" orders you need not worry about on a first read of the rules but which may come in handy when you want to optimize your play.

18.1 Clearing and modifying old orders

As mentioned earlier the orders given to a unit in a given turn are normally appended to the orders it already has, i.e. orders given in previous turns but not yet executed. Some times you may want to remove pending orders when giving new ones. There are two special orders for this purpose: *break* and *clear*. Unlike other orders they are not executed during the normal sequence of the turn but are instead executed immediately when they are appended to the list of orders of the unit or location which receives them.

break
break *number-of-last*
The *break* order tells the unit to forget orders preceding the *break* order in its order list, including the one that is currently begun, if any. In its first form (no arguments) it clears all orders from the beginning of the order list up to the *break* order. A single number can be given as an argument to specify the number of the last order to remove. This is counted from the beginning of the order list if the number is positive and counted backwards from the *break* order if it is negative.

clear
clear *number-of-first number-of-last*
The *clear* order works like the *break* order except that in its first form (no arguments) it does not interrupt and remove the first order if that order is "begun" (see section 3), and except that in its second form (with arguments) it can be used to remove any sub-list of orders preceding it in the order list. The first argument is the number of the first order to be removed, counted from the beginning of the list if it is positive and counted backwards from the clear order if it is negative. If it is zero or omitted it means remove from the first order if it is not "begun" and from the second order otherwise. The second argument is the last order to be removed, specified in the same fashion except that zero (or an omitted second argument) has the same meaning as -1, i.e. it refers to the last order before the clear order.

Examples:
Assuming that the clear order is given as the very first new order to a unit already having some orders (as will usually be the case),

```
clear -3 -1
```

means clear the last three of the old orders,

```
clear 2
```

means clear all old orders except the first and,

```
clear * 2
```

means clear the first two of the old orders, except do not clear the first if it is already begun.

It is also possible to insert new orders at the beginning or middle of the list of old pending orders. The *insert* order is used for this:

insert *insertion-point orders*
The *orders* given as argument to the insert order are inserted in the list of pending orders after the order identified by the *insertion point*, which is a number. The number given should be zero to insert the orders at the very beginning of the order list, positive to identify an order counting from the beginning of the list of pending orders and negative to identify an order counting backwards from the insert order. Note that orders cannot be inserted before an order which is "begun".

Examples:
Assuming that the insert order is given as the very first new order to a unit already having some orders (as will usually be the case),

```
insert -2
  orders:
    move H1416
  .
```

means insert the move order before the last of the old orders,

```
insert 0
  orders:
    move 123
  .
```

means insert the move order before all old orders, and

```
insert 1
  orders:
    move H1416
  .
```

means insert the order after the first of the old orders.

Finally, it is possible to modify lists of orders given as arguments to old orders (including adding a list of orders to a pending order which has an empty order argument). This is useful e.g. for adding orders to an existing *repeat* order. The *embed* order is used for this:

embed *number-of-order orders*
The *orders* given as argument to the embed order are appended to the list of orders given as an argument to the pending order identified by the given *number-of-order* argument. Orders are counted from the beginning of the list of pending orders if a positive number is given and backwards from the *embed* order if a negative number is given. The order identified must be one of the orders accepting a list of orders as an argument (it will typically be a *build* or a *repeat* order).

Examples:
Assuming that the embed order is given as the very first new order to a unit already having some orders (as will often be the case),

```
embed -1
  orders:
    unload C137 20 i.p.
  .
```

means append the *unload* order to the list of embedded orders of the last pending order, and

```
embed 3
  orders:
    clear
    move H1416 H1415
  .
```

means append the *clear* and *move* orders to the orders given as argument to the third pending order (the *clear* order will then erase any previously embedded orders leaving the *move* order as the only embedded order).

18.2 Aliases

Sometimes you need to use the unit ID of an as yet unbuilt ship in an order, e.g. to form a fleet with the ship. As colonies act in random order it is impossible to predict the ID numbers of the ships you build when you have several colonies building ships simultaneously. To overcome this problem, you can use an *alias* IDs in place of regular IDs in any order needing ID numbers and then have aliases assigned to your ships as they are built.

The simplest way to explain this is by an example:

```
C138:
  build "Invasion Ship"
    orders:
     myalias $victory
     farmove H1417
     bomb C156
    .
  build "Assault Bomber"
    orders:
     join $victory
    .
```

In the orders above, the colony C138 builds two ships, an *invasion ship* and an *assault bomber*. The *assault bomber* should join the fleet of the *invasion ship*, but at the time of order writing the ID number of the *invasion ship* is unknown. Instead of guessing an ID number, the player uses the alias "victory" (written `$victory`) to refer to the *invasion ship* in the join order of the bomber. The player then gives a *myalias* order setting as the first order to the *invasion ship*, setting the alias "victory" to refer to this ship (once the *myalias* has been executed). When the *join* is executed, the alias will be replaced by the ID number it refers to, i.e. the ID number of the *invasion ship*.

An alias must be preceded by the dollar character "$". Aliases may be at most 50 characters long and may contain only letters "a"-"z" (either upper or lower case), digits "0"-"9" and the dash "-", underscore "_" and period "." characters (aliases ending with a period have special meaning, see section 18.2.1).

In very rare cases you may want to refer to an alias defined by one of your allies. You must then add the race number and a slash "/" immediately after the dollar sign and before the alias name itself, e.g. "`$4/victory`" for the alias "victory" defined by race 4. You can only refer to aliases of *allied* races this way.

Aliases in an order are replaced with the ID they refer to when execution of the order is first begun. Once aliases have been replaced in an order the IDs in the order are fixed; subsequent changes of the aliases will have no effect on that order. If an alias has not been defined at the time an order it appears in is executed, the alias will be replaced with

The same unit may have several aliases.

The order *myalias* used to create aliases:

myalias *alias*
This makes the *alias* specified refer to the ID of the unit that executes the order. If the given *alias* already referred to another ID it is simply changed to refer to the new ID. The order may be used by ships, gas giant mining colonies or regular colonies alike. The order is a free order, costing no administration points to use.

Aliases need not be defined to refer only to newly created units. You can use the *alias* order to define new aliases to refer to *any* ID:

alias *ID alias*
This makes the *alias* specified refer to the *ID* specified. If the given *alias* already referred to another ID it is simply changed to refer to the new ID. If a dash "-" is given as ID, the alias is deleted. The order is a general order (i.e. a race order, not a unit order). The order is free, costing no administration points to use.

Example:
To be able to use the alias "nostromo" for the ship S0100, the player of race 1 must give the following order:

```
race 1:
  alias S0100 $nostromo
```

The alias can then in the future be used to identify the ship and may from the next turn onwards even be used to identify the ship when giving it orders, e.g.:

```
$nostromo:
  move H1415 H1416
  explore
```

18.2.1 Counting aliases

In conjunction with a *build* order inside a *repeat* order it can be useful to assign different aliases to the different ships built. However, since the ships are built with the same order they will also all receive the same *myalias* order, meaning that if a standard alias is used, the alias will end up referring to the ID of only one of the ships (the one executing its *myalias* order last). To overcome this problem, a *counting alias* should be used.

Example:
In the orders below, the colony C138 builds three *colony transports*, two of which are to be included in the fleet of an *invasion ship* and go to one system to enslave a colony, and the third of which is to be taken to a different system by a *destroyer*.

```
C138:
  repeat 3
    orders:
     build "Colony Transport"
       orders:
        myalias $transport.
       .
    .
  build "Invasion Ship"
    orders:
     form $transport1 $transport2
     farmove H1417
     enslave C156
    .
  build "Destroyer"
    orders:
     form $transport3
     farmove H1211
     colonize
    .
```

Notice the use of `$transport.` in the *myalias* order. This alias ends in a period, identifying it as a *counting alias*. Counting aliases are treated specially by the *myalias* and *alias* orders: The trailing period is replaced by a running number which is incremented by one for each new alias defined from the same counting alias. In the example above, the first *colony transport* to execute its *myalias* order will get the alias "transport1", the next "transport2" and the third "transport3". These are the three aliases used in the *form* orders of the other ships.

A counting alias itself will refer to the last alias generated from it. E.g. after the orders above, the alias "transport." will refer to `$transport3`. If the counting alias itself is ever used in an order which is not either *myalias* or *alias* it will be replaced by the alias it refers to (the last generated from it), which again will be replaced by whatever ID that refers to. To "reset" a counting alias (and make it start over from 1 if used again), delete it with the *alias* order like this:

```
alias - $transport.
```

18.3 Timing and coordinating actions

There are a number of orders available for timing events and for coordinating actions between units. Some examples of the need for such orders are when a colony needs to wait for some *i.p.* being unloaded from a freighter or when a fleet needs to assemble before an invasion.

wait *number-of-phases*
This tells a unit to do nothing for the number of phases specified.

time *turn phase*
This is like the wait order but specifies the turn and phase in which the unit should go on to execute the next order.

waitonesig *list-of-unit-IDs*
waitallsig *list-of-unit-IDs*

signal *list-of-unit-IDs*
These three orders are for synchronising the orders of units. The *waitonesig* and *waitallsig* order tells a unit to wait for one or more signals from some other unit(s) before continuing with its next orders.
A unit executing a *waitonesig* will wait until it has received a signal from (at least) *one* of the units in the list.
A unit executing a *waitallsig* will wait until it has received signals from *all* units in the list which are not "known dead".
A unit ID designates a "known dead" unit if it is inside the ship ID number slot of your race or one of your allies, is below or equal to the number of the last built ship from the slot and does not identify an existing unit.
The *signal* order sends a signal to each of the specified units.

waitforone *where list-of-unit-IDs*
This order tells a unit to wait until it can see one of the units in the specified list, at the given relative position *where*. As *where* you can specify:

system:	The expected unit must be in the same system as the waiting unit.
fleet:	Relevant for ships only. The expected ship is in the same fleet as the waiting ship. This is useful when a flagship is waiting for other ships to join the fleet.

waitforall *distance list-of-unit-IDs*
This order is similar to *waitforone*, except that *all* the specified units simultaneously must be either at the specified relative position or be a "known dead unit" (see the description of the *waitallsig* order above).

18.4 Passing orders to others

The order described here can be used if you expect to receive some unit from some other race and wish to give it some orders in the turn in which you acquire it, or if you send a ship with orders for a fleet which is out of command range. It is can also be used for moving some ships together in a fleet and then giving the individual ships different tasks once they reach their destination.

order *number-of-unit list-of-orders*
This order lets a unit give orders to another owned unit in its hex. Fleets whose flagship is a *scout* or an *explorer* cannot use this order. The order is useful for bringing orders to fleets stranded beyond command range, or for timing events. If you want the ordered fleet or colony to break and/or discard its current orders before accepting the new orders, you should include a *break* or *clear* order as the first order to be given. If a non-flagship ship receives orders, it will break from its fleet and become a fleet of one ship. It takes no time to execute the order.

18.5 Repeating orders

The *repeat* order can be used for saving administration points:

repeat *number-of-times list-of-orders*
This order tells a unit to repeat the given orders the specified number of times. If the first argument is zero or omitted, the orders will be repeated indefinitely. If the embedded orders take no time to execute and the number of repetitions is not limited (i.e. the first argument was zero or omitted) then a one phase wait will be inserted between each execution of the embedded orders. The *repeat* order is useful for setting up patrols and freight routes, and for building multiple ships of the same type which should all receive the same orders (or no orders).

19 Complete list of orders

This section gives an alphabetical listing of all the orders in the game. All of these have been described elsewhere in this text, but are listed here with cross references. Orders which have several forms are listed in all their forms.

bomb *colony-ID number-of-phases*
bomb *colony-ID*
See section 11.1. This is a fleet order, taking a variable number of phases.

break
break *number-of-last*
See section 18.1. This is a colony and fleet order.

build *type-of-ship orders*
build *type-of-ship*
See section 9.1. This is a colony order, taking no time.

clear
clear *number-of-first number-of-last*
See section 18.1. This is a colony and fleet order.

cloak
See section 9.4. This is a fleet order, taking no time. It is a "free" order not counting towards the administration limit.

colonize *planet-ID orders*
colonize *planet-ID*
colonize * *orders*
colonize
See section 10.2. This is a fleet order, taking one phase.

construct *installation-type amount*
See section 8.2. This is a colony order, also allowed for gas giant mining colonies. It takes no time.

disclose *colony-or-ship-ID what*
See section 10.1. This is an order that may be executed only by colonies and ambassador ships. It takes no time.

dismantle *installation-type amount*
See section 8.2. This is a colony order, also allowed for gas giant mining colonies. It takes no time.

embed *number-of-order orders*
See section 18.1. This is a colony and fleet order.

enslave *colony-ID*
enslave *colony-ID max-number-of-slaves*
enslave *colony-ID max-number-of-slaves number-of-phases*
See section 11.5. This is a fleet order, taking a variable number of phases.

explore
explore *list-of-hex-IDs*
See section 10. This is a fleet order, taking one phase per hex explored.

farmove *path-of-hexes*
See section 9.3. This is a fleet order, taking several phases depending on drive.

farsneak *path-of-hexes*
See section 9.4. This is a fleet order, taking several phases depending on drive.

flip *destination-hex*
See section 9.3.1. This is a fleet order, taking one phase.

form *list-of-ship-IDs*
See section 9.2. This is a fleet order, taking no time.

gift *ID-of-gift ID-of-receiver*
See section 9.9. This order may only be executed by ambassador ships and colonies. It takes no time.

include *list-of-ship-IDs*
See section 9.2. This is a fleet order, taking no time.

insert *number-of-order orders*
See section 18.1. This is a colony and fleet order.

join *ID-of-fleet*
See section 9.2. This is a fleet order, taking no time.

jump *destination-hex*
See section 9.3.2. This is a fleet order, taking one phase.

launch *type-of-ship orders*
launch *type-of-ship*
See section 9.1. This is a colony order, taking no time.

leave *list-of-ship-IDs*
See section 9.2. This is a fleet order, taking no time.

load *colony-ID what-to-load*
load *colony-ID*
See section 9.7.1. This is a fleet (or gas giant mining colony) order, taking one phase if anything is loaded and otherwise no time.

move *path-of-hexes*
See section 9.3. This is a fleet order, taking several phases depending on drive.

name *planet-ID name*
See section 6.4. This is a free general order (it does not count against your administration limit).

order *unit-ID orders*
See section 18.4. This is a colony or fleet order, taking no time. It cannot be executed by fleets with *scout* or *explorer* flagships.

overtime *colony-ID amount what*
See section 15. This is a free general order (it does not count against your administration limit).

persuade *colony-ID*
See section 16.8.1. This is a fleet order, available only to *double diplomat* races. It takes one phase.

policy *race-number policy*
See section 4. This is a free general order (it does not count against your administration limit).

probe *colony-ID*
See section 11.3. This is a fleet order, taking one phase (or two, if the system is previously unexplored).

refit *list-of-ship-ID*s
See section 9.6. This is a colony order, taking no time.

repair *ship-ID amount*
repair *ship-ID*
See section 9.6. This is a colony order, taking no time. It is a "free" order not counting against your administration limit.

repeat *number-of-times orders*
See section 18.5. This is a colony or fleet order, taking no time in itself (except if the embedded orders take no time and an unlimited number of repetitions is specified).

research *technology amount*
research *technology*
See section 14. This is a free general order (it does not count against your administration limit).

reserve *amount phases*
reserve *amount*
See section 9.7.2. This is a colony order, taking no time. It is a "free" order not counting against your administration limit.

signal *list-of-unit-IDs*
See section 18.3. This is a fleet or colony order, taking no time.

sneak *path-of-hexes*
See section 9.4. This is a fleet order, taking several phases depending on drive.

spy *race-number*
This is a special, free, general order which can only be used by *diplomat* races, and only once per turn. See section 16.8.

teach *colony-or-ship-ID technology*
See section 14.1. This is an order that may be executed only by colonies and ambassador ships. It takes no time.

terraform
See section 14.2.3. This is a colony order, taking no time.

time *turn phase*
See section 18.3. This is a colony or fleet order, taking until the turn and phase specified.

transmit *colony-or-gas-mine-ID amount*
transmit *colony-or-gas-mine-ID*
See section 14.2.4. This is a colony order but may also be used by gas giant mining colonies. It takes no time.

uncloak
See section 9.4. This is a fleet order, taking no time. It is a "free" order not counting towards the administration limit.

unload *colony-ID what-to-unload*
unload *colony-ID*
See section 9.7.1. This is a fleet (and gas giant mining colony) order, taking one phase if anything is unloaded and otherwise no time.

wait *number-of-phases*
See section 18.3. This is a colony or fleet order, taking the specified number of phases.

waitallsig *list-of-unit-IDs*
See section 18.3. This is a colony or fleet order, taking until a specified condition occurs.

waitforall *where list-of-unit-IDs*
See section 18.3. This is a colony or fleet order, taking until a specified condition occurs.

waitforone *where list-of-unit-IDs*
See section 18.3. This is a colony or fleet order, taking until a specified condition occurs.

waitonesig *list-of-unit-IDs*
See section 18.3. This is a colony or fleet order, taking until a specified condition occurs.

20 Turn event sequence

It is useful to fully understand the exact sequence of events during a turn. This will help you answer questions like "Why can't I use *i.p.* from a gas giant mining colony in my colonies in phase one?", etc. This section may seem a bit technical and you might want to skip it on a first reading of the rules. However, to optimize your game, knowledge of the turn sequence is helpful.

The sequence of events is:

1. Fleets and colonies receive their orders. Non-flagship ships which receive individual orders are taken out of fleets; the administration limit is checked and excess orders ignored; fleets marked last turn as being unable to receive orders (due to command range) will ignore any orders.

2. General orders are executed: *type* (turn 1 only), *policy*, *research*, *name* and *alias*. Then any automatic policy changes are done, i.e. those for *diplomat* races and those due to monitoring by *ambassador ships*.

3. The 12 action/combat phases. In each action/combat phase, the following happens:

   (a) Colonies execute one phase worth of their orders, by order priority (see below). Colonies with orders of the same priority act in random order.

   (b) Gas giant mining colonies execute one phase worth of their orders, by order priority. Gas giant mining colonies with orders of the same priority act in random order.

   (c) Fleets execute one phase worth of their orders, by order priority. Fleets with orders of the same order priority act in flagship *initiative* order. The movement speed of the flagship in its current hex determines when it acts: The higher speed, the sooner it acts (the movement speed of stationary ships is zero, so they act last). Ties are broken by "rolling a die".

   (d) Battles are resolved.

   (e) The policy towards any "allies" or "neutrals" who attacked your ships or colonies this phase will be changed to enemy.

   (f) Automatic ship repairs take place.

Note 1: The fact that gas giant mining colonies act after normal colonies means that the *i.p.* produced by a gas giant mining colony in the previous turn can at the earliest be available in a normal colony on phase two. When the gas giant mining colony unloads its *i.p.* to a colony in phase one, the colony will already have acted.

Note 2: The fact that colony actions occur before fleet actions means that if there are no (uncloaked) enemies in a colony's system at the end of the turn, the colony can execute all orders normally in the first phase of the next turn (at least up to the first *time*, *wait*, *waitforone*, *waitforall*, *waitonesig* or *waitallsig* order, if any). The only thing which could prevent such a colony from executing its orders would be if previously allied warships in its system turned enemy at the start of the turn.

4. Population growth and production. Population growth takes place, and colonies then produce first *i.p.* and then *r.p.* Gas giant mining colonies produce *i.p.*

5. Communication range is checked. Ships in fleets outside the communication range are marked as being unable to receive orders next turn.

6. Victory points are computed.

7. Spy reports for *diplomats* are compiled.

20.1 Order priority

In the action phases step (a) to (c), orders are executed by units according to *order priority*. The purpose of order priority is primarily to resolve questions of timing. Priorities are designed so that in the most "common scenarios" players can get by without the use of the explicit synchronisation orders, e.g. because of order priority you can ensure that a *transmit* order transferring resources from one colony to another will be carried out before the *construct* orders of the recipient colony simply by letting the *transmit* order be the first order of the sender, or you can be certain that the *colonize* order forming a new colony will be executed before an *unload* order dumping *i.p.* to the new colony in the same action phase.

Order priority works like this: From the active pool of units (colonies in action phase step (a), gas giant mining colonies in step (b) and ships in step (c)) the unit which as its next order has the highest priority order is activated and executes this order. Ties in order priority are resolved randomly in steps (a) and (b) and by initiative (flagship drive speed) in step (c). Then a new unit is chosen from the pool of active units, again according to the order priority of its next order. When a unit executes an order taking zero time, the unit is put back in the pool of active units and is allowed to act again in that phase, according to the order priority of its now current order (and indeed it can be selected as active unit again immediately).

Example: Two colonies have the following orders:

```
C123:
  construct industries

C217:
  transmit C123 80
  build Corvette
```

The *transmit* order has higher priority than the *construct* order, so first C217 executes its *transmit*. Then the next order of C217 is a *build* which has the same priority as *construct*, so which of the two colonies next gets to execute an order is determined randomly.

If the execution and removal of a zero time order "uncovers" an order which has higher priority than the one removed, the unit will always immediately get to act again because it will have the highest priority next order of all active units.

Example: A colony has the following orders:

```
build Corvette
transmit C123 80
```

The *transmit* order has higher priority than *build*, so when the *build* has been executed (taking zero time) the transmit will be immediately executed before any other colonies get to execute more orders.

20.1.1 Order priorities, colonies

The order priorities of orders executable by colonies, from highest (fastest) to lowest (slowest), are:

1. *time*, *repeat*, *myalias*.
2. *waitforone*, *waitforall*, *waitonesig*, *waitallsig*.
3. *signal*.
4. *order*.
5. *transmit*.
6. *build*, *launch*, *repair*, *refit*, *construct*, *dismantle*, *terraform*, *reserve*, *teach*, *disclose*, *gift*.
7. *wait*.

20.1.2 Order priorities, gas giant mining colonies

The order priorities of orders executable by gas giant mining colonies, from highest (fastest) to lowest (slowest), are:

1. *time*, *repeat*, *myalias*.
2. *waitforone*, *waitforall*, *waitonesig*, *waitallsig*.
3. *signal*.
4. *order*.
5. *transmit*.
6. *construct*, *dismantle*, *reserve*.
7. *load*, *unload*.
8. *wait*.

20.1.3 Order priorities, ships

The order priorities of orders executable by ships, from highest (fastest) to lowest (slowest), are:

1. *time*, *repeat*, *myalias*.
2. *waitforone*, *waitforall*, *waitonesig*, *waitallsig*.
3. *signal*.
4. *join*.
5. *leave*.
6. *order*.
7. *form*, *include*.
8. *cloak*, *uncloak*.
9. *explore*, *colonize*, *enslave*, *bomb*, *probe*, *persuade*, *teach*, *disclose*, *gift*.
10. *load*, *unload*.
11. *flip*, *jump*.
12. *move*, *farmove*, *sneak*, *farsneak*.
13. *wait*.

21 The team game variant

Stellar Conflict may be played either free-for-all or as a *team game* where everyone plays in fixed teams of four races each. This section details the special rules which apply in the team game.

21.1 The teams

A team consists of four players, playing four races which must cooperate throughout the game. Teams are assigned at game start. The four races on a team will have home systems close to each other (at least one neighbour will be a fellow team member). The members of a team can never declare each other enemy and fight each other. There are also a few changes compared to the standard game which are designed to make cooperation easier between team members:

1. Team members are told the locations of each other's home systems at the start of the game.
2. Player on the same team use the same map coordinates. Normally each player uses his own coordinates to refer to hexes, so that different players will use different hex IDs to refer to the same hex. In a team game, all members of a team use the same hex IDs to refer to the same hexes.
3. The starting map shows the combined mapping information of all the team members. The shared map is however not automatically updated; team members still need to meet and use the *disclose* order to share information uncovered after game start.

21.2 Special restrictions in team games

There are two restrictions in team games compared to normal games:

1. You cannot play a *xenophobe* race. Xenophobes do not cooperate with other races and therefore it would not be meaningful to have them in a team game.
2. *Diplomat* races do not receive victory points for being allied to their team mates. This probably means that diplomats in team games are unlikely to get *any* victory points from allies. However, the *teach* bonus for diplomats may mean it is well worth to have a diplomat or two on a team anyway.

21.3 Team game victory points

In team games you win or lose as a team. The team with the most points at the end of the game according to the scoring rules below will be declared winners. The relative standings of the individuals within the winning team is not important.

The *team victory point score* is calculated from the scores of its four members. The victory points of the highest scoring team member do not count as part of the team score at all. The victory points of the second highest scoring member and those of the lowest scoring member are *halved* and added together with the full score of the second-lowest scoring team member to produce the total team score.

Example: The four players of team 1 have 700, 600, 500 and 400 victory points. Their team score is then 600/2 + 500 + 400/2 = 1000 victory points.

The reason for the highest score not counting and the second highest counting only half is to encourage equal development of the races in a team. The reason the lowest score counts only half is to make it harder for opponents to reduce the team score by hitting on only one member of the team.

The team scores are public throughout the game, so it is possible to keep track of which team is doing best (and so target them for attacks).

22 Tips for new players

The purpose of this section is not to give you a recipe of how to win the game, but merely to point out some consequences of the game design.

22.1 Starting positions

The "galaxy" is generated by a computer program designed to be as "fair" as possible to all races while still generating fairly different starting positions. After all systems have been generated (with statistics which over a great number of games follows Table 1), each starting position is evaluated for industrial and population growth potential and the two scores are combined to produce a "potential" value.of the same type to make "poor" starting positions better and "rich" starting positions worse, until all starting positions have about equal potential. The effect of all this is that if you can see that you have only a few systems close to your own system (compared to other home systems) then there is a good chance that they will contain good planets while if you have many systems nearby, they are less likely to be very good. In your set-up report you will also receive some hints about the nearby systems to guide your choice of race type and initial strategy.

The planet shuffling also tends to place the really juicy systems (which would upset the balance if placed close to any single player) in positions where they are equally far from several players. This means you should not wait too long to explore such systems.

It should be noted that due to the randomness built into the galaxy generating program, some games are generally "richer" than others. That means that if all your nearby systems seem really poor, then all the systems near other players are probably also poor, while if everything you touch turns to gold, the other players probably have it the same way.

22.2 Victory points

Remember that industrial production and research are not goals in themselves, it is (mainly) population and colonies on terran and sub-terran worlds that give victory points. This makes *Terraforming I* and (especially) *Terraforming II* valuable technologies that may earn you victory points even at the last moment, but they are very expensive to research. *Cloning* may also earn you points if you develop it sufficiently early. From turn 10 or so you should start worrying about ensuring the population in your larger colonies will be happy at the end of the game in order to get the extra victory points for happy population.

The game will likely be won by someone having at least 900 victory points, probably more.

22.3 Population growth

Population growth is the key to victory in this game. Population growth is exponential, so any population you lose in early turns or put down on sub-terran or worse planets means quite a lot of points in the end- game. At the start of the game, 20 points for a sub-terran planet may seem like a lot, but with proper management (and good planets to colonize), you will earn 50-60 points from population growth alone in each of the last few turns. Each colonist on a non-terran world is wasted. Each turn a colony transport or exodus ship spends in space without colonizing means fewer points in the end. Keep your population on terran planets as long as possible to maximise growth (a larger population also means a potentially larger industrial production). However, never let your planets "run full", there should always be room for full growth on your planets at the end of each turn.

Sooner or later you will want to establish colonies on minimal terran or barren planets with high mineral content to boost your industrial strength. Do it if you have to, but remember the victory points you are losing...

22.4 Industrial growth

Industrial growth is the key to survival. If your neighbours are hostile, you need industrial capacity to build warships and defences. If you want technology, you need *i.p.* to supply your research centres. Industrial capacity, like population, has the potential for exponential growth. Each *i.p.* you use to build industries in the early turns of the game will mean quite a large number of *i.p.* at your disposal in the last few turns, if you re-invest the industrial output in more industries.

This means that *i.p.* you spend on warships, colonization and research in the early turns dramatically reduces your industrial potential in the later turns (but what good are industries if your colony is destroyed?). Too much early research may especially hamper your growth: Research centres not only cost *i.p.* to build, they also drain away *i.p.* each turn. And remember: It is a waste of good *i.p.* to build research centres on a mineral content 2 planet while building industries on a mineral content 1 planet: concentrate research where industrial growth would be slow and build industries where industrial growth is fast. Vital for industrial growth are the technologies *Improved Industrial Engineering*, *Robotic Industry* and

(from around turn 7) *Advanced Cybernetics*. You will want to develop the first of these technologies fairly early (turn 2 or 3) and the second around turn 3 or 4. *Artificial Intelligence* may be interesting if you have several really small planets with mineral content 4, or if you are simply not interested in losing too much population growth potential by putting too many colonists on these industrial planets. *Gas Giant Mining* is in terms of victory points a much cheaper (but more vulnerable) way of getting a really large industrial output. With the *Graviton Pump* gas giant mining industries becomes cheaper than regular industries and thus give you the fastest industrial growth.

22.5 Research

Research is the aspect of the game which requires the most planning. You may have only 12 turns to do your research, so if you want to have any of the "expensive" technologies and the technologies requiring many prerequisites, you need at least a rough plan of when to develop what from the very beginning of the game.

Technology trade can be a great boon if planned properly, especially for technologies requiring prerequisites. Typically only two technology trades are required before an ambassador ship pays off due to the 20% discount alone, and when you can skip prerequisites you really save *i.p.*

A good industrial output is also vital for research and a coordinated research effort is necessary to get the "industrial technologies" at the time you need them. The *General Science* technologies of course greatly increase your *r.p.* production, so they are worth developing even if you have no immediate plans to develop *advanced* or *super advanced* technologies.

22.6 Colonization

If you colonize barren and minimal terran worlds, and wish to have any industrial production there (why else colonize such worlds?) you have to ship in *i.p.* for the first few industries, using freighters (this is not strictly true if you play an *industrialist* but usually you will want to anyway). You may also get a few *i.p.* to kick-start industrial production by dismantling the starting starport (but leave 1 unit of starport so you can load/unload from/to the colony).

You can choose either to attempt to colonize many different planets early in the game or to concentrate on building one colony at a time. The advantage of early widespread colonization is that once you have taken the planets it will require some effort to throw you off or enslave them. The disadvantage is that with many small colonies, each colony will develop slowly and thus be weaker if attacked. And with many colonies, there are so many places you can be attacked...

If you colonize late you might find that all the "good" planets are taken, so you should be prepared to go out and grab them with force. This will mean making enemies. You can be fairly certain that once you have taken a planet, soon the original owner will turn up with a fleet to attempt to take back what rightfully belongs to him or her.

If you are forced to consider colonizing "bad" planets, you should develop *Cloning* as soon as possible (unless you are a *survivor* of course). *Hydroponics* will also help you make the most of the planets you have. You must consider terraforming in the last few turns of the game, to dramatically increase your score (especially with *Terraforming II*).

22.7 Command range

You may colonize or invade planets in systems which are outside your command range simply by giving your colonization or invasion fleet all its orders before it leaves your command range. If you have ships unexpectedly stranded beyond command range, you can send some cheap ship with orders to include the stranded ships and do whatever is needed to bring them back in command range.

22.8 Combat

In combat, numbers are everything. Two equal strength fleets will almost completely destroy each other, the "victorious" fleet (if any) will be reduced to almost nothing. If your fleet is twice the strength of the enemy fleet, you will eliminate the enemy twice as fast, and thus the enemy fleet will only be able to fire half the shots it would have fired otherwise. Result: you lose only about one fourth of your fleet.

22.9 Defence

As home systems are at least 6 hexes apart, you can be certain you will not be visited during turn 1 and most likely not with any significant force in turn 2 or 3. You will want to keep the location of your home world a secret for as long as possible (although often it is not too difficult to determine which systems are potential home systems).

It will take some time before any race can mount a fleet with any significant invasion capability. This means you should have time to make your home world almost impregnable, if you wish to spend your resources that way.

You should be careful (especially in the first turns where you have few colonies) that not all your colonies are simultaneously prevented from building ships (by enemy ships in their systems). This will really hurt if you cannot get your colony transports off planet and you lose population growth potential. If you have few colonies (and have not developed the *Secure Launch System*), you may want to keep most of your warships in just one system to maximise your chances of having at least one surviving fleet if all your systems are attacked at once.

An invasion is best stopped in space. Clusters provide the cheapest guns in the game (if you have the starport to build them) and take a large number of shots to eliminate. To overcome clusters the invader needs to bring battleships and dreadnoughts rather than "just" invasion ships, and this means a reduced effective invasion capability and perhaps a second chance for your planetary defences.

You need a lot of defence bases to make a difference once the invasion begins (remember that bases are the targets most likely to be destroyed in the early phases of an invasion, so your bases may not survive to fire many shots). However, if you do have a lot of bases, they are quite effective. Once you have developed the *Planet Shield*, the combination of shields and bases is even more cost effective than building clusters (especially versus battleships and dreadnoughts).

In the last few turns some players can probably muster really huge invasion fleets (in the order of 1500 *i.p.* or even more). You cannot hope to fend off such fleets with the defences you can build using just the production of one (non-home) colony, especially if you have colonized many planets. You will have to guess where the enemy will invade and send reinforcements. Here it is vital to have a good knowledge of where your neighbours have colonies and have good diplomatic relations with at least some of your neighbours. You might also consider using the *Tachyon Scanner* to scan empty space hexes where enemy invasion fleets are likely to gather (i.e. explore empty space hexes near your terran worlds at the end of each turn), but this does of course not protect you from fleets using jump drives.

22.10 Invasions

A successful invasion hurts the enemy in two ways: The player loses victory points for the planet and the population you destroyed or enslaved, and the industrial capability of the player has been reduced. Here are a few simple rules that will help you make successful invasions:

1. Make sure your entire invasion fleet arrives in the same phase so your ships will not be picked off one by one as they arrive.
2. You should arrive early in the turn to have time to do some serious damage, but not too early, as there is a chance that your unsuspecting target for invasion will build some warships in phase 1 and immediately move them out of the system; this means you should arrive no earlier than phase 2.
3. Combine all invading ships in one fleet before you start the invasion. This will mean that shots from planetary defences are spread more evenly among your ships (rather than being concentrated on the first ship to invade in a given phase) and thus the chance of losing ships is less.
4. If you plan to destroy a colony by bombing it and then to colonize immediately afterwards you should bring colony transports or exodus ships to take over the planet, combine them in the fleet with the invading ships and give the *colonize* order after the *bomb* order. This will mean that the timing for the *colonize* order will always be correct.

   Example:

   ```
   S0145:
     bomb C516
     colonize P516
   ```

5. If you are in the later turns of the game, your target may scan empty space hexes using the *Tachyon Scanner*. This means it may be better at the end of the turn prior to the invasion to have your fleet two hexes away from the target colony rather than just one hex away. Of course it is even better not to build your invasion fleet at all before the turn you need it.

22.11 Alliances

Unless you have really good reasons (such as being a *diplomat*, trading technology or doing a joint invasion venture) there is absolutely no reason to be declared allied to anyone in the last few turns. An alliance effectively reduces your defences against an "allied" who attacks you, and a lot of last-minute grab-the-good-worlds will be going on in the last turns. If you have *ambassador ships* over the colonies of your allies, or you are a *diplomat*, you do not need to worry about this of course.

A working alliance with a player is a good way of ensuring you will not be the first to be attacked by that player in the last couple of turns. A working alliance means not only declaring each other allied (and agreeing on borders) but actually cooperating, such as trading technologies, *i.p.* or ships or jointly waging war on other players. An alliance has a much greater chance of succeeding in grabbing some planets and keeping them than a single player has: By hitting more than one colony of the same player in the same turn you seriously cripple the target and reduce the chances of reinforcements arriving (or later repercussions).

22.12 Finding out where other races are

Hex ID numbers cannot be used as common reference because every player uses a different number system (except team mates in a team game). If you tell your buddy that you are located in hex H1414 (s)he will say: "So am I". You can establish a common reference with someone if you encounter their ships (or colonies) or if you have explored some of the same star systems and thus have seen some of the same planets. Until you actually "make contact" you only have the pattern of map features to go by when trying to establish where you are located relative to each other. At the start of the game you can see only a very small portion of the map and it will only overlap with your immediate neighbours (and only by a little). In a "full" galaxy (one with 9, 16, 25, 49, 64 or 81 races in it) you have six immediate neighbours, so the chance of your buddy being one of them is six in the number of other players (e.g. 6 in 15, or 40%, in a 16-player game). If you exchange starting maps with your buddy you *may* be able to find out if you are neighbours, but you cannot really be sure until you map some more of the galaxy.

22.13 Administration points

There are a few tricks to saving administration points. First of all: Use the *repeat* order whenever possible. Look at these orders for the colony C733:

```
C733:
  build "Colony transport"
    orders:
      move H0413 H0414
      colonize P612
    .
  build "Colony transport"
    orders:
      move H0413 H0414
      colonize P612
    .
  build "Colony transport"
    orders:
      move H0413 H0414
      colonize P612
    .
```

Compare with this equivalent set of orders:

```
C733:
  repeat 3
    orders:
      build "Colony transport"
```

```
        orders:
          move H0413 H0414
          colonize P612
        .
    .
```

The first form costs 7 administration points (having subtracted the two orders allowed for the colony), the second form costs 2 administration points. You may also use the *repeat* order to set up freight routes, passenger routes (using *stasis transports*), patrols and automatic unloading of gas giant mining colonies. An example of a freight route could be:

```
S0414:
  repeat 0
    orders:
      move H0413 H0414
      load C612
      move H0413 H0412
      unload C733
    .
```

This moves freight from C612 to C733 indefinitely, thus saving administration points the following turns.

Use fleets when possible. Compare:

```
C137:
  build "Invasion ship"
    orders:
      move H1413
      jump H0623
      move H0622
      bomb C517
    .
  build "Battleship"
    orders:
      move H1413
      jump H0623
      move H0622
      bomb C517
    .
```

to

```
C137:
  build "Invasion ship"
    orders:
      myalias $invader
      move H1413
      jump H0623
      move H0622
      bomb C517
    .
  build "Battleship"
    orders:
      join $invader
    .
```

The second form uses 3 less administration points. Note that the standard *Jump Drive* is “expensive” to use: you need a *move*, followed by a *jump*, followed by another *move* to get from one system to another. The *Ultimate Jump Drive* is a great improvement saving phases *and* administration points.

You may avoid unnecessary *wait* and *time* orders for fleets by making "detours" in their *move* orders. A typical application is:

```
S0132:
  move H1418
  wait 4
  move H1419
  bomb C532
```

which may be modified as follows to save 2 administration points (using the map in Figure 1 and assuming S0132 is equipped with the hyper drive):

```
S0132:
  move H1418 H1518 H1519 H1518 H1418 H1419
  bomb C532
```

23 Tables

Planet type	Size range	Mineral content	Extra production
Home (Terran)	80	2	2 (you) 1.5 (others)
Terran	65-80	1	1.5
Sub-terran	45-60	2	1
Minimal terran	25-40	2 (50%) 3 (50%)	0.5
Barren	20-60	3 (50%) 4 (50%)	0
Gas giant	–	3 (50%) 4 (50%)	–

Table 1: Types of planets and their characteristics.

	Star system type			
	A	B	C	D
Terran	50%	30%	10%	0%
Mininum 1 sub-terran	31%	41%	21%	5%
Mininum 1 minimal terran	14%	24%	42%	35%
Mininum 1 barren	11%	16%	28%	57%
Gas giant	29%	42%	53%	79%
No usable planets	5%	0%	10%	15%
More than 1 planet	40%	55%	65%	83%
Average number of planets	1.37	1.57	1.60	1.92
Average point value	31.4	23.5	9.3	1.0

Table 2: Chances of finding the different types of planets in different systems.

Type of attack and target		Armour strength 1	2	2.5
Normal attack	unshielded target	2.18	1.04	0.82
	shielded target[3]	1.04	0.47	0.35
Cloaked attack[1]	unshielded target	2.30	1.10	0.87
	shielded target[3]	1.18	0.54	0.40
Surprise attack[2]	unshielded target	3.55	1.74	1.38
	shielded target[3]	1.81	0.85	0.67

[1]: A *cloaked attack* is what a cloaked ship gets against a target which did not see it, but knows it is an enemy, and expected to be in combat (because it can see other enemy ships in the hex).
[2]: A *surprise attack* is what you get when the target is attacked by some ship it thought was an ally, or when a ship which did not expect to be in combat is attacked by a cloaked ship.
[3]: A *shielded target* is a target that has a shield type that defends against the type of guns the attacker has, i.e. *energy shield* or better versus *lasers*, *graviton shield* or better versus *ion cannons* or *antimatter shield* versus *antimatter guns*.

Table 3: Ship attacks. The tabulated values are the average damage done by one gun in one shot in the specified type of attack versus the specified type of armour.

No	Name	Cost	Size	Hull[a]	Armour[b]	Guns	Notes
1	Scout	5	2	2	1	-	Not limited by command range
2	Explorer	10	5	5	1	-	Not limited by command range, immune to exploration hazard, mapping radius 2
3	Colony Transport	15[c]	10	5	1	-	Takes 5 population, can colonize
4	Exodus Ship	35[c]	30	10	1	-	Takes 15 population, can colonize
5	Small Freighter	10	5	5	1	-	Loads up to 5 *i.p.*
6	Medium Freighter	20	15	10	1	-	Loads up to 15 *i.p.*
7	Large Freighter	40	30	15	1	-	Loads up to 40 *i.p.*
8	Corvette	15	5	5	2	2	
9	Frigate	50	15	15	2	8	
10	Cruiser	100	30	30	2	18	Bombing capability 3
11	Battleship	200	60	60	2	40	Bombing / enslaving capability 7 / 3
12	Dreadnought	350	90	90	2	80	Bombing / enslaving capability 15 / 7
13	Assault Bomber	50	15	15	2	4	Bombing capability 5
14	Invasion Ship	200	60	60	2	20	Bombing / enslaving capability 25 / 12
15	Orbital Station	10	5	5	2.5	2	Cannot move
16	Starbase	30	15	15	2.5	8	Cannot move
17	Cluster	100	50	50	2.5	30	Cannot move
18	Stasis Transport	40	10	10	1	-	Requires tech., loads up to 10 population
19	Ambassador Ship	40	10	10	1	-	Has special functions, costs 30 i.p. for diplomats
20	Pocket Battleship	150	40	40	2.5	30	Bombing / enslaving capability 5 / 2, available only to *warlords*
21	Super Dreadnought	400	90	90	2.5	100	Bombing / enslaving capability 20 / 7, available only to *warlords*
22	Slave Transport	50	20	10	1	-	Loads up to 10 slave population
23	Slaver Ship	60	20	15	2	4	Bombing / enslaving capability 2 / 5, loads up to 5 slave population, available only to *slavers*
24	Slaver Colony Transport	25[c]	15	5	1	-	Takes 6 population and 4 slave population, can colonize, available only to *double slavers*
29	Gas Giant Mining Colony	20	20	10	1	-	See section 13

[a]: *Hull* indicates the amount of damage (damage points), the ship can take.

[b]: *Armour* indicates the thickness of the ship armour (the higher the better, see the "effects of attacks" table).

[c]: The cost of a colony transport is reduced to 10 *i.p.* the cost of an exodus ship is reduced to 25 *i.p.* and the cost of a slaver colony transport is reduced to 20 *i.p.* for races who have developed *Suspended Animation*.

Table 4: Ship types.

Technology	Cost	Required prerequisites	Reduced cost
General Science I	100		
Efficient Construction	30		25 with Improved Industrial Engineering
Improved Industrial Engineering	20		15 with Efficient Construction
Efficient Ship Building	40		
Robotic Industry	50		40 with Improved Industrial Engineering
Relativity Drive	20		
Warp Drive	50		40 with Relativity Drive
Hyper Drive	120	Relativity Drive	100 with Warp Drive
Ion Cannons	20		
Antimatter Guns	40	Ion Cannons	
Disruptors	120	Antimatter Shield	
Energy Shield	30		
Graviton Shield	60	Energy Shield	50 with Graviton Scanner or Graviton Drive
Antimatter Shield	90	Graviton Shield and Antimatter Guns	
Planet Shield	100	Graviton Shield	80 with Antimatter Shield
Gas Giant Mining	50	Robotic Industry	
Secure Launch System	80		

Table 5: Basic technologies.

Technology	Cost	Required prerequisites[1]	Reduced cost
General Science II	300		
Graviton Drive	100		80 with Graviton Scanner or Graviton Shield
Jump Drive	200	Hyper or Graviton Drive	150 with Graviton Drive
Space Elevator	75		
Suspended Animation	75		
Xenobiology	75		50 with alien slaves
Bio-weapons	125	Xenobiology	
Graviton Scanner	50		40 with Graviton Drive or Graviton Shield
Tachyon Communicator	100	Hyper or Jump Drive	80 with Tachyon Scanner
Advanced Cybernetics	150	Robotic Industry	120 with Gas Giant Mining
Improved Gas Giant Mining	100	Gas Giant Mining	80 with Advanced Cybernetics
Superlogistics	150	Efficient Construction	
Hydroponics	150		
Cloning	150		
Exotic Science	300		150 with General Science II

[1]: Besides General Science I.

Table 6: Advanced technologies, requires *General Science I*.

Technology	**Cost**	**Required prerequisites**[1]	**Reduced cost**
Tachyon Scanner	200	Graviton Scanner or Tachyon Communicator	160 with Tachyon Communicator
Terraforming I	250	Hydroponics or Cloning	
Terraforming II	300	Terraforming I	
Terraforming III	350	Terraforming II	
Artificial Intelligence	400	Advanced Cybernetics and Superlogistics	
Self-repairing Robots	300	Artificial Intelligence	
Robotic Army	200	Artificial Intelligence	
Ultimate Jump Drive	150	Jump Drive plus either Tachyon Communicator or Tachyon Scanner	

[1]: Besides General Science II.

Table 7: Super advanced technologies, requires *General Science II*.

Technology	**Cost**	**Required prerequisites**[1]	**Reduced cost**
Graviton Pump	150	Improved Gas Giant Mining	130 with Graviton Drive
Smart Bombs	150		100 with Artificial Intelligence
Cloaking	150	Graviton Scanner or Tachyon Scanner	
Matter Transmission	250		200 with Tachyon Communicator or Tachyon Scanner
Mind Control	150	Xenobiology and must have alien slaves	
Deep Secrets of Cosmology	300		

[1]: Besides Exotic Science.

Table 8: Exotic technologies, requires *Exotic Science*.

	Industry per working population						
	1st	2nd	3rd	4th	5th	6th	7th
At game start	100%	–	–	–	–	–	–
With *Robotic Industry*	100%	100%	90%	–	–	–	–
With *Advanced Cybernetics*	100%	100%	90%	80%	70%	–	–
With *Artificial Intelligence*	100%	100%	90%	80%	70%	60%	50%
With *Self-repairing Robots*[1]	100%	100%	100%	100%	90%	80%	70%

[1]: It is possible to be taught and develop *Self-repairing Robots* without developing *Artificial Intelligence*. In this case the decline in efficiency is as shown for *Self-repairing Robots* but the number of operable industries will be less than seven.

Table 9: Efficiency of industries operatable by one unit of working population.

Index

administration limit, 7
administrator race, 7, 21, 41, 45
    double, 45
advanced cybernetics, 17, 19, 41
`alias` order, 53
    examples, 53, 54
aliases, 52
    counting, 54
ambassador ships, 40
anarchy, 36
antimatter guns, 26
antimatter shield, 26
artificial intelligence, 17, 19, 42

barren planets, 15
bases, *see* defence bases
bio-weapons, 33, 35, 41
black holes, 15
    flipping from, 24
`bomb` order, 33
    examples, 53, 64, 66
bombing capability, 33
    list by ship type, 33
`break` order, 51
`build` order, 22
    examples, 7, 22, 29, 30, 37, 53, 54, 65, 66

centre of the universe, 12
`clear` order, 51
    examples, 51, 52
`cloak` order, 24
cloaking, 24, 42
cloning, 17, 19, 36, 41
`colonize` order, 32
    examples, 7, 22, 54, 64
colony
    double administrator bonus from, 45
    happy, 19
    mapping radius of, 15
colony defenders, 33
colony orders, 7
colony transports, 32, 41
`construct` order, 18
    examples, 7, 18, 29, 30, 37
coordinating actions, 54
counting aliases, 54

damage
    from bombing, 33
    from enslave attack, 35
deep secrets of cosmology, 6
default orders, 9
defence bases, 18, 33, 35
    mastering slaves, 36
    operational, 33, 34
defenders, colony, *see* colony defenders
diplomat race, 9, 11, 39, 47
    double, 12, 48
    in team games, 61
diplomatic broadcasts, 10
`disclose` order, 31
`dismantle` order, 18
disruptors, 26
dust, stellar, *see* stellar dust

efficient construction, 18, 40
efficient ship building, 21, 40
`embed` order, 52
    examples, 52
energy shield, 26
`enslave` order, 35–36
    examples, 54
enslaving capability, 35
exodus ships, 32, 41
exotic science, 41
exploration hazard, 31
    eliminating for allies, 31
`explore` order, 31
    examples, 7, 53
explorer, 31
    mapping radius of, 15

`farmove` order, 23
    examples, 7, 24, 29, 30, 53, 54
`farsneak` order, 25
fighting population, 33
fleet orders, 7
fleets, 22
`flip` order, 24
`form` order, 22
    examples, 23, 54
free orders, 9

game duration, *see* deep secrets of cosmology
gas giant mining, 15, 37, 40
gas giant mining colonies, 18, 37
gas giants, 15
general orders, 7
general science I, 18, 20, 40
general science II, 18, 40
`gift` order, 30
graviton drive, 24
graviton pump, 37, 42
graviton scanner, 15, 31, 41
graviton shield, 26

happy colonies, 19
happy population, 17, 19
hexes, 12
    coordinates, 12
        in team games, 61
holes, black, *see* black holes

hydroponics, 41
hyper drive, 23

improved gas giant mining, 41
improved industrial engineering, 17, 40
`include` order, 23
industrialist race, 20, 44
    double, 45
industries, 17
    i.p. production of, 16, 19
initiative order, 25, 58
`insert` order, 51
    examples, 52
ion cannons, 26

`join` order, 23
    examples, 53, 66
jump drive, 24
    ultimate, 24, 26
`jump` order, 24
    examples, 66

`launch` order, 22
`leave` order, 23
`load` order, 28
    examples, 29, 30, 37, 66

mapping radius, 15
matter transmission, 20, 42
megaworlder race, 41, 46
    double, 46
messages
    diplomatic broadcasts, 10
mind control, 36, 42
mineral content, 16, 19
minimal terran planets, 15
`move` order, 23
    examples, 7, 22, 23, 53, 67
`myalias` order, 53
    examples, 53, 54, 66

`name` order, 16
names
    restrictions on, 16

order arguments
    orders as
        modifying, 52
`order` order, 55
order priority, 59
    colonies, 60
    gas mining colonies, 60
    ships, 60
orders
    as arguments to other orders
        modifying, 52
    clearing and modifying, 51
    colony, 7
    default, 9
    descriptions of
        `alias`, 53
        `bomb`, 33
        `break`, 51
        `build`, 22
        `clear`, 51
        `cloak`, 24
        `colonize`, 32
        `construct`, 18
        `disclose`, 31
        `dismantle`, 18
        `embed`, 52
        `enslave`, 35–36
        `explore`, 31
        `farmove`, 23
        `farsneak`, 25
        `flip`, 24
        `form`, 22
        `gift`, 30
        `include`, 23
        `insert`, 51
        `join`, 23
        `jump`, 24
        `launch`, 22
        `leave`, 23
        `load`, 28
        `move`, 23
        `myalias`, 53
        `name`, 16
        `order`, 55
        `overtime`, 43–44
        `persuade`, 48
        `policy`, 11
        `probe`, 34
        `refit`, 27
        `repair`, 26
        `repeat`, 55
        `research`, 38
        `reserve`, 30
        `signal`, 55
        `sneak`, 25
        `spy`, 48
        `teach`, 40
        `terraform`, 41
        `time`, 54
        `transmit`, 42
        `type`, 44
        `uncloak`, 24
        `unload`, 28
        `wait`, 54
        `waitallsig`, 54
        `waitforall`, 55
        `waitforone`, 55
        `waitonesig`, 54
    examples of
        `alias`, 53, 54
        `bomb`, 53, 64, 66
        `build`, 7, 22, 29, 30, 37, 53, 54, 65, 66
        `clear`, 51, 52

colonize, 7, 22, 54, 64
construct, 7, 18, 29, 30, 37
embed, 52
enslave, 54
explore, 7, 53
farmove, 7, 24, 29, 30, 53, 54
form, 23, 54
insert, 52
join, 53, 66
jump, 66
load, 29, 30, 37, 66
move, 7, 22, 23, 53, 67
myalias, 53, 54, 66
overtime, 43
repeat, 38, 54, 65, 66
research, 7, 38
reserve, 30, 37
type, 44
unload, 29, 30, 38, 66
wait, 67
fleet, 7
free, 9
general, 7
passing between units, 55
repeating, 55
overtime order, 43–44
and happy colonies, 19
examples, 43

persuade order, 48
planet shield, 18, 19, 33, 40
planet types, 15
policy order, 11
population
as defenders, 33
growth of, 17
happy, 17, 19
in gas giant mining colonies, 37
victory points for, 17
prerequisite technologies, 38
primitives, 12
as colony defenders, 33
probe order, 34
production efficiency, 19

race type, 44
double, 44
refit order, 27
relativity drive, 23
repair order, 26
repeat order, 55
examples, 38, 54, 65, 66
research centres, 18
research order, 38
examples, 7, 38
research points, 38
researcher race, 20, 43, 45
double, 18, 43, 45
reserve order, 30
examples, 30, 37
robotic army, 18, 34, 42
robotic industry, 17, 19, 40

secure launch system, 21, 22, 40
self-repairing robots, 19, 42
shields, 18
signal order, 55
signals, 55
slave population, 36
in gas giant mining colonies, 37
slave transport, 36
slaver colony transports, 41
slaver race, 27, 36, 49
double, 19, 28, 32, 35, 36, 41, 49
smart bombs, 33, 42
sneak order, 25
space elevator, 21, 40
spy order, 48
starport, 18
starport capacity, 21
starport capacity factor, 21
administrator race bonus, 45
stasis ship, 36
stellar dust, 15
sub-terran planets, 15
superlogistics, 9, 41
increasing the cost of overtime work, 43
survivor race, 17, 19, 31, 36, 46
double, 17, 46
suspended animation, 27, 41

tachyon communicator, 9, 27, 41
tachyon scanner, 15, 24, 41
teach order, 40
team victory point score, 61
tech codes, 27
terraform order, 41
terraforming I, 15, 19, 41
terraforming II, 15, 19, 42
terraforming III, 42
terran planets, 15
primitives on, 12
time order, 54
timing actions, 54
transmit order, 42
traveller race, 9, 18–20, 23, 30, 41, 46
double, 17, 47
type order, 44
examples, 44

ultimate jump drive, 24, 26, 42
uncloak order, 24
unload order, 28
examples, 29, 30, 38, 66

wait order, 54
examples, 67
waitallsig order, 54

`waitforall` order, 55
`waitforone` order, 55
`waitonesig` order, 54
warlord race, 47
    double, 47
warp drive, 23
working population, 19, 36
    in gas giant mining colonies, 37
wrapping at map edges, 12

xenobiology, 27, 36, 41
xenophobe race, 11, 35, 50
    double, 50
    not allowed in team games, 61