

ANACREON

Reconstruction4021

(3.5" drawing)

Imperial Conquest in the Far Future

by George Moromisato
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Preface

"It is customary for those who wish to gain the favor of a prince to endeavor to do so by offering him gifts of those things which they hold most precious, or in which they know him to take especial delight. In this way princes are often presented with horses, arms, cloth of gold, gems, and such-like ornaments worthy of their grandeur. In my desire, however, to offer Your Highness some humble testimony of my devotion, I have been unable to find among my possessions anything which I hold so dear or esteem so highly as that knowledge of the deeds of great men which I have acquired through a long experience of modern events and a constant study of the past.

"With the utmost diligence I have long pondered and scrutinized the actions of the great, and now offer the results to Your Highness within the compass of a small volume; and although I deem this work unworthy of Your Highness acceptance, yet my confidence in your humanity assures me that you will receive it with favor, knowing that it is not in my power to offer you a greater gift than that of enabling you to understand in a very short time all those things which I have learnt at the cost of privation and danger in the course of many years...

"May I trust, therefore, that Your Highness will accept this gift in the spirit in which it is offered; and if Your Highness will deign to peruse it, you will recognize in it my ardent desire that you may attain to that grandeur which fortune and your own merits presage for you..."

Niccolo Machiavelli
to Lorenzo DiMedici
(from *The Prince*)

Words of Thanks

The debugging credit has to go to the gang at the Vegetable Patch: Thanks to Bob Arco and Scott Best for bringing new blood into the group and redefining the concept of imperial rivalry. Thanks to Nelson de la Cruz for stretching cargo routes to their limits. Thanks to Brent Fairbanks and John Sepenoski for ideas, support, numerous scenarios, and the use of the Vegetable Patch facility at Cornell University. And finally, thanks to all the players who suffered, suggested, insisted, and pressured, until I had no choice but to fix all the bugs that I had created: Damien Chin-On, Janine Goldman, Eric Kline, Bruce Levine, Terry McKelvey, John Richards, and Jed Roach.

Of course, before I even had a beta version to test, Stephen and Ray Bogusz were there to help me mold and code an alpha copy. In particular, Steve's industrial balancing equations are responsible for the complexity and realism of a world's economic mechanism.

Simply put, this game would not now exist without Betsy Aoki, Shawn Broderick, Michael Johnson, David Margil, and Ed Masterson. Their support and enthusiasm have been the driving force behind the creation of Anacreon. Shawn Broderick, who is at the time of this writing working on a MacIntosh version of Anacreon, is solely responsible for the polished look of the user-interface. Michael Johnson and David Margil, in addition to their roles as play-testers, also designed the cover and drew the manual illustrations. Janet Ruggieri, as editor and proof-reader of the manual, made sure that I didn't bend too many grammatical rules. And Ed Masterson, intimately familiar with all the military aspects of the game, designed and tested many of the scenarios.

Finally and most importantly, I would like to thank my parents for their constant support and confidence. From the first 8K BASIC game to this final copy, they have made me believe that I could do it. To them this game is dedicated.

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Introduction

Welcome to Anacreon!

This is a highly detailed and challenging game in which you have complete control of an entire galactic empire. This is much more than a simple war game; players may arrange interstellar trade routes, make treaties with other empires, control the production of planets, and race against the enemy to create new technologies and more destructive weapons. This is a game of power and control, conquest and rebellion, all set in a Machiavellian milieu in which it is better to be feared than loved.

4021: The Reconstruction Begins

At the peak of its power, the Imperium of Earth, foundation of order, law, and morality was like a mud and straw colossus awaiting the first of the summer rains. The wave of support for an Empire of Man, a force that had built up after centuries of regional conflicts, suddenly ebbed and dissipated, leaving the worlds of the galaxy with a burning desire for independence. More than twenty thousand years after the first thermonuclear bomb, the Imperium encompassed a volume of ten billion cubic light-years and almost a hundred thousand inhabited worlds. Fifty years later, Earth was a glowing cinder of nuclear ash and half the worlds in the galaxy had reverted to pre-atomic technologies.

Humanity emerged from the cataclysm not yet sure whether it could go on living now or whether it had been so profoundly shocked and injured that it would presently die out and reach extinction. Entire worlds had been consumed in nuclear fire, countless others had lost the technology to travel between the stars. And everywhere, in the feral competition to survive, the compassion, ideals, and dreams of mankind, often bludgeoned into submission in war and crisis, now silent and disgraced, disappeared entirely from the race.

It is into this milieu that you are thrust. More than four thousand years since the collapse, the worlds of the galaxy yearn for order. As the ruler of a relatively advanced world, your goal and obsession is to begin the reconstruction that may bring a Second Empire to the galaxy.

Many things are possible in Anacreon. As the ruler of a multi-world empire you will have to make many difficult decisions. How will your empire be set up? Will each world be self-sufficient or will you implement an elaborate cargo route to supply specialized worlds? If you choose the former you won't have to worry about your worlds lacking materials,

but if you choose the latter each specialized world will be more efficient and productive. You will have to decide how many worlds you will devote to building ships, and how many to producing raw materials. Or perhaps you will want to sacrifice some industrial worlds in order to establish research universities. In any case, you will have to worry about how to defend your worlds. Poorly defended worlds invite attack from other empires, but trying to protect all your worlds may spread your forces too thin. And at all times you will have to make sure that none of your worlds is too unhappy, or else you'll risk a possible rebellion.

Of course, the real challenge will come from the other empires in the galaxy. Each empire will be trying to build up its war machine, always conquering more worlds and always building more ships. You will have to insure that your empire is able to respond to their challenges, either by undertaking your own program of expansion, or by strategically weakening your opponents' military power. Treaties are always possible; indeed it is often a good idea to join a weak empire fighting a stronger one, but be careful, no imperial ruler will honor a treaty that he or she does not believe will be of benefit. Attacks against your neighbors will have to be planned carefully; even a weak empire will be able to retaliate forcefully if some of your worlds are not adequately defended.

Anacreon is not a simple game, but it is not a frustrating one either. It is easy to be intimidated by the sheer complexity of the game. Managing a starfleet, supplying worlds, defending territory, building stargates--all these skills cannot be learned or mastered very quickly. Fortunately, not everything has to be learned at once. In many ways, Anacreon has been designed so that a full detailed knowledge of the game's many intricacies is not required for basic play.

Playing Anacreon

The mechanics of the game are simple. Each player assumes the role of a totalitarian ruler in a small galactic empire. Every player in turn examines status reports and issues orders each year, a simple process that includes determining which worlds can become colonies and deploying fleets to conquer them. Once all players have taken their turn, the computer updates all the worlds in the galaxy and the next year begins. There are no formal victory conditions in the game, so a game doesn't ever have to end. Usually, however, a game ends after a pre-arranged set of conditions are satisfied (e.g. a certain number of years, a set number of worlds, a certain number of starships, etc).

Not every game is the same, of course. There are many different scenarios that may be played, some for beginners and others for more experienced players. Scenarios in Anacreon set the stage on which conflict between players occur. A scenario, for example, could pit a small but technologically superior empire against a large and ponderous enemy. At the beginning of the game you may select which scenario to play. Scenarios range from simple ones with only a few worlds involved to advanced campaigns in which scores of worlds clash in combat.

Anacreon was designed primarily to be played against human opponents. Treachery and honor, alliance and enmity, those qualities which machines find difficult to express, come to the forefront when other people are involved. With others, the game becomes an engaging exercise in a multitude of disciplines, from role-playing to diplomacy, from strategy to tactics, all used to their fullest against a backdrop spanning more than a hundred worlds.

Anacreon, however, can also be played solo. Several scenarios are included which take advantage of the computer's ability to keep track of large amounts of data. The Jakartan empire in *The Pirates of Jakarta*, for example, can prove to be a formidable opponent.

Organization of the Manual: What to Read and Why

This manual is divided into three parts. Part I of the manual is a simple tutorial; it explains the mechanics of the game, detailing basic commands step by step. Part II is a more detailed section that contains a thorough overview of the game and includes a guide to strategies. Part III is a brief reference section that includes a description of all commands and major tables used in the game.

If you have any questions about the game or if you want to report a bug please feel free to call or write to the address below:

TMA
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Natick, MA 01760
(508) 655-5823

Part I: Tutorial

Set Up

To play Anacreon you will need an IBM PC/XT/AT (or compatible) with at least 512K of memory, two floppy disk drives or a hard disk, and DOS version 2.0 or later.

Before installing the game on your computer make a backup copy of the game disk using either the COPY *.* or the DISKCOPY command. (Consult your DOS manual for instructions.)

Copy Protection

Anacreon is *not* copy protected. You may copy it to your hard disk or make archival copies, but please do not give copies to your friends. We believe that you, as a registered user, have the right to have a program free of the hassles of copy protection; we hope that you will not take advantage of this philosophy.

Anacreon is copyrighted and protected by United States copyright laws. You are granted license to make as many copies of the game as you like, so long as there is no possibility of more than one copy being used at a time.

You should find the following files on the distribution disk:

ANACREON.EXE The main program.

ANACREON.OVR The overlay file.

ANACREON.HLP The on-line help file.

?????????.SCN Scenario files.

README The latest additions and modification

You can split up the files in any way you wish as long as you keep the scenario files together and ANACREON.HLP with ANACREON.EXE and ANACREON.OVR. For a two-floppy disk system, for example, you may want to have a program disk containing ANACREON.EXE, ANACREON.OVR, and ANACREON.HLP and a scenario disk holding all .SCN files and all save files.

Because Anacreon is not copy-protected, you can use the standard COPY command to copy the files.

Configuration

After you've made a working copy of Anacreon you must tell the game where you've put all the scenario files and where you want to put the save files.

| Type ANACREON to start the game.

| Select *Configure/Directories* from the main menu.

When the program asks for the directory of the scenario files, type in the full path of the directory where you've put all .SCN files. For example: C:\ANACREON\SCENA or B:\. Do the same for the save directory.

About the Interface

Anacreon uses a consistent user-interface based on standard IBM conventions. A menu bar is used to enter commands, and a windowed display provides information.

The Menu Bar: Issuing commands is very easy; simply use the cursor keys to move around and the [Enter] key to select. For example, suppose that you want to start a new game. Just move the cursor until the Game menu is highlighted. Now press [Enter] to open the menu. With the up and down arrow keys you can select an entry in this menu or, if you want a different menu, use the left and right arrows. Once you familiarize yourself with the commands, you will want to use a short cut. You can issue any command by typing the first letter of the menu, followed by the first letter of the command. For example, to attack a world, you can press [M] to get to the Ministry of War menu, and then [A] to get to the Attack command.

The Escape Key: The [Esc] key is used as a general exit. Unlike a cancel key, however, the [Esc] does not modify any changes that you have made.

About the Notation

In this tutorial we will often have instructions for you to type at the computer. When these refer to a menu selection they will be written in the format *Menu/Item*, for example: *Fleet/Deploy*. (See "About the Interface" for directions on using the menu bar.)

Starting a Game

Once Anacreon is set up on your system, type ANACREON at the DOS prompt to start the game. After a brief logo you should be greeted by the main title screen. From here you may start new games, load and save games, and set all global options pertaining to the game.

| Select *Game/New Game*

You should now see a menu listing all the different scenarios that you can play. Several scenarios are included in the game, and more can be created with a simple text editor; but for the purposes of this tutorial, select the scenario called *The Pirates of Jakarta*.

After the introductory text, type in the number of players and the name and password of your empire (pressing [Esc] for a name will give you a list of suggestions). Now the computer will create the universe and return to the title screen.

The Time Limit

One of the options on the menu bar allows you to change the time allowed each turn. Each player only has a limited amount of time in which he or she may give commands to the empire. Although each player only starts out with 25 minutes of total time, five extra minutes are added each turn (including the first). The time is cumulative so the less time

you use each turn, the more you will have for later (possibly more crucial) turns. The time per turn can be changed to suit the needs of the player. Since you are new to the game and are reading this as you play, you may want to take the opportunity here to change the time limit. Before you start your turn, select *Options/Time Limit* to change the time limit. The computer now asks you for the time per turn in minutes (i.e. 15 gives you 15 minutes per turn). Type in a reasonable number and hit [Enter].

| Select *Game/Begin*

Of course, you won't have to create a new game every time you play. You can save a game with the *Game/Save* command and the load it back with *Game/Load*. Once a game is loaded, select *Game/Begin* to start.

The First Year or "What do I do now?"

The basic idea of the game is simple. You start out with one world and some ships of varying capabilities. You must deploy fleets of these ships from your world to conquer other nearby worlds. Once you've captured a world it will be part of your empire and you will be able to instruct it to build more ships, concentrate on developing technology, produce materials, or otherwise increase the power of the empire.

Worlds can be of different *types*, indicating that their population and industry is concentrating on different resources. Some worlds will build ships, while others will produce raw materials. Once you have conquered a world, you will be able to *designate* to it whatever *type* you desire. Worlds also have other characteristics such as *technology level*, *class*, *population*, and *efficiency*.

To conquer worlds you need ships. There are seven different kinds of ships, some used for war, others used as transports. When deployed, ships are grouped into *fleets* which can then be sent to attack other worlds or move materials between worlds.

Worlds of the proper *type* can build ships, but they need raw materials. Initially all worlds are self-sufficient, but eventually you will want to increase their production by importing materials from other worlds.

"Yes, but how do I play?"

If you must start right away without reading the tutorial, at least follow these guidelines:

a) The first year you will have very little information about surrounding worlds. Use the *Fleet/Probe* command to launch probes to nearby worlds. Remember that your capital is always at coordinates 0,0 and that Cartesian coordinates are used (positive X is to the right and positive Y is towards the top);

b) Pick your targets carefully. Attack mostly atomic and pre-warp level worlds. When you do send out attack fleets, remember to bring transports filled with *men*. You cannot conquer a world unless you land men on the surface;

c) Hunter-killers, jumpships, and jumptransports can travel ten sectors per year. Use these ships when taking worlds more than three sectors away;

d) Don't send out too many attack fleets. You will need at least 500 legions to conquer a pre-warp level

world. Since each jumtransport can only carry one legion, you will need at least that many jumtransport per attack fleet;

e) *World/Production* and *World/Close Up* are useful commands that give detailed statistics of a world in your empire;

f) [F1] is the help key. If you need to know what different symbols mean or how powerful different ships are, the help key can be invaluable. Once in the help screen you may press [End] to consult a short index.

Type in your password and press [Enter]. Your turn hasn't started yet, so you can take some time looking at your status. The first year, you own a single world, your capital, and are at the bio-technology level. The total population (in billions) of the empire is given here, as well as the total number of ships that you own. Don't worry yet about what each ship does.

You should, however, notice a few things. First of all, you have no hunter-killers, penetrators, or starships. This is because your empire is not technologically advanced enough to construct such complicated ships. Since you are at the *bio-tech level*, you will eventually discover the technology to build hunter-killers and penetrators; you must, however, wait until starship level before you can hope to develop starships (see: "Discovering New Technologies").

Second of all, notice how many jumpships and jumtransport you have. Although they are not as powerful as starships or even penetrators, both types possess a jump-generator enabling them to travel up to ten sectors a year. Fleets composed only of these fast ships will reach their destination much faster than the standard warships fleets which can only travel a single sector a year.

Hit any key now to start your turn. Again you are presented with a menu bar. From here you can issue commands telling your empire what it must do this year. In the upper right corner of the screen is the time remaining for your turn. The purpose of the time limit is to keep the game at a quick pace, especially when more than one person is playing.

The Menu Bar

All the commands that you may issue are listed on the menu bar. Like the menu bar that you saw in the title page, this bar has several entries, each of which serves as the header for a menu. The following is a brief description of the menus:

Game Allows you to end your turn or print a status report.

Empire This menu contains commands that involve other empires.

Worlds Commands that deal with worlds are found in this menu. Name, Designate, etc.

Fleet You can manage fleets and launch probes with this menu.

Build This is a menu of commands to build starbases and other constructions.

Ministry of War If you wish to attack another world, you can issue a command from here.

The Status Windows

There are ten status windows, each accessed by pressing a different function key. The [F1] key, for example, calls up the Help screen, and the [F10] key brings up a map of the galaxy. To return to the menu bar, press the [Esc] key. You can open a window at any point during your turn, but remember that any time spent looking at a window counts as part of your turn.

Function Keys

Key Window

F1 Help
 F2 Close All Windows
 F3 World Status
 F5 Fleet Status
 F7 News
 F8 Empire Status
 F9 Names
 F10 Map

Help!

The Help window is opened with the [F1] key. You can scroll through the help file with the [PgUp] and [PgDn] keys. Hit the [End] key to bring up an index.

The Map

Press [F10] to bring up the Map window. The letter *C* (often near the center of the window) represents the capital of your empire. Other planets are designated by other letters. When the game begins, you know very little about the other worlds of the area. Until you scan these worlds (either with probes or by deploying a fleet to the region) all that you know about them is that they exist. These planets are represented by the letter *p* on the screen. This particular scenario consist of 50 worlds, so you will see quite a few planets. You will start out having information about only those planets that are closest to your capital. These planets have already been scanned, and thus you will be able to know some general facts about them.

If any planets are near enough to be scanned, they will be represented by a letter other than *p*. At the beginning of the game almost all of the planets are not controlled by either you or any of the other empires, and are therefore designated as independent. These worlds are represented on the screen as a letter *i*. If any of the planets that you scanned belong to another empire, they will appear as a letter other than *p* or *i*.

The large shaded areas represent galactic nebulae--gigantic patches of gas and dust that sometimes lie in interstellar space. Nebulae tend to interfere with the scanning of planets and fleets within them. An enemy fleet traveling through a nebula will be virtually invisible until the fleet comes within one sector of one of your fleets or planets. Thus, nebulae can help a player gain surprise if used correctly. A nebula also hides the existence of any planets that it contains; unless you explicitly probe these areas the worlds inside nebulae will remain unknown.

When the map is active, the arrow keys move a cursor that points to individual sectors on the map. The cursor is a short-cut way of issuing commands. For example, if you place the cursor on your capital and press [Enter], you will issue the *World/Close Up* command on your capital. The screen will display information about your capital. Press [F10] to get back to the map.

Commands that have a short-cut on the map have a control-key displayed next to their entry on the menu. The *World/Name* command, for example, can be accessed with the [Alt-N] key. Moving the cursor to a world and pressing [Alt-N] allows you to name the world.

World Status

The [F3] key opens the World Status window. It contains information on all the planets that you have scouted. As with most windows, it has exact information only on those planets that you own (at this point, only your capital); worlds that have just been scanned (or are within continuous scanning range) have more vague information. You cannot know exactly what is on the planet, only a rough estimate. Planets that were scanned in the past will show even less definite information, since you cannot be sure that they have not changed since the last time that they were scanned.

The world status window is divided into two parts: The top part lists general information about each world, the bottom part lists the military capabilities of each world. In both cases a line of text is devoted to each world.

The following paragraphs describe the information included in the top part of the world status window.

PlntName: The first column usually gives the name of the planet, but since none of the worlds have been named yet, the coordinates of the planet are given instead.

Sta (Status): The allegiance of the world, a three letter abbreviation that stands for the empire which owns the world. The first world on the list is your capital; all of the other worlds are probably independent (designated by *Ind*).

C (Class): The environmental class of the planet. Some worlds might be very earth-like and hospitable to human life, others may be barren wastelands bathed in radiation. Clearly an emperor or empress would not make an agricultural world of the latter. A list of these classes and their significance is given in Part II.

T (Type): The industrial designation of the world. Note that your capital is designated by the letter *C*. The letter code is the same as the one used on the map. You can read more about world types under the section "Designating a World."

Tl (Tech Level): The level of technological development on the planet. This is an indicator of how advanced the level of science is on a world. Your capital starts out as *b*, or bio-technology level. The table below lists all of the different technological levels, but a more detailed explanation can be found in Part II.

Technology Levels

Tech Level Notes

pt pre-tech medieval
 p primitive industrial revolution
 pa pre-atomic US, Europe, c. 1900s
 a atomic atomic power
 pw pre-warp interplanetary travel
 w warp interstellar travel
 j jump basic jumpdrive
 b bio-tech genetic engineering
 s starship large scale engineering
 pg pre-gate planetary engineering
 g gate stargate technology

Pop (Population): The population of the world in billions. The larger the population, the greater the industrial capacity of the world.

Eff (Efficiency): A measure of the administrative bureaucracy, this characteristic affects every aspect of a world. When a world is designated to a specific type, or when that type is changed, the efficiency drops due to the change in the way the economy functions. As time passes, efficiency tends to rise (the world begins to get accustomed to its new role).

A (Ambrosia Addiction): If a world is addicted to ambrosia, you will see a *y* in this column. More about ambrosia can be found in Part II.

Impt/Expt (Import/Export): The **Impt/Expt** columns tell you what materials the world needs and what materials it has in abundance. For example, if a world imports chemicals and metals, and exports trillum, the entry would look like this:

CM-- ---T

Impt/Expt reflects the current *ISSP* setting.

Rev (Revolution Index): The revolution index of a world is basically a measure of dissatisfaction. The higher the revolution index, the more likely a world is to revolt. Revolution index is measured in five steps:

no No chance of rebellion.
Lo- Dissatisfaction.
Lo+ Riots and demonstrations.
Hi- Rebellion likely.
Hi+ Rebellion imminent.

Transports (jtn trn): The number of jumptransports and transports that the world has is listed here, as well as on the military status.

Materials (amb...tri): The last five columns list the amount of material that a planet has stored on it. There are five different types of material: ambrosia, chemicals, metals, supplies, and trillum. (See **Part II** for a complete description of each type.) Only the planets that you control will have values listed. Chemicals, metals and supplies are expressed in megatons (millions of tons), while ambrosia and trillum are listed in kilotons (thousands of tons).

The lower part of the world status window includes the .military status of each of the planets you have scanned. Again, exact values are given only for those planets that you control; planets that you have recently scanned will have vague estimates. The estimated values work as follows: *no* means that the planet has none of that type of object; *yes-* means less than 500; *yes1* stands for around 1000 (anywhere from 501 to 1500); *yes2* is around 2000, etc. *Yes+* means more than 9500. The window lists the following from left to right:

PlntName World Name
Sta Status (Allegiance)
men Legions of men
nnj Legions of ninja
fgt Fighters
hkr Hunter-killers
jmp Jumpships
jtn Jumptransports
pen Penetrators
str Starships
trn Transports
LAM Long-range Attack Missiles
def Defense satellites
GDM Ground Defense Missiles
ion Ion cannons

Fleet Status

The [F5] key calls up the Fleet Status window. As you might guess, this window has information about the position and destination of each of your fleets as well as the composition and contents of each fleet.

News

The [F7] key calls up the News window. The News window is a list of the important events which have happened between

turns. It will list any attacks that other players have launched against your empire, any unrest among your planets, all advances in tech level by each planet that you own, all planets of yours that have run out of supplies, etc. You should check your News window at the beginning of each turn, since it will let you know of any unforeseen problems that need immediate attention.

Empire Status

Pressing [F8] gives you access to the Empire Status window. This window compiles the general information of each sovereign empire. First comes the empire's name, then the tech level of the capital, the total number of planets that are under the empire's jurisdiction, the total population of the empire (in billions), the shipyard index for the empire, and the total number of each of the seven types of ships that the empire has. The shipyard index for an empire is a relative measure of the ship production of the empire. An empire with double the shipyard index of another will generally produce twice as many ships.

You don't automatically know everything about every empire. If you know the location of an empire's capital, you will see the industrial and political data listed. If you have scouted the empire's capital in your last turn, you will be able to see the military data.

Names Window

[F9] gives a list of the names that have been defined by you with the name command. Since you have not used the name command yet, no names are defined.

Naming Your Worlds

The *World/Name* command is used to name points in space (i.e. planets, warp-links, gates, etc.). Once an object is named, the computer will recognize that object by its newly given name. For example, let's name your capital. You can use any name that you choose as long as it is eight characters or less. Let's use the name "Home."

| Select *World/Name*

The computer will now prompt you for the object that you wish to name.

| Type "0,0" [Enter]
Type "Home" [Enter]

"0,0" is the current name of your capital, since all planets start out with their coordinates as a name. The Name command can also be called with the [Alt-N] short-cut command.

Once the world is named you can open the name list window with the [F9] key and see the name "Home" followed by the coordinates to which it refers--0,0. In addition, if you call up the Map window ([F10] key) you will see the name next to your capital. (Once in a while there will be no room to fit the name on the map. In this case the computer will not write the name, but you will still be able to use the name as usual.)

Why use names?

Names serve two distinct purposes. First of all they are quite practical. If you own a dozen worlds you will find it hard to remember if your jumpship base is at 10,-5 or 5,-10 or some other coordinate. It's much easier to remember that your jumpship base is called Oberon, or Tash. Without names you would be constantly looking up the coordinates of your worlds.

More importantly, however, names add to the flavor and character of the game. Is your empire Spartan and military? Then worlds should probably be named after weapons or military leaders. The names of the planets in Earth's solar-system are

named after gods of mythology, maybe you could try some of the unused names. Or try famous artists, or cities, or exotic vegetables. Below are a few suggestions:

Roman Empire (c. 50 BC)

Athens Carthage Corsica Crete

Cyprus Gaul Greece Rome

Sardinia Sicily Syracuse

Italy (15th Century)

Elba Florence Genoa Milan

Naples Padua Ravenna Rome

Siena Verona Venice

Japanese Empire (17th Century)

Edo Formosa Hokkaido Kamakura

Kyoto Kyushu Nagasaki Nara

Nikko Osaka Tokyo Yezo

British Empire (19th Century)

Belfast Canada Ceylon Edinburgh

Falkland India Ireland London

New Wales Scotland Tasmania Wales

Nearest Stars

Sol Proxima Centauri Barnard

Wolf 359 Lallande Sirius UV Ceti

Ross 154 Eridani Vega

Probing the Galaxy

The first step in any endeavor is the gathering of data and information. Since you don't know anything about the worlds beyond your capital, your first step should be to probe the surrounding worlds. Find a planet (use the [F10] key) near your capital that is still unprobed (it will show up on the map as a *p*).

| Select *Fleet/Probe*

When the computer prompts you for the coordinates, type them in (x,y) and press [Enter]. Remember that the map uses Cartesian coordinates. X is the horizontal coordinate and is positive to the right. Y is the vertical coordinate and is positive towards the top of the screen.

The *Fleet/Probe* command is also available as a short-cut on the map. If you call up the map with the [F10] key, you can probe any planet on the map by moving the cursor to the location that you want to probe and pressing [Alt-Z].

You can send up to ten probes a year, but you will have to wait until the following year before you receive the information. Probes not only scan the coordinate that they were set for, but also the sectors that neighbor the target sector. Thus each probe scans nine sectors. Smart use of probes can have them scan more than one planet each. Now go back and probe some more of the nearby planets; the more knowledge you have about the galaxy, the better you can plan your empire.

Nebulae

There are three different kinds of nebulae, each of which can affect your ability to probe worlds. The common nebula will prevent your scanners from detecting planets and fleets. Since there may be star systems hidden in a nebula, you must carefully probe every part of it to find all the worlds. Probes launched into common nebulae will scan one sector around them.

A second kind, dark nebulae, further decreases your scanning ability. Probes and fleets launched into dark nebula will scan only the sector that they are in, not the surrounding sectors.

Dense or impenetrable nebulae are the rarest of all. These clouds are so dense that ships cannot enter them. Generally, however, they hold no star systems.

Since there's very little else for you to do in your first year, you should just end your turn and wait until the next year to receive the information from your probes.

| *Select Game/Next*

The computer opens a small window asking you to confirm this choice. If you don't want to end your turn press [Esc]; otherwise, press any key.

Suspended Animation

An emperor or empress must live for hundreds of years to be able to plan long-range policy for an empire; most of that time is spent in suspended animation. Waking only once a year for a few months at a time, an imperial ruler controls overall strategy, leaving the details of running a government to his or her underlings.

Between turns, you are assumed to be in suspended animation.

If you're the only human player, the computer will carry out all the necessary calculations to begin the next year. Once your turn has started again, press [F7] to check the news. If you correctly entered the Probe command, you should see a list of the worlds that you've scouted. Now press the [F3] key to see the information gathered on those worlds.

So What? Big Deal

So far, of course, you haven't actually done anything, but now that you know how to access the status and information windows we'll be able to intelligently discuss the responsibilities of an imperial ruler.

| Press [F3] to open the world status window.

Right now you only have a single world, but you do have the resources to forge an empire. Take a look at the world status window to study your options. Remember that the top part of the window contains general information and the bottom part contains military information. Look at the military information for your capital. You have a large fighter (fgt) force, and a few jumpships (jmp), transports (trn), and jumptransports (jtn). The fighters and transports may help, but because they are warp ships they can only move one sector per year. The jumpships and jumptransports are much better at the present time because they can travel up to ten sectors in one year.

Now look at the planets around your capital. Many will be underdeveloped worlds with few (if any) ships. The ideal worlds for conquest, given the size of your military, are those that are too backwards to have a large arsenal of Ground Defense Missiles (GDM). You may be able to handle about a thousand missiles, but more than that will substantially weaken your fleet. Look through the military status for a nearby world that fits that criterion. You start out as *bio-tech* level, so as a good rule of thumb you should not try to attack any planet with a tech level over *pre-warp*. Anything higher may defeat your battle fleet. In fact, a *pre-warp* world will probably cause great damage to your fleet, so you should try to start with an *atomic* level world.

In general, an emperor or empress goes through several steps to conquer a planet. The first step, choosing an appropriate target, is followed by deploying a fleet to the area, attacking the world, and integrating the new territory into your empire.

Once you've decided on a suitable target for your first conquest, you should name that world so that you can refer to it by something easier to remember than a set of coordinates. Let's use the name "Tash".

Deploying a Fleet

After you've named the world, you must fleets:deploying a;deploy a battle fleet to the area.

|| Select *Fleet/Deploy*

Like worlds, fleets must have names so that you can refer to them.

| Type "Battle1" [Enter]

Now you will be prompted for the point of origin of the fleet. Since you only have one world, your choice is limited.

| Type "Home" [Enter]

Finally, you must type in the destination of the fleet. If you have named the world, type in that name, otherwise type in the coordinates of the world.

| Type "Tash" [Enter]

The screen will now show the fleet changing menu. The first seven columns correspond to the seven ship types. Next come the two types of troops: normal men and ninjas. Then come the five material types, followed by the total amount of cargo space left in the fleet (in units of transports). There are two rows of numbers in each of the columns; the bottom corresponding to the amount in each of the categories of resources that are on the planet, the top row to the amount in the fleet. (The cargo space column is undefined for a world since a world can hold unlimited cargo, but if you were deploying a fleet from another fleet the cargo space column would be valid for both.) Below and to the left of the columns is list of

the commands that is used in this menu, to the right is a list of the amount of cargo space that each of the different types of material needs. For instance, each unit of cargo space can hold two units of metals but only one unit of supplies. This is due in part to the density of the materials and in part to the space taken by special containers needed for certain materials (such as refrigeration units for food).

To choose the column that you wish to change, use the left and right arrow keys. For our example we will want to create a jump fleet, so we will want only ships with jump capacity: jumpships and jumptransports.

| Move to the jumpship column and press [Enter]

The computer will prompt you for the number of ships to transfer. Positive numbers entered here will cause the selected objects to be transferred from the ground to the fleet, a negative number will do the reverse. We will send all of your jump-type ships to help insure success, so type in the full number of ships that are on the ground and type [Enter]. Those ships are now part of the fleet.

Another way to transfer ships and materials is with the up and down arrow keys. The up arrow key will move everything from the ground to the fleet. The down arrow key will do the reverse.

| Move to the jumptransport column and press the up arrow key.

You will see that the cargo space is now positive for the fleet. This number will be 1/5 of the number of jumptransports since each jumptransport holds 1/5 of what a transport holds.

| Move to the men column and press the up arrow key.

This time, not all the men were transferred, only as many as would fit in the jumptransports. The cargo amount for the fleet should now read zero, meaning that there is no more free space left.

| Press [Esc] to end the transfer.

The fleet has now been deployed.

A fleet can be deployed from a planet or another fleet. If you wish to deploy from a fleet, just type in the original fleet's name when it is time to enter the deployment point.

| Press [F5]

The fleet status window is divided into an upper part and a lower part. The upper part lists all active fleets, their position, their destination, their status, and their range. The status of a fleet tells you if the fleet has reached its destination or if it is in transit. If it is in transit it will tell you how many years it will take for the fleet to reach its target. The range of the fleet is given in years, not sectors. If you plan for a fleet to go for a large distance it might not be a bad idea if it carried extra trillum with it in the transports.

The lower part of the window lists the composition of the fleet. This is helpful if you are unsure of the contents of a particular fleet.

End your turn now (with the *Next/Turn* command). On the following turn check the fleet position window [F5] to see if the fleet has arrived. If it hasn't, end your turn again. After the fleet has arrived you may begin the attack.

Attacking a World

| Select *Ministry of War/Attack* to attack.

Once the attack fleet is in the same sector as its target we can begin the attack. Enter the name of your battle fleet when the computer asks for the attacking fleet. The computer will now show you a list of enemy objects at the position of the fleet. There will only be one choice since there is only one object to attack. At some future time you may be faced with a planet

with a number of fleets in its sector. To get to the planet you must first get through the fleets. In that case, you will need to choose the enemy fleet which you want to attack. For now, however, press [Enter].

Splitting a Fleet into Groups

Whenever a fleet enters combat it is divided into *groups*. Each group is composed of only one type of ship and can attack only one target at a time. For example, a fleet with 200 jumpships and 200 jumptransports could be divided into two groups of 100 jumpships each and a third group of 200 jumptransports. Each of the two jumpship groups could then attack independent targets. The advantage of splitting your force into more groups is that you will be able to attack more targets.

At the beginning of the battle you will be asked if you want to deploy your fleet in standard battle configuration. Standard battle configuration places each type of ship in its own group (in the example above, there would only have been two groups: 200 jumpships and 200 jumptransports). For most battles this will be enough, but once you start fighting worlds with defense satellites and starships you will probably want to manually define your groups. For this battle, however, standard battle configuration will suffice.

| Type "Y" [Enter]

Combat

You will now enter the combat screen. The space around the planet is divided into five shells or orbits: *deep space*, *high-orbit*, *orbit*, *sub-orbit*, and *ground*. To land troops on the planet the transports must pass through each of these orbits in turn. The planet will be defended by orbiting ships as well as ground-based defenses. The enemy ships will be broken up into groups in each orbit and can attack ships only in the orbit that they occupy. Your ships also can attack only those enemy ships in the same orbit.

The combat screen is divided in the following way. At the top is the tactical display; it shows the groups of attacking and defending ships. Your ships are those to the left of the orbital line, the defenders are to the right. Each of your groups will be symbolized by a ship icon. The number of defenders' icons corresponds to the total number of ships that the defender has in that orbit. Below and to the left of the tactical display is the command window. Here all the attack commands are displayed. To the right is the defender's organization display. It lists the number of each type of ship in each of the orbits. It also lists the number of defenses the planet has, along with the number of troops on the surface.

In this simple battle you will probably be opposed only by fighters and GDMs. All other ships and defenses are too advanced for a pre-warp level world. You have two attacking groups: jumpships and jumptransports. Since you are only opposed by fighters, you must attack the fighters with your jumpships while defending your jumptransports. The defenders will concentrate on the transports if possible since they are weaker. You must protect the transports at all cost; without the troops in them it is impossible to capture the planet.

Before you can attack you must set the target of each of your groups.

| Press [T] to target your groups.

Type a letter indicating the target that should be attacked by the given group. Legal target letters are as follows:

- [-] (Defend)
- [D] Defense Satellites
- [F] Fighters
- [G] GDMs
- [H] Hunter-killers
- [I] Ion Cannons
- [J] Jumpships
- [T] Jumptransports
- [L] LAMs

[M] Men
[N] Ninja
[P] Penetrators
[S] Starships
[R] Transports

Press [F] so that the jumpships will attack the fighters, and then [-] so that the jumptransports take a defensive action.

Hunter-killers

Hunter-killers are very special because they can be invisible to the enemy until they attack. If a hunter-killer group is targeted to defensive action (-) they will remain hidden and not take damage from the enemy. While they remain hunter-killers:cloaked, hunter-killer groups can advance and retreat through the orbits at will. When they finally do attack, however, their invisibility is destroyed and they become as vulnerable as other ships.

A standard military tactic is to send a hunter-killer group past all enemy ships to sub-orbit, and from there attack all GDM installations on the planet.

| Press [E] to engage.

Now that all groups are targeted you can begin the battle by pressing [E] for attack:engage. Most likely you will then see the enemy fighters in deep-space wink out of existence. To see what happened after a round, press [D] for attack:details. The Details window will tell you how many ships you have lost in each group, and more importantly, which enemy ships inflicted the most damage.

Each battle round each of your attack:groups must be chosen to attack or move to a lower orbit. Since the object is to land transports (filled with men) on the ground, advancing the transports often seems like a good idea. But advancing through a group of enemy ships will increase the casualties on both sides, so you should generally wait at an orbit until all the enemy ships are destroyed. For example, if a group advances from high orbit to orbit, it will be attacked by all the ships in high orbit along with the defense satellites (if any exist) since they also can attack in high orbit.

Once you have destroyed all fighters in this orbit you should advance to the next level. You do not have to advance all your groups, however. Since you want to protect your transports, you should probably leave your transports at deep space (since you've already cleared all enemy ships from the area) and advance only the jumpships.

Press [M] to move your groups.

The [M]ove command will instruct some or all of your groups to attack:move from orbit to orbit. When you press [M], you will be presented with a prompt for each of your groups asking if they are to [S]tay in this orbit, [A]dvance to the next orbit, or (if possible) [R]etreat to the previous orbit. You should type [A] for those that are to advance and [S] for the others (again, do not hit [Enter] after your response). Set the jumpships to advance, and leave the jumptransports behind for their own protection.

Bring the jumpships in towards the planet, attacking and destroying all the fighters that they come across in each of the orbits. After they have cleared all the orbits up to sub-orbit you may bring in the transports. Only transports and fighters can land and attack on a planet; the other ships must remain in sub-orbit (they can attack GDMs and ion cannons from sub-orbit, however). Bring the transports down to ground and press [E]ngage. This will order the troops on the transports to deploy themselves and begin to attack those on the ground. If you have more troops than the defender, you should win the battle. Continue to hit [E]ngage until the battle is done.

Eventually the computer will tell you that your attack has been successful. It is not always necessary to totally defeat the defender; if your attacking force is much greater than your enemy's defenses it is possible that the defender will surrender

to you without much of a fight.

To the Victor...

Now that you've conquered a world you must integrate it into your empire. What shall it produce? Will you need to supply it with raw materials? Before you decide any of these questions you'll want to know what the world is good at (it would be most embarrassing if you were to instruct a barren world to grow food!).

Different classes of worlds are good at different industries. The table below lists the different classes and their respective advantages and disadvantages. An ocean world, for example, is good for chemical and agricultural industries, and poor in metal and trillum industries. Clearly, it would not be wise to make an ocean world a mining or trillum world. A much better designation would be a chemical or agricultural world.

World Class Table

Symb	Class	Advantages	Disadvantages
A	Ambrosia	Bio	Met/Tri
a	Arid	(None)	Chem/Agrc
0	Artificial	Ships	Chem/Met/Agrc/Tri
B	Barren	Met/Tri	Chem/Agrc
j	Class J	Chem/Met	Tri
k	Class K	Met	Chem
l	Class L	Tri	Agrc
m	Class M	Agrc	Trillum
D	Desert	Tri	Chem/Met/Agrc
E	Earth-Like	(None)	(None)
F	Forest	Chem/Agrc	(None)
G	Gas Giant	Chem/Ships	Met/Agrc/Tri
h	Hostile	(None)	(None)
I	Ice	(None)	Chem/Met/Agrc/Tri
J	Jungle	Chem/Agrc	(None)
O	Ocean	Chem/Agrc	Met/Tri
1	Paradise	Bio/Chem/	(None)
		Met/Agrc/Tri	
P	Poisonous	Chem	Met/Agrc/Tri
2	Ruins	(None)	(None)
U	Underground	Met/Tri	Agrc
V	Volcanic	Chem/Met/Tri	Agrc

What if we want the ocean world to build ships? If the ocean world were designated to be a base planet or jumpship base it would build ships like any other world; but because ocean worlds cannot mine metal or trillum efficiently (materials needed for ship production), an inordinate amount of industry would be spent trying to mine metal and trillum to build ships. Since worlds that build ships always need chemicals, metals, trillum, and supplies, these worlds should have as few disadvantages as possible.

Another more interesting solution, however, is to decrease the production of the disadvantaged industry and, instead, import the needed resource from other worlds. For example, a ship-building ocean world could be instructed not to mine metals or trillum (since it is so inefficient at those industries) but instead concentrate on building ships. Normally every world produces enough of each resource to support itself. The *World/ISSP* command, however, can be used to instruct the world to produce less than what it needs. In the case of the ocean world, we would set the metal and trillum industries to around 50%, meaning that it would produce only half of what it needs. Of course, the other half would have to be shipped in on transports by the emperor or empress.

Designating a World

Designating a planet means that you instruct the planet to concentrate on a particular industry. Designating a world to be a metal mine, for example, causes the industry of the planet to be redistributed so that metal mining is increased and all other industries decreased. Normally, of course, the agricultural industry (needed to produce food for the population) will not be decreased below the minimum necessary. However, if you wish to increase the mining industry even further, you can set the ISSP (q.v.) of the world so that it produces less supplies than it needs.

| *Select World/Designate*

When the computer asks for the name of the world to designate, type in the name of your newly conquered planet. Next you will be asked to select the new designation for the planet. The table below has a list of the available types, and more information about each type can be found in Part II.

World Types

Type Tech Notes

a agricultural pt food (sup)
 A ambrosia b ambrosia (amb)
 b base planet pw ships and LAMs
 C capital - the center of the empire
 c chemical pa chemicals (che)
 i independent pt ships
 j jumpship base j jumpships (hkr jmp jtn)
 m mine p metals (met)
 N ninja base s creates ninjas (nnj)
 o outpost - starbase
 r raw material p materials (che met tri)
 s starship base s starships (pen str)
 t transport base pw warships (fgt trn)
 z trillum mine a trillum (tri)
 U university j discovers new technology

Tech is the minimum technology level at which the world must be before it can be designated to this type.

Changing the designation (type) of a world does have some complications. Because you are making large-scale changes in the industry and economy of a world, the world's efficiency will be lowered by 20 to 30 points. Similarly, the industry base needed to support its new role must be built up; a world will not begin producing resources right away. In some cases you may need to import metals from other planets so that it can build up its industry.

Conquest and Empire: What Do I Do with a Pre-Atomic World?

Initially, at least, your imperial starfleet will be too small to conquer powerful warp and jump level worlds; you'll have to settle for smaller and more primitive worlds. But what can you do with pre-atomic and atomic level worlds? Unfortunately, not much. If their population and efficiency are also low (very likely) then you might want to leave them alone (independent) until they improve. All worlds under your flag will increase in technology much faster than the surrounding worlds. In ten years time a pre-atomic level world could become warp level. Waiting for this technological revolution might be desirable, especially if the class of the world is less than hospitable.

If the world that you have conquered is earth-like or very nearly so, you might want to designate it as a raw material mine of some kind. There are four kinds of raw material worlds, one of each to produce chemicals, metals, and trillum, and one to produce all three resources. Strategies differ on the best distribution of worlds. The three specialized types will always

be more efficient than a simple raw material world, but having all the needed resources on one world makes transportation easier. No matter what the arrangement, designating at least one trillum world is always useful. Since trillum, a high-yield fuel, is needed in relatively small quantities (trillum is measured in kilotons instead of megatons) a few hundred jumptransports can carry enough to supply a large base for years. No matter where the trillum world is, jumptransports (which travel in jumpspace) will always be able to reach it in one or two years.

The Rest Is Up to You

Now you have all the pieces to forge an empire. Fleets conquer worlds and worlds build ships, all in a growing spiral that feeds on itself. Strategy is something else entirely. Part II will give you a feel for the basic strategies and tactics of the game, but you will surely find your own style of play. There are also many commands that we have not covered, but all these are fully detailed in Part III. You won't need them all at first, but as your power grows, so will your ambition, and eventually you will want to build starbases, destroy enemy mine fields, and addict your worlds to ambrosia.

Part II: The Discourses

The Empire

The consolidation and control of a galactic empire can be reduced to a treatment of just three basic resources: worlds, materials, and machines. Each of the three must be carefully balanced with the others so that their basic triangular relationship can be preserved. At the apex of the triangle are the worlds. They are the basic components of the empire and the most important of the three resources. Without worlds, neither materials nor machines are necessary. At the base, and in a sense supporting the worlds, are materials and machines. Materials feed the worlds and machines defend them. At the same time, however, materials are used to build machines and machines are used to transport materials. Thus the triangle connects on all sides, with each point depending on the other two. Without any one of these resources a true galactic empire can not exist, and, for that reason, an understanding of each point and its relation to the others is essential for the ruler of an empire.

Materials

Without materials such as metals, food, and fuel, a galactic empire would not last very long. All planets need food to survive, most planets need trillum for fuel, and some need metals to build ships. Keeping each planet supplied with the materials that it needs is as important a task as any other that an imperial ruler may face. There are five main categories of materials: *supplies*, *trillum*, *metals*, *chemicals*, and *ambrosia*.

Supplies: The most important materials of an empire are probably food, medicine, and other basic necessities of life, commonly grouped under the label *supplies*. Most worlds are self-sufficient and do not need supplies to be shipped in, but some worlds are dedicated to a single industry and must import part of their supplies from other worlds (see: ISSP). Since supplies are needed by the people to live, and not all planets produce enough to survive, providing such planets with adequate quantities of supplies is essential to the success of the empire. Not only will starvation lower the population of a world, but it will also increase the chance that the people will revolt against the empire.

Trillum: Trillum is probably the next most important material. A combination of hydrogen and rare crystals, trillum is used as a high-yield fuel for ships and heavy-industry. Without trillum, worlds can not build ships or deploy fleets. Again, not all worlds are as suitable for the mining and processing of trillum. Barren (see: "World Class") worlds are often ideal because they have large supplies of the components of trillum, but ocean (q.v.) worlds, for example, are very poor at producing the fuel.

Metals: Used for the construction of ships and industry, metals encompass all types of heavy materials including plasteel, chromium and titanium alloys, as well as graphite and synthetic compounds.

Chemicals: Chemicals include common substances such as petroleum, lubricants, acids, and catalysts, as well as the more exotic organic chemicals used in food and ambrosia (q.v.) production. Chemicals are needed for almost all kinds of industrial production.

Ambrosia: The rare and powerful substance known as ambrosia is a sweet powdered drug often used in the place of sugar. In addition to producing a mild euphoria, ambrosia also reduces the individual's need to sleep to such an extent that his or her productivity is increased substantially. A work force addicted to ambrosia is able to work so much more that the total output of the factory is increased by nearly 50%. Whole worlds addicted to ambrosia are not unknown, but great care must be used because of the horrible effects of the drug's withdrawal. Whenever an addicted world is unable to obtain enough of the drug, the madness and psychosis induced in the victims is so violent that massive world-wide riots are common. Fortunately, most worlds can not produce ambrosia locally. Only certain worlds with the ideal biosphere can serve as ambrosia producers (see: "World Class").

War Machines

Although the term is often restricted to mechanical devices of human manufacture, we use it here to mean anything that *does* something. In this sense, ground assault troops are *machines* as much as transports and ion cannons, even though the former are biological and not mechanical. The reason for this liberty with language, however, is very clear if one considers the similar properties of all such machines.

The machines important to an empire can be divided into three classes: *ships*, *troops*, and *ground defenses*. Although all are somehow related to the defense (or expansion) of an empire, each is different in many important ways.

Ships

The first class of machines, ships, have as their most important characteristic the ability to travel between the stars. Indeed it is this property, made possible by their warp and jumpdrive generators, that makes galactic empires at all feasible. There are many kinds of ships but most can be grouped into the following types:

Ship Capabilities by Type

Ship Drive Arms Armor

Fighter	warp	very light	none
Hunter-killer	jump	medium	light
Jumpship	jump	light	light
Jumptransport	jump	none	light
Penetrator	warp*	heavy	medium
Starship	warp	very heavy	very heavy
Transport	warp	none	none

*penetrators possess a modified warp drive.

Fighters: Fighters are inexpensive and thus very abundant. They make excellent protection for large fleets and in addition are able to operate in a planet's atmosphere (other ships, although able to enter the atmosphere and even land, are very vulnerable during re-entry and never attempt to do so during combat).

Fighters take heavy damage from GDMs and LAMs, and are unable to attack ion cannons from orbit. From the ground, however, fighters can attack defending troops, ion cannons, or GDMs.

Hunter-killers: Hunter-killers combine the speed and agility of jumpships (q.v.) with the sophisticated counter-detection ability of penetrators (q.v.). Unlike penetrators, however, hunter-killers are also nearly undetectable at short ranges. Fleets of hunter-killers remain unseen even when in the same sector as an enemy world (see: "Fleet Detection"). In combat, they can advance through enemy lines without being seen and then attack targets at inner orbits. Although they have respectable fire-power, they are not heavily armored and are easily disabled.

Jumpships: Jumpships are small, lightly armored ships equipped with jump generators. Like hunter-killers and jumptransports, these ships are able to travel up to ten sectors per year. Although not as heavily armed as penetrators (q.v.) or hunter-killers, jumpships are very effective combat ships, especially against fighters. Because of this and their speed, they are ideal components of a rapid response or hit-and-run strategy.

Jumptransports: Although smaller and able to carry only about a fifth of a transport's hold, jumptransports are armored and thus make ideal troop carriers. As their name implies, jumptransports are equipped to travel in jumpspace, enabling them to move up to ten times faster than conventional transports.

Penetrators: Although penetrators do not possess a jumpdrive, their warp generator is modified to travel twice as fast as normal warp ships (two sectors per year). In addition, they are equipped with sophisticated long-range sensor jammers which make them nearly invisible on an enemy's scan. Although ineffective against short-range sensors, the electronic jamming allows whole fleets of penetrators to enter deep into an empire's territory undetected (see: "Fleet Detection").

Starships: Large and very expensive, starships are the most powerful components of a fleet. Although they possess neither the jump capability of jumpships nor the stealth technology of penetrators, the armor and firepower of starships make them immune to anything but the most powerful weapons.

Transports: As is clear from the table, transports are the weakest of the ships from a military standpoint. They are unarmed and unarmored, and thus need the protection of other ships. Their great size, however, makes them capable of carrying large amounts of material or men across the empire. Most transports are able to carry about three megatons of material (depending on the type of material).

A Military Strategy

Almost every type of ship was developed to fill a niche in strategic planning. Fighters for example, though obsolete even before they were first built, are cheap enough so that they can be used effectively in large numbers. Jumpships were conceived as rapid attack ships, capable of responding at a year's notice to any unforeseen developments. Hunter-killers started initially as enhanced jumpships, but soon evolved into their own class. Penetrators and starships were developed in reaction to improving defense technology: ion cannons and defense satellites, respectively.

In practice, a fleet of 1,000 jumpships and 1,000 jumptransports could conquer most warp and jump level worlds, but the same fleet would be destroyed if pitted against a more advanced world. Bio-tech worlds, with their complements of ion cannons (q.v.), are best attacked with at least 500 penetrators in addition to a few thousand jumpships. In any event, it is always best to attack a world with as many ships as possible. Larger forces will absorb greater losses.

Range and mobility is always a prime factor of consideration. Starships and penetrators are useless if they take a dozen years to reach their targets. During the era of the Sword Worlds Empire, the prevailing strategy was to keep base planets and starship bases (q.v.) near the edge of the empire and jumpship bases near the center. In this arrangement, starships and penetrators were available at the front lines making the outer reaches more defensible.

Men and Ground Assault Troops

The second class of machines that an empire will need is used to categorize combat troops. *Men* are used for two purposes

in combat: to conquer a world, in which case they are called Ground Assault Troops (GAT) and to defend a world, in which case they are simply called troops. (There is no inherent difference between the two; it is only their purpose that matters. Thus GATs used to conquer a world can be used later to defend it and are then called simply troops.) Men, like materials, may be carried on transports from world to world, but, like machines, they are able to attack or defend an empire. The smallest unit of combat forces that an empire is concerned with is the legion, a unit consisting of 10,000 troops.

Men are most important on the surface of a planet because a world cannot be conquered from orbit, no matter how powerful the attacking fleet is. To take over a world, GATs must land on the surface and take over the command centers and central governments so that order can be maintained after the battle. Clearly then, the primary goal of the fleet commander in attacking a planet will be to land GATs on the surface. Because troops are most effective at fighting troops, the defender must have enough legions to repel the invaders. In general, all other things being equal, the attacking force of GATs must be larger than the defending force, as the defenders will have the advantage of stationary weapons and fortifications.

Sometimes worlds and empires will use genetically engineered humanoids as either defenders or attackers. These troops are called ninjas; they are much more powerful than normal humans because they have been genetically created to be both stronger and more cunning. Since part of the creation process involves ambrosia (q.v.), ninja-producing worlds must have a constant supply of the drug.

Normal troops are simply enlisted from the population of each world. The nominal army size for a world is dependent on population and world type. Agricultural worlds may have 0.05% of their population in the military, while a capital may have as much as 2%. Ninjas are created on special worlds just like any other resource.

Ground Defenses

The third class of machines, ground defenses, protect the surface of a world from invasion. Unlike troops, however, they are used to destroy ships before they reach final landing approach.

Ground Defenses by Type

Defense Arms Armor Range

Def Satellites	very heavy	very heavy	high-orbit
GDM	medium	none	orbit
Ion Cannons	medium	heavy	sub-orbit
LAM	heavy	none	(special)*

*LAMs are attack weapons that can reach interstellar space.

GDM: The least technologically sophisticated of all these weapons are the ground defense missiles (GDMs). Essentially guided nuclear-tipped missiles, these devices are common on all worlds above the atomic level. Despite their simplicity, however, the great power inherent in a thermonuclear device is enough to destroy even the most heavily armored starship. GDMs attack ships at standard orbit and can be attacked from sub-orbit, or from the ground by fighters.

Ion cannons: Ion cannons are ground-based, particle-beam weapons able to reach ships in sub-orbit. Although they are expensive and difficult to build, their strength lies in their ability to destroy transports attempting a ground assault. Ion cannons can be attacked from sub-orbit, or from ground level by fighters.

Defense satellites: The most advanced defense that a world can have is an orbiting ring of defense satellites. Heavily armed and armored, defense satellites are the nemesis of every fleet commander. Unlike ion cannons, which can only reach the lower orbits, defense satellites can attack all targets in standard or high orbits. Their powerful lasers and particle-beam weapons can quickly track and destroy approaching ships. Defense satellites can be attacked at standard orbit.

The values for armor and armament given in the table are comparable to the values given for ships. Thus defense satellites

are about as hard to destroy as starships. Because most of these defenses are stationary, heavy armor can be used to protect them. The only exception are GDMs which are completely unarmored. Because they are inexpensive and extremely powerful, however, they are still an effective defense.

The range at which defenses operate varies. Ion cannons, because they are ground-based, are at best very weak beyond the sub-orbital range. GDMs cannot go very far beyond orbital distances and they are certainly not safe to use at sub-orbital altitudes. On the other hand, defense satellites, often in standard orbit, can reach the high orbits.

The range at which each can be destroyed also varies. Defense satellites may only be attacked at the *standard orbit* level even though they may attack targets at *high orbit*. Ground-based ion cannons may only be attacked from *sub-orbit*. GDMs are special. They may be attacked in their silos on the ground from *sub-orbit* like ion cannons, but they can also be destroyed as they approach their targets. The number of GDMs destroyed on approach depends on the type and number of ships defending. Each starship can destroy no more than two missiles as they approach, while only one out of every five jumpships will be able to destroy a launched missile.

Up until now we have not mentioned Long-range Attack Missiles (LAMs), because they really do not fit in with the rest of the ground defenses. Although LAMs may be used to defend worlds much like GDMs (in which capacity they may attack targets in all orbits), their main purpose is purely offensive. As their name implies, LAMs can attack targets well beyond the boundaries of a star system. They are equipped with small jumpdrives which provide these missiles with ranges of up to five sectors. When used as attack missiles LAMs can attack enemy fleets in orbit around neighboring star systems or even ones in deepspace. LAMs are not destroyed on approach as GDMs are (see: "LAM Attacks").

Ground defenses are built by each world according to their military population. The more troops on the planet, the more defenses will be built. LAMs are similarly built, but they are only produced on capitals and base planets.

Worlds

Worlds are the resources by which an empire is measured. They are the consumers and the producers. They are the land and the people. They are the essence of the empire. Not every world is the same, of course; some are cold and arid wastelands, others are fertile oases teeming with life. There are those with the technology to travel to the stars, while others have just reached their "industrial revolution." Many factors contribute to making each world unique, but the main criteria by which worlds are classified are: *population*, *efficiency*, *class*, *technology*, and *type*.

Population

The *population* of a world is the most important factor affecting world production. The amount of resources that a given world can produce is dependent on the population of that world.

Population increases exponentially until it reaches the optimum level for the world's technology. Thereafter, it increases linearly.

Efficiency

The *efficiency* of a world, an indication of the local government's bureaucratic competence, has a strong effect in such areas as industrial production and defense. It is expressed as a percentage, 100% being the maximum.

Efficiency increases slightly each year, but many events may decrease it. A newly conquered world begins with a low efficiency, as the government has recently been established. Similarly, any changes in the *type* (q.v.) of a world will reduce its efficiency, since wholesale changes in the economy are being made.

World Class

Each world can be placed into a category that represents the world's basic environment. This category, called the *class* of

the world, is useful in determining how hospitable the world is to human life. Rocky and barren worlds, for instance, are not ideal for life in general. Colonies on those kinds of worlds often need a great deal of external help. Other classes have special biospheres, such as worlds with hostile life-forms or extreme weather conditions.

Clearly, there are many disadvantages inherent in the biosphere of barren and hostile worlds. Food, for example, is nearly impossible to grow on such worlds and almost all of it must be transported from other worlds. On the other hand, ocean or ice worlds are unsuitable for mining operations because of the lack of metals and trillum.

Each world can be placed into one of the following categories depending on its environment.

world class:*Ambrosia*: The biosphere of these worlds is suited for the production of the drug ambrosia (q.v.). So critical are the biological agents in the drug's production that only ambrosia and paradise (q.v.) class worlds are able to manufacture it. Ambrosia worlds are often not very rocky and thus cannot produce trillum or metals efficiently.

world class:*Arid*: Arid worlds are somewhat inhospitable because of the scarcity of water on the surface. Although they are not as harsh as desert (q.v.) worlds, they do share some of their disadvantages. Supplies and chemicals are not produced efficiently.

world class:*Artificial*: This class usually designates a man-made world such as a starbase. As expected, these worlds cannot efficiently produce supplies, chemicals, metals or trillum.

world class:*Barren*: Barren worlds have no atmosphere and are often just rocky, lifeless worlds. Supplies and chemicals are very hard to produce on these worlds, but metals and trillum are abundant.

world class:*Class J*: Class J worlds are earth-like worlds with only minor differences. These worlds are rocky and often volcanically active. The metal and chemical industries have a slight advantage, but trillum mines have a little trouble.

world class:*Class K*: Another variation on earth-like worlds. Class K worlds have a slight disadvantage producing chemicals and a slight advantage mining metals.

world class:*Class L*: Class L worlds have only minor disadvantages. They cannot produce food as efficiently, but they are able to produce trillum in greater quantities.

world class:*Class M*: Class M worlds have an excellent earth-like biosphere. They produce supplies efficiently, but have a slight disadvantage in the production of trillum.

world class:*Desert*: Desert worlds have oceans covering less than 20% of their surface. Sandstorms and lack of water are common problems. Every industry except trillum mining is at a great disadvantage. Because of the great abundance of trillum crystals on the surface, however, desert worlds can almost double the efficiency of trillum mining.

world class:*Earth-like*: Earth-like worlds are the standard by which all others are measured. All industries are at normal efficiency.

world class:*Forest*: These worlds are mostly earth-like, but dense vegetation covers most of the land surface. Food (supplies) and chemical production are somewhat more efficient because of the favorable biosphere.

world class:*Gas giant*: Some colonies can be found on moons orbiting gas giants. Although supplies, metals, and trillum are hard to mine or produce on these worlds, the incredible variety of rare chemicals make them ideal for the chemical industry. The worlds' low gravity also makes them ideal for ship building.

world class:*Hostile life-forms*: This class indicates that the world is inhabited by dangerous predatory indigenous life that may oppose extensive colonization. Every year there is a chance that the alien life-forms will attack human cities, usually killing several legions of troops. The more legions the planet has, the lower the chance of widespread massacre. There is also a chance, however, that some of the aliens will join your forces. In that case, from 50 to 100 legions will join and they will be equal to ninjas (q.v.) in strength.

world class:*Ice*: Ice worlds are not very useful. Their extreme temperatures and large permafrost zone make them very inadequate for supply, metal, and trillum production.

world class:*Jungle*: Jungle worlds are much like forest worlds. Chemical and supply factories have a distinct advantage.

world class:*Ocean*: Ocean worlds have more than 90% of their surface area covered by water. Although ideal for chemical and food (supply) production, ocean worlds are very poor in metals and trillum.

world class:*Paradise*: Paradise worlds are perfectly balanced in both biosphere and natural resources. They are above average in all industries and are able to produce ambrosia (q.v.). Unfortunately these worlds are extremely rare.

world class:*Poisonous*: These worlds are enveloped by a poisonous atmosphere of either sulfuric acid or methane and ammonia. Although very little food can be grown on these worlds, chemical factories can operate with great efficiency.

world class:*Ruins*: Some worlds still harbor ruins and artifacts of the first empire, either buried deep underground or in high orbit around the planet. From these relics scientists can sometimes discover some fragment of the old technology that might be applied today. In all other respects, these worlds are considered earth-like.

world class:*Underground*: If the surface of a world were to become uninhabitable, because of nuclear holocaust or climactic changes, the population would eventually migrate below the ground. These worlds harbor most of their population below the surface. Although food may be slightly scarce, metal and trillum mining can be efficiently undertaken.

world class:*Volcanic*: Some worlds are still volcanically active. The hot magma and volcanic gasses would prove very detrimental to food production, but the rich minerals and chemicals would make these worlds good for chemical, metal, and trillum industries.

Technology Level

Another important difference between worlds is their technology level. Some worlds have primitive pre-atomic societies, while others harbor ancient cultures possessing the power to construct giant and powerful starships. Obviously these two worlds will react very differently when approached by a large fleet of jumpships. More importantly, even within the empire some worlds will be more advanced than others. It would clearly be very silly to expect a pre-atomic society to be able to build transports for the empire. At best such worlds might be directed to mine metals out of the ground. These worlds, however, because they are guided by a more advanced power, will make frequent and sudden advances in technology.

The following table lists all the technology levels and their respective capabilities.

Technology Level Table

Tech Level Technologies

pre-tech supplies
primitive men, metals
pre-atomic chemicals
atomic GDMs, trillum
pre-warp fighters
warp transports
jump ion cannons, jumpships, jumptransports
bio-tech defense satellites, hunter-killers,
penetrators, ambrosia, outposts
starship LAMs, starships, ninjas, SRMs, industrial
complexes, command bases
pre-gate fortresses, warp links
gate gates

From the table we can see that it would be foolish to expect a pre-atomic world to make jumpships for the empire. The technology of a pre-atomic world is simply not advanced enough to manufacture the delicate components of a jump drive.

Similarly, although a pre-gate world would certainly be capable of mining metals, for instance, such a world would be better used if it were designated as a ship yard building jumpships and penetrators.

The technology level of a world is one of its most important characteristics. In addition to determining what things it can produce, the technology level also determines how large a population the planet can support. Obviously, a primitive world with only a crude agricultural technology would be unable to support a population larger than a few hundred million. On the other hand, gate worlds with efficient food factories and mass artificial nutrients could easily support thirty or forty billion people.

Less advanced worlds are always at a disadvantage when confronted by technologically superior forces. Even if the more primitive world is capable of building jumpships, for instance, the superior world will have jumpships that are somewhat more advanced. Troops will have better weapons, ships will be more maneuverable, and in general, the instruments of the more advanced world will be more accurate and more deadly. The progression is not constantly linear, of course; once a world has developed basic atomic power and space travel, the difference in technology will not be as drastic.

World Type

Another distinction between worlds is their type. All independent worlds, by definition, are self-sufficient and produce every kind of resource (materials and ships). Worlds that are part of an empire, however, are under the control of that empire and may produce only a few resources. The emperor or empress could, for instance, decide that a certain planet is to produce jumpships and nothing else. In that case, that planet would produce only enough supplies, metals, chemicals, and trillum to support its industry.

Closely tied with world types is the concept of industry. There are six different kinds of industry, each producing a different resource. The table below list all the industries and their production.

Industry Types

Industry Production

Bio ambrosia or ninja
Chemical chemicals
Metal metals
Ships all ships*
Agrc supplies
Trillum trillum

*There are four different kinds of shipyard industry, but each world can only have one of the types. The types are: general, jumpship, starship, and transport (warship).

Each world will have every kind of industry, but always in different proportions. Raw material worlds, for instance, may have 60% of their industry devoted to mining, trillum mining, and chemical production. Starship bases, on the other hand, may have only 15% devoted to mining and 45% devoted to building starships. The type of world determines what the principal industry will be. In this way, the imperial ruler need not be concerned with the details of a particular world. All he or she has to do is designate the world to be a certain type and thereafter it will produce the given resources. Once the ruler has designated a world to be a raw material world, for example, that world will adjust its industry so that a majority of the world's production will be metals, chemicals, and trillum.

Although only a single type of shipyard industry is listed in the industry table, there are really four different kinds of shipyard industry: *general*, *jumpship*, *starship*, and *transport*. A given world, however, can only have one kind of shipyard industry, however, so it is often convenient to group all of them under the designation "ship yard industry." Appropriately enough, starship shipyards produce starships and penetrators; jumpship industries produce jumpships, jumpransports, and hunter-killers; transport shipyards produce transports and fighters.

The imperial ruler cannot directly control the industrial distribution of a world; instead, he or she may set the *type* of a world. Once the *type* is set, the world will adjust its industry accordingly. The following paragraphs detail the different

world types.

world type:*Agricultural*: These worlds are trivially self-sufficient since they need no raw materials to produce supplies. Agricultural worlds are only important if the empire has many worlds which cannot produce enough food to support themselves.

world type:*Ambrosia*: Ambrosia can only be produced on very special worlds with the right micro-biological environment. The only worlds that can grow ambrosia are ambrosia-class and paradise-class worlds. These two types of worlds do not produce ambrosia automatically, however; the emperor or empress must designate them to be ambrosia type.

world type:*Base Planet*: Also called "strongholds," these worlds serve as local capitals for individual regions of the empire. Because they produce LAMs, they exert influence over a large sphere, being capable of attacking enemy fleets and worlds several sectors away.

world type:*Capital*: Capitals are really a special form of base planets. They are self-sufficient and produce every kind of war machine including LAMs. Most importantly, however, they are the administrative and traditional center of the empire. If the capital is ever conquered by another empire, there is a good chance that all but the most loyal worlds will *revolt*. Changing the capital also has a very negative effect, destroying the credibility of the empire and its ruler.

world type:*Chemical*: These worlds are devoted to the production of chemicals.

world type:*Independent*: This designation is useful for worlds not under the jurisdiction of any empire. These worlds produce every kind of resource except for LAMs.

world type:*Jumpship Base*: These worlds are devoted to the production of hunter-killers, jumpships, and jumptransports.

world type:*Metal Mine*: Mining worlds are devoted to the production and refinement of metals.

world type:*Ninja Base*: Ninja bases are very secret Spartan worlds that specialize in the creation and training of elite ninja troops. Although a ninja base need not be ambrosia-class, it must be addicted to ambrosia.

world type:*Outpost*: Outposts are small starbases with only a few hundred thousand men used as forward scanning bases at the periphery of the empire. They are most useful because of their enhanced scanning ability (see: "Fleet Detection").
Note: Worlds cannot be designated outposts.

world type:*Raw Material*: These worlds produce all the necessary raw materials: chemicals, metals, and trillum. Because they are not specialized, however, these worlds are less productive than specialized worlds such as metal mines and chemical planets.

world type:*Starship Base*: These bases build starships and penetrators.

world type:*Transport Base*: These bases build both transports and fighters (which may be used as escorts). Note, however, that they do not build jumptransports.

world type:*Trillum Mine*: Trillum mines specialize in the mining and processing of trillum.

world type:*University*: University worlds must be the same technology level as the capital of the empire to be effective. If this condition is met, these worlds will help the empire acquire more advanced technology. A research university on a ruins class (q.v.) planet is very effective at discovering ancient technology.

The five factors distinguishing worlds (population, efficiency, class, technology, and type) can be very confusing but are central to a good understanding of the game. Unless the emperor or empress knows which worlds are suitable, he or she will be unable to efficiently forge an empire.

Example

Suppose that the empire of Palanhoth, ruled by Her Majesty the Empress Guieriend, has the following worlds.

Name	Pop	Class	Tech	Type
Home	20.2	Earth	Bio	Capital
Dragon	15.5	Barren	Jump	Base
Wyvern	10.2	Ocean	Warp	Trillum
Troll	5.5	Earth	Warp	Jumpship

What can be said about the different worlds and how can the Lady Guieriend maximize their potential? Notice that Dragon, a jump level world is designated as a base planet, while Troll is designated as a jumpship base. Troll is useless because it is not advanced enough to produce any jumpships (look at the "Technology Levels Table"). Similarly, Dragon could be a jumpship base since it is at jump level. Now look at Wyvern. Although it is advanced enough to be a trillum mine, ocean worlds are very inefficient at producing trillum. Wyvern would be better as a base planet.

Position is another thing to consider when designating planets. Jumpship bases can be anywhere since jumpships can travel very fast, but transport and starship bases should be positioned close to the intended target of their ships. It would be useless to build a transport base far from other worlds, since transports would take many years to reach their destination. Base planets should be in the middle of a group of worlds so that it can protect them with its ships and LAMs.

The Imperial Starfleet

An empire exerts influence mostly by the use of its imperial starfleet. If a world is in danger of being attacked, a fleet is deployed to the planet as protection. If rebellion seems imminent, imperial troops are dispatched to the site of unrest. If expansion is desired, a fully configured battle fleet is sent to subdue a bordering independent world. An empire often resolves conflicts with force, and force is always exerted with an imperial starfleet.

Fleet Types

Because there are many different kinds of ships, there are several kinds of fleets. The most obvious difference between fleets is their speed in interstellar travel. Hunter-killers, jumpships, and jumptransports are equipped with jumpdrives, propulsion systems that enable them to travel up to ten sectors in one year. A fleet composed only of these three kinds of ships will be able to take advantage of this capability, but any fleet that mixes jumpships and warships will have to travel at the speed of the slowest ships, i.e. one sector per year. For example, a fleet composed of jumpships and jumptransports will be able to travel ten sectors per year, but a fleet composed of jumptransports and transports will only travel one sector per year.

Penetrators and hunter-killers also possess special electronic jamming systems that will make a fleet composed of these two kinds of ships invisible on an enemy's long range scanners. Fleets of this kind must be within one sector of an enemy installation to be detected (see: "Fleet Detection"). Hunter-killers are equipped with even more advanced stealth electronics that enable them to travel completely unseen (even when within a sector of the enemy). For this latter capability to be effective, the hunter-killer group must be travelling alone.

Because of these differences in capability, fleets containing several different types of ships can be categorized according to their composition. *Jumpfleets* are fleets composed entirely of hunter-killers, jumpships, and jumptransports. *Stealth fleets* contain only penetrators and hunter-killers. *Fast-warp fleets* are *jumpfleets* with penetrators (which can travel two sectors per year). Any fleet with fighters, starships, and transports is called a *warpfleet*.

Fleet Composition By Type

Type fgt hkr jmp jtn pen str trn

Warpfleet yes yes yes yes yes yes yes

Fast-warp no yes yes yes yes no no

Jumpfleet no yes yes yes no no no

Stealth no yes no no yes no no

HK no yes no no no no no

Fleet Detection

Fleets can be detected in various ways, but each method varies in effectiveness depending on the type of fleet that is to be seen. Starbases (q.v.), which possess extremely sophisticated and powerful sensors, can detect any type of fleet under any condition within a five-sector radius. Worlds can detect all fleets, except *HK* and *stealth* fleets, when within five sectors and in clear space (i.e. not in a nebula.) Worlds can also detect all fleets (except *HK*) under any condition when within one sector. Fleets can detect other fleets (except *HK*) when within one sector. When detected, fleets appear on the map, but their composition will not necessarily be known (see: "Fleet Scanning").

Note how difficult it is to detect *HK* fleets, even when in the same sector as a world. It is quite possible for an empire to send an *HK* fleet to the enemy's capital and expect it to remain unseen. Once there, it could attack undefended cargo fleets or simply keep an eye on the activities of the enemy. If a starbase were in the area, then destroying it would be a prelude to a forceful attack with *HK* and penetrator fleets. The natural cloak of a nebula is also of strategic benefit. Any empire that doesn't have starbases can be approached unseen if the fleets remain in nearby nebulae.

Fleet Scanning

When fleets enter a certain range they may be scanned for size and composition, much like enemy worlds are scouted by probes (q.v.). Starbase sensors are so powerful that they will scan all fleets within five sectors. Worlds and fleets may scan all fleets except *HK* when within one sector.

Scanning is very useful to tell the difference between a cargo fleet and an attack fleet. Obviously if an enemy fleet is entering your space, you will want to know what ships it contains. Outposts, a type of starbase, are perfect as early-warning sensors when placed at the periphery of the empire.

Fleet Detection and Scanning by Type

Starbase World Fleet

Type Detect Scan Detect Scan Detect Scan

Warpfleet 5(5) 5(5) 5(1) 1(1) 1(1) 1(1)

FastWarp 5(5) 5(5) 5(1) 1(1) 1(1) 1(1)

Jumpfleet 5(5) 5(5) 5(1) 1(1) 1(1) 1(1)

Stealth 5(5) 5(5) 1(1) 1(1) 1(1) 1(1)

HK 5(5) 5(5) 0(0) 0(0) 0(0) 0(0)

This table lists the range at which a fleet of the given type can be detected and scanned from starbases, worlds, and fleets. The number in parentheses is the range when the fleet is in a nebula.

Transport Fleets

Of course, military missions are not the only uses for fleets. Transport fleets are invaluable to an empire, particularly if many worlds are not self-sufficient or addicted to ambrosia. Transport fleets are no different from any other kind of fleet except that they include transports or jumpransports to carry materials between the stars. Each transport can carry three

megatons of chemicals or metals, two megatons of supplies, one hundred kilotons of trillum or ambrosia, or five legions of men. Jumptransports can carry one fifth of this amount. Thus, to carry 300 megatons of metals, 100 transports or 500 jumptransports would be required. To carry 500 legions of men and 600 megatons of supplies, 400 transports or 2000 jumptransports would be needed.

Fleet Initiative

The two main kinds of fleets, jumpfleets and warpfleets, gain the initiative in combat at different times. Because of the spatial distortions of the jump-envelope, exact positional information is very difficult for jumpfleets to obtain. A jumpfleet entering combat will be disoriented and lose the initiative to any other fleets already in the sector. Warpfleets, on the other hand, always gain the initiative when entering a sector. Conversely, warp fleets lose the initiative when leaving a sector while jumpfleets gain it.

This property of fleets creates some interesting possibilities. Suppose for, instance, that an empire has decided to blockade one of its enemy's worlds with a large fleet. Any warpfleet that the second empire deploys from the blockaded world may easily be destroyed by the large fleet. On the other hand, jumpfleets from the same world may leave freely. On the reverse side, warpfleets may enter and land on the world easily, but jumpfleets entering the sector are vulnerable to attack.

Example

Suppose that an empire has a jumpfleet en route to a world in another territory. When the fleet reaches the world, the other empire will be able to attack the fleet (at the world) before the first emperor is able to issue any commands. If instead the fleet had been a regular warpfleet, the first emperor would have had a chance to attack the world first.

Now suppose that the jumpfleet at the enemy world wants to retreat back to its base. Because it is a jumpfleet, it may jump out of the sector before being attacked by any other empire. On the other hand, a warpfleet in a similar situation would be attacked once at the sector before it could move away.

Trillum Use by Fleets

All fleets need trillum as fuel to power their main drives, but not all ships can carry the same quantity of trillum, and different kinds of ships use up fuel at different rates. Jumpships, for instance, because they are small, can carry only enough fuel for five or six years. Starships, on the other hand, can carry enough fuel for almost twenty years. The table below lists the amount of trillum that a 1,000 ship fleet needs to carry.

Fuel Requirements

Kilotons of Trillum

Ship Type Range Needed for 1,000 ships

Fighter 3 <1

Hunter-Killer 8 30

Jumpship 5 15

Jumptransport 15 50

Penetrator 20 75

Starship 20 110

Transports 20 80

The above table is only included to give a feel for how much trillum is needed by a fleet. In practice, it will seldom be necessary to calculate the amount of fuel that a fleet can carry. That information is provided to the emperor for each specific fleet.

Mixed fleets will share the fuel so as not to restrict the fleet to the shortest-ranged ships (i.e. a fleet of 1,000 jumpships and 1,000 jumpransports will have a range of about ten or twelve years).

Ministry of Internal Affairs

The military power of any empire, galactic or planet-bound, large or small, is always in direct proportion to its economic power. Empires with efficient factories, well established trade routes, and specialized production areas, will (in the end) triumph over less organized states. In a galactic empire, the economic power of an empire is measured by the production of its worlds. Every year worlds take in the necessary raw materials and build up the military muscle needed to exert imperial influence in a hostile galaxy. Every year the emperor or empress uses the imperial starfleet to defend worlds against adversaries and expand the realm's dominion over still more worlds. Year after year the cycle repeats, economic and military power hand in hand, each one nothing without the other. The importance of military power is obvious to the most naive; the importance of economic power is understood only by the inspired and experienced.

Valuable Worlds

Merely having more worlds than any other empire will not automatically bring power. The kinds of worlds in the empire are very important. Below are a few guidelines for building an empire:

- a) Worlds such as ambrosia, ruins, and paradise are always an advantage and should be secured as soon as possible;
- b) Take worlds with higher populations. The production of a world is dependent on the population of that world, and greater production means more warships;
- c) Take pre-warp and warp level worlds. These worlds are usually weak enough to be easy targets but powerful enough to be good additions to the empire;
- e) Take worlds near other empires. A secure base near another empire is a perfect spring board for a first strike. Be careful, though, these worlds are also perfect targets;
- f) Earth-like, forest and jungle worlds have no disadvantages and may be used as any *type*. Conquer these worlds instead of similar ones of a different class.

Of course, these guidelines should not be rigidly adhered to, only taken as advice. Above all, a conqueror must give thorough consideration to all the advantages and disadvantages of a world before the world is designated. The consolidation of power is the goal of any imperial ruler. Worlds, in all their myriad variations, are a key to that power.

Production

Every world produces resources for the empire, some worlds build starships, others mine metals. The principal resource produced by a world is determined by the type of the world, but any world will still produce enough raw materials and supplies to survive. For example, a world that has been designated as a jumpship base will mine enough metals and trillum to support its ship building industry. The industry of a world is balanced so that all the needed resources are available.

Associated with each world is a value called the Total Industrial Production (TIP) which expresses the total industrial capacity of the world. Worlds with greater population and technology will have greater TIP values. The percentage distribution of the TIP among each of the industries is called the Industrial Distribution (ID) of a world. For example, if the ID of a given world's shipyard industry is 40%, then 40% of the TIP is devoted to building ships. The ID of a world might be thought of as a pie chart, with each piece representing the proportional size of a particular industry. The ID of a world is calculated automatically based on its *type* and *class*, and is balanced so that enough raw materials are produced for the industry.

Knowing the TIP and ID we can calculate how many factories or mines could be actually built. For example, suppose that the TIP of a world is 200 and its ID is as follows:

Bio: 0% Che: 10% Min: 20% SYJ: 30% Sup: 30% Tri: 10%

The actual number of mines that the planet will have is 40 (20% of 200), and the number of shipyards will be 60. This number is called the Industrial Production (IP).

Distribution of Industry

The actual production of resources is governed by the number of factories/mines/etc. for the given industry. Thus, the amount of megatons of metals mined may be calculated from the number of mines the planet has. The larger a given industry is, the more efficient it will be; so the number of resources produced is proportional to the square of the number of factories. Thus, if ten mines produce 50 megatons of metals a year, twenty mines will produce 200 megatons a year.

ISSP

Setting the type of a world is not the only way which a ruler may use to control the ID. An emperor or empress may also force a world to produce less raw materials than it needs, thus increasing the production of the principal industry. The Industrial Self-Sufficiency Percentage (ISSP) of a world is a value for each raw material industry (chemicals, metals, supplies, and trillum) specifying the percentage of necessary raw materials that should be actually produced. For example, suppose that a world needs to produce 100 megatons of metals a year to support its shipyard industry. If the ISSP for the mining industry is set to 100%, then the ID of the world will be adjusted so that 100 megatons are produced every year. If, on the other hand, the ISSP is set to 50%, the ID of the world would be set so that only 50 megatons of metals are produced each year. In the same way, the ISSP may be set above 100% to over-produce raw materials.

Example of ISSP

Decreasing the ISSP means that raw materials will have to be explicitly moved from other worlds so that the adjusted world can have enough. Even with this disadvantage, however, changing the ISSP is still useful because the world can increase the production of its principal industry if it doesn't have to produce as many raw materials. Also, remember that the amount of resources produced is proportional to the square of the industry (number of factories). Two worlds, one devoted to raw materials and one devoted to ship building, will produce four times as much as two self-sufficient worlds. More importantly, on worlds where the production of certain raw materials is at a disadvantage (e.g. ocean or barren worlds), the ISSP can be set so that labor (i.e. the TIP) is not wasted on an inefficient industry. For example, suppose that a barren world is made a jumpship base. Checking the ID of the world will reveal that a sizable percentage of the TIP is going towards the production of supplies. Since food production is so inefficient on barren worlds, a larger than normal supply industry is needed to support the population. Lowering supplies' ISSP to 50% will allow the world to concentrate more on building ships and less on growing food. Of course, one must make sure that supplies are brought in from other worlds, or one might be faced with 100 million dead and an angry world ready to revolt!

Example

Quarinn, Emperor of the First Sun, has just conquered two worlds: Trever, a barren world, and Bellode, an ocean world. They are only two sectors away from each other, so the emperor would like to make one a raw material mine and the other a base. There are many possibilities. He can make Trever a base and Bellode an agricultural world (since ocean worlds are good at producing supplies). In that case, Quarinn would set the ISSP of Bellode to produce more supplies than needed and the ISSP of Trever to produce less. Alternately, he could make Trever a raw material mine (since barren worlds are good for mining) and Bellode a base. Trever's ISSP for supplies would still have to be lowered (since barren worlds can't produce food very well), and Bellode's ISSP would have to be lowered for mining and trillum, and raised for supplies. The choice depends on the other characteristics of the worlds such as population, technology and efficiency.

Starvation

If a world does not have enough supplies to feed its population, millions could die. Primitive worlds, perhaps used to a

certain level of existence, may simply accept their deaths as the will of the gods. More advanced worlds, accustomed to higher standards of living, will not tolerate that kind of failure from an empire.

Fleet Orders and Cargo Routes

Although supplying worlds with raw materials and supplies is one of the most important tasks of the empire, it is also one of the most monotonous for an emperor or empress. Fortunately, fleets may be issued simple repetitive orders to move materials from one world to another; the basic commands that an emperor or empress would give to a fleet can be encoded in a set of formalized orders.

For example, suppose that a certain world needs metals to be brought in from other worlds. It is possible to instruct a fleet to go to a metal mine, pick up 1,000 megatons of metals, travel to the importing world, drop off the metal, and repeat the entire process until told otherwise. These are the commands that a fleet accepts:

TRANSFER (amount) (material)

The *transfer* command moves materials between a fleet and the world that it is over. For example, the command "TRANSFER 1000 metals" would load the fleet with 1000 megatons of metals or as much as will fit. Transferring a negative amount moves materials from the fleet to the planet.

DESTINATION (xy)

This command sets a new destination for the fleet. Either coordinates or a name can be given.

REPEAT

The *repeat* command, when placed at the end of the orders, instructs the fleet to begin again with the first command. If the *repeat* command is omitted, the fleet will execute its orders only once.

WAIT

This command instructs the fleet to wait at its current position for a single year.

Ambrosia

Ambrosia is one of the rarest substances known in the universe and although its structure is well understood, its molecular configuration is so complicated that even the most advanced civilizations cannot synthesize it. Only a few special worlds have the proper climate and biosphere needed to manufacture this drug.

Ambrosia is best known as a drug that eliminates the need to sleep. By blocking certain chemicals in the brain, ambrosia can keep a human being awake and alert for an indefinite period of time. There are very few unpleasant side effects to the drug, but addiction to it is very strong. If the addict were ever to stop consuming ambrosia, he or she would immediately pass into a confused mental state, possibly including strong psychotic episodes. Extreme madness and violence are not uncommon.

Worlds can be addicted to ambrosia by simply providing the population with a few hundred kilotons of the drug. After a few years, most people will be addicted and the industrial capacity of the world will increase. Thereafter, you must provide the world with roughly 11 kilotons per billion people per year to sustain their addiction. The only way to cure the addiction is to withdraw the supply of the drug. This method, however, always leads to colossal drug-induced riots.

Discovering New Technologies

Even though an empire is at a certain tech level, it does not automatically gain access to all the technologies of that level; the empire must still individually discover each technology within it. For example, an empire at the bio-tech level must develop penetrator technology to be able to build penetrators. Empires at jump level, however, have no chance of discovering penetrator technology because their basic science is too primitive (see: "Technology Level Table"). Once an

empire has discovered a given technology any world in the empire of the minimum tech level may implement it. In the penetrator example, all bio-tech level worlds may now build penetrators, but jump level worlds must wait until they advance to the bio-tech level.

Scientists and engineers at the capital and university worlds are constantly trying to develop new technologies. The more university worlds an empire has, the better the chance of making a scientific breakthrough. Once all the technologies for a level have been discovered, the empire can advance to the next level (although this itself requires a "breakthrough").

Increasing in Tech Level

The capital and university worlds will naturally have the most up-to-date information in all technological fields, but other worlds may not have yet integrated the new discoveries. Similarly, if a world has recently been conquered, it is likely that its people will be technologically backward. In either case, the empire will work to help less advanced worlds gain higher and more powerful tech levels. All worlds under the empire's flag should be able to rise in tech level to match the level of the capital.

Furthermore, when a world advances to a new tech level it may begin to use any of the technologies available to its capital. For example, a world that has just advanced to jump level may build jumpships if the capital has jumpship technology. Once the empire has discovered a technology, individual worlds do not have to repeat the discovery.

It generally takes four or five years for a world to advance to the next tech level.

Revolution and Dissatisfaction

Worlds that belong to your empire will not blindly accept every one of your decisions. If you fail to deliver needed raw materials, or worse, neglect to supply them with food, the people of the world will grow dissatisfied with your reign. If you consistently lose battles or fail to protect worlds in your empire, the empire as a whole will lose faith in your leadership. The *revolution index* of a world is a measure of its dissatisfaction.

There are a couple of ways to bring down the *revolution index*. Conquering an enemy will sometimes bring out patriotism in even the most rebellious worlds. And of course, time will allow worlds to forget about past wrongs.

If the dissatisfaction of a world grows, there is a chance that a rebellion will develop. If that occurs, people of all types will take up arms against imperial forces and attempt to return the planet to independent rule. Only imperial troops could stop this kind of opposition.

Effect of Troops on Revolution Index

Troops affect the revolution index of the world on which they are stationed. The people of peaceful worlds do not generally enjoy having large numbers of troops around to remind them of war and conquest. Similarly, the judicious use of force on rebellious worlds can often dissipate tension and confrontation.

In general, worlds with a low revolution index will not like having many troops and their dissatisfaction with the empire will increase. On the other hand, worlds with a high revolution index will be controlled and subdued if there are enough troops on the world to put down insurgencies.

Rebellion

If the dissatisfaction of a world reaches a certain level, an armed rebellion is inevitable. Organized armies of rebels will attack imperial installations on the planet and try to gain control of the government. Usually, the only recourse for the emperor at that point is to send in imperial troops to battle the insurgents.

The number of rebels that will fight is a function of the population, and the chance that a rebellion could succeed depends on the number of rebels and the number of troops. If the rebellion were put down the following effects would result:

- a) A number of troops equal to one fifth the number of rebels would be killed;

- b) The *efficiency* (q.v.) of the world would drop by 5 to 15 points;
- c) The *revolution index* (q.v.) of the world would generally drop five to ten points because the people would tire of war, but there is also a chance that the loss would only increase their rage;
- d) The *revolution index* of other worlds in the empire would generally drop because they would fear the military power of the empire.

Rebellion Table

Population Rebels Troops Killed per Year
(billions) (legions) (legions)

0.1	200	40
0.5	460	92
1.0	650	130
5.0	1450	290
10.0	2050	410
15.0	2520	504
20.0	2910	582
25.0	3250	650
30.0	3560	712
35.0	3850	770
40.0	4110	822
45.0	4360	872
50.0	4600	920

To have a reasonable chance of putting down a rebellion, you will need to match their number. If rebel legions outnumber you, there is a strong probability that they will succeed.

The Ministry of War

All rulers are careful to study the mistakes and failures of the past, but few try to analyze the undercurrent themes that would help predict the future. The strategy and tactics of war lend themselves perfectly to such analysis, especially when treated separately from the more inexact world of diplomacy and negotiation. This chapter will describe the different tactics available to a bellicose emperor or empress and evaluate their effectiveness.

Splitting a Fleet into Groups

Before a fleet enters combat it must be split into *groups* so that each *group* is able to attack a target independently. *Groups* may only consist of one type of ship and no more than nine *groups* may be created. The *standard configuration*; places each type of ship in one *group*, but you might want to split a fleet into more *groups*. For example, suppose that you have 1000 fighters and 2000 jumpships. The *standard configuration* creates two *groups*, one with fighters and one with jumpships, but this means that you can only attack two targets at once. If you were to split up the fleet into four *groups*, you would be able to attack four different targets.

Of course, you won't always need so many *groups*. If you are attacking a planet that has only fighters, you'll only need one *group* (plus one for the transports.) On the other hand, if you're attacking a base with everything from starships to fighters, you'll want to split up your forces into several *groups* so that each is able to attack a different enemy type.

Group Defense Targeting

If a group is set to defend, it will be protected by all other attacking groups in that orbit. The amount of cover that a defending group will need and the amount that can be provided by others is proportional to the type and number of ships in

the group. Transports and starships need many ships for cover; starships and penetrators are good at providing cover. If a defending group is fully covered, it will suffer no damage, otherwise it will take damage in proportion to the percentage of cover that it has.

Hunter-killer Groups

Hunter-killer groups enter battle fully cloaked and remain cloaked as long as they do not attack. Once the group targets an enemy ship, however, the cloak is lost. While cloaked, hunter-killers take no damage and may move through the orbits undisturbed.

Advancing Through Enemy Lines

Groups may advance through orbits that still have enemy defenders, but both sides will take increased damage. The close combat conditions increase the accuracy of a ship's weapons; damage sustained by both sides increases by 50%. Cloaked hunter-killer *groups*, however, can advance without taking damage.

Ground Defenses

The aim of the fleet commander attacking a world is to land transports on the surface; the aim of the planetary defender is to stop him or her at all costs. Ground defenses on a world including defense satellites, GDMs, and ion cannons, are a very important part of the defender's forces. As an attacker, you must be prepared to minimize their effect against you.

Defense satellites ring a world at the standard orbit level, but their high-powered weapons can reach high-orbit. If you are a fleet commander, you must minimize the time that you spend in high-orbit; every round spent in that orbit gives the defense satellites a free firing round. If possible, you should send a cloaked group of hunter-killers through to standard orbit to destroy the defense satellites. You must, however, have an overwhelming force of hunter-killers, or else you'll find that they will be quickly destroyed.

Ground Defense Missiles may be destroyed from sub-orbit, but cannot hit ships there. A good strategy against them is to advance through standard orbit before they get a chance to fire a second volley. Also, fighters are very vulnerable to GDMs, so they should be protected if possible.

Ion cannons are large ground-based installations used as a last line of defense. They are almost as powerful and indestructible as defense satellites, but have a more limited range. Ion cannons may attack and be attacked from sub-orbit. The best--and only--strategy against them is overwhelming force.

World Class Adjustment to Ground Combat

World class affects the fighting ability of GATs trying to conquer a world. A barren world, for example, which depends on complicated life-support equipment, is hard to defend because the population is so vulnerable. Ice worlds, on the other hand, are inhospitable to man and machine, and thus provide the defenders with an advantage. Worlds that are difficult to defend include barren worlds, gas giant worlds, ocean worlds, and poisonous worlds; worlds that are difficult to attack: desert worlds, forest worlds, ice worlds, jungle worlds, underground worlds, and volcanic worlds. Command bases and fortresses, because they are military installations designed to repel invaders, are the most difficult worlds to conquer; at least a two to one force advantage is needed to take over these worlds.

Fleets Protecting Worlds

Fleets over a world protect that world from attack. Any enemy fleet that aims to conquer the world must first destroy all fleets in the sector. This property can be combined with the speed and initiative of jumpfleets (See: *Fleet Initiative*) to protect worlds that are threatened. For example, suppose that you see an enemy fleet over one of your worlds. If you have a jumpfleet ready you can send it to the endangered world. Although you may not be able to attack the enemy before he or she attacks you, your fleet will be able to defend the planet.

Note that no other empire may have a fleet over a world if you wish to attack the surface. Before you may attack a world, all other fleets must either leave or be destroyed.

Hunter-killer Raiding Fleets

Since hunter-killer fleets cannot be detected normally, they are ideal for surprise attacks on enemy fleets. Small hunter-killer fleets of 500 ships or less may be used as unflagged raiding fleets intended to instigate turmoil. Any attack by these small fleets will be reported to the enemy as attacks of unknown origin.

LAM Attacks

Long-range Attack Missiles are built by capitals and base planets and used as a secondary defense against enemy fleets. Although they are only a little more powerful than GDMs, these missiles are equipped with miniature jumpdrive generators enabling them to hit targets up to five sectors away. As attack weapons they may be used preemptively to destroy enemy fleets that get too close. LAMs launched against a world will destroy the ground defenses of the world, but will do no other damage.

The warheads on LAMs are very powerful; these weapons usually achieve kill ratios of one to two (two LAMs required to kill one ship).

Constructions

At certain advanced technology levels, empires will acquire the capability to build large-scale, deepspace structures that will enhance the industrial and military strength of the empire. There are seven different types of these structures, all of which must be built in deepspace: *outposts*, *SRMs*, *command bases*, *industrial complexes*, *warp links*, *fortresses*, and *gates*.

Outposts

An outpost is a small, self-sufficient scanning station with a very small population, usually placed at the periphery of an empire. Outposts do not produce anything, but they are able to scan five sectors around them, keeping track of all objects that have been previously scouted by an imperial probe. Like other starbases, outpost can scan enemy fleets up to five sectors away (see: "Fleet Detection and Fleet Scanning").

Although they often possess GDMs and ion cannons for defense, they do not build defense satellites.

SRM

Self-Replicating Mines, or SRMs, are the simplest to build. Once a few thousand seed mines are built, they will start building replicas of themselves out of metals and chemicals provided by ships. In a couple of years, millions of semi-intelligent mines will cover an entire sector, a volume of one thousand cubic light-years. Once placed, these mines will ignore passing warships, but if any enemy jumpship attempts to jump through the sector, the mines will immediately activate and detonate in a large super-gravity explosion, rupturing the jump-envelope and destroying the intruding ship. Of course, friendly jumpships will not activate them.

SRMs are used primarily to surround vital worlds such as capitals, ambrosia worlds, etc. Any attacking enemy fleet will therefore be forced to proceed at warp speeds, giving the defender a long time to reinforce the world.

Although LAMs and probes (q.v.) also use jumpspace, they are not massive enough to be affected.

Command Base

A command base is a mobile star-station equipped with the most sophisticated defensive weaponry. They often have a full complement of defense satellites, GDMs, and ion cannons, plus LAMs for long-range preemptive strikes. Although not as powerful or impressive as fortresses (q.v.), they serve adequately as carriers protecting otherwise vulnerable fleets from attack as they penetrate into enemy territory.

Command bases are excellent as strongholds designed to project power with their complement of LAMs. They are often

placed in regions of conflict where fleets alone would otherwise be open to attack. Because they are mobile, they may position themselves at strategic locations.

Command bases have the scanning ability of outposts, allowing them to scan enemy fleets within five sectors.

Industrial Complex

These structures are actually giant shipyards built in empty sectors adjacent to mining or raw material worlds. Elaborate supply routes are set up so that the base can be specialized yet still be automatically supplied by its symbiotic world. Because of this combination of specialization and self-sufficiency, these structures are very efficient and cost-effective once the initial cost of construction is absorbed.

Once an industrial complex is built, it will consume the materials from any adjacent raw material, agricultural, or mining worlds and use them to build ships. Because the complex is specialized for ship-building, its industrial output far exceeds that of a normal world. Of course, the adjacent supply worlds must exist; an industrial complex in the middle of a void would quickly starve to death.

Industrial complexes take materials from any world in an adjacent sector, unless that world is also a ship-building world. Most complexes require a dedicated metal mine, a chemical mine, and a trillum mine. Industrial complexes may be designated to be base planets, jumpship bases, starship bases, or transport bases.

Warp Link

Once an empire acquires the technology to manipulate and harness super-gravity fields, the resulting revolution parallels those following the invention of the steam engine or the discovery of nuclear fusion. Warp links are giant super-gravity generators that literally bend and break space-time. A warp link is constructed in such a way that a fleet entering one is able to exit a short time later at another warp link, possibly on the other side of the galaxy. In practice, a network of warp links could connect an entire empire so that warpfleets from any region can travel to any other region in years instead of decades.

Although there is no limit to the distance that can be travelled using a warp link, both ends must have a compatible warp link generator. In other words, a fleet could not enter a warp link and expect to travel to an enemy warp link. However, within the same empire there are no restrictions in travel; a fleet entering one link may travel to any other link in the empire in a single year.

Warp links may be strategically placed so that warp ships are brought from the heart of the empire (where, presumably, most of the starship bases will be,) to the front lines at the empire's periphery.

Note: Mobile starbases such as command bases and fortresses are too large to pass through warp links or gates.

Disrupter

The same super-gravity technology that powers warp links and gates enables disrupter to distort and deform jumpspace. Any enemy jumpships within three sectors of a disrupter will be immediately forced to travel at a rate of a single sector per year. Friendly jumpships are, of course, not affected. Disrupter are generally used to supplement SRM fields.

Fortress

The height of attack technology, fortresses are large mobile battle stations that possess all the defensive capabilities of command bases. Their main weapon, however, is an internal limited gate that enables fleets within to strike at enemy targets up to five sectors away.

As an attack carrier they can penetrate deep into an enemy's empire and then deploy battle fleets to one or more targets. Because even warpfleets can take advantage of the limited gate, an attack by a fortress has all the speed of a jumpfleet combined with the firepower of starships and penetrators.

Fortresses are prohibitively expensive to build, usually limiting an empire to one or two at most.

Gate

The stargate (or simply "gate") improves the technology of the warp link so that a receiving station is no longer needed. A fleet entering a gate may travel to any point in the galaxy in a single year. Although at first thought this seems a simple and obvious improvement, the military and strategic ramifications are incredible.

Gates, when used by an experienced emperor, are so powerful that any empire possessing one may effectively prevent any other empire from completing their own. With their unrestricted destinations, gates may teleport battle fleets to unfinished construction sites, powerful base planets, or the very capital of the enemy empire. So de-stabilizing are they that most empires will gladly join forces against one that seems near to finishing a gate.

Fortunately, only the most advanced empires can build gates, and even then fifteen years and thousands of megatons of materials are needed to construct one.

If you and the other empires are unable to agree on a suitable treaty to ban gates, you should at least be prepared to deploy a battle fleet (alone or with other empires) to destroy any gate constructions. And if, perchance, you should decide to attempt to build your own gate, remember that large structures like stargates are hard to keep secret for very long. If you are able to build one, use it quickly and decisively. Any hesitation on your part will only allow others to join forces against you.

Construction Fleet

Building any of the above structures is relatively simple as long as you have the required technology level and a suitable raw material supply route worked out. The table below summarizes the requirements for each construction.

Construction Requirement Table

	Years To	Construction	Tech	Chem	Met	Tri	Build
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Command s	460	2,300	180	6			
Complex s	590	2,600	150	10			
Disrupter pg	1,110	1,180	1,120	8			
Fortress pg	840	2,870	250	12			
Gate g	2,530	3,920	1,450	15			
Outpost b	350	1,120	150	3			
SRM s	110	500	80	2			
Warp Link pg	1,560	2,550	290	5			

Tech is the tech level needed to develop the technology.

Chem, Met, and Tri are the amounts of chemicals, metals and trillum needed per year. Chemicals and metals are in megatons, trillum in kilotons.

Once a construction is started, the necessary yearly quantities of raw materials must be at the site, or else the construction will be delayed for a year. It is the emperor's responsibility to deploy cargo fleets loaded with materials to the site.

Example

Suppose an emperor wants to build an outpost at a particular location. Assuming that the empire is advanced enough and that suitable raw material planets exist nearby, the emperor would probably take the following sequence of steps to complete the base:

- a) A large cargo fleet is deployed with enough material for one year of construction;
- b) Jumpfleets are deployed from raw material worlds with enough materials for another year of construction;
- c) After one year the large cargo fleet at the construction site has used up all of its materials (the outpost has two more years to go). Materials from the jumpfleets are transferred to the large cargo fleet. The jumpfleets are sent back to their origin;
- d) The same year, more jumpfleets are deployed from raw material worlds to the site of construction;
- e) After another year, the large cargo fleet is empty once again (the outpost needs one more year before it is finished). The second group of jumpfleets transfers its cargo to the large cargo fleet. (If the construction were to take more than three years, the empty jumpfleets that returned at step (c) would be loaded again and sent back to the site; the jumpfleets at the site would then return empty to the material worlds. This kind of relay using two fleets insures that the site is provided with enough materials every year.)

After the third year the construction is finally complete.

Keeping a construction site supplied with enough materials is not always an easy task, so do not become discouraged if the construction is delayed. Concentrating on other more pressing affairs is more important than juggling fleets to save a few years. This is not to say that you should be purposely inefficient, however. You are always in competition with other empires and finishing your command base or fortress a few years ahead of your enemy could give you a distinct advantage.

Notes:

Part III: Reference

This chapter is a reference section that details each of the commands available to the player and reproduces the tables found in the other two parts.

Commands

Commands are all issued through the menu bar and are identified as *Menu/Command*. For example: *Fleet/Deploy*, *World/Name*.

Construction/Abort Construction

This command will terminate the given construction. All work is stopped and the site is destroyed.

Construction/New Construction

An outpost, SRM field, or other construction may be built using this command. You must specify the type of construction and the location of the site (which must be an empty sector).

Once a site is active, you must have a fleet in the sector with enough materials for one year of construction (see: "Constructions"). The *Construction/Site Status* command will list all active sites.

Construction/Site Status

This command displays a list of all current construction sites, their expected date of completion, and the amount of materials needed for the next year of construction. The amount of materials needed is the amount in addition to the materials already at the site. For example, if a construction site needs 1,000 megatons of metals per year, and a fleet in the sector currently has 500 megatons, the listing will show that another 500 megatons are needed before the construction can proceed.

Empire/Read Messages

Any messages that the empire has received may be read with this command. Messages are only kept until they are read.

Empire/Send Messages

A player may send messages to one or more empires with this command. When asked to select the empire to send a message to, select a single empire with the [Enter] key, or tag multiple empires with the [Space Bar].

Empire/Trade Technology

You may give any technology that you have to another empire with this command. The receiving empire must be at the necessary tech level to receive the given technology.

Note: This command is unilateral in that it expects nothing from the receiving empire. Trade agreements and their enforcement are strictly up to the player.

Fleet/Abort

A fleet may be aborted to a world or to another fleet. In the former case, the ships of the fleet are placed in orbit around the world, joining any other ships already there. In the latter case, the two fleets are combined. The fleet must be in the same sector as a world or another fleet.

Note: The ships are not lost when aborting a fleet nor is the fleet returned to the capital. The ships and cargo in the fleet are simply placed on the world to which the fleet is aborted.

Fleet/Change Destination

This command will set the destination for a given fleet. Fleets move at different rates depending on their composition. In general, fleets with only hunter-killers, jumpships, or jumpransports will travel in jumpspace at ten sectors per year. Any fleet that includes fighters, penetrators, starships, or transports will travel one sector per year.

This command can also be used to travel through a warp link or gate.

Fleet/Deploy

The empire exerts influence with fleets; fleets are used to attack other worlds and to transport materials within the empire. *Fleet/Deploy* is used to form a fleet with the ships on a world or in another fleet.

Once in the fleet transfer screen, the middle section of the screen will display the number of ships in the fleet and those on the ground. The cargo column on the far left displays the amount of cargo space left in the fleet.

The following keys are available:

[Left/Right Arrows]

Moves the cursor to select the type of ship or material to transfer.

[Up Arrow]

Moves all resources of the given type from the ground to the fleet. If the resource is a type of cargo (i.e. not ships), then only as many resources as will fit in the transports and jumptransports will be transferred.

[Down Arrow]

Moves all resources of the given type from the fleet to the ground.

[Enter]

Asks the player to input the number of ships or materials to transfer. Positive numbers move resources from the ground to the fleet. Negative numbers move resources from the fleet to the ground.

[Esc]

Completes the transfer. If cargo space is negative (i.e. there isn't enough room on the transports), the computer will state that there are not enough transports in the fleet to carry all the materials.

Example: Suppose you wish to deploy a fleet from your capital, which has 100 jumpships and 200 jumptransports. The fleet transfer screen will look like this:

```
fgt hkr jmp jtn ... .. Cargo
0 0 0 0 ... .. 0
0 0 100 200 ... .. 0
```

Using the left and right arrows keys to move to the jumpship column (jmp), you would press the up arrow key to move all jumpships from the ground to the fleet. Then, moving the cursor to the jumptransport column (jtn), again press the up arrow key to move the jumptransports up. Hitting [Esc] would complete the transfer.

Note: To see if a fleet has been deployed correctly, press [F5].

Fleet/Orders

This command is used to issue complex orders to a fleet (see: "Fleet Orders and Cargo Routes"). The following commands are available:

TRANSFER (amount) (material): Transfers materials between a fleet and a world. If the amount given is positive, materials are transferred from the world to the fleet; if negative, from the fleet to the world. The following abbreviations may be used for specifying the material: amb, che, met, sup, tri, men, nnj, fgt, hkr, jmp, jtn, pen, str, trn.

DESTINATION (xy): Sets the destination of the fleet to a new location.

REPEAT: Executes the command set again.

WAIT: Waits at the given location for one year.

Fleet/Probe

Probes are used to gather information about other worlds. Each year an empire may send up to ten probes to different locations around the galaxy. The following year the probes will scout the sector to which they were launched and all surrounding sectors. Information returned by probes is displayed in the world status ([F3]) and military status ([F4])

windows.

The information returned by probes is not kept for more than a year. But worlds within five sectors of an outpost (q.v.) or the capital are in continuous scan range. These worlds will be scanned every year after a probe first scouts them.

Note: Probes launched to a dark nebula will only scan a single sector.

Fleet/Refuel

The range column on the fleet status ([F5]) window shows the number of years that a fleet can travel before running out of fuel (trillum). A fleet may be refueled from any friendly world with trillum, or from its own cargo.

Note: A fleet that runs out of fuel but has trillum on transports will refuel itself automatically.

Fleet/SRM Sweep

SRM fields may be destroyed by fleets containing at least 100 starships. This command will instruct a fleet of that power to destroy all SRMs in the sector.

Fleet/Transfer

The *Fleet/Transfer* command is used to move ships and cargo from a fleet to a world or another fleet. The target world or fleet must be in the same sector. Use the keys given in *Fleet/Deploy* to transfer ships.

Game/Next Turn

Game/Next Turn is used to end the turn and continue on to the next player. Once all players have taken their turn, the next year begins.

Game/Print Status

The command will print out a compressed status of all scouted worlds on a line printer. All numbers given are in hundreds. Otherwise, the printout is similar to the World Status windows.

Game/Quit

This command will suspend the player's turn and return to the main game menu from which the game can be saved. Unlike *Game/Next Turn*, the game will resume with the same player who ended the game.

Ministry of War/Attack

Once a fleet is deployed to an enemy world, the *Ministry of War/Attack* command is used to attack the world.

The fleet will be split into several *groups*, each of which can contain only one type of ship. Choosing the standard configuration will place all ships of a particular type in one group. Otherwise, the player may specify how many ships are to be placed in each group.

The goal of every fleet commander is to land transports on the surface, but before that can be accomplished, the fleet must pass through four orbital shells: deep space, high orbit, orbit, and sub-orbit. At each orbit, groups must target all enemy ships, destroy them, and then advance to the next orbit (however, it is sometimes desirable to advance through an orbit's defenses, although more severe damage will be sustained by the fleet). The following commands are available:

[E]ngage

Once all groups are targeted, this command will carry out one round of fighting.

[M]ove

This command is used to move groups through the orbits. For each group left, the computer will ask whether it should [S]tay, [A]dvance, or [R]etreat. A group may advance through enemy ships, but both

sides will take more damage.

Note: A move command also carries out a round of fighting.

[G]roup Status

A brief status of all remaining groups. Data includes the number of ships left, current orbit, and current target.

[T]arget

This command assigns targets for all groups. You may specify, for example, that group 1 attack the enemy fighters, and that group 2 attack the enemy jumpships. Specifying a dash [-] as a target, means that the group is defending itself from attack.

[D]etails

After a round of fighting, this command will display the number of ships destroyed in each group by the enemy.

[R]etreat

If the battle is hopeless, you may decide to pull your forces back and abort the attack.

Example: Suppose you wish to attack a world with a fleet containing 100 jumpships, 200 jumpransports and 200 troops. The fleet will be split into two groups, one with 100 jumpships and one with 200 jumpransports. Suppose further that the enemy world has 500 fighters, 200 GDMs and 100 troops.

The lower-left display in attack will show the number of enemy ships in each orbit:

```
Deep/High/Orbt/SbOr/Grnd
[F] fighter squadrons: 50 50 100 200 100
[H] hunter-killers: 0 0 0 0 0
[J] jumpships: 0 0 0 0 0
[T] jumpransports: 0 0 0 0 0
[P] penetrators: 0 0 0 0 0
[S] starships: 0 0 0 0 0
```

```
[G] GDM: 200 [D] def: 0 [I] ion: 0
[M] men: 100 [N] nnj: 0 [L] LAM: 0
```

There are 50 fighters in deep space, so you would target your jumpship group to attack the fighters [F] and your jumpransports group to defend [-]. Now, pressing [E]ngage will carry out the attack.

After all fighters in deep space have been destroyed, you would advance the jumpships to the next orbit. The jumpransports would be left behind until all the enemy ships have been destroyed.

When the jumpships reach orbit, the GDMs will fire. Make sure that all GDMs are destroyed before advancing the jumpransports.

When the jumpships have destroyed all the fighters in sub-orbit, the jumpransports would be advanced all the way to the ground. Once on the ground, Ground Assault Troops from your jumpransports would form a group and attack the troops on the ground.

Ministry of War/Defenses

When an enemy empire attacks one of your worlds, the computer divides the ships at the world among the different orbits. This command allows you to specify the arrangement for these defenses. The defense setting is global, affecting every world in the empire, but it may be changed as often as needed.

The Defenses screen shows the percentage of each type of ship that should be placed at each orbit. You may use the cursor keys to move between the fields, and the [Enter] key to change a given entry. Since the sum of percentages for each type of ship must add up to 100, the last column keeps track of the total so far. The [Esc] key exits and carries out the changes.

Note: Remember that defense satellites attack at high and standard orbits. GDMs attack standard orbit and ion cannons attack sub-orbit. You should concentrate your forces around these points.

Ministry of War/Launch LAMs

LAMs may be launched from base planets and capitals, and are used to attack enemy fleets and worlds within five sectors.

World/Close Up

This command brings up the military and economic data for a given world. This data is also available in the World Status ([F3]) and Military Status ([F4]) windows. Any historical notes or special descriptions may also be found here.

World/Designate

Once a world has been conquered, the empire may determine what its principal industry will be. *World/Designate* will redistribute the industry of a world to conform to the desires of the emperor or empress.

World/ISSP

This command is used to change the Industrial Self-Sufficiency Percentage of a given world. Use the up and down arrow keys to select the industry, and the left and right arrows to change the ISSP.

In general, increasing the ISSP for an industry will increase the production of that industry at the expense of ship-building. Decreasing the ISSP for an industry will increase the ship production but may require raw materials to be imported from other worlds.

World/Liberate

Use this command if you wish to make a world independent. You may also give the world to any empire that has a fleet over the planet.

World/Name

Worlds may be named so that the emperor or empress doesn't have to remember coordinates. For example, the capital (0,0) could be named Home, or Earth, or whatever.

Note: Fleets may also be renamed using this command.

World/Production

The Production screen is divided into four parts. The upper-left section lists basic information about the planet such as environmental class and technology. The middle part is a table of the resources produced and consumed on the planet. The lower-right section lists the number of defenses on the world. Finally, the upper-right part of the screen lists the industrial capabilities of the planet.

Basic Information: The information in the upper-left section of the screen repeats the basic data about the planet: class, type, population, etc. Although this data may be found in the status windows, it is repeated here for continuity.

Production: The table in the middle of the screen lists the production and consumption of resources on this world. The top line lists the number of resources available on the planet. The next line lists the number of resources produced per year. The last line (defined only for raw materials) lists the number of resources consumed per year.

Note: Consumption of raw materials does not include materials used to build industry or ground defenses.

Defenses: The lower-right hand part of the screen contains data about the construction of defenses. All worlds of the required tech level will build GDMs, defense satellites, and ion cannons. Each world defines an optimum number of defenses which depends mainly on the number of troops on the planet. Every year, the world will try to build defenses until it reaches its optimum defense. In the chart, the top line is the number of available defenses, the middle line is the

optimum number of defenses, and the bottom line is the number of defenses built each year.

Industrial Capability: The industrial capacity of a world is dependent on the population, technology, and class of a world. The chart in the upper-left of the screen lists the current ISSP (q.v.) setting at the top, followed by the class adjustment for the world, the current industrial distribution, the optimum industry, and the actual industry. The class adjustment for a world is the efficiency of each industry given the world class. The industrial distribution is the per cent of the TIP (see: "Production") that is devoted to each industry. The optimum industry is the optimum number of factories/mines that should be on the planet given the current industrial distribution. The actual industry is the number of factories/mines currently on the planet.

World/Remove Name

This command deletes a name from the list.

World/Self-Destruct

Outposts, warp links, and gates may be set to self-destruct if they are in danger of falling into enemy hands. The resulting explosion will destroy all fleets in the sector.

Tables

The tables found in the text are reproduced here for your convenience.

Construction

The table below lists the amount of raw materials needed and the time required to build each type of construction.

Construction Requirement Table

Years To
Construction Tech Chem Met Tri Build

Command s	460	2,300	180	6
Complex s	590	2,600	150	10
Disrupter pg	1,110	1,180	1,120	8
Fortress pg	840	2,870	250	12
Gate g	2,530	3,920	1,450	15
Outpost b	350	1,120	150	3
SRM s	110	500	80	2
Warp Link pg	1,560	2,550	290	5

Tech is the tech level needed to develop the technology.

Chem, Met, and Tri are the amounts of chemicals, metals and trillum needed per year. Chemicals and metals are in megatons, trillum in kilotons.

Fleet Composition

Fleet Composition by Type

Type fgt hkr jmp jtn pen str trn

Warpfleet	yes	yes	yes	yes	yes	yes	yes
Fast warp	no	yes	yes	yes	yes	no	no
Jumpfleet	no	yes	yes	yes	no	no	no
Stealth	no	yes	no	no	yes	no	no
HK	no	yes	no	no	no	no	no

Fleet Detection and Scanning

Fleet Detection And Scanning By Type

Starbase World Fleet

Type Detect Scan Detect Scan Detect Scan

Warpfleet 5(5) 5(5) 5(1) 1(1) 1(1) 1(1)

FastWarp 5(5) 5(5) 5(1) 1(1) 1(1) 1(1)

Jumpfleet 5(5) 5(5) 5(1) 1(1) 1(1) 1(1)

Stealth 5(5) 5(5) 1(1) 1(1) 1(1) 1(1)

HK 5(5) 5(5) 0(0) 0(0) 0(0) 0(0)

Ground Defenses

Ground Defenses by Type

Defense Arms Armor Range

Def Satellites very heavy very heavy high-orbit

GDM medium none orbit

Ion Cannons medium heavy sub-orbit

LAM heavy none (special)*

*LAMs are attack weapons that can reach interstellar space.

Ships

Ship Capabilities by Type

Ship Drive Arms Armor

Fighter warp very light none

Hunter-killer jump medium light

Jumpship jump light light

Jumptransport jump none light

Penetrator warp* heavy medium

Starship warp very heavy very heavy

Transport warp none none

*penetrators possess a modified warp drive.

Technology Levels

The *tech level* of a world is a measure of its technological capabilities. The table below lists the base tech level required for each technology. For example, a jump level base planet can make jumpships but not hunter-killers.

Technology Level Table

Tech Level Technologies

pre-tech supplies

primitive men, metals

pre-atomic chemicals

atomic GDMs, trillum

pre-warp fighters

warp transports
 jump ion cannons, jumpships, jumpransports
 bio-tech defense satellites, hunter-killers,
 penetrators, ambrosia, outposts
 starship LAMs, starships, ninjas, SRMs, industrial
 complexes, command bases
 pre-gate fortresses, warp links
 gate gates

World Class

The *class* of a world is an indication of its environment, whether barren or poisonous, harsh or hospitable. The table below lists the types of industries that are at an advantage or disadvantage for each *world class*.

World Class Table

Symb Class Advantages Disadvantages

A Ambrosia Bio Met/Tri
 a Arid (None) Chem/Agrc
 0 Artificial Ships Chem/Met/Agrc/Tri
 B Barren Met/Tri Chem/Agrc
 j Class J Chem/Met Tri
 k Class K Met Chem
 l Class L Tri Agrc
 m Class M Agrc Trillum
 D Desert Tri Chem/Met/Agrc
 E Earth-Like (None) (None)
 F Forest Chem/Agrc (None)
 G Gas Giant Chem/Ships Met/Agrc/Tri
 h Hostile (None) (None)
 I Ice (None) Chem/Met/Agrc/Tri
 J Jungle Chem/Agrc (None)
 O Ocean Chem/Agrc Met/Tri
 1 Paradise Bio/Chem/ (None)
 Met/Agrc/Tri
 P Poisonous Chem Met/Agrc/Tri
 2 Ruins (None) (None)
 U Underground Met/Tri Agrc
 V Volcanic Chem/Met/Tri Agrc

World Type

The *type* of a world determines its principal industry. An emperor or empress can Designate a world to be a particular type, thus controlling its industrial output.

World Types

Type Tech Notes

a agricultural pt food (sup)
 A ambrosia b ambrosia (amb)
 b base planet pw ships and LAMs
 C capital - the center of the empire
 c chemical pa chemicals (che)

i independent pt ships
j jumpship base j jumpships (hkr jmp jtn)
m mine p metals (met)
N ninja base s creates ninjas (nnj)
o outpost - starbase
r raw material p materials (che met tri)
s starship base s starships (pen str)
t transport base pw warpships (fgt trn)
z trillum mine a trillum (tri)
U university j discovers new technology

Tech is the minimum technology level that the world must be before it can be designated to this type.

Glossary

AMBROSIA: Ambrosia is a rare drug that increases worker productivity. Unfortunately, it is also highly addictive and causes severe psychosis upon withdrawal.

CHEMICALS: Chemicals are used to build ships and defenses. Chemical (type c) and raw material (type r) worlds produce chemicals.

CLASS: The class of a world is an indication of its environment. Some worlds are barren and lifeless, making human habitation difficult; others are fertile and hospitable to life. The class of a world will affect different industries. For example, a barren world is not ideal for agriculture; an ocean world is poor as a metal mine, etc. (see: "World Class Table").

DESIGNATION: A world in an empire may be designated to produce a specific resource according to the wishes of the emperor or empress. The type of the world is changed by the *World/Designate* command.

EFFICIENCY: A measure of the bureaucratic competence of a world. Efficiency affects such areas as production, defense, technology increases, etc.

FIGHTER: A fighter group (fgt) is a squadron of sub-light interceptors based on a small warp-carrier. They are small and inexpensive, but possess only light firepower and no armor. Fighters are the weakest kind of ship and are particularly vulnerable to GDMs and starships. Only base planets and transport bases build these ships.

FLEET: A fleet is a group of ships and materials that acts as an entity. You must deploy a fleet to move ships from world to world, or to attack another world. Use the *Fleet/Deploy* command to deploy a fleet, the *Fleet/Transfer* command to move ships and material to and from a world, and *Fleet/Change Destination* to change the destination of a fleet.

GROUND DEFENSES: Advanced worlds ordinarily have a complement of GDMs, ion cannons (ion), and defense satellites (def) to defend against ground assault. Less advanced worlds will have only GDMs. Fleets attacking these worlds must destroy these defenses before landing troops on the surface.

HUNTER-KILLER: Hunter-killers (hkr), like jumpships, can travel ten sectors a year with their jumpdrives. A hunter-killer's main advantage, however, is its invisibility to enemy scanners. A fleet of hunter-killers can be detected by sophisticated equipment found only on starbases. Jump bases and base planets build these ships.

ISSP: Industrial Self-Sufficiency Percentage. All worlds are balanced so that the raw material industries (chemical, metal, trillum, and supplies) produce enough to support the principal industry. If you wish the world to produce more or less than what it needs, you can change the ISSP value for each of the raw material industries. For example, lowering the ISSP for metals to 50% will instruct the planet to produce only half of the metals that it needs (see: "Production and ISSP").

JUMPFLEET: A fleet composed of ships that travel in jumpspace (10 sectors per year): hunter-killers, jumpships, and jump transports.

JUMPSHIPS: Jumpships (jmp) are medium sized warships equipped with jump generators. They can travel ten sectors per

year and possess modest armor and armaments. Jump bases and base planets build these ships.

JUMPTRANSPTS: Jumptransports (jtn) are small cargo ships that carry only a fifth of a transport's hold. Like jumpships, however, they are equipped with a jump generator, enabling them to travel ten sectors per year. Jump bases and base planets build these ships.

LAM: Long-range Attack Missile. Bases and capitals build these weapons. They are as powerful as GDMs, but are able to hit targets up to five sectors away.

METALS: Metals (met) are needed to build ships, defenses, and industry on a world. Metal mines (type m) and raw material mines (type r) mine metals, generally need an initial input of metals to begin production. Metals, like all other materials, are carried on transports and jumptransports.

NINJAS: Genetically engineered supermen. Ninjas are elite warriors created and trained on ninja worlds. A ninja legion is equal to five normal legions in combat.

OUTPOST: An artificial world designed to detect and scan enemy fleets.

STARBASE: An artificial construction of military nature. This term usually applies to outposts, command bases, and fortresses.

STARSHIP: Starships (str) are the most powerful type of ship. Although they are slow (one sector per year) and very expensive to build, they are unmatched in firepower and armor. Starship bases and base planets build these ships.

SUPPLIES: Supplies (sup) include the basic necessities of life such as food and medicine. Although most planets are self-sufficient, some may be too primitive to be able to support themselves.

TECH LEVEL: The technological base of knowledge of a planet places it at a certain tech level. Worlds that have just discovered atomic theory are atomic level; worlds that understand jumpspace are jump level, etc. (see: "Technology Level Table").

TECHNOLOGIES: The individual engineering feats that empires master; for example, hunter-killer technology and starbase technology. Each technology must be discovered individually before it can be used. Each empire must be at a prerequisite tech level before it even has a chance of discovering a certain technology. For example, an empire must be at least bio-tech level before it can master hunter-killer technology (see: "Technology Level Table").

TRANSPORTS: Transports (trn) are giant cargo ships that carry resources between worlds. Base planets and transport bases build these ships.

TRILLUM: Trillum (tri), a high-yield nuclear fuel is used to build ships and power fleets. Trillum mines (type z) and raw material worlds (type r) mine this important substance. When a fleet is deployed, it automatically takes as much fuel as it can carry in its tanks; more trillum may be carried in transports and jumptransports, however.

TYPE: The type of a world is an indication of its main industry. For example, a jumpship base builds jumpships, a metal mine mines metals. You may set the type of the worlds you own with the *World/Designate* command.

WARPFLEET: A fleet that travels in warp space (one sector per year). Any fleet that contains fighters, starships, or transports is a warp fleet.

Appendix A: Scenario Files

All scenarios in Anacreon are defined using a special format called a *Scenario Description File* (SDF) format. This format allows a player to create his or her own scenarios simply by editing a text file.

Header and Initial Text

All SDFs start with:

ANACREON Version

Name

Variation

Min/Max Plyrs

Size

Planets

Diff

Min/Max Len

First Year

Version: The version number of the game that this scenario is written for. This is expressed as a whole number: 12 for version 1.2, 21 for version 2.1, etc... The header ANACREON (which must appear in capital letters) and the version number must be on the first line of the file and must be alone.

Name: The name of the scenario. This may be more than one word, but it should not be more than 32 characters. If the name is more than one word, it should be enclosed in quotes.

Variation: Each scenario can be either random or set depending on the setting of this variable. If variation is 0, then all random elements in the scenario will change every time that the scenario is run. If variation is a positive number, then the scenario will be the same every time (as long as the number is the same.)

Min/Max Players: Two numbers (separated by a space) expressing the minimum and maximum number of players that can play this scenario. No more than 8 players may play a scenario.

Size: The size of the galaxy in sectors. The galaxy is always square, so this variable measures the length of one side. The galaxy should never be smaller than 21 sectors nor larger than 100. At 21 sectors, the map displays the entire galaxy.

Planets: The number of planets in this scenario. This number must match the actual number of planets created by *CreateWorld* and *CreateRandomWorlds*. No more than 200 planets may be in the galaxy.

Diff: The difficulty of the scenario:

0 Beginner

1 Intermediate

2 Advanced

3 Expert

This variable is only used to give the player an idea of how complicated the scenario is. The actual play of the game is *not* affected. The scenario designer should insure that the scenario is accurately labeled.

As a rough guideline, scenarios that are played in a small galaxy with few planets and without most of the advanced features of the game (i.e. gates, ambrosia) should be *Beginner*. Scenarios with some advanced concepts should be *Intermediate*. Scenarios that use a large map and/or most of the advanced features should be *Advanced* or *Expert*.

Min/Max Length: Two numbers (separated by a space) expressing the average length of one game in years. If the second number is 0, then it indicates an open-ended scenario. For instance: 10 20 would be 10-20 years. 50 0 would be 50+ years.

First Year: The year in which the scenario starts out. For example, most introductory scenarios start at 4021.

After the basic description, the file should contain the initial text description of the scenario. The text should begin with **BEGINTEXT** on its own line, and end with **ENDTEXT**, again on its own line. Page breaks are denoted by **NEWPAGE**.

Constants and Tables

Many commands require parameters such as tech levels or world class tables. The following charts specify the numbers that should be used and the order in which tables should be entered.

World Class Table

Constant Class

- 0 Ambrosia
- 1 Arid
- 2 Artificial
- 3 Barren
- 4 Class J
- 5 Class K
- 6 Class L
- 7 Class M
- 8 Desert
- 9 Earth
- 10 Forest
- 11 Gas Giant
- 12 Hostile Life
- 13 Ice World
- 14 Jungle
- 15 Ocean
- 16 Paradise
- 17 Poisonous
- 18 Ruins
- 19 Underground
- 20 Volcanic

World Type Table

Constant Type

- 0 Agricultural
- 1 Ambrosia
- 2 Base Planet
- 3 (reserved)
- 4 Capital
- 5 Chemical
- 6 Independent
- 7 Jumpship Base
- 8 (reserved)
- 9 Metal Mining
- 10 Ninja
- 11 (reserved)
- 12 Raw Material
- 13 (reserved)
- 14 Starship Base
- 15 (reserved)
- 16 Transport Base
- 17 (reserved)
- 18 University
- 19 (reserved)
- 20 Trillum Mine

Technology Level Table

Constant Tech Level

- 0 pre-technological
- 1 primitive
- 2 pre-atomic
- 3 atomic
- 4 pre-warp
- 5 warp
- 6 jump
- 7 bio-technology
- 8 starship
- 9 pre-gate
- 10 gate

Technologies

Constant Technology

- 1 LAMs
- 2 Defense satellites
- 3 GDMs
- 4 Ion cannons
- 5 Fighters
- 6 Hunter-Killers
- 7 Jumpships
- 8 Jumptransports
- 9 Penetrators
- 10 Starships
- 11 Transports
- 12 Men
- 13 Ninjas
- 14 Ambrosia
- 15 Chemicals
- 16 Metals
- 17 Supplies
- 18 Trillum
- 19 SRMs
- 20 Command Bases
- 21 Fortress
- 22 Industrial Complex
- 23 Outpost
- 24 Gate
- 25 Warp Link
- 26 Disrupter

Specifying Coordinates

There are four ways of specifying coordinates: absolute, random, zone-relative, and point-relative coordinates.

Absolute: Absolute coordinates start at 1,1 at the top-left corner of the map, and increase to the right in the x direction, and down in the y direction. Absolute coordinates are always specified as a string of two numbers separated by a comma. No spaces are allowed in the string.

Random: Another way of specifying a random location is to use the syntax $R:x,y$ where x and y are ranges separated by

double periods. For example, *R:1..5,1..5* represents a random coordinate in the box from 1,1 to 5,5. *R:1..5,10* is a random coordinate from 1,10 to 5,10.

Zone-Relative: If you need a random location, you can use zone-relative coordinates to pick a random spot inside a zone. The syntax is *Z:n* where *n* is the number of the zone. For example, *Z:1* will return a random coordinate inside zone 1 (the entire galaxy). Again, no spaces are allowed in the syntax.

Point-Relative: The *DefineXY* command can be used to define a point in the galaxy and refer to it with an identifier. Once a point has been defined in this way, other coordinates can be specified as offsets from this point. The syntax is *point:x,y* where *point* is a defined point, and *x,y* is an offset. For example, if *Center* is a point previously defined, legal coordinates are: *Center:0,0* and *Center:-2,3*. Random ranges are allowed in the offsets, thus *Center:1..5,10* is a legal random coordinate.

Note: Since the *DefineZone* and *DefineXY* commands both take coordinates, it is very easy to combine the three types of coordinates to get interesting effects. For example, a point could be defined as a random coordinate within a zone, and other zones could be defined relative to it.

Comments

A semi-colon (;) is used as a comment delimiter. Everything from the semi-colon to the end of the line is ignored. Comments may be placed anywhere in the file except inside a *BEGINTEXT*, *ENDTEXT* block.

Commands

The actual commands to create the scenario follow the initial description. Each command is followed by any parameters required (see actual syntax). There is no expected format, as long as each of the parameters are listed in order.

The scenario file must end with the command *EndScenario*.

Below is a list of all legal commands.

ClassTable

c1 c2 c3 ...

ClassTable defines the current class distribution table for any subsequent *CreateRandomWorlds* commands. *C1*, *c2*, etc are integer values expressing the (percent) chance that a world will be of that class. (*C1* is the value for ambrosia worlds, *c2* is the value for arid worlds, and so on, following the order given in the tables.) E.g. if the value for a barren world is 10, then there is a 10% chance that a random world created by *CreateRandomWorlds* will be barren. The table is always defined in the order given in "Constants and Tables".

A value is required for all classes, although 0 is a legal value. In any event, the values must add up to 100 or an error will result.

The class table can be changed at any time by giving another *ClassTable* command. For example, a scenario which calls for areas with special worlds could be designed using alternate *ClassTable* and *CreateRandomWorlds* commands.

CreateNebula

type xy1 xy2

This command will cover the area from *xy1* to *xy2* with nebula of the given type. Types are as follows:

- 1 Normal
- 2 Dark Nebula
- 3 Dense Nebula

See: Specifying Coordinates.

Example:

CreateNebula 2 3,4 5,6

This command creates a square of dark nebula with coordinates 3,4 to 5,6.

CreateNPEmpire

emp type name rev tech techs mods

This command creates a non-player (computer controlled) empire with the following characteristics:

Emp: The number of the empire. See: *CreatePlayerEmpire*;

Type: The type of the empire:

1 *Pirate:* This empire will send out battle fleets to all parts of the galaxy looking for undefended transport fleets;

2 *Kingdom:* A defensive empire. Kingdoms will only attack if provoked;

3 *Aggressor:* Aggressor empires will attempt to expand their dominion over independent worlds, and will occasionally attack other empires without provocation;

Name: The name of the non-player empire (RndName specifies a random name). If the name is more than one word, it should be enclosed in quotes;

Rev: This factor is a measure of the restlessness of the people in the empire. See: *CreatePlayerEmpire*;

Tech: The technology level of the empire. See: *CreatePlayerEmpire*;

Modifiers: Special modifiers for this empire. See: *CreatePlayerEmpire*.

Example:

```
CreateNPEmpire 1
"Montessor" ; empire name
0 ; revolution fator
8 ; starship tech level
2 ; 2 technologies
10 ; starship tech
13 ; ninja tech
0 ; no modifiers
```

CreatePlayerEmpire

emp rev tech techs mods

This command creates a player empire with the following characteristics:

Emp: The number of the empire (starting from 0) that is to be created by this commands. Player empires should always be created first;

Rev: This factor is a measure of the restlessness of the people in the empire. The greater the value, the greater the yearly increase in revolution index. A value of 0 is standard. For example, an empire with a restlessness of 10 would have to be

constantly conquering new worlds to prevent its own worlds from revolting. Values above 15 should really not be used;

Tech: The technology level of the empire (see "Constants and Tables" for tech level values). This value is followed by the number of known technologies in the level, and then by a list of those technologies (See: "Technologies Table"). For example, if an empire is at bio-tech level and has developed hunter killers, the tech numbers would be 7 (bio-tech) followed by 1 (one technology) followed by 6 (hunter-killers);

Modifiers: Modifiers are attributes of the empire that affect miscellaneous parts of the game. First the number of modifiers is given, followed by a list. Only one modifier is currently defined:

CENTRAL: Empires with this modifier are highly dependent on the capital. If the capital of a centralized empire is conquered, the empire collapses instantly and all its worlds become independent. Normally, if the capital of an empire is conquered, a new capital is selected.

Example:

```
CreateEmpire 1
0 ; revolution factor
9 ; pre-gate tech
0 ; 0 technologies
1 ; 1 modifier
CENTRAL ; centralized
```

Because a scenario may have a variable number of players, all commands to create a player empire greater than the number of players will be ignored. For example, suppose that a scenario has from 1 to 3 players. If only two players play, the third *CreatePlayerEmpire* command is ignored. The first two capitals are capitals of the empires, and the third is an independent world.

CreateRandomNebula

type min max

CreateRandomNebula will create a random number of nebulae of the given type. The number of nebulae will be between *min* and *max*. The following types are defined:

1 *Band*: This is a strip of nebula about seven sectors wide and at a random angle up to 45 degrees (in either direction) from the vertical;

2 *Patch*: A small patch of nebulae about ten sectors in size and in a random location.

CreateRandomWorlds

n zone

This command will create n random worlds using the current tech and class tables. All worlds will be restricted to *zone*.

CreateSRMs

emp xy1 xy2

Creates an SRM area from *xy1* to *xy2*. Mines belong to *emp*.

CreateStarbase

n xy type
tech typ emp pop eff

```
LAM def GDM ion
fgt hkr jmp jtn pen str trn
men nnj amb che met sup tri
```

This command creates a starbase (number *n*) at coordinates specified by *xy* (see: "Specifying Coordinates") and sets its attributes.

The starbase may be one of the following types:

```
20 command base
21 fortress
22 industrial complex
23 outpost
```

All other characteristics are identical to those used in a *CreateWorld* command.

Example:

```
CreateStarbase 1 3,3
22 ; industrial complex
9 ; pre-gate tech
2 ; base planet
1 ; empire 2
2200 ; 22 billion pop.
34 ; 34% efficiency
; LAM, def, GDM, and ion
0 1000 1000 2000
; fgt, hkr, jmp, jtn, pen, str, and trn
1000 1000 1000 1000 1000 1000 1000
; men, nnj, amb, che, met, sup, and tri
1000 1000 1000 1000 1000 1000 1000
```

CreateWorld

```
n xy cls tech typ emp pop eff res
LAM def GDM ion
fgt hkr jmp jtn pen str trn
men nnj amb che met sup tri
```

This command creates a specific world (number *n*) at coordinates specified by *xy* (see: "Specifying Coordinates") and sets its attributes.

Cls: The class of the world. Use the constants given in "Constants and Tables" to determine class number. E.g. ambrosia worlds are class 0, ocean worlds are class 15.

Tech: The tech level of the world. Use the constants given in "Constants and Tables".

Typ: The type of the world. If the type is capital and the empire is not created, the world is left independent.

Emp: The empire to which it belongs:

```
0 Empire1
1 Empire2
```

.

7 Empire8
8 Independent.

Pop: The nominal population of the world in hundreds of millions. The actual population of the world will vary by 15%.

Eff: The efficiency of the world.

Res: The amount of trillum reserves on the planet. Planets do not have an infinite supply of trillum. There is a maximum amount of trillum that can be mined from the surface. Trillum reserves range from 0 to 100.

The remainder of the parameters deal with the resources of the world, defense satellites, starships, etc. Numbers are not exact, however, varying by 20% in either direction.

Example:

```
CreateStarbase 1 3,3
3 ; barren world
9 ; pre-gate tech
2 ; base planet
1 ; empire 2
2200 ; 22 billion pop.
34 ; 34% efficiency
50 ; trillum reserves
; LAM, def, GDM, and ion
0 1000 1000 2000
; fgt, hkr, jmp, jtn, pen, str, and trn
1000 1000 1000 1000 1000 1000 1000
; men, nnj, amb, che, met, sup, and tri
1000 1000 1000 1000 1000 1000 1000
```

DefineXY

point xy

This command will define a certain point in space so that it may be referenced by other commands. *Point* is a unique label that is to be used to refer to the point. *Xy* is the coordinate of the point (see "Specifying Coordinates".)

Example:

```
DefineXY Center 1,2
```

This will define *Center* as 1,2. Now coordinates can be specified relative to *Center*, as in *Center:-2,1* or *Center:6,8*

Note: it is legal to use defined points in both zone definitions, and other point definitions.

DefineZone

zone xy1 xy2

DefineZone will define a square area of the galaxy described by the two pairs of coordinates *xy1* (upper left) and *xy2* (lower right). *Zone* is a unique number from 2 to 20 assigned to the zone and used to refer to it. Note: Zone 1 is pre-defined as the entire galaxy.

Report

string

When this command is reached the computer will write the given string, which must be enclosed in quotes ("), on the screen. *Report* is mainly used for debugging a scenario, although it may be used to inform a player of the progress of the scenario creation.

TechTable

t1 t2 t3 ...

This command defines the current technology levels table. All subsequent *CreateRandomWorlds* commands will use this table. This command operates much like *ClassTable*. The chance for each tech level must be given in the order given in "Tables and Constants".

Like *ClassTable*, each value represents the percent chance that a random world will be of the given tech.

Appendix B: Questions & Answers

Q: How do I start a game?

A: Type ANACREON at the DOS prompt. When you reach the title screen, pull down the [Game] menu and select [New Game]. Choose an appropriate scenario ("The Pirates of Jakarta" is a good introductory solo game). After the universe is created and you return to the title screen, select *Game/Begin*.

Q: How do I quit the game?

A: If you are at the title screen, simply select *Game/Quit* from the menu bar. If you are playing a turn, first end your turn with *Game/Quit*. When you return to the title screen, select *Game/Quit*.

Q: How do I conquer a world?

A: First you have to deploy a fleet to the world that you want to conquer. (If you've just started, make sure that you don't try to conquer a world that's too powerful. Try conquering a world that is pre-warp or lower.) Once you've done that, select *Ministry of War/Attack*, and use the default configuration. Your fleet is now divided into different groups, one group for each type of ships. The [T]arget command will choose the type of the enemy ships that you want to attack. For example, you can tell your jumpships to attack the enemy fighters and your fighters to attack the enemy GDMs. The [E]ngage command will carry out an attack, you and the enemy will lose ships. The [M]ove command is used to move your groups toward the planet. Hitting [M]ove is like hitting [E]ngage, so be sure that your groups are targeted properly. The [M]ove command gives you the option to [A]dvance your group, [R]etreat (if not at highest orbit), or [S]tay in the current orbit. The object of the attack is to land your transports on the ground.

Q: My worlds are running out of metals. What do I do?

A: If you have a metal mine or raw material mine that has enough metals, simply send a fleet of transports to that world, pick up some metals, and distribute the metals to other worlds. If you don't have metals anywhere in the empire, you may have to designate a metal mine. Don't forget that it takes several years for a newly designated world to begin full production.

Q: Why should I designate my worlds?

A: The designate command is used to tell your worlds what to produce. If you want a world to make ships, for example, you should designate it a base planet, jump base, or starship base. Remember that not all

worlds are suitable for all designations (see: "World Class Table").

Q: I want to make a world a base planet, but the option does not appear on the menu.

A: The designations that a world may have depend on the tech level of the world. Atomic worlds and lower, for instance, cannot be base planets.

Q: Why isn't my capital building any hunter-killers?

A: Even if your capital or another world is above jump level, you will not build hunter-killers unless you have hunter-killer technology. If you are at bio-tech level, you are advanced enough to develop hunter-killer technology; you just have to wait until your capital develops it. If you have a university world, your chance of developing any technology increases.

Q: Why doesn't ISSP work with my raw material world?

A: The ISSP is always the percent of the amount of resources consumed that should be produced. Since raw material worlds do not consume metals, the metal ISSP cannot be changed. The supply industry ISSP, however, can be changed, since all worlds consume supplies. Decreasing the supply ISSP for raw material worlds will enable them to produce more metals, chemicals, and trillum.

Q: How do I use a gate or a warp link?

A: Gates and warp links are used automatically by any fleets over them. For example, if you have a fleet at a warp link, set the destination of the fleet to the coordinates of any other warp link in your empire.

Appendix C: Random Notes

These are just what the title says: random notes. Most are little trivialities about how the game was written; all make fun of some one person or another, but none explain ISSP in any detail whatsoever. And if you don't like it, skip over this section and start reading the index.

ANACREON: I stole the name Anacreon from the first book of Isaac Asimov's *Foundation Trilogy*. The Kingdom of Anacreon along with the Kingdom of Smyrno were powerful but backwards empires who were only kept at bay by the fear of the Foundation's atomic power. It was not until later that I found out that Anacreon was an ancient Greek poet who specialized in trite compositions about wine and women.

Of course, Anacreon doesn't really mean anything in the context of the game, but (like a snippet of Michael Stipe's lyrics) the sounds of its syllables suggest a distinct feeling. Does the word *anachronism* comes to mind? A mood of a future replaying the past (another bit of booty from Asimov), a memory of Roman legions with fusion rifles? Maybe. Maybe not. At least its better than calling it Galactic Conquest.

THE C PROGRAMMING LANGUAGE: I wrote this program in Pascal just so I could make fun of anyone programming in C. Now don't get me wrong, I'm as much a lover of bad code, stupid hacks, terse documentation, and blatant idiocy as anyone else, but C is just too much (now that I've said that, I think I'll have to turn in my Programmer's Guild card). Of course, C is close to the machine code, well structured, and (how could I forget?) mostly portable. But C programmers also manage to commit every sin of computer science, from self-modifying code to obscure variable names (do you think they could have come up with more descriptive function names than *strspn* and *strclen*?). And have you ever tried to debug a C program without a hardware debugger, a reset switch, and a bottle of aspirin? Well don't!

CHRIS CRAWFORD: Why are some games better than others? No one has inspired me to think about this more than

Chris Crawford. After reading his 1982 article in Byte magazine ("Design Techniques and Ideals for Computer Games," Byte Magazine, Dec. 1982), I became convinced that game design could be studied and analyzed like any other art or craft. I have tried to apply most of his ideas to Anacreon, using them as a judge to evaluate elements in the game.

THE FOUNDATION TRILOGY: The *Foundation Trilogy* is boring, at places trite, and what's more, has absolutely no sex scenes. There, I said it. (Now I'll never get Asimov's autograph!) Nevertheless, The *Foundation Trilogy* is still one of my favorite series because it is and has been the inspiration for so many ideas, not just in Anacreon but in all of science fiction. I freely admit that I've stolen more than one idea from this epic.

GRAPHICS: I had to make many sacrifices writing this game, and high-resolution graphics was one of them. There are so many places where graphics would have been fun, but the constraints in memory and speed were just too tight. The game is slow enough on a PC; adding graphics would only make things worse.

NICCOLO MACHIAVELLI: How harsh and yet how true. It *is* better to be feared than to be loved, for love is freely given and not under the control of the prince, but fear is a calculated tool that can be used like a hammer or a scalpel. That the world can be so cynical and dark is terrible enough, but not to recognize it or admit it is sheer tragedy. Machiavelli contributes a mood and flavor to the game; power is everything, worlds are but pawns, and if one truly wishes to rule, one must be prepared to forsake one's ideals (of course, someone more cynical than I would say that Machiavelli never really believed this, that he only wanted a job with Lorenzo de Medici).

THE SOFTWARE AND HARDWARE: Anacreon was written on an IBM PC and an AT compatible with Turbo Pascal 4.0 and 8088/8086 assembly language. The manual was written with Microsoft Word 4.0 and printed on an HP LaserJet Series II. The body font used is a Palatino derivative and the headings are a Helvetica copy.

NUCLEAR BLACKMAIL: This is one of the many problems I failed to resolve for the game. It has occurred to me and others that it would be easy for an empire approaching an independent world to threaten it with nuclear annihilation unless it peacefully joins the empire (I believe that if the earth were presented with just such an ultimatum, we'd be quite partial to joining an empire, especially if a few cities were vaporized as examples). But that would be no fun! Where's the challenge in that? Quite a problem as you can see, but hopefully it'll be resolved by the next version.

PASCAL: Using Pascal after programming in BASIC is like using a ball-point pen after writing with stone and chisel; every statement is a joy; the implementation becomes transparent to the idea. Unfortunately, Pascal was designed as a learning language, not as a language for serious programming. Admittedly, Turbo Pascal (especially version 4.0) is an excellent implementation. Its hooks to DOS and assembly language are comparable to professional languages, and the speed of compilation and integrated linking make the development cycle almost pleasurable. (With Turbo 4.0 on an AT compatible, 24,000 lines of code for Anacreon compiled and linked in under 3 minutes. Most simple changes took 30 seconds to go from source to .EXE file.) But Pascal is still notoriously poor in such areas as file access, standard input/output, availability and quality of library routines, and portability between compilers and systems.

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