

## X.O Star Systems

***“Looking at these stars suddenly dwarfed my own troubles and all the gravities of terrestrial life. I thought of their unfathomable distance, and the slow inevitable drift of their movements out of the unknown past into the unknown future.”***

**- H.G. Wells**

Star systems are the source from which an empire draws its resources. Every star system on the campaign map contributes three important resources (Carrying Capacity, RAW, and Biosphere) that in combination determine the system's overall value. The greater a system's resource values, the more important it is.

This chapter reviews all of the aspects of a star system, from the basic anatomy of a star system through to various types of system terrain or strategic resources that a system might possess. The number and type of stars in a star system influence the types of resources that players can expect to find there. A set of random system generation rules that players can use to generate new systems are located at the end of this chapter.

### X.I SYSTEM TYPE

A system's type describes how many stellar mass objects are present in a system. The number of special traits that a system receives during system generation is determined by its system type.

**Single star systems** are solar systems that contain a single star. These systems have the best chance of supporting robust planetary systems. They receive three special traits.

**Binary star systems** contain two gravitationally-bound stars that orbit around a common center of mass. The system can either be a close binary where the secondary component orbits in close proximity to the system primary; or a distant binary where the secondary component is located some distance away, possibly far enough away to possess its own planets. The gravitational effects of the second star can make it more difficult for planets to achieve stable planetary orbits. This results in binary systems only receiving two special traits.

**Multiple star systems** are comprised of three or more stars. The large number of stellar mass objects in these systems interfere with planetary

formation and retention. Multiple star systems only receive one special trait.

**Black holes** are singularities that are so massive that nothing – not even light – can escape their gravitational pull. Objects caught in the vicinity of a black hole are inevitably drawn into them where they are ripped apart by intense tidal forces. Black holes are invisible to detection, but luckily they possess visible event horizons that alert observers to their presence so that they can safely identify and avoid them. Black hole systems have no material value and can't be colonized, nor can facilities be purchased there. They always have six jump lanes connecting to them.

### X.2 SPECTRAL CLASS

The Harvard classification system differentiates stars by surface temperature and assigns them one-letter alphabetic identifiers that can be remembered using the mnemonic **“Oh Be A Fine Girl, Kiss Me”** that arranges the seven spectral classes in order from hottest to coolest.

A system's RAW and Biosphere values are determined by its spectral class. Hotter stars are younger and tend to be more mineral rich and biosphere poor. Older, cooler stars meanwhile usually have fewer natural resources but are more likely to contain life-bearing worlds.

#### Class O Extremely Bright Blue Giant

Class O stars are the largest and most luminous. These bluish stars shine with a power equal to over a million times the luminosity of that of a class G star such as Sol and can be up to 50 times more massive. Class O supergiants are short lived, with an estimated lifespan of 10 to 50 million years.

Stars of this class generate a powerful stellar wind that is so intense that, over the period of about one million years, it can break down and destroy protoplanetary disks not only in their own system but in neighboring systems, too. The ultraviolet radiation put off by the blue giant evaporates the dust and gas in the disk and the star's stellar winds then disperse the material, preventing it from coalescing into planets. This is called the *photoevaporation effect*. Class O stars are unlikely to have any planets orbiting them, let alone any capable of supporting life, but some may still possess an embryonic planetary system.

Stars of this class are unlikely to have many planets orbiting them because the powerful stellar wind that class O stars generate is so

intense that, over a period of about one million years, it can break down and destroy protoplanetary disks not only in its own system but in neighboring systems, too. This is called

**Surface Temperature:** > 25,000K

**Example:** Zeta Puppis, Lambda Orionis

## Class B Bright Blue Star

Class B stars are bright blue suns that are extremely large and luminous, like those of class O. In fact, it is sometimes difficult to tell the two apart, giving rise to class OB stars that could be either class O, B, or maybe even a very hot class A.

Unlike class O stars, class B stars aren't subject to photoevaporation effects. The amount of ultraviolet radiation emitted by these stars is less than that of class O stars, which prevents a class B from breaking down gas and dust in neighboring planetary space.

**Surface Temperature:** 10,000 – 25,000K

**Example:** Rigel, Spica

## Class A Blue-White Star

Class A stars are bluish-white in color, and are the most common of the bright blue stars encountered in the galaxy. They are known for their strong hydrogen (Balmer) lines, which are at a maximum at a magnitude of A0.

These stars are more apt to support planetary systems than larger, hotter stars, and some of these planets may even support tenuous atmospheres and maybe even primitive biospheres.

**Surface Temperature:** 7,500 – 10,000K

**Examples:** Vega, Sirius, Deneb

## Class F White Star

Class F stars are white in color, though members of this class sometimes possess a trace of yellow. Unlike class O, B, or A classes, these bright stars trend towards the main sequence which improves the chances of finding planets in these systems.

Stars of this spectral class shouldn't be confused with class D white dwarfs. These are two entirely different types of stars, and the two terms aren't interchangeable.

**Surface Temperature:** 6,000 – 7,500K

**Examples:** Canopus, Procyon

## Class G Yellow Star

Class G stars are relatively uncommon, as most stars normally only remain in this spectral class for a short period of time during between the young blue supergiant (O or B) and late life red/orange (K or M) phases of their stellar evolution.

Of all of the spectral classes, class G stars are the most likely candidates to find planets that are capable of supporting life because of the relative age of these systems and the size of their habitable zones.

**Surface Temperature:** 5,000 – 6,000K

**Example:** Sol, Alpha Centauri A, Tau Ceti

## Class K Orange Star

Class K stars are slightly cooler than class G stars like our own sun but still hotter than the red class M stars that they will one day become. These stars are orange to red in color and can range in size from behemoth supergiants down to smaller dwarf stars.

In our own stellar neighborhood class K stars are much more common than class G stars. This means that, while the former aren't as attractive of colonization targets as the latter, class K stars still offer very good prospects for finding inhabitable, life-bearing planets.

**Surface Temperature:** 2,000 – 5,000K

**Example:** Alpha Centauri B, Aldebaran

## Class M Red Star

These low mass stars can range from small dim dwarfs to extremely large red giants or supergiants. Class M stars are by far the most common class of stars. Red dwarfs make up nearly 80% of all the stars in the nearby stellar neighborhood.

Life around a red dwarf is extremely volatile. The size of the star's habitable zone is short, and most planets located within this zone are tidally locked to the star which has a profoundly negative effect on their climates. The net effect is that while class M stars have a better chance of supporting life than a blue/white star, they also tend to be poor in exploitable resources.

*Special Rule:* Dim red dwarfs are commonly flare stars (see X.X System Terrain). To simulate this, any red dwarf system with an importance of Very Low or Low automatically receive the flare star trait.

**Surface Temperature:** 2,000 – 3,500K

**Example:** Proxima Centauri, Wolf 359, Antares

## Class D White Dwarf

White dwarfs (also called *degenerate dwarfs*) are planet-sized, low mass stars composed of carbon and oxygen. They represent the twilight existence of low to medium mass main sequence stars. At the end of their red giant stage, these stars eventually reach a point where they have insufficient mass to maintain the temperature required to fuse carbon. This prompts the star to shed its outer layers to form a planetary nebula. This leaves behind the core of the sun that becomes the white dwarf. Without the heat generated by fusion to support it against gravitational collapse, a white dwarf must instead rely on electronic degeneracy pressure; this requires the star to be extremely small and dense.

Planetary systems don't form around white dwarf stars. Any planets in these systems are inherited from the planetary systems that were orphaned when the stars became white dwarfs. The quality of planets orbiting class D stars is typically much poorer than those found around other stars.

*Special Note:* Class D stars can only have a luminosity class of VII White Dwarf.

**Surface Temperature:** 1,000 – 1,500K

**Example:** Van Maanen's Star

## X.3 LUMINOSITY CLASS

The Yerkes spectral classification system divides stars into different types based on their luminosity (brightness) rather than by surface temperature. This system measures the width and intensity of spectral lines caused by luminosity effects.

These rules recognize eight distinct luminosity classes: 0 (*hypergiants*), I (*supergiants*), II (*bright giants*), III (*giants*), IV (*subgiants*), V (*main sequence or dwarfs*), VI (*subdwarfs*), and VII (*white dwarfs*).

A star's luminosity class is used to determine the size and value of its planetary system (Carrying Capacity) and the number of jump lanes that connect to the system, with the assumption that larger, brighter stars have the greatest number of jump lanes attaching to them. Players can choose to ignore luminosity's jump lane attraction effect if this isn't appropriate to their campaign setting.

## O - Hypergiant

Class O hypergiants are the most luminous stars in existence, and the most massive. A stable hypergiant has a mass equal to nearly 100 solar masses and may have had a mass of as much as 200 to 250 times that earlier in its stellar evolution.

Hypergiants don't appear as a result on the Luminosity Table. Instead, the player rolls a D6 for each supergiant during system generation and on a roll of '6' the star is really a hypergiant.

Hypergiants never possess planetary systems and always have Carrying Capacity, RAW, and Biosphere values of zero and the maximum of six jump lanes.

**Example:** Zeta-1 Scorpii, Rho Cassiopeiae

## I - Supergiant

The largest and brightest stars in the galaxy are supergiants. These high mass stars have extremely short lifespans, lasting only 10 to 50 million years on average. Because of their short lives, supergiants are typically found in areas populated with other young stars, such as in open clusters or the arms of spiral galaxies.

**Example:** Rigel, Betelgeuse, Antares

## II - Bright Giant

Bright giants straddle the boundary between supergiants and giants. These stars are more luminous than a normal giant but are not bright or massive enough to be classified as a supergiant.

**Example:** Alpha Herculis, Theta Scorpii

## III - Giant

A giant star is one whose size and brightness are greater than that of a normal star on the main sequence. A star leaves the main sequence and becomes a giant once all of the fusible hydrogen in its core has been consumed. Fusion reactions then migrate to layers surrounding the core where hydrogen remains available. Eventually, if the star is massive enough, it's core will begin to contract and its core temperature will increase until it's capable of fusing helium rather than hydrogen. Stars that lack sufficient mass to fuse helium (those with less than one-half solar mass when on the main sequence) will instead remain as hydrogen-fusing red giant stars.

**Example:** Pollux, Mira, Capella

## IV - Subgiant

Class IV subgiants populate the boundary between normal main sequence stars and full-fledged giants. Subgiants are brighter than normal main sequence stars but aren't as bright as larger giants. Stars of this type have ceased fusing hydrogen in their cores, forcing hydrogen fusion reactions to migrate to the shell outside the core. This causes the star to swell, moving it on its way towards becoming a giant in the future.

**Example:** Procyon A, Epsilon Reticuli

## V - Main Sequence (Dwarf)

The majority of stars are located along the main sequence. These stars, common called dwarfs, are less massive than other less luminous stars. Dwarf stars come in all spectral class; however, some don't spend very much time in the main sequence before migrating towards other steps in their stellar development.

From a campaign perspective, main sequence stars offer the best balance between Carrying Capacity and jump lanes.

**Example:** Sol, Proxima Centauri, Barnard's Star

## VI - Subdwarf

Stars with a luminosity 1.5 to 2 magnitudes lower than that of main sequence stars are considered to be subdwarf stars. They are known for their emission of an above-average amount of ultraviolet radiation compared to what is considered normal for their spectral type.

**Example:** Kapteyn's Star, Groombridge 1830

## VII - White Dwarf

White dwarf stars are assigned a luminosity class of VII under the Yerkes system. This special classification is used to clearly divide white dwarfs from other luminosity classes, especially other dwarf stars.

**Example:** 40 Eridani B, Procyon B

## X.4 CARRYING CAPACITY

Carrying Capacity (or simply Capacity) represents the number and quality of planets that are available for colonization in a system. From a practical standpoint, a high Carrying Capacity can mean that a system contains a large number of planets or that there is an especially valuable planet in the system, depending on the campaign background.

The maximum amount of Census, Morale, Economy, Industry, or Agriculture that can be placed in a system is equal to its Carrying Capacity. This makes systems with high Carrying Capacity values extremely valuable as they are the only systems that can support large colonies.

Star systems that have 0 Carrying Capacity don't contain any planets or other orbital bodies that an empire can colonize. A player can still purchase facilities in these systems to make use of any local resources, however. A mining base can be used to extract RAW from a system that doesn't have 0 Capacity, for example. This allows the empire to still access these resources even though it can't place a colony in the system.

## X.5 RAW

RAW is an abstraction of the amount of exploitable *resources* present in a system, including their *accessibility* and relative *worth*. Systems with high RAW values possess abundant natural resources that an empire can harness to fuel its economy.

The planets found in orbit of hot, young stars tend to be more mineral rich and have higher RAW values than older stars. This makes class O, B, and A stars prized commodities for empires looking to increase their incomes.

Colonies use Economy infrastructure to convert a system's RAW into economic points. The amount of income a colony produces for its owner each turn is equal to its Economy x RAW. Mining bases can be used to extract additional economic points from a system, too.

## X.6 BIOSPHERE

Biosphere describes a system's ability to support life, specifically as it applies to food production. Systems with high Biosphere values either possess their own unique, alien biospheres that can be readily harvested and turned into food for an empire's population or else be very accommodating to the transplant of genetically engineered flora and fauna that have been tailored to the environment or else they may.

Life bearing worlds that offer favorable conditions for planetary agriculture are most often found in orbit of class G or K stars. Class F or M worlds sometimes also have respectable Biosphere values.

The amount of food that a colony produces for its owner each turn is equal to its Agriculture x Biosphere. Orbital farms can also supplement a system's food production. Any food not

consumed by imperial populations is then turned into population points that a power can use to purchase population increases to expand colonial populations at its existing colonies.

*Special Note:* The percentage chance that a new system contains a native biosphere is equal to its Carrying Capacity x Biosphere. This has no mechanical effect on the system but may be valuable information for players that are looking for an extra level of detail in their campaigns.

## X.7 SYSTEM TERRAIN

System terrain is the term that is applied to all of the special types of astronomic formations or special aspects of a star system that go beyond its base statistics. Special rules apply to each type of system terrain that impact the way that players interact with the system. Some types of system terrain offer bonuses that are beneficial to the player while others institute penalties that limit a system's overall value.

### Asteroids

Asteroid and other protoplanetary debris are commonly found in star systems. This special trait denotes that a system is home to abnormally high concentrations of these types of debris, enough to make the system a much more lucrative site for remote mining operations. Mining bases established in these systems earn twice their normal income.

Space combat encounters generated in systems that contain dense asteroid fields afford the defender extra protection against enemy attack. They can use hidden asteroid bases to hide and resupply, taking the enemy by surprise. This is represented by giving the defender a +1 bonus to his task force's rolls on the Surprise Table during these encounters (see X.X Surprise).

### Dark Nebula

A dark nebula is a form of nebulae without clearly defined borders that is located in the coldest, densest parts of space within which new suns are born. The concentration of interstellar dust within a dark nebula is so great that it can block out or obscure other light sources, such as the light reflected by background nebulae and stars.

It is almost impossible for a task force to detect enemy ships that are operating in a dark nebula. Space encounters in these systems are subject to a massive -4 detection penalty. Dark nebulae have no effect on ground encounter detection, however.

### Dust Cloud

Young stars are often surrounded by dense clouds of particulate matter. The protoplanetary disks around these stars have not yet fully accreted and a dust cloud fills the entire system. Although often beautiful to behold, dust clouds pose a significant danger to orbital assets. Orbits must be kept swept clean of rubble to prevent facilities from being damaged or destroyed by errant debris. This has the effect of doubling the cost of any facilities that are purchased in the affected system.

### Flare Star

Flare stars (also called variable stars) regularly undergo rapid, unpredictable increases in brightness that can last from ten to fifty minutes before ceasing as unexpectedly as they began.

A variable detection penalty is applied to every encounter that takes place in a system that contains a flare star. Roll a D6 on the following table before each encounter. This modifier is applied equally to all parties that are present in the encounter.

**Flare Star Detection Table (D6)**

Roll	Detection Penalty
1-2	-1
3-4	-2
5-6	-3

This effect is very similar to that associated with nebulae except that the flare star's detection penalty is re-rolled each encounter and applies to both space and ground encounters equally (nebulae detection penalties only apply to space encounters).

### Maser Nebula

Maser nebulae are particularly vicious and deadly maelstroms and as a general rule not an environment to be actively sought out. The energized nature of the nebula makes travel extremely treacherous and prevents powers from establishing major fixed installations in the affected systems.

Space encounters generated in a system that contains a maser nebula are subject to a -4 detection penalty. This penalty doesn't affect ground encounters generated in the system.

Every starship, flight, or starbase that is in the system during the Supply Phase earns an extra out of supply level. This is in addition to any out of supply levels these units would normally have taken this turn.

Finally, empires can't purchase facilities in a maser nebula system. The long-term damage these facilities would sustain by being in the system precludes them from being build in the first place.

## **Nebula**

Nebulae are vast interstellar clouds of dust and gas that give life to new seedlings that will be the elder suns of a later stellar generation. Occasionally, nebulae are found in close proximity to a star system. Empires take advantage of their presence by hiding ships and facilities in these formations to prevent their discovery by other powers.

This particular special trait covers the range of reflection, emission, diffuse, and variable nebulae types that are commonly encountered in science fiction settings. Two other special types of nebulae – dark nebulae and maser nebulae – are included as separate terrain types.

All space encounters generated in a nebula system are subject to a -2 detection penalty. This makes it harder for the encounter's participants to detect each other.

## **Radiation Field**

Some stars emit dangerously high concentration of electromagnetic radiation that can cause injury, sterility, or death in living organisms that are subjected to long-term exposure. Some species have a natural immunity to these radiation effects, but that is rare.

The cost of population increases in systems with the radiation field terrain are doubled to reflect that colonists in the system undergo extraordinary levels of attrition due to adverse health effects. This makes it harder to establish large population centers in these systems.

Agriculture output is also affected by a radiation field, and all food production in the system is halved (round down). This applies to both planetary Agriculture infrastructure and orbital farms.

## **X.8 STRATEGIC RESOURCES**

Strategic resources are rare substances that confer major advantages to the empires that control them. In popular science fiction, strategic

resources often appear as types of unobtainium that are valuable either because they are very rare or impossible to synthesize. Access to and control of these resources is usually a major concern in these milieus.

Population = 1/2 population increase cost

Morale = 1/2 morale chance

Economic = ???

Industrial = 2 x industrial capacity

Scientific = 2 x research capacity

Intel = 2 x intel capacity

Military = upgrade

Supply =

## **Economic Resource**

Systems that contain an economic resource produce twice their normal colony income, but their economic capacity remains unaffected by the resource.

## **Agriculture Resource**

Doubles the system's agriculture capacity

Re-roll if system is 0 Biosphere

## **Industrial Resource**

Doubles the system's industrial capacity

## **Trade Resource**

A trade resource encourages merchants to visit a system so that they can purchase the rare goods that are produced in the system. This resource increases a system's commerce range by 1 and doubles the system's normal trade value.

## **Scientific Resource**

Scientific resources exhibit peculiar characteristics that seem to defy the normal laws of physics or chemistry. Studying these resources increases the number of tech points that can be purchased in the system by an amount equal to the system's economic capacity. Additionally, each Census in the system produces 1 tech point per turn.

## **Intel Resource**

Intel resources come in many varied forms. They might be naturally occurring psychotropic substances that can't be synthesized that are extremely effective at breaking down enemy

mental conditioning during interrogations, or they might be a special material that is integral to the production of personal invisibility screens. In any event, an intel resource increases the number of intel points that can be purchased in a system by an amount equal to the system's economic capacity. Additionally, each Census in the system produces 1 intel point per turn.

## Morale Resource

This resource has a calming or mollifying effect on a colony's population, and the dissemination of this resource to other friendly colonies makes it easier to pacify their inhabitants. A colony's morale chance is halved (round up) when it is located in a system with a morale resource.

## Military Resource

Military resources enhance the combat capabilities of units that are built in the system.

Units that are built in a system that contains a military resource receive a +10% bonus to a specific unit statistic (round up). Roll on the following table when a system receives a military resource during system generation to determine the statistic that the resource benefits.

This bonus is added to a unit's normal value for this statistic after taking into consideration

Military resources enhance the combat capabilities of those units that are lucky enough to have been built using war materiel made of the resource. Units that are built in these systems receive a permanent +10% bonus to one unit statistic as determined by the military resource's type (round fractions up). The bonus that a military resource confers must be recorded when the resource is first applied to the star system. Players can roll on the table below to randomly determine what kind of bonus a new military resource will provide.

+10% bonus (round up) to a set unit ability for all units purchased or repaired in that system. Bonus is applied on top of the unit's normal abilities, so it is unaffected by crippling or other similar effects

Defense

Attack Strength

Point Defense

Command Rating

Special Ability

## Supply Resource

A supply resource makes

A colony's supply range is doubled if it's located in a system that contains a supply resource.

*Example: A colony is utilizing 5 Industry and is located in a system with a supply resource. This colony has a base supply range of 2, but the supply resource in this system increases this to 4.*

## X.9 SYSTEM IMPORTANCE

System importance provides a method for categorizing systems based on their system statistic values. This allows players to quickly evaluate a system's overall value based solely on its system importance. A system's importance is found by totaling its three system resources (Carrying Capacity, RAW, Biosphere) and then performing a lookup on the System Importance Chart below.

**System Importance Chart**

Total	System Importance
7 or less	Very Low
8-11	Low
12-15	Moderate
16-19	High
20 or more	Very High

When displaying star systems on a campaign map, it is customary for the size of a star system's marker on the map to correlate to its system importance so that systems of greater importance have larger star system symbols. This makes it easy for players to look at the map and instantly ascertain which star systems contain the most resources.

## RANDOM SYSTEM GENERATION

Players can use the following rules to randomly generate new star systems. These rules break down system generation into a series of discrete steps that are resolved in sequence, starting with determining the system's type and ending once the system's special traits have been applied (if applicable).

### Step 1) Determine System Type

Roll on the System Type Table to reveal the system's type. The table result determines how many special traits the system will receive during a later step of system generation.

**System Type Table (2D6)**

Roll	Effect
2-7	Single Star System
8-9	Binary Star System
10-11	Multiple Star System
12	Black Hole

System generation immediately ends if a *Black Hole* result is rolled on this table. Black hole systems always have Carrying Capacity, RAW, and Biosphere values of zero and six jump lanes connecting to them.

### Step 2) Determine Spectral Class

Roll on the Spectral Class Table to determine the spectral class of the system's primary component. A star's spectral class influences the system's RAW and Biosphere values.

**Spectral Class Table (2D6)**

Roll	Spectral Type
2	Class O Extremely Bright Blue Giant
3	Class B Bright Blue Star
4	Class A Blue-White Star
5	Class F White Star
6	Class G Yellow Star
7	Class K Orange Star
8-10	Class M Red Star
11-12	Class D White Dwarf

### Step 3) Luminosity Class

Roll on the Luminosity Class Table to determine the star's luminosity class. Young, hot stars of classes O, B, A, and F receive modifiers to their rolls on this table and are more likely to be larger and brighter than other stars.

Roll a D6 for every class I supergiant that is rolled on this table. On a roll of '6' the star is actually a class O hypergiant. Hypergiants have Carrying Capacity, RAW, and Biosphere values of zero and the maximum of six jump lanes.

Class D white dwarfs don't roll for their luminosity class because they are always Type VII white dwarfs and can't exist as any other luminosity class.

**Luminosity Class Table (2D6)**

Roll	Luminosity Class
3-	VI - Subdwarf
4-7	V - Main Sequence (Dwarf)
8-9	IV - Subgiant
10	III - Giant
11	II - Bright Giant
12+	I - Supergiant

#### Modifiers:

Class O: +4

Class B: +3

Class A: +2

Class F: +1

### Class X) Carrying Capacity

A system's Carrying Capacity is determined by rolling on the following table and cross referencing the result rolled against the star's luminosity class.

#### Supergiant

Roll	Carrying Capacity
2-6	0
7-9	2
10-12	4

### Bright Giant

Roll	Carrying Capacity
2-5	0
6-8	2
9-10	4
11-12	6

### Giant

Roll	Carrying Capacity
2-4	0
5-6	2
7-8	4
9-10	6
11-12	8

### Subgiant

Roll	Carrying Capacity
2-3	0
4-5	2
6-7	4
8-9	6
10-11	8
12	10

### Main Sequence (Dwarf)

Roll	Carrying Capacity
2	0
3-4	2
5-6	4
7-8	6
9-10	8
11-12	10

### Subdwarf

Roll	Carrying Capacity
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2-3	0
4-6	2
7-8	4
9-10	6
11-12	8

### White Dwarf

Roll	Carrying Capacity
2-6	0
7-8	2
9-10	4
11-12	6

## Step 4) Roll for RAW

A system's RAW is determined by rolling on the following table and cross referencing the result rolled against the star's spectral class.

### Class O Extremely Bright Blue Giant

Roll	RAW
2	1
3	2
4-5	3
6-8	4
9-12	5

### Class B Bright Blue Star

Roll	RAW
2	1
3-4	2
5-6	3
7-9	4
10-12	5

### Class A Blue-White Star

Roll	RAW
2	1
3-5	2

6-7	3
8-10	4
11-12	5

**Class F White Star**

Roll	RAW
2-3	1
4-5	2
6-8	3
9-10	4
11-12	5

**Class G Yellow Star**

Roll	RAW
2-4	1
5-6	2
7-8	3
9-10	4
11-12	5

**Class K Orange Star**

Roll	RAW
2-4	1
5-7	2
8-9	3
10-11	4
12	5

**Class M Red Star**

Roll	RAW
2-5	1
6-8	2
9-10	3
11-12	4

**Class D White Dwarf**

Roll	RAW
2-6	1

7-9	2
10-11	3
12	4

**Step 5) Roll for Biosphere**

A system's Biosphere is determined by rolling on the following table and cross referencing the result rolled against the star's spectral class.

**Class O Extremely Bright Blue Giant**

Roll	Biosphere
2-10	0
11-12	1

**Class B Bright Blue Star**

Roll	Biosphere
2-8	0
9-10	1
11-12	2

**Class A Blue-White Star**

Roll	Biosphere
2-5	0
6-8	1
9-10	2
11-12	3

**Class F White Star**

Roll	Biosphere
2-3	0
4-6	1
7-8	2
9-10	3
11-12	4

**Class G Yellow Star**

Roll	Biosphere

2	0
3-4	1
5-6	2
7-8	3
9-10	4
11-12	5

**Class K Orange Star**

Roll	Biosphere
2-3	0
4-5	1
6-7	2
8-9	3
10-11	4
12	5

**Class M Red Star**

Roll	Biosphere
2-4	0
5-6	1
7-8	2
9-10	3
11-12	4

**Class D White Dwarf**

Roll	Biosphere
2-4	0
5-7	1
8-10	2
11-12	3

**Step X) Jump Lanes**

The number of jump lanes that connect to a system is determined by rolling on the following table and cross referencing the result rolled against the star's luminosity class.

**Supergiant**

Roll	Jump
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	Lanes
2-4	3
5-6	4
7-9	5
10-12	6

**Bright Giant**

Roll	Jump Lanes
2	2
3-5	3
6-7	4
8-10	5
11-12	6

**Giant**

Roll	Jump Lanes
2-3	2
4-6	3
7-8	4
9-10	5
11-12	6

**Subgiant**

Roll	Jump Lanes
2	1
3-4	2
5-6	3
7-8	4
9-10	5
11-12	6

**Main Sequence (Dwarf)**

Roll	Jump Lanes
2-3	1
4-5	2

6-7	3
8-9	4
10-11	5
12	6

### Subdwarf

Roll	Jump Lanes
2-4	1
5-6	2
7-8	3
9-10	4
11	5
12	6

### White Dwarf

Roll	Jump Lanes
2-5	1
6-7	2
8-9	3
10	4
11	5
12	6

## Step X) Assign Special Traits

Star systems are required to make one or more rolls on the Special Traits Table to find out what kind of unusual qualities the system possesses. Single star systems roll three times, binary star systems roll twice, and multiple star systems roll once. Black hole systems don't make any rolls on this table.

### Special Traits Table (2D6)

Roll	Effect
2	Roll Twice
3	Strategic Resource
4	System Terrain
5-6	+1 Carrying Capacity
7-8	+1 RAW

9	+1 Biosphere
10	+2 Carrying Capacity
11	+2 RAW
12	+2 Biosphere

The results of these special trait rolls are applied to the system and generally provide a bonus to its base statistics. *Strategic Resource* or *System Terrain* results are different in that they apply additional special effects to a system based on the type of resource or terrain present. Systems that receive either of these special traits must roll on the appropriate table below to determine the exact type of strategic resource or system terrain that they possess. A system can't receive more than one of the same resource or terrain, and any duplicates should be re-rolled.

### System Terrain Table (D10)

Roll	Effect
1-2	Asteroids
3	Dark Nebula
4	Dust Cloud
5	Flare Star
6	Maser Nebula
7-8	Nebula
9	?
10	Radiation Field

### Strategic Resource Table (D10)

Roll	Effect
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## Step X) Assign System Importance

The final step of generating of new star system is to assign it a system importance. Total the system's Carrying Capacity, RAW, and Biosphere values and then refer to the following chart to determine the system's importance:

### System Importance Chart

Total	System Importance
7 or less	Very Low
8-11	Low

12-15	Moderate
16-19	High
20 or more	Very High

Star systems that contain class M red stars and have system importance values of Very Low or Low receive the *Flare Star* system terrain at this time. This is in addition to any other system terrain features that the system received during the previous step.