

Elestial Concordat

Survey Mechanics

Introduction

This is an alternate set of system generation mechanics derived from the TOGL SRD, and inspired by other sources credited to M. W. Miller.

This is the revised system generation rules; the initial systems of the GM's Edition are not compliant with this document. (They're close, tho'.)

This system makes no pretense about being realistic; it instead uses a certain level of abstraction, presuming all orbits are in a Titus-Bode relationship based upon the distances from Venus and Earth, in some very round numbers. (This means they don't match certain of M. W. Miller's rulebooks... don't panic, they're close enough... Less than 1% difference.)

The universe this system will generate is not quite the same as any of M. Miller's, nor the real universe. The stellar size and type frequencies are derived from analysis of the Near Star List II¹, being the most accessible list of stars, and then force-fit to a 2d6 throw in sequence, informed by the frequency rates for spectral types on Wikipedia².

My thanks need to be extended to Peter Newman, Richard Ricker, Jerry Stephens, and Steph Hostman, for their assorted assistance with this project (and the EC setting), to Mongoose Publishing for the TOGL, M. Miller for the core elements and inspiration, and Arthur Pollard for the impetus to do the revision.

This is, in fact, from my house rules for the current edition of Mr. Miller's primary fame.

Orbit Number	AU	Millions of KM
0	0.1	14.9
1	0.4	59.8
2	0.7	104.7
3	1.0	149.6
4	1.6	239.4
5	2.8	419.0
6	5.2	778.2
7	10.0	1,496.6
8	19.6	2,933.4
9	38.8	5,807.0
10	77.2	11,554.2
11	154.1	23,048.6
12	307.7	46,037.4
13	615.1	92,015.0
14	1,229.8	183,970.2
15	2,459.1	367,880.6
16	4,917.8	735,701.4
17	9,835.2	1,471,343.0
18	19,670.0	2,942,626.2
19	39,339.5	5,885,192.6
20	78,678.7	11,770,325.4

¹ <http://www.caco.demon.co.uk/2300ad/NearStar.html> Retrieved 17 Sep 2010

² <http://www.wikipedia.com>

"Realistic" Main World Generation

Size: 2d6-2

if roll <0, Size = 0

If Rolled Size=10, Opt +2d2-2

Opt: If Rolled Size=0 and Mainworld:1d6

1-4: Size P, Atm 0, Hyd 0

5-6: Size 0

Atmosphere: 2d6-7+Size

if size 0-2: Atm =0

If Size 3-4 &

Rolled Atm Final Atm

0-2 0

3-5 1

6+ A

Temperature: 2d6

Roll Result (Code)

≤4 Plutonian (P)

(-3)-1 Frozen (F)

2-4 Cold (C)

5-9 Temperate (T)

10-11 Hot (H)

13+ Roasting (R)

Atmos. DM

0-1 ±0

2-3 -2

4,5,E -1

6,7 ±0

8-9 +1

A,D,F +2

B,C +6

Location - World DM

Inner Zone +6

Hab Zone, Inner Edge +4

Hab Zone, Main ±0

Hab Zone, Outer Edge -4

Outer Zone -6

Moon Orbiting giant at 1-5 diameters +4

Moon Orbiting Giant at 6-10 diameters +2

Hydrographics: 2d6-7+Size

Size 0-1 Hyd=0

Size 3-4 &

Atm A DM-6

Size 5+

Atm 0,1 DM-6

Atm 2-3, A,B,C DM-4

Atm G Hyd=A

Temp

Hot -2

Roasting -6

Plutonian +4

Population: 2d6-2

Size 0-2 DM-1

Size A-B DM-1

Atm not 4-9 & Not MW DM-2

Atm not 4-9, mainworld DM-1

Atm 5,6,8 DM+2

Temp P DM-3

Temp F,R DM-2

Temp C,H DM-1

Not Mainworld DM-2, Max=MainPop

Pop Multiple: 1d9

Gov't, Primary: 2d6-7+Pop

Pop 0 Gov = 0

Factions: 1d3

Gov't 0, 7 DM+1

Gov't A+ DM-1

Pop 0 None

Pop 1-3 DM-1

Faction Strengths: 2d6

Roll Result

2-3 Obscure

4-5 Fringe

6-7 Minor

8-9 Notable

10-11 Significant

12 Overwhelming

If Gov't 7, see special notes

Faction Gov'ts: 2d6-7+Pop

If Gov't 7, see special notes

Law Level: 2d6-7+Gov't

Starport: 2d6-7+Pop

Not Mainworld & Roll 4+ DM-2

Roll Starport Class

≤2 X

3-4 E

5-6 D

7-8 C

9-10 B

11+ A

Tech Level: 1d6

SPA	DM+6
B	DM+4
C	DM+2
X	DM-4
Size S,0,1	DM+2
Size 2-4	DM+1
Atm	
0-1	DM+1, Min 8
2-3, D,E	DM+1, Min5
4,7,9	DM+0, Min 3
A, F	DM+1, Min 8
B	DM+1, Min 9
C	DM+1, Min A
Hydro 0,9	DM+1
Hydro A	DM+2
Pop	
1-5,9	DM+1
A	DM+2
B	DM+3
C	DM+4
Gov't	
0, 5	DM+1
7	DM+2
D,E	DM-2
Temp R,F	min 5
Temp P	min 8

Moons, Number:

Size 0,1	1d6-5
Size 2-A	1d6-3
Size B	1d6-2
SGG	2d6-4
LGG	2d6
BD	3d6

Moon Size

World Size 2-C: 1d6-2

SGG: 2d6-6

LGG: 2d6-4

BD: 2d6-3

If size Rolled = 0, size=R

if size Rolled <0, size=0

Moon Orbits

Size R: 1d6/2 diameters

moons: 1d6, check table

1-4 Close 2d6 Diameters

5-6 Far 5*(2d6) Diameters

if duplicate, add distance equal to number of worlds placed in that category so far.

Gas Giants, Belts, and Empty Orbits

Presence of GG: 2d6 for 5+

Presence of Belts: 2d6 for 8+

Empty Orbits: 2d6 for 10+

If present, how many?

<u>2d6</u>	<u>GG</u>	<u>PB</u>	<u>EO</u>
<u>2-3</u>	1	1	1
<u>4-5</u>	2	1	1
<u>6-7</u>	3	1	2
<u>8-9</u>	4	2	2
<u>10-11</u>	5	2	3
<u>12</u>	6	3	4

GG Sizes:

<u>Number of...</u>	<u>2-7</u>	<u>8-11</u>	<u>12</u>
<u>2d6:</u>			
<u>Size</u>	SGG	LGG	BD

Bases 2d6 each

<u>SP</u>	<u>N</u>	<u>S</u>	<u>R</u>	<u>H</u>	<u>C</u>	<u>P</u>
A	8+	10+	8+	4+	6+	—
B	8+	8+	10+	6+	8+	12+
C	—	8+	10+	10+	10+	10+
D	—	7+	—	—	—	12+
E	—	—	—	—	—	12+
X	—	—	—	—	—	—

Trade Codes

	<u>S</u>	<u>A</u>	<u>H</u>	<u>P</u>	<u>G&L</u>	<u>TL</u>	<u>Tmp</u>
Ag		4-9	4-8	5-7			
As	P	0	0				
Ba				0	0 0		
De		2+	0				
Fl		A-C,F	1+				
Ga	3+	4-9	4-8				CTH
Hi				9+			
lc		0-1	1+				PFCT
In		12,479		9+			
Lo				1-3			
Lt				1+		3-	
Na		0-3	0-3	6+			
Ni				4-6			
Po		2-5	0-3				
Ri		68		6-8			
Tp	6-9	568	6-8				T
Va		0					
Wa			A				

Extending Generation to System

System Type

Number of...			
2d6:	1-7	8-11	12
Type	Unary	Binary	Trinary

Far Companion Type DM -1

Stellar Types 2d6 Size, then 2d6 Class by size

Roll	Stellar Size	I/III/II	IV	V	VI	D (VII)
2	0,I,II	O/B	O/B	O/B	G	O/B
3	III	B	A	A	G	A
4	IV	B	F	F	K	A
5	V	A	F	G	M	A
6	V	F	F	K	M	F
7	V	G	G	M	M	G
8-9	V	K	G	M	M	K
10	V	M	K	M	M	K
11	VI	M	K	M	M	K
12	D	M	K	M	M	K
13+	D	M	M	M	M	M

Companion Size DM+2
 2nd Companion Size DM+4
 If companion same size as primary Type DM+3

O/B: roll 3d6; on 3, type is O, type is B. For more realism, 4-10 is B and 11-18 is A

0, I, II: Roll 2d6: 2=0, 3-4=I (1a), 5=I (1b), 6+=II

Decimal Subdivision 1d10-1 (0-9)

Companion Orbits: 2d6

Roll	Orbit #
2-3	0
4-6	1d6
7-9	1d6+4
10-11	Orbit # 1d6+8
12	Far; 1d6x1000AU

DM -1 if far companion's companion
 Far Companions roll for system type as well.

Maximum Orbit #: 2d6

Type I,II	DM+8
Type III	DM+4
Type D	DM-2
Color K	DM-2
Color M	DM-4

Available Orbit numbers

Bn= Companion's Orbit Number
 Orbiting A inside B \leq Half Bn
 Orbiting A outside B \geq Bn+2
 Orbiting B \leq half Bn

Orbit Zones

SC: Spectral types; the entry is the low end of the range. EG, the B6 entry actually includes B6-B7, and F7 includes F7 through G1.

V: Orbit numbers \leq listed are empty

H: Listed orbit numbers are Habitable

SC	I		II		III		IV		V		VI	D
	V	H	V	H	V	H	V	H	V	H	H	H
B0	7	13	6	12	6	12	6	12	6	12	*	0
B2	7	13	6	12	5	12	5	11	5	11	*	0
B4	6	12	5	12	4	11	4	10	4	10	*	0
B6	6	11	4	11	3	10	3	9	3	9	*	0
B8	6	11	3	10	2	9	2	8	2	8	*	0
A0	6	10	2	9	1	8	1	7	1	7	*	-1
A6	5	10	1	9	0	8	0	7	1	7	*	-1
A9	5	10	1	8	0	7	—	6	0	6	*	-1
F2	5	10	1	8	0	6	—	6	—	5	2	-1
F7	6	10	1	8	0	6	—	5	—	4	2	-1
G2	6	10	1	8	0	6	—	5	—	3	1	-1
G9	6	10	1	8	0	7	—	5	—	2	1	-1
K4	6	11	2	9	1	7	—	4	—	1	0	-1
K9	6	11	3	9	2	8	—	5	—	0	0	-1
M4	7	12	4	10	3	8	—	5	—	0	0	-1
M9	7	12	5	11	4	9	—	5	—	0	0	-1

V: this orbit number and lower are vaporized; some are inside the star. — indicates no Vaporized zone

H: This orbit number is considered habitable. * indicates a combination you can't get. -1 indicates that orbit 0 is "Just outside the Ecosphere."

Size 0: just use size 1 numbers, adding 2.

Size I: is size Ia; 1b, subtract 1 from the numbers.

Placing Stuff

Mainworld placed first.

Gas Giants next, preference for outside H zone. If not enough for GG's and PB's, world may orbit a GG in the H zone.

Next, Belts, preference for last available orbit between primary and companion, then one orbit inside a GG. empty orbits, preference for 1 outside giant, then 1 outside belt, then random orbits. fill in rest of orbits with rolled worlds.

Empty Orbits do not include the vaporized orbits...

Handling Government 7

Instead of normal factions process!

1d3+1 Governments. Each has Pop of MW Pop+1 -1d3.

Roll pop multiples for all factions.

If total pop multiples would exceed that of the world, Reduce pop code of each faction by 1.

Generate government codes for each faction based upon its own pop code, rather than the world's.

If a given government is a type 7, it adds another 1d3 factions of one pop code less than itself, but is itself deleted.

Law details are generated normally.

Panthalassic Atmosphere (G)

An atmosphere of Water miles deep. Above the water is a Type A atmosphere of water vapor, CO₂, and possibly Nitrogen. May be substituted for type F atmospheres on Size A+ worlds. Always has 100% water coverage; the actual crust is miles below.

Semi-habitable worlds

Worlds one orbit away from the habitable orbit number may use the ± 4 on the temperature chart.

Worlds around M5V-M9V stars and DA stars in orbit 0 are always such worlds.

Worlds 2 orbits or more from the habitable zone as listed are either inner or outer zone, as appropriate.

Minimum Port Services by Code

<u>SP</u>	<u>FR</u>	<u>FU</u>	<u>SY</u>	<u>RY</u>	<u>Bk</u>
A	Yes	N	All	Full	Y
B	Yes	Yes	Space	Std	Y
C	Poss	Yes	Small	Std	Y
D	No	Yes	No	Ltd.	10+
E	No	Poss.	No	No	No
X	No	No	No	No	No

FR Refined Fuel
 FU Unrefined Fuel
 SY Shipyard
 RY Repair Yards
 Bk Banking

Standard UWPs

X-SAHPL-T F ZMBG Trade Codes

X Starport
 S Size
 A Atmosphere
 H Hydrographics
 P Population Code (Exponent)
 G Government Code
 L Law Level Code
 T Tech Level
 F Single Letter for bases
 Z Travel Zones
 M Population Multiplier
 B Planetoid Belts
 G Gas Giants

Wil's Format for UWP

X-SAHPL-T FFFFFF M μ BGp Trade Codes

As above except:

p Thermal Code (F,C,T,H,R)

F Each facility type gets it's letter.

μ Moons

Trade Code Readings

Ag	Agricultural
As	Asteroid
Ba	Barren (no Pop)
De	Desert
Fl	Fluid Oceans
Ga	Garden (Shirtsleve if temperate!)
Hi	High Population
Ic	Ice Capped
In	Industrial
Lo	Low Population
Lt	Low Technology (pre-industrial)
Na	Non-Agricultural
Ni	Non-Industrial
Po	Poor
Ri	Rich
Tp	Terra-Prime
Va	Vacuum
Wa	Water World

Terra-Prime: a world that is "shirtsleeve" habitable in at least some lattitudes.

Size - Median diameter

Digit	Diameter	Examples	Gs
0	800 km		
1	1,600 km		0.05
2	3,200 km	Luna, Europa	0.15
3	4,800 km	Mercury, Ganymede	0.25
4	6,400 km	Mars	0.35
5	8,000 km		0.45
6	9,600 km		0.7
7	11,200 km		0.9
8	12,800 km	Earth, Venus	1.0
9	14,400 km		1.25
A	16,000 km		1.4
B	17,600 km		2

Digit Atmosphere

0	None	≤0.0099
1	Trace	≤0.1
2	Very Thin, Tainted	0.1-0.4
3	Very Thin	0.1-0.4
4	Thin, Tainted	0.4-0.75
5	Thin	0.4-0.75
6	Standard	0.75-1.5
7	Standard, Tainted	0.75-1.5
8	Dense	1.5-2.5
9	Dense, Tainted	1.5-2.5
A	Exotic	var
B	Corrosive	var
C	Insidious	var
D	Dense, High	≥2.5
E	Thin, Low	≤0.5
F	Unusual	var
G	Panthalassic	10+

Hydrographics

Digit x10 ±5% water

PopulationPeople = Multiple * 10^{Code}**Temperature**

Cd.	Median Temperature	
P	Colder than -100°	Plutonian
F	-100° to -51°	Frozen
C	-50° to 0°	Cold
T	0° to 30°	Temperate
H	31° to 80°	Hot
R	81° and up	Roasting

Government

0	None
1	Company/Corpration
2	Participating Democracy
3	Self-Perpetuating Oligarchy
4	Representative Democracy
5	Feudal Technocracy
6	Captive Government
7	Balkanization (Multiple Gov'ts)
8	Civil Service Bureaucracy
9	Impersonal Bureaucracy
A	Charismatic Dictator
B	Non-Charismatic Leader
C	Charismatic Oligarchy
D	Religious Dictatorship

Law

0	None	
1	Low	Poison gas, explosives, undetectable weapons, WMD
2	Low	Portable energy weapons
3	Low	Heavy weapons
4	Mod	Light assault weapons, submachine guns
5	Mod	Personal concealable weapons
6	Mod	All firearms except shotguns and stunners; carrying weapons discouraged
7	Mod	Shotguns
8	High	All bladed weapons, Stunners
9	High	Any weapon outside home
10+	Extreme	Any weapon at all
14+	Extreme	Full Fledged Police State

Tech Level

TL0:	(Primitive)	Stone Age.
TL1:	(Primitive)	Bronze or Iron age
TL 2:	(Primitive)	Renaissance technology.
TL 3:	(Primitive)	Steam Power, early 19th
TL 4:	(Industrial)	late 19th/early 20th C
TL 5:	(Industrial)	mid-20th century.
TL 6:	(Industrial)	fission power, Rockets
TL 7:	(Pre-St)	Satellites, Internet
TL 8:	(Pre-St)	Fusion power
TL 9:	(Pre-St)	Gravitic MD, Jump 1
TL 10:	(Early St)	AG/IC, Orbital habitats
TL 11:	(Early St)	Terraforming, AI, Jump 2
TL 12:	(Avg St)	PGMP, Jump-3
TL 13:	(Avg St)	Jump-4, Battledress
TL 14:	(Avg St)	Skycities, Jump-5, FGMP
TL 15:	(High St)	Black globe, Jump-6

System First Generation

- 1) Star (as extended), including maximum orbits.
- 2) generated and place Gas Giants, planetoid belts, and empty orbits for each star
- 3) generate all worlds, including moons.
- 4) Determine mainworld
 - 4.1) if an inhabited world is in the ecosphere, it's the mainworld. Reduce all others' Pop by 2, or to the mainworld's population.
 - 4.2) if the ecosphere has no inhabited bodies, pick the most populous other body in system, and reduce all others by 2.

Extension Generation

- 1) Mainworld
- 2) if the total of GG's, Planetoid Belts, and Empty Orbits is greater than the available orbits, put one of the gas giants in the ecosphere.
- 3) generate moons.

Placing Gas Giants, Etc.

As a means of generating world placements, grab a deck of cards. Start with a joker for the ecosphere. inner worlds are hearts (H=Hot), outer worlds are clubs to 10 (C=close), and spades for 11-20 (rank+10).

Shuffle the short deck you have just made.

Draw a card for each gas giant. If it is red or a joker, pt the card on the bottom of the deck and draw a replacement card. Record the resulting orbit numbers, and set those cards aside.

Shuffle the remaining cards. Next, put planetoid belts down. If one of them is the joker, redraw, putting the joker back at the bottom of the deck.

Shuffle again, and place the empty orbits.

note that it's possible you have an inner system gas giant, and/or an ecosphere one.

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