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TRAVELLER COMPANION
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SCIENCE FICTION ADVENTURE IN THE FAR FUTURE

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TRAVELLER COMPANION UPDATE 2024

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Space is big. Really big. You just won't believe how vastly, hugely, mindbogglingly big it is. I mean, you may think it's a long way down the road to the chemist's, but that's just peanuts to space.
– Douglas Adams

INTRODUCTION

Welcome to the *Traveller Companion*!

This volume contains additional and alternative rules for *Traveller*, allowing any campaign to be tailored to different play styles and settings. The *Traveller Companion* should be considered a toolkit, from which the Referee can pick and choose whichever rules seem most appropriate to the style of game being played. Alternatives can be left for another time; perhaps a one-off game which requires special rules or a new campaign with a different feel to it.

The *Traveller Core Rulebook* is designed for a fairly realistic 'hard-ish science' setting, in which the Travellers are experienced and skilled people but not larger-than-life heroes. The *Traveller Companion* not only provides alternatives to concepts that are closely tied to the Third Imperium Universe, it also includes rules for more narrative styles of play or more 'heroic' games, as well as variant settings such as horror-based universes.

The *Traveller Companion* provides alternative methods of generating Travellers, giving differing degrees of control over the process, and additional combat rules that add realism or streamline play. Additional careers and pre-career options give new opportunities for backstories and the creation of unusual Travellers.

All of the rules contained in this volume are, of course, optional and it is up to the Referee to decide which elements are suitable for the campaign being created. Some elements fit easily with the typical *Traveller* game setting but others – for example rules for additional characteristics – will change the nature of a *Traveller* setting and should be considered carefully before inclusion in a game.

Consider the *Traveller Companion* as a 'toolkit' for *Traveller*, and build your campaigns to your own requirements, supported by the rules in this book.

CHARACTERISTICS

The following rules are intended to expand upon or replace those found in the *Traveller Core Rulebook*. They are used at the Referee's discretion – some, all or none of these rules can be applied to a campaign as appropriate.

HIGH AND LOW CHARACTERISTICS

Normally, the range of characteristics is 0–15 but there are occasions where a being or creature may have characteristics that are not on the 'human scale'. Such a being may have one or more characteristics above 15, in which case the DMs on the Characteristic Modifiers table are applied to checks made using them.

Characteristic Modifiers

Characteristic	DM
0	-3
1–2	-2
3–5	-1
6–8	+0
9–11	+1
12–14	+2
15–17	+3
18–20	+4
21–23	+5
Every +3 thereafter	+1 to DM

ADDITIONAL CHARACTERISTICS

Some styles of game might require one or more extra characteristics. The *Traveller Core Rulebook* already contains one example of this – Psionic Strength. In many *Traveller* campaigns PSI is not used at all, although it could be implemented if the Travellers encountered some psionic threat.

The following additional characteristics lend themselves to resolving certain situations that might otherwise be difficult to adjudicate. The Referee must decide if they are desired in any given campaign and if so, all Travellers should generate them. Alternatively, they might be used only for non-player characters encountered by the Travellers. Note that some of these are not just additional characteristics; they are a set of mechanics the Referee can use as necessary.

WEALTH (WLT)

If the Referee does not want to track every Credit and cost of item, they can use the abstract Wealth (WLT) characteristic. A Traveller's WLT starts equal to their SOC and is increased by one for every Cash Benefit roll taken after a career, to a maximum of 15. Reduce the Traveller's WLT by -1 if they are injured during a career, and by -3 if they use anagathics.

A Traveller's WLT characteristic determines the lifestyle they can maintain comfortably and how much petty cash they have on hand. The Traveller has a number of Credits to hand at any time in a given month equal to the amount shown on the Wealth table.

Wealth	Cash Obtainable
1	Cr100
2	Cr200
3	Cr400
4	Cr800
5	Cr1200
6	Cr1500
7	Cr2000
8	Cr3000
9	Cr5000
10	Cr7500
11	Cr10000
12	Cr12500
13	Cr15000
14	Cr17500
15	Cr20000

If the Traveller needs to spend more than this amount, they may do so by making a WLT check, modified by DM-1 per 5,000 Credits spent. If the check succeeds, the Traveller can make the purchase. If the check is failed, permanently reduce WLT by -1 and try again, or not make the purchase and avoid the reduction.
At the end of each month, the Referee should adjust a Traveller's WLT characteristic up or down if their financial circumstances have changed greatly. In addition, it is suggested that amounts (both earned and spent) measured in millions of Credits (MCr) are tracked accurately. WLT should be used for personal items and purchases alone.

LUCK (LCK)

Luck represents a Traveller's general good and bad fortunes, and governs situations that are essentially beyond a Traveller's control. It is useful in highly cinematic games, allowing Travellers a get-out if things go wrong, and can be used to give 'plucky but inexperienced young hero' type Travellers an advantage. This is not always desirable – the majority of *Traveller* games are set in a cold, uncaring universe ruled by the laws of science rather than whimsy – but Referees running some types of game will find LCK useful.

LCK is determined by a straight 2D roll and cannot be permanently increased or decreased in the manner of a Travellers' other characteristics. Only major events can change a Travellers' LCK; this is at the discretion of the Referee, who must decide what factors may influence LCK. In some campaigns it may be desirable to allow Travellers to collect charms or artefacts that improve their fortunes, although this should not be overdone (and they may not have the effect the Travellers expect). Karma can also play a part; the Referee might decide that good or bad deeds are worth a little good fortune in the future. Luck can also be used as a plot guide in some campaigns, with 'correct' actions leading to improved LCK and bad deeds adversely affecting the Travellers' fortunes.

LCK can be used to determine success/failure or see who is affected by a random event. A Traveller's chance of succeeding in a task through blind luck should never be better than their chance when using skills and good planning. However, when all else fails and the Traveller must simply leap into the dark, LCK can be used to determine whether he lands on his feet or faceplants into a wall.

RANDOM SITUATIONS

LCK can be used to see what happens to which Traveller when no other factors apply. For example, if one Traveller selected at random is to be the victim of a bad event, everyone can make an opposed LCK check and the lowest score will be the victim.

Some events will instead affect every Traveller failing a LCK check. This might occur when a random event takes place, such as when a group of Travellers are caught in the open during a meteor shower or they open unmarked ration tins.

ALTERING CHANCES OF SUCCESS

If a Traveller really needs to succeed in a skill or characteristic check, they may expend LCK on a temporary basis. Each point of LCK spent translates into DM+1 to the check. Likewise, each LCK point expended can be used as a negative DM to a check made against them; a Traveller can use LCK to make an enemy miss an otherwise easy shot. All LCK points expended in this way are regained at the end of an adventure.

SURVIVING A DISASTER

A highly cinematic game might use LCK as a way of keeping the Travellers alive through their adventures. This is an optional use of an optional characteristic, and the Referee is advised to consider this style of game carefully; it is likely to be a lot less realistic than the typical 'ordinary joes in space' style of *Traveller* game.

If this rule is in use, when a Traveller suffers some catastrophic event the Referee may grant the Traveller a chance to survive through blind luck by a Very Difficult (12+) check, with no characteristic DMs used. Instead, the chances of survival can be increased by permanently expending points from the Traveller's LCK characteristic.

A DM equal to the number of LCK points expended can be applied. This means a very significant number of points must be 'burned' in order to give a good chance of survival. Once these points are expended, they are gone for good and the Traveller's LCK score is reduced, perhaps increasing the number of bad things that happen to them later on.

If the LCK check is successful, the Traveller somehow survives. Maybe their crampons caught the ice surface and slowed their fall into the crevasse enough that they are hurt and stuck at the bottom of a crevasse rather than dead, or maybe they snag something on

the way down. Maybe the plasma gun misfired, or the bullet somehow missed every vital organ. However it happens, the Traveller's LCK is permanently reduced by the amount of points expended. If LCK reaches 0 then every random bad event that can possibly happen will befall the Traveller and their life may not be worth living. The Referee should feel free to torment the unlucky individual as much as they please.

Note that LCK cannot be used to affect someone else in this manner. If a Traveller fails their LCK check, their friends cannot try to get lucky on their behalf.

If this option is used, it may be desirable to allow Travellers to regain their LCK. This is not a matter of spending money; instead the Traveller will have to undertake good works, visit remote temples to ask the gods why they survived and generally go out of their way in an adventure-material-creating sort of way. Even then regaining LCK should be a difficult business.

EXAMPLES OF USING LUCK

The Travellers are caught in a meteorite shower and risk being struck. This is essentially a random event, since the meteorites move so fast it is beyond the means of the Travellers to avoid them. Normally a straight 2D roll might be used to see if any given Traveller is hit but if LCK is in use, this roll can be modified by the Travellers' LCK DM.

Not being hit by meteorites: Average (8+) LCK Check (1 minute).

On another occasion, the Travellers disturb an angry creature. It is in the middle of them and the choice of who to bite is essentially random. All the Travellers might be asked to make an opposed Average (8+) LCK check, with the one with the lowest Effect getting bitten.

MORALE (MRL)

The Morale (MRL) characteristic represents a mix of courage, motivation, determination and sense of ethics. It functions in a similar manner to END, although in a psychological manner rather than physical. MRL is useful in games with a lot of combat but can also be applied to many other situations. It provides a way to adjudicate situations where the Traveller insists they will do the most effective thing regardless of tedium, discomfort and distractions… or hostile gunfire.

MRL is determined, like other characteristics, by rolling 2D. It is increased by +1 for every successful term the Traveller has completed in a military service (e.g. army, navy or marine) or every two successful terms they completed in a disciplined but non-military service (e.g. scout, merchant or agent).

MRL checks are used in combat or when trying to overcome fear-inducing situations but can have other applications. For example, if a Traveller insists that they are going to spend 10 hours a day working on a boring project, MRL can be used to determine if they stick at it. MRL checks should not be used in place of good roleplaying but can be a useful tool for a Referee whose Travellers insist on undertaking unrealistic actions.

MORALE CHECKS

A Morale check is called for when a significant obstacle or setback is encountered. This may or may not be combat related; realising that the Travellers will have to traverse right around the mountain before even beginning to climb might be disheartening enough to make a group of climbers quit.

Typically, the Referee will call for a MRL check when a group of combatants takes significant casualties (10-20% of its numbers), or when they see allies fleeing.

A MRL check may also be called for when an individual is wounded in combat or facing a particularly fearsome foe.

A MRL check might also be required if a Traveller is unexpectedly hurt or encounters unanticipated danger. For example, if a Traveller is suddenly struck by an unexpected blow, they may flinch rather than reacting boldly. Similarly, when a sniper's bullet narrowly misses their head, a Traveller might dive for cover rather than finishing what they are doing.

The MRL of a group can be averaged from the values of everyone involved or, for large-scale military units, assigned according to the experience and training of the personnel involved. As a rule, group Morale will affect the whole group – if everyone else runs away, a high-Morale individual will normally find it prudent to do likewise. He may decide to stay and fight alone, however, in which case an individual MRL check (at his own level, not that of the group) can be used at the Referee's discretion.

To remain resolute in the face of modest threat or a daunting task: Routine (6+) MRL check

If the MRL check is failed, the Traveller or group will become 'shaken' and seek cover and stay there, or begin to retreat and continue to do so until rallied. If the MRL check is made to stick at a daunting task, a failure may indicate refusal or a 'freeze' where the Travellers cannot make any progress until their determination is restored or obstacles are removed.

A MRL check with an Effect of -6 or worse usually results in inexplicable panic and rout. Conversely, an Effect of 6+ indicates stern resolve or gung-ho enthusiasm. If so, the Referee may decide to impose extra beneficial results, such as a Boon on all future MRL checks (until one is failed) or a positive DM to melee combat attacks. Very good and very bad MRL checks can both result in individuals going berserk. This is not always a good thing.

A shaken group or Traveller will remain so until some reason to regain confidence presents itself. That might be a period without danger or could be due to the actions of another Traveller deliberately trying to rally the group. Once the Referee feels an opportunity to pull themselves together has presented itself, the group or Traveller can make a new MRL check to regain their confidence.

If the situation is particularly bad, the MRL check will be at a higher difficulty level, as shown on the Morale Checks table. It may also be necessary to undertake multiple MRL checks to accomplish a task or win a battle. For example, if a group takes very heavy casualties or is asked to do something that is apparently suicidal, a MRL check may be necessary. Note that MRL check failure may not be obvious; many commanders have thought they had rallied their men for an assault, only to have them stall within a few paces of a half-hearted attack.

USING MORALE

Mike the Marine is leading a mob of local militia in a battle against low-tech enemies. As a line of enemy cavalry begins to advance against them, the militia start to edge back. Hoping to forestall a retreat, Mike shouts some inspiring words and steps to the front of the line. The Referee decides this is a reasonable action despite the bullets cracking past Mike's ears; Mike is an experienced mercenary and has shown considerable personal courage in the past, so the Referee does not ask for a Morale check on his part.

Morale Checks

Circumstance	Base Difficulty
First injury received in a fight	Routine (6+)
Character receives significant injury	Average (8+)
Casualties taken	Average (8+)
Serious casualties (30%)	Difficult (10+)
Massive casualties (60%)	Very Difficult (12+)
Unusual danger	One level harder
Incredible danger	Two levels harder
Excessive tedium	One level harder
Unbelievable tedium	Two levels harder
Good odds/big reward	1–2 levels easier
Trusted leader present	1 level easier
Inspiring leader present	2 levels easier

The militia nervously stay in position as the cavalry approaches but their rifle fire is insufficient to break the charge. As the lance points come down Mike shouts to the militia that their best chance of survival is to stay together. The Referee makes a MRL check for the militiamen and it fails. Despite Mike's advice, the militia begin to flee. Mike stands his ground alone to shame the militiamen into staying in their position. The Referee thinks this is rather unwise and is quite willing to send a whole regiment of lancers against Mike, with predictably fatal results.

This seems like a good time for a MRL check at quite a high difficulty level. With his allies fleeing and certain death hurtling at him in the form of 700 lance points, this is a tough MRL check and Mike fails it. Mike finds himself in the middle of a rout, with enemy cavalry chasing his men down and lancing the stragglers. Such is the life of a mercenary soldier.

Meanwhile, 'Two-Gun' Cassandra is in a bad position. Her handguns are out-ranged by the enemy's rifles and they are manoeuvring to put her in a crossfire. The position of cover she occupies is about to become untenable but the only way to reach safety is a hazardous dash across open ground. Cassandra resolves to chance it. With her is Damien, a friend with little combat experience. Cassandra tells Damien what she intends to do and why it is necessary. The Referee secretly makes a MRL check for Damien and fails it. White-faced, he agrees to make the run to safety.

Both set off on the dash but after two steps Damien turns and runs back into cover. Cassandra now has to decide whether to turn back or keep going, and how to extricate her terrified friend from danger.

On another day, Arix the Accountant is being bullied by a local thug and decides to stand up to him. This goes badly: Arix is punched to the ground. Arix gets up and has another go, and gets knocked down again. Arix decides that he will never give in and will keep on getting up no matter how many times he is beaten. The Referee thinks this is not in keeping with Arix's persona as a penpushing interstellar accountant and asks for a MRL check. Arix passes and clambers defiantly to his feet. Whether or not he gets knocked down again is another matter…

SANITY (STY)

Sanity is a useful characteristic to have in games with a supernatural element or those that involve a lot of cybernetics. Travellers experiencing a strange electronic world might be driven mad by it, temporarily or permanently. Sanity could also be used to model the effects of post-traumatic stress disorder on Travellers who had unpleasant experiences in service or during an adventure.

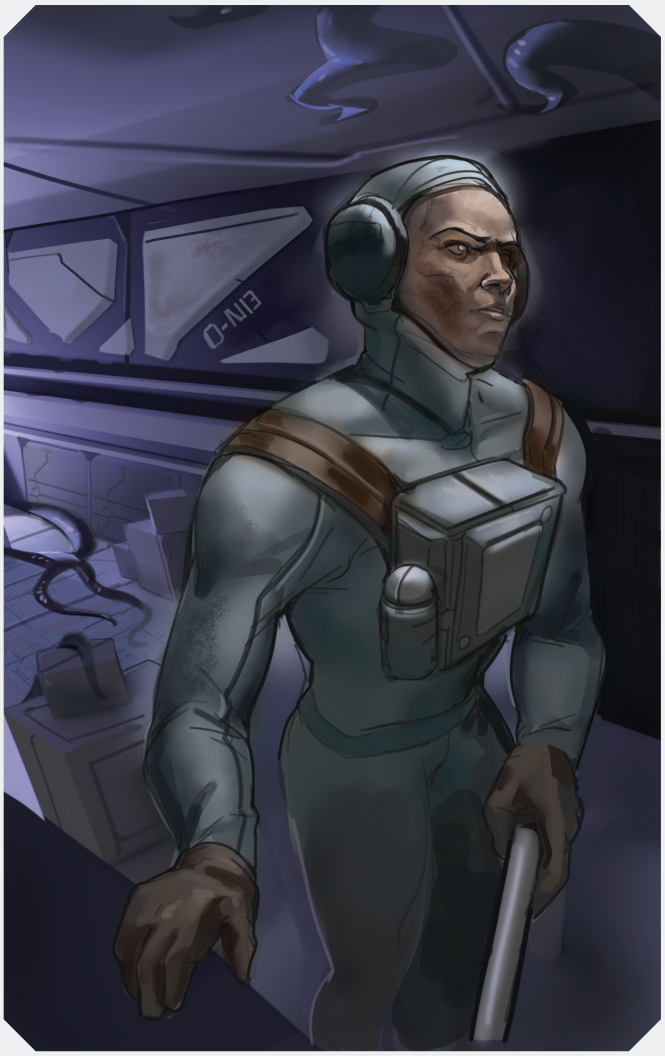
Sanity is determined by a straight 2D roll. A Traveller with a STY characteristic greater than zero is essentially sane and responsible for their actions, although they might be a little unstable or have hang-ups that cause unusual behaviour. Sanity can be temporarily or permanently reduced to zero, at which point the Traveller may develop some serious form of mental illness.

STY checks may be called for upon witnessing deeply shocking events or things disturbing to the mind of mortals. One such is jumpspace, which is said to cause insanity if viewed for even a short time.

If a Traveller fails a STY check under most circumstances, he takes damage to his STY characteristic much like physical damage affects STR, DEX and END. Most events will cause D3 or 1D damage but some particularly horrific or traumatic events will cause more harm. If STY is not reduced to zero, it will return to its normal value over time. If it does reach zero, more serious consequences befall the Traveller.

Long-term exposure to traumatic situations will also reduce sanity, although typically at a low rate. Travellers engaged in trench warfare might be required to make a STY check once per week, or lose a point of STY.

In some cases, a STY check will be all-or-nothing. If it is passed, the Traveller has dealt with the incident and is not suffering any long-term harm. If the check is failed, there will usually be a specific response. For example, Travellers confronted with a particularly weird creature might be required to make a STY check or flee in terror. Some psionic talents may have similar effects. If STY is reduced to zero on a temporary basis, the Traveller loses the ability to act rationally. Temporary insanity can take the form of panic or catatonia, or perhaps utter confusion leading to an inability to act coherently. It may also manifest as violence, possibly against the wrong recipient. The form of temporary insanity will usually be dictated by the nature of the insanity-causing event.



Some events and situations can result in a permanent loss of STY. If STY is reduced to zero on a permanent basis, the Traveller has become seriously ill. Mental illness is a sensitive issue and one which is badly misunderstood by many people, so the use of long-term mental disorders in a game is a theme that should be approached with care.

Even relatively minor issues such as a modest level of paranoia or obsessions about particular actions or objects can make life very difficult for the sufferer, but it is still possible (and quite possibly enlightening) to play a Traveller battling such problems. More serious mental illness will tend to be debilitating for Travellers and requires specialist treatment. This is a very difficult matter to incorporate into a game, especially since games are intended to be fun. It is recommended that an insane Traveller takes some time, gets professional help 'off-camera' as it were, and returns to play in a more stable state.

Temporarily lost STY points are regained at the rate of one per day spent in safe and supportive conditions. Getting enough sleep, not being cold and hungry, and not getting shot at or chased by monsters all go a long way towards regaining mental resilience.

USING SANITY

The Travellers have an alien passenger aboard their ship, a species that has an automatic feeding reflex. It simply cannot help itself when it grabs the ship's pet and swallows it whole, but the Travellers are disgusted, outraged and horrified. The Referee calls for an immediate STY check. Those who fail are compelled to assault the alien out of reflex.

Meanwhile, Ilaina the Engineer has interfaced with a computer the Travellers retrieved on a previous mission. Using her wafer jack she begins navigating the computer's systems from the inside, only to be confronted with chaotic and frightening images created by its anti-intrusion software. Ilaina attempts to keep a firm grip on reality and push through but must make a STY check or lose 1D STY. If she can get past the defences without being driven mad, she can gain access to the computer's systems but it will be a while before the nightmares fade (i.e. until she has regained her full STY value).

Later, the Travellers are confronted with a monstrous creature so frightening they are stopped in their tracks. Each Traveller must make a STY check or flee in terror. Some pass their checks and bravely advance but Mike the Marine fails. His big gun and combat skills are unavailable as he cowers behind a nearby boulder, unmanned by almost supernatural terror.

SOCIAL STANDING (SOC)

The SOC characteristic in the *Traveller Core Rulebook* is tied to the concept of a noble hierarchy of some kind, but this may not be present in all game settings. Even if it is, there may be cultures which use a different system or people who have equivalent standing without possessing a noble title. The elected president of a multiworld polity may not be a noble as such but she certainly has equivalent social standing and power.

Even where there is a noble hierarchy in existence, possession of a high SOC does not necessarily equate to holding a title. Some high-SOC Travellers may be distant relatives of a noble and thus part of the upper classes without having any titles of their own. SOC indicates what level of society the individual is accustomed to operating at and therefore their knowledge of etiquette and how to perform appropriate ceremonies, rituals and the like. It also indicates whether or not the Traveller has sufficient standing to hold a given office such as a noble title.

In some societies, noble ranks may be replaced by religious or mercantile titles, or based on rank in a guild. SOC is also in many ways relative; the monarch of a small country on a balkanised planet might hold the local rank of king but this does not place him above (or even anywhere near) the duke who oversees an entire subsector. SOC thus indicates social standing on the wider stage and provides an equivalency between Travellers from very different backgrounds. It also provides a useful guide to precedence at functions where people from different societies meet.

SOC 0 is a special case. A Traveller with SOC 0 is an outcast, fugitive or pariah. This is not a passive effect like SOC 1–2; the Traveller will be reviled, persecuted and possibly attacked. Returning to society is not as simple as increasing SOC to 1; the Traveller will have to redeem themselves, obtain forgiveness or somehow gain permission to re-enter society.

SOC 1–2 represents very low status, typically those on the very fringes of society such as street kids, dwellers in shanty-towns or temporary camps. Very low SOC does not indicate that the Traveller is a criminal but it is likely they will come into contact with crime. Travellers from this lowest echelon of society tend to be streetwise and 'close to the ground'.

SOC 3–5 implies a degree of poverty and lack of the social graces favoured by higher echelons of society. Low-SOC people may be deliberately downtrodden by the higher-ups, or simply be part of the lowest class in society such as peasants and unskilled workers. Such people often take great care to maintain an air of respectability even if they are desperately poor.

SOC 6–8 typically represents skilled workers, lower professional classes and the like.

SOC 9–11 represents the upper end of the professional bracket, equating to the 'upper middle classes' and minor gentry who might have a measure of fame or importance. Members of a noble's household typically have SOC in this range. Their knowledge of etiquette and importance-by-association can be sufficient to allow them to move in noble circles, such as attending the court of a high noble without making an embarrassing gaffe.

SOC 11 is the lowest value necessary to hold a noble title. On the interplanetary scale, SOC 11 equates to a knighthood but leaders of a country would have equivalent status, as would an entertainer or personality whose fame spans several worlds. The senior management of a modestly sized interplanetary corporation would typically have SOC 11 or so, whether or not they hold a noble title.

SOC 12 equates to a Baron on the interplanetary scale, or non-noble leaders of a minor single-planet polity. Very famous non-noble personalities would also hold an equivalent SOC. The senior management of a large interplanetary corporation would typically have SOC 12 or so, whether or not they hold a noble title.

SOC 13 equates to a Marquis on the interplanetary scale, or non-noble leaders of a fairly important planetary government. Interstellar superstars and the uppermost echelons of a very important corporate body would also have SOC 13 or so.

SOC 14 equates to a Count on the interplanetary scale, or non-noble leaders of a small multi-world government. The most senior members of a Megacorporation would also have SOC 14 or so, although in most societies with a noble hierarchy they are likely to have noble titles.

SOC 15 equates to a Duke on the interplanetary scale, or non-noble leaders of a subsector-wide polity.

EFFECTIVE SOC

SOC represents a Traveller's 'official' standing but can be modified on a temporary basis. A Traveller's Effective SOC determines how people react to them. It can occasionally be higher than their normal SOC value but more commonly Effective SOC represents a lowered standing. For example, a noble who has been the victim of a smear campaign or who has suffered some public disgrace might have a lowered Effective SOC until he regains favour, redeems himself or funds enough propaganda to improve his status.

Effective SOC can be altered due to some mischance or the whimsy of court politics. For example, if a Traveller is a war hero and the mood at the local Duke's court is strongly anti-war, then he may have a lowered Effective Soc until the political wind changes. Other reasons for lowered Effective SOC include leadership of a failed enterprise, failure to live up to expectations (however unreasonable they may be) or the actions of a 'black sheep' relative. Such individuals are often granted a stipend to go away and not attract attention – which is a good rationale for an adventuring noble Traveller.

Effective SOC can also be altered by the favour or disfavour of influential people. If a Traveller is currently the favourite of a powerful noble, their Effective SOC may be raised since others will want to benefit from association. Similarly, if a previously respected noble falls out of favour with the local ruler (perhaps rightly, perhaps as a result of some plot to turn the monarch against him) then their Effective SOC may be reduced.

A Traveller's SOC modifier is based on his permanent SOC value when questions of etiquette and knowledge arise, but upon Effective SOC when determining how people react to them.

To be awarded a noble title or similar honour, a Traveller's Effective SOC must be high enough to hold it. Their permanent SOC value may not be, which can cause complications later. If a Traveller's Effective SOC falls below the level required for their titles or offices, they may find themselves snubbed or their orders simply ignored.

Travellers are unlikely to be stripped of titles or offices just because they are out of favour at court. However, there is always a risk, especially if someone has suffered a serious reduction in Effective SOC. A Traveller whose permanent SOC is too low for the titles they hold will retain their posts and titles but is a controversial figure, which can lead to the loss of additional Effective SOC.

A Traveller whose Effective SOC is three or more points too low for a given title risks having the title stripped from them or at the very least suspended. It is possible to make a case for this not to happen, which usually requires an audience at court and promises that at least sound workable. Some impoverished nobility may hold very impressive titles which have become meaningless. This is represented by a permanent SOC close to the level required for the title and a lower Effective SOC.

Effective SOC can be rebuilt to its old value by actions seen as virtuous or which attract favour. An alternative and quite common method is to spend a lot of money and sleaze your way back into the good graces of those you offended. Permanently lost SOC must be regained by conspicuously heroic, virtuous or similarly respectable actions, or by obtaining a pardon or forgiveness for the offence.

Effective SOC can be reduced by failing to maintain the living standards expected of someone at that social level. Costs are given on page 92 of the *Traveller Core Rulebook*. Any Traveller failing to meet the standards required for their SOC for three months in any four must reduce his Effective SOC value to the lowest level they maintained in that period unless there is some good reason for the reduced standard of living. A Traveller held prisoner and fed bread and water does not suffer a status reduction for the indignity, although they may be censured for allowing themselves to be captured in the first place.

If a Traveller's Effective SOC is lower than their SOC for three consecutive months, their SOC is reduced by -1 unless they can make a Difficult (10+) Admin, Carousing, Deception or Diplomat check to convince people that everything is alright or there is some explanation other than relative poverty.

To increase SOC to a value of 10 or less, all that is necessary is to maintain an Effective SOC at least one point higher than the target score for six consecutive months. Only one point of permanent SOC can be gained at a time.

Increasing SOC to 11 or above requires the maintenance of an Effective SOC at least one point higher than the target value for a whole year. Effective SOC can be increased by several points if an important high-society individual endorses the Traveller, but the costs of maintaining suitable living standards must be met. The award of noble titles will normally follow in-game actions or events during a career and cannot be simply bought by maintaining a luxurious lifestyle. If a low-SOC Traveller is granted a title his Effective SOC immediately jumps to a level suitable to hold it but if this is not maintained it will fall again and the title may become meaningless or be taken away.

EXAMPLE

Arix the Accountant is a low-end professional with SOC 8. His heroic deeds in the audit department of the Sector Duke have resulted in a knighthood, which requires a SOC of 11. Arix's Effective SOC jumps immediately to 11 but his permanent SOC value is still 8. If he can maintain the lifestyle associated with his Effective SOC for six months his permanent SOC rises to 9, and after another six months to 10. If he could continue in this vein for another year he would reach SOC 11 but sadly his money runs out. This is quite an embarrassment for an interstellar accountant and, more importantly, he cannot maintain the lifestyle associated with SOC 10. His Effective SOC drops to 9 for a few months and Arix risks a reduction in his permanent SOC. He can do some creative accounting to prevent this and accounting is what he is good at. However, he is becoming aware that others at court consider him nothing more than a jumped-up commoner who has failed to drag himself up to the standards required of his new status. Arix's knighthood is meaningless to some of the 'old nobility' at court and he begins to find court life quite uncomfortable.

ALTERNATIVE CHARACTERISTICS

To a great extent, SOC is tied to a single society. If a Traveller ventures far from this society's sphere of influence, it loses much of its meaning. The same applies to Travellers from distant cultures. This can be solved by the application of common sense; for example, someone from a distant state in the Vargr Extents might be very important, with an equivalent SOC 12 and used to dealing with people at a high level, but their SOC value does not indicate noble rank in the Third Imperium.

In some cases, SOC is less important than a Traveller's innate ability to charm and influence people. In this case, SOC can be replaced by a Charm (CHA) characteristic that applies almost anywhere the Traveller goes. At the Referee's discretion, SOC can be retained as well, indicating status in the Traveller's home society.

Some characteristics are foreign to humans or other creatures, or are entirely alien. If a being would not have a characteristic it can be given a value of zero. For example, an immobile intellect such as a sentient computer would have 0 values for STR and DEX, and probably END too. A non-sentient creature would be assigned a value of 0 for EDU.

In cases where an alternative characteristic is desirable, perhaps due to a very different natural environment, a creature can be assigned one with a similar name to indicate its prowess in such an environment. For example, a creature that evolved in an aquatic or extremely low gravity environment might be assigned a characteristic named Grace rather than Dexterity. A Traveller from a more conventional environment uses half his relevant characteristic as its equivalent.

ALTERNATE TRAVELLER CREATION

The career system in the *Traveller Core Rulebook* is a lot of fun but also takes time and does not always produce the right sort of Traveller for a campaign. The variations in this chapter allows a Traveller to be created quickly and tailored to a desired play style.

OPTIONAL TRAVELLER CREATION RULES

These rules replace one or more parts of the Traveller creation system, leaving the rest unchanged. Any, all or none of these alternatives may be used at the Referee's discretion.

IRON MAN

In *Classic Traveller*, if you failed a survival roll, your Traveller was killed. The Iron Man rules repeat that challenge – instead of rolling on the Mishap table if you fail a survival roll, your Traveller is killed and you must start again. Under the Iron Man rules, you must balance the advantages garnered from spending another term in a career with the risk of dying in action. Other than these changes, Iron Man works just like normal Traveller creation.

SOLO GENERATION

Creating a Traveller on your own works just like normal, with the following minor changes:

The Connections Rule: Instead of making connections to other Travellers, the Referee should provide a list of characters, organisations or places in his campaign suitable for connections. For example, you might get a bonus skill if you had a connection with the Imperial Intelligence service, or were on the run from the law and willing to take passage on the first ship to hire you.

Skill Packages: Instead of picking a skill package, gain any one skill at Level 1.

SKILL SELECTION

In this variant, skills are picked from the Skills and Training tables instead of rolling randomly for them. In all other ways, it is identical to standard generation.

ALTERNATE CHARACTERISTIC DETERMINATION

Alternative methods of determining characteristics can be used, tailoring Travellers to the desired style of play.

Boon Dice Method: The Referee may apply a Boon on any two characteristics of the Traveller's choice, rolling 3D for those two characteristics and discarding the lowest dice. This practically guarantees a Traveller to have at least decent scores in the areas they desire. For truly heroic Travellers, Boon dice can be rolled on four characteristics, or even all of them.

Assignment Method: Roll 12D and write down the value of each dice. These can then be assigned as whole dice to the Traveller's characteristics as desired, allowing the Traveller to obtain high values where they are most desirable. For a heroic Traveller, delete any two dice scores and replace them with 5s. These values are assigned as the Traveller desires.

MAXIMUM TERMS

A Traveller sticking to well-paying and safe careers can avoid ageing almost indefinitely. The Referee may wish to impose a limit on the number of terms taken during Traveller creation. A limit of three terms will produce Travellers competent in one or two fields but still have a lot to learn. A limit of six or seven terms will give experienced and skilled Travellers who can take on dangerous missions. Past eight or nine terms, it becomes increasingly likely that the Travellers will be too rich and influential to bother with minor assignments. ('*I'm a duke, and my friend here was an admiral! Why are we wandering the galaxy instead of sitting in our palaces?*')

BWAPS

Bwaps can be found throughout the Imperium and are also known as Wabs or (a more derogatory term) Newts, due to their appearance. Body markings vary tremendously between clans and families, with each having a distinctive skin pattern. This pattern is determined by genetic factors and colours are determined by careful manipulation of the mother's diet during the formation of the egg. Greens, browns, yellows and blues are most common, in contrasting shades.

Bwaps are uncomfortable in less than 98% humidity, as their skin must be kept moist, although with special clothing, they can exist indefinitely in areas of low humidity, provided they have adequate water. Their clothing normally consists of a loosely fitting garment and hood, permeated with a network of fine tubes through which water flows and keeps the cloth moist. In occupations where they must handle items which would suffer from moisture, Bwaps wear thin water-proof gloves. Humans often consider Bwaps obsessed with minutiae and order in their environment. Driven by the desire to put everything in its proper place, they make excellent bureaucrats, mathematicians, scientists and historians.

CHARACTERISTICS

Bwap Travellers have the following modifiers applied to their characteristics: STR-4, END-4

TRAITS

Bwap Travellers all possess the following traits:

Structured Mind: Bwaps have a very logical way of thinking and make for excellent administrators. All Bwaps receive a permanent Boon on all Admin and Science checks. However, if a Bwap ever tests for psionic potential (see *Traveller Core Rulebook* page 196), it does so with a Bane.

PACKAGE-BASED CREATION

These rules replace the standard *Traveller* career rules in their entirety. Instead of rolling on the career tables, the Traveller chooses a set of packages which contain the skills he wishes to obtain.

Traveller creation is carried out in the following stages:

- Create and assign characteristics
- Choose a background package
- Choose a career package
- Finalise the Traveller

Any of these stages can be used instead of the normal process of Traveller creation, at the Referee's discretion. For example, a Traveller might be assigned characteristics using this system, then pick a background option (also from this system) before following the normal career-based Traveller creation.

Note that under this system skill levels all stack, up to the usual maximum level of four. So, a Traveller might gain Carouse 2 from his career to add to Carouse 1 from his background, giving Carouse 3.

CREATING CHARACTERISTICS

Characteristics are determined by any of the methods available, as chosen by the Referee.

BACKGROUND PACKAGES

Background packages are designed to speed up Traveller creation by providing a set of skills and other benefits associated with the Traveller's homeworld and upbringing, reflecting the skills a young person would acquire growing up in such an environment. In some cases the package includes adjustments to characteristics. These cannot reduce a characteristic below 1 or increase it above 15.

A background package replaces the Traveller's normal background skills and their first term, representing a person who has reached adulthood and completed an apprenticeship, training, education and/or their first few years in employment. The Traveller is now aged 22 and can begin a normal career, or instead take a career package.

If a background package is taken, the Traveller receives no other skills or advantages for his homeworld, upbringing and education. A Traveller may only select one background package but can choose the most applicable. Note that background skills for any given package are set and replace the usual 3+EDU modifier for Travellers created using the *Traveller Core Rulebook*.

Once a background package has been assigned, the Traveller is assumed to be 22 years old and ready to enter a career or start the campaign. It includes all benefits the Traveller has earned up to age 22 (the end of their first term) and replaces all life events and other sources of additional skills.

BELTER

STR	-1	**INT**	—	**BENEFITS**
DEX	+1	**EDU**	-1	Cr2500, Vacc Suit
END	—	**SOC**	—	

SKILLS

Astrogation 0, Carouse 0, Electronics 0, Jack-of-All-Trades 1, Mechanic 0, Medic 0, Profession (belter) 2, Recon 0, Science 0 Vacc Suit 1

The Belter package is available to Travellers who spent their early years in a belter community or similar environment, such as a remote outpost on a gas giant moon or an undeveloped rockball planet. It assumes a lifestyle where the young Traveller would have to be familiar with vacc suit operations; someone who grew up in a more civilised environment such as an orbital highport or aboard generation starship should use the Space Habitat package instead.

COLONIST

STR	—	INT	—	BENEFITS
DEX	—	EDU	-1	Cr5000, Rifle or Carbine
END	+1	SOC	—	
SKILLS				

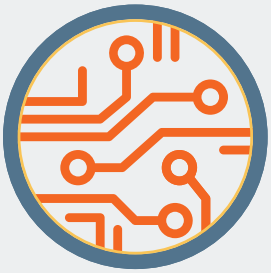
Athletics (strength) 1, Drive 0, Gun Combat (slug) 1, Jack-of-All-Trades 1, Mechanic 0, Medic 0, Navigation 0, Profession 0, Recon 0 Survival 2

The Colonist package is available to Travellers who hail from frontier worlds and underdeveloped regions of more settled ones. The Traveller's homeworld must be at least marginally habitable – those from rockball worlds should use the Belter package instead. Colonists generally have to be tough and resourceful, and able to handle the challenges their harsh environment throws at them without relying too much on technological assistance.

DEVLOPED WORLD

STR	—	INT	—	BENEFITS
DEX	—	EDU	+1	Cr10000, Portable Computer
END	—	SOC	—	
SKILLS				

Admin 1, Advocate 0, Art 0, Diplomat 0, Drive (wheel) 1, Electronics (comms or computers) 1, Flyer 0, Profession (any) 1, Science (any) 1, Streetwise 0



The Developed World package is available to Travellers who grew up in a relatively civilised environment such as a city on a mid- or high-tech world. Skills are skewed more toward making a living than surviving in a hostile environment, with a variety of educational options available.

FRINGE

STR	—	INT	—	BENEFITS
DEX	+1	EDU	-2	Cr1000, Blade
END	—	SOC	-2	
SKILLS				

Athletics (dexterity) 1, Deception 1, Gambler 0, Gun Combat 0, Melee (unarmed) 1, Recon 0, Stealth 0

The Fringe package is available to Travellers who grew up on the fringes of a mid- or high-tech society. They may not necessarily be criminals but will have lived in a world where crime (and violence) is common.

LOW-TECH

STR	—	INT	—	BENEFITS
DEX	—	EDU	-3	Cr5000, Blade, Club or Dagger
END	+2	SOC	—	
SKILLS				

Animals (any) 1, Athletics 0, Carouse 0, Gun Combat (archaic) 1, Language (local dialect) 2, Melee (any) 1, Navigation 0, Profession (any suitable) 2, Recon 0, Steward 0, Streetwise 0 Survival 1,

The Low-Tech package is available to any Traveller who grew up in a TL3 or lower society. This could be a frontier or backwater area of a more developed world if the Traveller belonged to a minority group. Low-Tech citizens are not necessarily barbarians, although many offworlders might call them that. Note that hailing from a Low-Tech background does not necessarily translate to total ignorance of technological items and Travellers may have seen and know how to operate equipment not readily available in their society. Low-Tech Travellers are unlikely to receive an education into the complex mysteries of the universe but are in general tougher and more resilient than those raised in a 'softer' environment.

METROPOLIS

STR	-1	INT	—	BENEFITS
DEX	—	EDU	+2	Cr10000, Portable Computer
END	-1	SOC	—	

SKILLS

Admin 1, Advocate 0, Broker 0, Carouse 0, Diplomat 1, Drive 0, Electronics (comms or computers) 1, Profession (any) 2, Streetwise 1,

The Metropolis package is available to Travellers who grew up in a high population density environment, such as a high-population world or very crowded city. People from such an environment tend to be tailored to it and generally better educated but less physically fit than those from less crowded environments.

SPACE HABITAT

STR	—	INT	—	BENEFITS
DEX	+1	EDU	+1	Cr5000, Vacc Suit
END	-1	SOC	—	

SKILLS

Admin 0, Astrogation 0, Athletics (dexterity) 1, Electronics (any) 1, Engineer (life support) 1, Mechanic 0, Profession (any) 1, Science 0, Steward 0, Vacc Suit 0

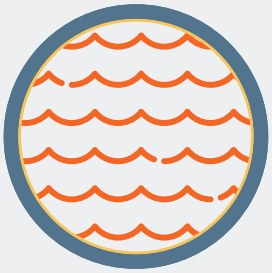
The Space Habitat package is available to Travellers who grew up in a 'city in space' or aboard a starship. Denizens of orbital cities or those whose family worked at a highport should use this package; those who had a more rough-and-ready upbringing should use the Belter package instead.

WATER WORLD

STR	—	INT	—	BENEFITS
DEX	—	EDU	—	Cr5000
END	+1	SOC	—	

SKILLS

Admin 0, Athletics 0, Carouse 0, Electronics 0, Navigation 1, Profession (any) 1, Recon 1, Seafarer (any) 2, Survival 0



The Water World package is available to Travellers who grew up on very wet worlds (Hydrographics code 9 or 10), in contact with the natural environment of the world. Those who dwelt in a city that happened to be underwater but were little affected by the maritime environment, should use the Developed World or Metropolis package.

CAREER PACKAGES

A career package replaces the Traveller's normal path through career generation and provides a set of fixed benefits. A career package replaces all Benefit rolls, life events and all other sources of extra skills, with one exception – a group of Travellers may still select skills from an appropriate skills package before play begins.

A career package is equivalent to a full career in the chosen area and only one can be taken. Roll 3D for how many years the Traveller has aged during his career; this need not correspond to a normal term length.

ADMINISTRATOR

STR	—	INT	—	BENEFITS
DEX	—	EDU	+1	Rank 4 (senior manager), Cr75000, 3 Contacts (former colleagues)
END	—	SOC	+1	
SKILLS				

Admin 3, Advocate 1, Art 0, Broker 1, Carouse 1, Diplomat 1, Drive 0, Electronics (computers) 1, Leadership 0, Profession 0, Science 0

The Traveller worked in a bureaucratic or managerial capacity for a large organisation. This could be a shipping line, corporate body or government. The Traveller was party to sensitive information about projects and people who might be encountered in later adventures.

AGENT

STR	—	INT	+1	BENEFITS
DEX	—	EDU	—	Rank 2 (field agent), Cr35000, Pistol, 3 Contacts (former informants or colleagues)
END	—	SOC	—	
SKILLS				

Advocate 0, Carouse 1, Deception 1, Drive 0, Electronics (comms) 1, Gun Combat 0, Investigate 2, Melee 0, Persuade 1, Recon 1, Stealth 1, Streetwise 2

The Traveller has worked for an intelligence or law enforcement agency, investigating crime or obtaining information by covert means. He is familiar with covert action but has always had the backing of a major organisation.

BARBARIAN

STR	+1	INT	—	BENEFITS
DEX	—	EDU	—	Rank 2 (warrior), Cr1000, Blade or Staff
END	+2	SOC	—	
SKILLS				

Animals (any) 1, Athletics (any) 0, Carouse 0, Melee (blade) 2, Navigation 0, Profession (any suitable) 1, Recon 1, Seafarer 0, Stealth 0, Survival 2

The Traveller comes from a very low-tech society or one so unorganised that technological items are rarely available. Barbarians are not stupid but may be ignorant of how to use technology like computers or even powered doors. The Referee may impose restrictions on unfamiliar technologies including advanced weapons until the barbarian has acclimatised to a more advanced society.

CITIZEN

STR	—	INT	—	BENEFITS
DEX	—	EDU	+1	Cr30000, 2 Contacts (former friends or business associates)
END	—	SOC	—	
SKILLS				

Admin 1, Advocate 0, Art 0, Carouse 0, Deception 0, Diplomat 0, Drive (any) 1, Electronics (computer) 1, Flyer (any) 1, Mechanic 0, Medic 0, Persuade 0, Profession (any) 2, Science (any) 1, Streetwise 1

The Traveller has lived a comfortable life in a mid to high technology society, with few opportunities for adventure or excitement. The transition to a life travelling among the stars can be jarring and usually happens for some traumatic reason. Citizens are generally unprepared for a rough-and-ready life on the frontier but come to the fore when the scene shifts to an urban environment.

CORSAIR

				BENEFITS
STR	—	INT	—	Rank 2 (corporal), Cr15000, Submachinegun (or similar close combat weapon), 2 Contacts (former crewmembers)
DEX	+1	EDU	—	
END	—	SOC	-2	

SKILLS

Athletics (dexterity) 1, Deception 0, Electronics (any) 1, Engineer 0, Explosives 0, Gun Combat (any) 1, Gunner 1, Mechanic 1, Medic 0, Melee (any) 1, Recon 0, Streetwise 0, Vacc Suit 2

The Traveller served aboard a pirate or privateering starship, or perhaps an aggressive smuggling ship. His skills are a mix of ship operations and combat.

MEDIC

				BENEFITS
STR	—	INT	—	Cr90000, Medikit, 2 Contacts (in the medical field or patients)
DEX	—	EDU	—	
END	—	SOC	+1	

SKILLS

Admin 2, Advocate 0, Diplomat 0, Drive 0, Electronics (computer) 1, Flyer 0, Investigate 1, Medic 3, Persuade 1, Science (any) 1

Most medical professionals settle down to a sedentary and well-paid life but some instead choose to travel. Their reasons vary, from altruism or a desire to see the universe, to a need to stay one step ahead of a malpractice suit. A medic's background will normally be civilian but might be naval, military or connected with some other service.

MARINE

				BENEFITS
STR	—	INT	—	Rank 2 (corporal), Cr35000, Assault Rifle, 2 Contacts (former unit members or crew)
DEX	+1	EDU	+1	
END	—	SOC	—	

SKILLS

Athletics 0, Electronics 0, Explosives 0, Gun Combat (any) 2, Gunner 1, Heavy Weapons 0, Medic 0, Melee (blade) 1, Recon 0, Vacc Suit 2

The Traveller is a former member of a spacegoing military or mercenary unit, trained for shipboard action or planetside operations requiring protective equipment such as a vacc suit, combat armour or battle dress.

MILITARY (ENLISTED)

				BENEFITS
STR	—	INT	—	Rank 2 (corporal), Cr25000, Assault Rifle, 1 Ally (former unit buddy)
DEX	—	EDU	—	
END	+2	SOC	—	

SKILLS

Athletics (endurance) 1, Drive 0, Electronics 0, Explosives 1, Gun Combat (any) 3, Heavy Weapons 1, Mechanic 1, Medic 0, Melee 0, Recon 1, Stealth 0

The Traveller is a former soldier, familiar with many weapon systems and military operations. His service might have been with a major interstellar military force a planetary army, a mercenary force or a colonial militia.

MILITARY (OFFICER)

STR	—	INT	—	BENEFITS
DEX	—	EDU	+1	Rank 2 (captain), Cr60000, Gauss Pistol, 1 Contact (former colleague or subordinate)
END	—	SOC	—	
SKILLS				

Admin 1, Athletics (endurance) 1, Diplomat 1, Drive 0, Electronics 0, Gun Combat (any) 1, Leadership 2, Medic 0, Recon 1, Stealth 0, Tactics (military) 1

The Traveller is a former officer in an armed force of some kind. This may be a formally organised army or paramilitary group, militia or mercenary force.

NOBLE

STR	—	INT	—	BENEFITS
DEX	—	EDU	+1	Minor noble title such as Knight, Dame, or Ritter, Cr100000, 3 Contacts (nobles, administrators or military)
END	—	SOC	—	
SKILLS				

Admin 1, Advocate 1, Art 0, Broker 0, Carouse 1, Deception 0, Diplomat 2, Gambler 0, Leadership 2, Persuade 1

The Traveller is a member of the elite social classes, which may or may not be explicitly nobility. The Traveller must have SOC 10+ to take this background option. This package assumes a get-things-done type of noble rather than someone who rests on their laurels.

PERFORMER

STR	—	INT	+1	BENEFITS
DEX	—	EDU	—	Cr10000, 3 Contacts
END	—	SOC	—	
SKILLS				

Art (any) 3, Athletics 0, Broker 0, Carouse 2, Deception 1, Gambler 0, Persuade 1, Profession 0, Steward 1, Streetwise 1

The Traveller makes a living from some kind of performance, be it dance, acting, music or something far more exotic. The Traveller might be an itinerant busker or concert pianist; a renowned vid star or professional extra in local performances.

ROGUE

STR	—	INT	+1	BENEFITS
DEX	—	EDU	—	Cr10000, 2 Contacts (underworld connections)
END	—	SOC	-1	
SKILLS				

Athletics 0, Deception 1, Electronics 0, Gambler 1, Gun Combat 0, Melee (any) 1, Persuade 0, Recon 1, Stealth 2, Streetwise 2

The Traveller has made a career, or at least a living, on the fringes of society. His actions might not actually be illegal but are generally disreputable. Most rogues are willing to undertake at least mildly illegal actions; some are notorious criminals.

SCHOLAR

STR	—	INT	+1	BENEFITS
DEX	—	EDU	+1	Cr50000, 3 Contacts (academics or publishing professionals)
END	—	SOC	—	
SKILLS				

Art 0, Diplomat 0, Drive 0, Electronics (computers) 1, Investigate 2, Medic 0, Navigation 0, Science (any) 3, Science (any) 1, Persuade 1, Profession 0

The Traveller's career revolved around discovery and obtaining knowledge. They may have been a field researcher, a theoretical scientist, or perhaps just someone whose curiosity led them far from home.

SPACER (CREW)

STR	—	INT	—	BENEFITS
DEX	+1	EDU	—	Cr35000, 2 Contacts (crewmates or portside staff)
END	—	SOC	—	
SKILLS				

Athletics (any) 1, Electronics (any) 1, Engineer (any) 1, Gunner 0, Mechanic 1, Medic 0, Persuade 0, Pilot 0, Steward 1, Vacc Suit 3

The Traveller was a crewmember on a naval or commercial starship, working in the technical and supporting branches of the crew rather than flying the ship.

SCOUT

STR	—	INT	+1	BENEFITS
DEX	—	EDU	—	Cr25000, 3 Contacts (spacers or contacts on distant worlds)
END	—	SOC	—	
SKILLS				

Astrogation 1, Carouse 0, Drive 0, Electronics (computers) 1, Engineer (any) 1, Gun Combat 0, Investigate 0, Jack-of-all-Trades 1, Medic 0, Pilot (starship) 1, Recon 0, Streetwise 1, Vacc Suit 1

The Traveller served aboard an exploration or survey starship, gaining a broad selection of shipboard and problem-solving skills.

SPACER (COMMAND)

STR	—	INT	+1	BENEFITS
DEX	—	EDU	—	Rank 2 (lieutenant or 4th officer), Cr75000, 1 Ally (former colleague or government official)
END	—	SOC	—	
SKILLS				

Admin 1, Advocate 0, Astrogation 1, Broker 0, Electronics (sensors) 1, Gunner 1, Leadership 0, Persuade 0, Pilot (starship) 2, Tactics 0, Vacc Suit 1

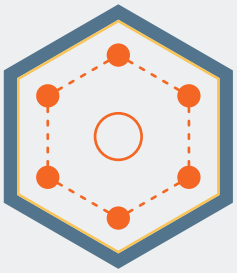
The Traveller was an officer aboard a naval or commercial starship, serving as part of the bridge or flight crew.

WANDERER

STR	—	INT	—	BENEFITS
DEX	—	EDU	—	Cr2500, 3 Contacts and 1 Ally
END	—	SOC	—	

SKILLS

Carouse 0, Deception 0, Drive 0, Gun Combat 0, Mechanic 0, Melee (unarmed) 1, Profession 0, Recon 1, Stealth 1, Steward 1, Streetwise 2, Survival 0, Vacc Suit 1



A wanderer is essentially a spacegoing bum, moving from one world to another. The wanderer may be searching for something or trying to leave something behind. Wanderers tend to pick up useful shipboard skills from working passage aboard starships or professional skills from their odd jobs.

FINALISING THE TRAVELLER

The background and career packages can be used to create a quick template for a Traveller. However, there will usually be a skill that is desirable but lies outside the realm of what otherwise looks like an attractive package. To tailor the Traveller to the desired style of play, one option is permitted from each of the three categories below.

CAREER

1. Increase any skill offered at level 1 or above in the Traveller's career package to level 4
2. Increase any 3 skills listed in the Traveller's career package at any level by one each, to a maximum of 2
3. Leave the service at Rank 4 without gaining extra skills

TRAVELLER SKILLS

Choose any of the skill pairs listed below, both at level 1.

1. Vacc Suit and Steward
2. Gunner (any) and Mechanic
3. Pilot and Electronics (any)
4. Gun Combat (any) and Recon
5. Melee (any) and Streetwise
6. Broker and Admin
7. Carouse and Deception
8. Engineer (any) and Electronics (any)
9. Science (any) and Investigate
10. Drive (any) and Profession (any)
11. Survival and Navigation
12. Medic and Admin

BENEFITS

1. 1 Ship Share
2. Cr100000 in cash
3. Combat implant
4. 1 Ally and 2 Contacts
5. TAS Membership
6. SOC+1

POINT-BUY CREATION

This option enables a Traveller to enter play with exactly the desired skills and characteristics, using a point-buy system. The default option is career-based point-buy; under this system the skills available to a Traveller are dictated by the career being followed and should be determined on a term-by-term basis. However, there is also a 'free point-buy' system under which Travellers can choose whatever skills and benefits they please – subject as usual to Referee approval. This system is also useful for quickly creating non-player characters.

The Referee may decide what types of Traveller are permissible, or may exclude certain alien races from this system for reasons of play balance or to avoid creating Travellers that will not fit into the setting. An unusual choice accompanied by a good backstory and rationale might be permissible at the Referee's discretion.

STARTING POINTS

The amount of points available depends on how 'heroic' the Referee wants the Travellers to be and can be varied. For example, 250 points will create a typical Traveller with a reasonable set of starting skills.

Step 1: Starting Characteristics
The Traveller begins with all characteristics set at a value of 0.

Step 2: Racial Modifiers
If there are racial modifiers to characteristics, they are applied before any characteristic points are bought. This may result in a negative value which must be offset by spending points. Any skills gained as a result of the Traveller's species choice are noted and gained at no cost.

Step 3: Buy Characteristics
The Traveller's characteristics may be modified up or down using points. No characteristic can be reduced below 1 or above the normal maximum for the Traveller's species.

Step 4: Select Background Skills
The Traveller gains the usual number of background skills as per the *Traveller Core Rulebook*. These skills are taken from the Background Skills list on page 8 of the *Traveller Core Rulebook* and gained at level 0.

Step 5: Select Skills
The Traveller may purchase any permissible skills using points. If the career-based option is in use, the Traveller must declare what career they are pursuing and can only select skills from that career's tables. If the Traveller wants skills from more than one career, he must select all those desired in the first career then declare a switch to another career (accompanied by a plausible rationale) at a cost of 5 points. The Traveller can switch careers repeatedly at an additional cost of 5 points per switch. So, a Traveller who wanted skills from three careers would have to switch twice, at a cost of 5 points for the first and 10 for the second career change. If the free point-buy method is used, the Traveller may select any skills.

Step 6: Select Additional Benefits and Drawbacks
The Traveller may now select additional benefits, starting equipment, cash and other final details. In some cases this may result in a gain of points which can be spent on additional skill levels.

Characteristic Costs

Characteristic Value	Cost to Increase
Negative or 0	1
1–2	1
3–5	2
6–8	3
9–11	4
12–14	5
15+	6

Cost To Buy

Characteristic Value	Cost to Buy
0	0
1	1
2	2
3	4
4	6
5	8
6	11
7	14
8	17
9	21
10	25
11	29
12	34
13	39
14	44
15	50

CHARACTERISTIC COSTS

Characteristics are bought one level at a time, at a cost determined by the current value of the characteristic. Reducing a characteristic by one level gains the Traveller the points back.

COST TO BUY CHARACTERISTICS

The Cost to Buy table indicates the cost to buy a characteristic value outright rather than calculating each increase. This assumes that no racial modifiers have been applied and the characteristic started at 0. As a point of reference, a human Traveller must expend 84 points to buy six characteristics at a value of 7.

Skill Level Costs

Level	Cost	Combined Cost
0	3	3
1	6	9
2	9	18
3	12	30
4	15	45
5	18	63
6	21	84

SKILL LEVEL COSTS

Each skill must be bought one level at a time, including level 0. With the exception of Jack-of-All-Trades, all skills cost the same to learn and develop, the cost of obtaining a skill based on its new level. The Jack-of-All- Trades skill costs five times the value listed on the Skill Level Costs table.

The usual limit of level 4 applies to all skills unless the Referee chooses to remove it. The Skill Level Costs table includes skill increase costs beyond level 4 for the sake of completeness.

As a guideline, taking one skill at level 3, two at level 2 and three at level 1 plus six skills at level 0 costs a Traveller 111 points. The Traveller would also have some free level 0 skills as a result of his background.

RANK AND OTHER BENEFITS

Rank and other benefits are bought with points like anything else the Traveller wants to have. All items in the Rank and Benefits table are bought outright rather than by level.

Ranks and Benefits

Benefit	Cost	Benefit	Cost
Rank: Commission	25	Contact	5
Rank 1	5	Ally	10
Rank 2	10	Rival	-5
Rank 3	15	Enemy	-10
Rank 4	20	Benefit Item	5
Rank 5	25	Equipment Allowance	1
Rank 6	30	Starting Cash	1

Negative values indicate a points gain for taking a Rival or Enemy. No more than three Rivals or Enemies can be taken by the Traveller.

Benefit Item permits the Traveller to choose any of the standard benefit items for their career (or any career if the free point-buy method is being used). Examples include: gun, blade, weapon, TAS Membership, Armour, Combat Implant and so forth. Items must be physical – a Traveller cannot take 'gun' more than once and receive skill levels instead, and cannot take any benefit that alters a characteristic. Ship shares are not available under this system.

Each point allocated to Equipment Allowance gives the Traveller Cr2000 to spend on starting equipment. The Referee should adjudicate what is available – grav tanks, battle dress and a fleet of combat robots are not really appropriate as starting equipment. The allowance must be spent on equipment and cannot be converted to cash but need not all be spent before play starts. A Traveller who has not spent his whole allowance can be assumed to have some gear stashed away or on back order from the manufacturer.

Each point allocated to Starting Cash gives the Traveller Cr1000 in cash.

VERY QUICK POINT-BUY

A Traveller with straight 7s for all characteristics costs 84 points. Giving this Traveller one skill at level 3, two at level 2, three at level 1 and six at level 0 costs 111 points for a total of 195 points. If very quick point-buy is desired, take this as a starting point and allocate the remaining points (55 remaining out of 250 for a typical Traveller) as desired.

ALLIES, CONTACTS, RIVALS AND ENEMIES

The *Traveller Core Rulebook* includes rules for Allies, Contacts, Rivals and Enemies. This chapter deals with these people in more detail. It allows a Traveller to have Allies who hate them or an Enemy that would do anything for just a kind word from them, creating additional opportunities for roleplaying and storytelling.

Whenever a Traveller acquires an Ally, Contact, Rival or Enemy, the following system can be used to determine their nature and characteristics. The process is as follows:

1. Determine the degree of Affinity or Enmity towards the Traveller
2. Determine the degree of Power or Influence
3. Determine any special characteristics

DEGREE OF AFFINITY OR ENMITY

Not all Enemies are hell-bent on the destruction of the Traveller. Some are hostile in a passive manner and will simply refuse to help rather than going out of their way to set death-traps. At the other end of the scale is the implacable Enemy who will pursue the Traveller to the grave and might even find a way to arrange posthumous revenge. Some Rivals are actually friendly to the Traveller but have an agenda that will cause them to put their own requirements before those of a friend.

Likewise, some Contacts are pretty neutral or even a little hostile but will still prove useful if a deal is beneficial to them. Some Allies are willing to fight to the death for a Traveller others merely well-disposed but not willing to put themselves out.

Relationships

Relationship	Affinity	Enmity
Ally	2D	0
Contact	1D+1	1D-1
Rival	1D-1	1D+1
Enemy	0	2D

Every Ally, Contact, Rival or Enemy has a degree of Affinity and a degree of Enmity. Often one of these values is zero, placing them firmly on one side of the line or the other. However, some relationships are more complex than this, making these people unpredictable. Interactions with them have the potential to be tragic, or may be the key to undoing the plots of their masters if they can be won over.

AFFINITY

Affinity represents how favourably inclined the person is towards the Traveller. It is rated from zero to six.

ENMITY

Enmity is the opposite of Affinity. It indicates how much trouble the person will go to in order to harm or impede the Traveller. It is rated from zero to negative six.

AFFINITY AND ENMITY AS INDICATORS

The sum of Affinity and Enmity values is a useful indicator of an individual's actions toward the Traveller. For example, a former friend who feels bitterly betrayed but sometimes remembers the good times might have an Affinity value of 3 and an Enmity value of -4, giving a net -1. On average, this person will not actively seek to harm the Traveller. However, depending on circumstances he might act in an unexpectedly positive manner – although in a bitter and 'don't you dare thank me' sort of way. On another day he might screw over his former friend out of spite and later regret it.

Affinity/Enmity

Result	Value
2	0
3–4	1/-1
5–6	2/-2
7–8	3/-3
9–10	4/-4
11	5/-5

DETERMINING AFFINITY AND ENMITY

Very high levels of Affinity and Enmity are extremely uncommon. Even Enemies and Allies are usually fairly moderate in their outlook and will not allow their relations with the Traveller to dominate their lives. There are, however, exceptions. The base score for Affinity and Enmity is determined by rolling the appropriate dice on the Relationships table and then comparing them to the Affinity/Enmity table.

Note that this occasionally creates Contacts who are more negatively than positively disposed towards the Traveller and Rivals who actually rather like the Traveller and are disposed to help them when possible. This can create an interesting situation with many possibilities for roleplaying.

For example, Ivah has a Rival and an Enemy as a result of her time in the Scout Service. Her Rival rolls 1D-1 for Affinity, getting a result of 5. This indicates an Affinity of 2. Her score on 1D+1 for Enmity is a 2, which indicates an Enmity value of 0.

Ivah's Rival actually likes her and has no hostility towards her. Ivah declares the two were friends whose similar career paths caused one to lose out in favour of the other on various occasions. Each has occasionally had to put their own interests first, which has strained their relationship. However, Ivah's Rival is generally inclined to help her if it is not much trouble and if it does not impede his own progress. Ivah decides that her Rival is now the leader of a team of Scouts and that Ivah believes she should have held that post. The next time they meet things might get complicated, especially if they start taking risks to try to outdo one another in a way that starts out friendly but escalates…

The Enemy is rather more clear-cut. His Affinity roll is automatically a zero, indicating no friendly intentions whatsoever towards Ivah. The roll for Enmity comes up an 8, giving a base value of -3. This might change as other characteristics are generated but for the time being his outlook towards Ivah is very negative. Ivah decides this is another fellow Scout who was dropped from the team at Ivah's recommendation and is intent on revenge. Although his enmity is not serious enough to contemplate murder or waste his life pursuing, this enemy feels that Ivah deserves anything bad that befalls her. For her part, Ivah wonders if losing leadership of the Scout team to her Rival was something to do with this Enemy, further complicating her relationships.

Affinity	Degree of Affinity	Notes
0	None	No Affinity towards the Traveller. This may be an enemy or just someone who does not care at all what happens to the Traveller, depending on Enmity.
1	Vaguely well inclined	About as well inclined towards the Traveller as any random stranger with a social conscience is likely to be. They will take minor actions to help, largely out of common courtesy, but not go to much trouble on the Traveller's behalf unless there are benefits to the action.
2	Positively inclined	Will probably help in a safe and easy manner if asked, even without reward, but will not take much risk.
3	Very positively inclined	Will take modest risks on the Traveller's behalf or offer help without being asked, if they realise their friend could benefit.
4	Loyal friend	Will do almost anything to help the Traveller but may have higher loyalties to their own family, cause or service, or to other close friends.
5	Love*	Will probably put the Traveller's interests before their own or that of others.
6	Fanatical**	Will do whatever the Traveller asks of them (or what they think the Traveller would want), no matter what risks are involved. May also expect others to do the same.

* Love might be romantic or in the manner of a close family member, comrade through some traumatic event, or the like. Someone who owes a debt of honour to the Traveller, even if they do not like the Traveller all that much, might also have an affinity value of 5.

** This level of affinity is rare and may not be healthy for either party. A deluded stalker might have an affinity value of 6 but other considerations make them dangerous.

Enmity	Degree of Enmity	Notes
0	None	No Enmity towards the Traveller. This may be because they do not know who the Traveller is, or because the Traveller has done nothing to offend them.
-1	Mistrustful	Vaguely ill-disposed towards the Traveller (or perhaps everyone in general) but will not go out of their way to impede them. Someone with an Enmity value of -1 is unlikely to take an action that will have serious consequences for the Traveller unless there is some great benefit.
-2	Negatively inclined	May engage in acts of petty spite for no gain, just to annoy and upset the Traveller. Someone with an Enmity value of -2 will probably stop short of actions that would seriously harm or kill the Traveller.
-3	Very negatively inclined	Will go to some trouble to impede the Traveller, just out of spite. Does not care much what happens to the Traveller and will more than likely feel they deserve anything they get.
-4	Hatred	Will do almost anything to get one over on the Traveller. Might actively plot against the Traveller for the sake of revenge or causing further harm even if there is little or no gain involved.
-5	Bitter hatred*	Will actively plot or take serious risks to cause the Traveller harm at any opportunity.
-6	Blinded by hate**	May engage in self-destructive actions in order to harm the Traveller or put innocents at risk.

* Bitter hatred can also represent an obligation to destroy the Traveller. The reasons might be personal or on behalf of someone else. Alternatively, the enmity might be due to the Traveller's opposition to a cause. It might even be altruistic after a fashion – someone who genuinely believes the Traveller is a bad guy who must be stopped may be just as determined to destroy them as someone who hates the Traveller on a personal level.

** Someone with this much hated may be willing to harm others to get to the Traveller and may extend their enmity to his friends and comrades.

DETERMINING POWER AND INFLUENCE

Some associates and enemies are more valuable than others and not always in a tangible way. The two key factors are Power and Influence.

Power represents the level of force, money or other assets can be directly brought to bear. This does not mean the individual can always send in the troops – an army officer might command a powerful force but it is unlikely he will be able to divert it halfway across the sector to help out an old friend without an overwhelmingly good reason. However, very powerful individuals can often use a small part of their overall powerbase without compromising their position.

Influence is less obvious than Power but in many ways more versatile. When action is taken using gunmen, cases of cash, or the direct intervention of a top-end legal team, it is usually very apparent what has happened. On the other hand, an influential individual might discreetly put an idea in the mind of a powerful legislator, or remind a sector duke that his nephew owes his life to the Travellers without actually asking for anything. Influence can sometimes result in power being used from a different direction; subtly and without trace.

For any given person, Power and Influence are determined by rolling on the Power/Influence table. Some individuals may have a lot of one and very little of the other, most have a little of both. Note that this method indicates the level of power this individual can actually wield rather than everything their position has available. The owner of a vast business empire might not actually be able to bring much leverage to bear on a problem due to constraints of accountability and barriers built into the structure of his business.

A person with Power and Influence values of zero is still capable of bringing their own personal talents to bear. Conversely, just because someone has a given level of Power or Influence does not always mean they can use it or choose to do so.

DETERMINING SPECIAL CHARACTERISTICS

The general nature of the association may be indicated by the career event that created it but there is often a more complex story waiting to be told. At the Referee's discretion, a given Contact, Ally, Rival or Enemy can be further fleshed out. The Referee should decide how many of the Traveller's associations are to be expanded in this way or roll 2D for each one; on a score of 8+ there are special characteristics.

Determine the nature of these characteristics on the table below by rolling D66 (as defined on page 5 of the *Traveller Core Rulebook*). These characteristics can modify values already generated, or create a complex relationship where someone is an Enemy but well disposed towards the Traveller. A situation like this might arise where an individual is required by honour to avenge an incident but has come to like and respect the Traveller despite the enmity between them. The converse might apply when causes and agendas align but the people involved hate one another.

Affinity and Enmity have a maximum value of 6. If either reaches 6, it cannot be further modified and the Traveller has a fanatical friend or enemy no matter what else happens.

Power/Influence

2D	Value
2–5	0
6–7	1
8	2
9	3
10	4
11	5
12	6

Power Values

Power	Degree of Power	Notes
0	Powerless	The individual has virtually no resources they can bring to bear other than their own personal possessions.
1	Weak	Has a few friends or contacts who might be willing to help; the equivalent of a typical band of Travellers.
2	Useful	Has a significant asset such as a small starship and crew, or a small force of skilled mercenaries, high-end lawyers or the like.
3	Moderately Powerful	Has access to very significant assets such as a mercenary unit or a modest sized business entity.
4	Powerful	Has powerful assets, equivalent to a small merchant shipping line or major business group.
5	Very Powerful	Has enormous power, such as someone in the top echelons of a planetary government or the CEO of a large shipping line.
6	Major Player	Is a factor in interstellar politics, such as a navy admiral or an official in an interstellar government.

Influence Values

Influence	Degree of Influence	Notes
0	No Influence	Has virtually no influence over anyone.
1	Little Influence	Owed a couple of favours by minor officials and local notables such as the leader of a street gang or a port authority official.
2	Some Influence	Has one or more minor local notables ‘in their pocket’ and can get them to act illegally or dangerously on the odd occasion.
3	Influential	Has some influence over powerful people such as mid-level planetary government officials or rich portside merchant factors.
4	Highly Influential	Has some influence at the interplanetary level with government or underworld figures that owe him a favour or two.
5	Extremely Influential	Has very significant influence at the interstellar level and can lean on lawmakers or officials in interstellar government.
6	Kingmaker	Has the ear of extremely powerful people, such as the ruling noble of the local subsector.

D66	Characteristic
11	This individual has reasons to forgive the Traveller or to like them more than usual. Increase Affinity by +1
12	Relations between the Traveller and this individual went particularly sour. Increase Enmity +1 and decrease Affinity by -1 if it is 1 or greater.
13	Something happened that altered the relationship between Traveller and Associate. Increase Affinity by +1 and decrease Enmity by -1.
14	An incident increases the Enmity between the Traveller and this individual by +1.
15	The relationship becomes more moderate; an Enemy becomes a Rival and an Ally becomes a Contact. Reroll Affinity and Enmity.
16	The relationship intensifies. A Rival becomes an Enemy and a Contact becomes an Ally. Reroll Affinity and Enmity.
21	This individual gains in power. Increase Power by +1.
22	This individual loses some of their power base. Reduce Power by -1.
23	This individual gains influence. Increase Influence by +1.
24	This individual's influence is diminished. Decrease Influence by -1.
25	This individual gains in both power and influence. Increase each by +1.
26	This individual is diminished in both power and influence. Decrease each by -1.

31	This individual belongs to an unusual cultural or religious group.
32	This individual belongs to an uncommon alien species.
33	This individual is particularly unusual, such as an artificial intelligence or very alien being.
34	This individual is actually an organisation such as a political movement or modest sized business. Powerful groups will want a lot in return for their support; minor ones will expect less but may not be able to offer much support.
35	This individual is a member of an organisation which holds a generally opposite view of the Traveller. Thus an Ally is a member of an organisation which opposes the Traveller's agenda.
36	This individual is a questionable figure such as a criminal, pirate or disgraced noble. The Traveller will be judged by association.
41	The Traveller and this individual had a very bad falling out. Reroll Enmity on 2D and use the new result if higher than the original.
42	The Traveller and this individual had a reconciliation or other very positive change in their relationship. Reroll Affinity on 2D and apply the new result if it is higher than the original.
43	This individual fell on hard times. Reduce Power by -1.
44	This individual was ruined by misfortune caused by the Traveller. Reduce Power to 0 and increase Enmity by +1.
45	This individual gained influence with the Traveller's assistance. Increase Influence by 1 level and Affinity by 1 level.
46	This individual gained power at the expense of a third party who now blames the Traveller. Increase Power by +1 and create a new Enemy for both the Traveller and this individual.
51	This individual is missing under suspicious circumstances.
52	This individual is out of contact doing something interesting but not suspicious. Their reappearance may bring about an unexpected opportunity.
53	This individual is in desperate trouble and could use the Traveller's help.
54	This individual has had an unexpected run of good fortune lately.
55	This individual is in prison or otherwise trapped somewhere.
56	This individual is found or reported dead. This may or may not be the whole story…
61	This individual has recently married or has experienced some other life-changing event that creates new responsibilities.
62	This individual has been disowned by family, has become divorced, or otherwise has suffered a negatively life-changing event.
63	This individual's relationships have begun to affect the Traveller. Create a new Contact if this individual's Affinity is higher than Enmity or a Rival if Enmity is higher than Affinity.
64	The relationship between Traveller and associate is completely redefined. Allies become Enemies and vice versa; Rivals become Contacts. Swap the Affinity and Enmity values over.
65	Roll two more special characteristics.
66	Roll three more special characteristics.

PRE-CAREER OPTIONS

The following pre-career options are available in addition to University and Military Academy, which are described in the *Traveller Core Rulebook*.

COLONIAL UPBRINGING

Those who grow up in the outback of a developed world or on a new colony do not always have the option to follow a normal career path. A youngster with dreams of joining the navy or becoming an interstellar entertainer may instead find themselves stuck on the farm for another couple of years, and even then it may not be easy to get into a prestigious service.

A colonial upbringing provides slightly more than the usual set of skills, as learning starts early. On the downside, education tends to be lacking and transition into a career can be difficult. A Traveller who had a colonial upbringing may find it a little easier to get into certain careers as their specialist skills may be in demand, but suffers DM-2 on all attempts to get into any career not listed for a recruitment bonus. In addition, a Traveller from a colonial background suffers DM-1 on all checks to achieve commission or promotion throughout his entire career.

Travellers from a colonial background receive DM+1 to qualify for the Rogue or Scout careers.

Entry: Automatic if homeworld is TL8-

Skills: Animals 0, Athletics 0, Drive 0, Gun Combat 0, Mechanic 0, Medic 0, Navigation 0, Recon 0, Profession 0, Seafarer 0, Survival 1.

Graduation: INT 8+. DM+1 if END 8+. If 12+ is rolled, graduate with honours.

Graduation Benefits:

- Increase one skill already gained at level 0 to level 1.
- Gain any two other skills listed above at level 1 or increase one skill already possessed by one level.
- Gain Jack-of-all-Trades at level 1.
- 'Honours' graduates gain Leadership 1 and may increase any other skill gained at level 0 to level 1.
- Increase END by +1, and decrease EDU by -D3.

The Traveller is aged 22+2D3 years when entering their first career.

MERCHANT ACADEMY

Those intending to embark upon a career aboard merchant starships or as a portside broker can enrol on a suitable training programme. Some courses are run like a university degree, whilst others are much more vocational. Some large merchant lines have training ships or cadet berths aboard their larger vessels, where a prospective employee can learn on the job. The end result is much the same, with graduates being prepared for a fast-track career in interstellar commerce.

Not all graduates find employment with a major shipping line or port operator. Some are snapped up by smaller lines; others decide to take a different path and embark upon another career. Many businesses value mercantile graduates despite them not being in the shipping sector, making the Merchant Academy a good starting point for a career in management or diplomacy.

Upon entry to the academy, a Traveller must choose whether to follow the Business or Shipboard curriculum.

Entry: INT 9+, DM +1 if SOC 8+

Skills: If the Business curriculum is chosen, gain all skills on the Broker table of the Merchant career at level 0. If the Shipboard curriculum is selected instead, gain all skills on the Merchant Marine table at level 0. In addition, gain one skill rolled randomly on the Service Skills table at level 1.

Graduation: INT 7+, DM+1 if EDU 8+, DM+1 if SOC 8+. If 11+ is rolled, the Traveller graduates with honours.

Graduation Benefits:

- Increase one skill already gained from the Broker or Merchant Marine table to level 1.
- Increase EDU by +1.
- The Traveller may enter the Merchant or Citizen career automatically at rank 1, providing this is the first career they enter after the academy and they enter the appropriate branch (Merchant Marine or Broker as per their academy path).
- An honours graduate may enter the above careers at rank 2, gaining the automatic skill for that rank.
- Graduates gain DM+1 on all advancement checks in the Merchant or Citizen careers. Honours graduates gain DM+2 on these checks.

PSIONIC COMMUNITY

Some Travellers are lucky enough to be born into a community where psionics are used and will receive testing and training as a matter of course. Such communities tend to be either physically or socially isolated from the wider universe, which can often leave a Traveller without necessary skills when venturing out to begin a career. It is unlikely that a psionic community will be among the upper echelons of society. Many will live simple lives without the distractions of high technology; others blend in among ordinary citizens and are too focused on their psionic studies to achieve great things in the world of business or the military.

On the other hand, growing up among psions means a Traveller will automatically be tested for potential and talents, and will receive at least some training. Graduates of a psionic community will have completed whatever training the combinate can offer, whilst honours graduates are among their most promising young members. A community might not be keen to see such an individual leave.

Entry: PSI 8+, DM+1 if INT 8+

Skills: Profession 0, Science 0, Streetwise 0

Additional: The young psionicist is tested and receives skill level 0 in each talent gained.

Graduation: PSI 6+, DM+1 if INT 8+. If 12+ is rolled, graduate with honours.

Graduation Benefits:

- Increase PSI by +1.
- Skill level 1 in any one talent possessed.
- Science (psionicology) 1.
- ‘Honours’ graduates gain all acquired talents at level 1 and may advance one to level 2.
- Enlistment in the Psion career is automatic, even if the Traveller serves in other careers in between.
- Gain a Rival who is unhappy they left the community. Honours graduates gain an Enemy instead.

SCHOOL OF HARD KNOCKS

Some Travellers grow up on the fringes of society and are denied the usual opportunities to enter a career or enlist in a service. Not all of these people are criminals but many come into contact with crime one way or another. Those that get out of that world fall into two categories: some leave it as far behind as possible and others take it with them wherever they go.

Streetwise recruits from slums and alleys of big cities are sometimes desirable for their special knowledge and skills but are rarely promoted and often mistrusted; a graduate of the school of hard knocks can expect to spend a career on the bottom rungs. Some are proud to serve and glad to make a better life. Others are less satisfied and become a problem for their employers. Either way, careers tend to be short.

Entry: Automatic if SOC 6-

Skills: Streetwise 1, plus any two of: Athletics 0, Deception 0, Drive 0, Gambler 0, Melee 0, Persuade 0, Stealth 0.

Graduation: INT 7+. DM+1 if END 9+. If 11+ is rolled, graduate with honours.

Graduation Benefits:

- Gain any three other skills listed above at level 0.
- Gain Gun Combat 0.
- 'Honours' graduates gain Carouse 1 and may increase any other skill gained at level 0 to level 1.
- Decrease SOC by -1.
- DM-2 on checks to gain promotion or commission in first career. If the Traveller leaves this career by choice, checks in subsequent careers are as normal.

SPACER COMMUNITY

Most who grow up on an orbital habitat or asteroid belt community live a life much like anyone else in a high-tech city. For these people, their homes might as well be planetside, other than the slim chance of a life-support failure or similar disaster. However, not all space habitats are like this. Some are collections of small settlements in a planetoid field, with shuttles plying between them. For the inhabitants of such a community, formal education is likely to take second place to rule-of-thumb instruction in how to survive and get a day's work done in a spacer environment.

Some Travellers leave the community and seek a normal career elsewhere but many hang around for a few years, picking up skills that might make them invaluable to a small merchant ship or similar employer where competence is more important than documentation.

'Graduates' of a spacer community have had instruction from skilled people, whilst 'honours graduates' come out with additional skills which may have been gained at the cost of harrowing experiences.

Entry: Automatic if homeworld size Code 0. Int 4+, DM+1 if DEX 8+

Skills: Vacc Suit 1, plus any two of the following: Astrogation 0, Electronics 0, Engineer 0, Profession 0.

Graduation: INT 8+, DM+1 if DEX 6+. If 12+ is rolled, graduate with honours.

Graduation Benefits:

- Gain any two other skills listed above at level 0.
- Gain any skill listed above at level 1.
- Gain Pilot 0.
- 'Honours' graduates gain Jack-of-all-Trades 1.
- Increase DEX by +1, Decrease SOC by -2.
- DM+1 to enlist, gain commission or promotion in the Merchant (free trader) career.

ADDITIONAL CAREERS

TRUTHER

A truther is someone who seeks (or knows, or claims to know) the truth about some fringe subject. In the Third Imperium the most universal truthers are those who seek knowledge of the Ancients or who say they know secrets about them. There are many other kinds of truther, however, from fringe scientists working on far-out psionic phenomena to paranormal investigators or conspiracy theorists.

Truthers are defined by the Truth they seek or the knowledge they have. Their actual background and occupation may be quite mundane, or they may support themselves by various means (anything from odd jobs to crime or embezzlement) whilst they undertake their investigations or spread the Truth. Some truthers may gain the patronage of an organisation or group of followers whilst others are a lonely voice in the wilderness.

Truthers do not have a conventional rank system but instead have an additional characteristic, called Following (FOL). This starts at 0 and can be increased by events during their career or later in play. FOL indicates how many people believe the truther's message, although this in no way influences whether or not any of it is the actual truth.

The Interaction DM shown on the Following table is used whenever the truther deals with media, crowds or officials. It is applied as a positive DM to Persuade checks when delivering The Message to the masses or meeting fellow truthers, and as a negative DM when dealing with straight-laced officials. Thus the Interaction DM would be used positively to persuade fellow believers to follow the truther into a restricted area to protest endangerment of a local creature's habitat, and as a negative DM to the reaction of officials when he turns up at the gates of a facility demanding entry or access to records. In short, the more credible the truther is with his fellow believers, the less authorities like him.

BELIEVER

A believer may be part of a formal religious order or a much looser one based upon personal belief. They may also be part of a belief system that is not a religion, such as a self-improvement scheme or fitness programme. It may be that a Believer might not actually believe the tenets of his professed faith but advocates them to others for his own gain.

Most members of a religious movement or similar belief system lead sedentary lives, either as religious professionals or lay persons with a mundane job and strong beliefs. Some belief systems are rather violent, however, whilst others are active on the humanitarian front and send delegations to disaster zones. It is quite possible for a religious career to lead to the captaincy of a mercy-starship or leadership of a band of holy warriors.

The Traveller's knowledge about his religion or belief system and its tenets is represented by a Science skill. This can be tailored to the Traveller's religion – Science (unified interstellar mythology) or Science (church of the overmind), for example. The Profession (religion) skill demonstrates the ability to carry out ceremonies without forgetting parts or dropping the holy relics but conveys only a basic knowledge of the religion's secrets.

Most benefits of a believer career are spiritual. However, a sufficiently prominent or worthy person might qualify for the equivalent of sainthood. For non-religious belief systems this represents legendary status as an icon of the belief system, who others want to emulate.

This benefit can be gained more than once. Anyone considered to be a sainthood candidate gains DM+2 on all interactions with members of the same belief system or anyone else who respects it. In addition, each time candidacy is indicated, the Traveller may make a Formidable (14+) Science (belief) check, subject to DM+1 for every instance of sainthood candidacy; success results in the Traveller becoming a living saint. A Traveller considered to be a living saint gains DM+4 on all interactions with anyone who is part of their own belief system or who respects it.

14 TRUTHER

Qualification: None.
Anyone of any background can be a truther.

MUSTERING OUT BENEFITS

Minor Following: The truther has gained a small but avid audience, who devour his vidcasts and loudly repeat his assertions. A Minor Following provides one Contact and in addition adds D3 to the truther's FOL.

Major Following: The truther has established a following who lap up whatever nonsense he spouts, no matter how outrageous. A Major Following provides an Ally and adds 1D+1 to the Truther's FOL.

Patronage: The truther has won the patronage of a body or individual. This comes with a Cr10000 per year stipend, although the patron may want the truther to make the occasional appearance or vid presentation. Patronage also grants access to the patron's social circle, who might view the truther as an amusing oddity or become followers themselves.

CAREER PROGRESS

	SURVIVAL	ADVANCEMENT
Truther	FOL 4+	N/A

MUSTERING OUT BENEFITS

1D	CASH	BENEFITS
1	Cr1000	INT +1
2	Cr2000	Minor Following
3	Cr5000	Patronage
4	Cr10000	SOC +1
5	Cr25000	Major Following
6	Cr50000	TAS Membership
7	Cr100000	3 Ship Shares

** Truthers with FOL 10+ add +1 to their Benefit rolls.*

SKILLS AND TRAINING

1D	PERSONAL DEVELOPMENT	SERVICE SKILLS	SPECIALIST SKILLS
1	INT +1	Investigate	Profession (any)
2	EDU +1	Art (writing)	Science (any) or Medic
3	FOL +1	Language (any)	Science (any)
4	Admin	Electronics (computers)	Investigate
5	Carouse	Diplomat	Science (any)
6	Persuade	Persuade	Science (any)

FOLLOWING

FOL	TRUTHER'S REPUTATION	INTERACTION DM
0–3	Harmless crank	0
4–6	Typical minor truther	1
7–9	Notable figure	2
10–12	Highly influential truther	3
13+	Legend or public menace, depending on your viewpoint	4

MISHAPS

1D	MISHAP
1	Injured in a misadventure or attacked by a deranged objector to your work, you must roll on the Injury table and leave this career.
2	Someone affected by the Truth you seek or reveal bears a grudge and swears to kill you. Gain an Enemy.
3	You are discredited, rightly or wrongly. Lose SOC -2 and FOL -D3 but you are not ejected from this career.
4	You discover that at least some of your work is based on erroneous thinking. Lose 1 skill level from any Science skill but you do not have to leave this career.
5	Your Truth is misused or misrepresented and you get the blame. Lose all Benefit rolls gained thus far in this career but you do not have to leave this career.
6	Your Truthing alienates former colleagues and contacts, who are determined to bring you down. Gain D3 Rivals.

EVENTS

2D	EVENT
2	Disaster! Roll on the Mishap table but you are not ejected from this career.
3	A corporate or government body wants to use your knowledge in a way you find questionable. If you agree, gain an extra Benefit roll and one level in any Science skill, but also D3 Enemies.
4	You are called upon as a consultant for a secret research project. Gain one Contact and +1 on one Benefit roll.
5	Understanding some new revelation requires a crash course in a field you lacked knowledge of. Gain one level in any Electronics or Science skill you previously did not already possess.
6	Your search for Truth takes you out onto the frontiers. Gain one level of Survival or Recon.
7	Life Event. Roll on the Life Events table.
8	You make a series of high-profile appearances on entertainment/topical news shows. Gain one level of Carouse or Persuade, and gain FOL +1.
9	A golden opportunity lands in your lap but taking advantage of it will harm someone else's career. If you decide to go ahead, you are you gain FOL +D3 OR gain SOC +1 OR two levels in any of the following skills: Science, Medic, Electronics. This also gains you D3 Enemies. Deciding not to take advantage gains you an Ally.
10	You come into contact with a mysterious group who are interested in your Truth. Interactions with them are vague and secretive. Gain one level of Streetwise, Recon or Carousing, and D3 Contacts.
11	A very public disagreement with another truther or a disbeliever goes in your favour and you become something of a celebrity. Gain SOC +1 but also a Rival.
12	Your previously obscure work becomes a lot more mainstream after a new scientific or academic breakthrough. Gain FOL +D3.

15 BELIEVER

Qualification: None.
The Believer career is open to anyone.

ASSIGNMENTS

Choose one of the following:

Mainstream Believer: You belong to a widespread church and are sure of your place in the universe.

Missionary/Humanitarian: You spread the word of your faith across the stars, to anyone willing to listen to the good message.

Holy Warrior: There are too many unbelievers in the universe. You will make them believe.

**When gaining skills for basic training, use the table for the Traveller's specialism (mainstream, humanitarian or holy warrior) rather than service skills.*

CAREER PROGRESS

	SURVIVAL	ADVANCEMENT
Mainstream Believer	SOC 3+	SOC 8+
Missionary/ Humanitarian	INT 6+	SOC 7+
Holy Warrior	INT 8+	INT 5+

MUSTERING OUT BENEFITS

1D	CASH	BENEFITS
1	None	The knowledge that your soul is saved
2	Cr1000	You will be rewarded in the next life
3	Cr2500	INT +1
4	Cr5000	SOC +1
5	Cr10000	A prominent statue and SOC +1
6	Cr25000	3 Ship Shares
7	Cr50000	Sainthood candidacy

SKILLS AND TRAINING

1D	PERSONAL DEVELOPMENT	SERVICE SKILLS	ADVANCED EDUCATION (MIN EDU 8)
1	INT +1	Profession (religion)	Profession (religion)
2	EDU +1	Science (belief)	Science (any)
3	SOC +1	Admin	Medic
4	Science (belief)	Electronics (computers)	Investigate
5	Profession (religion)	Diplomat	Electronics (computers)
6	Persuade	Persuade	Advocate

1D	MAINSTREAM RELIGION	MISSIONARY/HUMANITARIAN	HOLY WARRIOR
1	Profession (any)	Jack-of-all-Trades	Gun Combat (any)
2	Profession (religion)	Medic	Melee (any)
3	Science (belief)	Persuade	Explosives
4	Drive (any)	Diplomacy	Heavy Weapons
5	Persuade	Carouse	Tactics (military)
6	Admin	Leadership	Athletics (any)

RANK AND BONUSES

RANK	MAINSTREAM BELIEVER	SKILL OR BONUS
0	Lay Person	—
1	Initiate	Science (belief)
2	Lay Preacher	Persuade
3	Priest	—
4	Senior Priest	SOC +1
5	Bishop	—
6	Archbishop	SOC +1

RANK	MISSIONARY/HUMANITARIAN	SKILL OR BONUS
0	Junior Project Worker	—
1	Project Worker	Jack-of-all-Trades
2	Team Leader	Leadership
3	Project Leader	—
4	Project Coordinator	Admin
5	Department Director	—
6	Director	SOC +1

RANK	HOLY WARRIOR	SKILL OR BONUS
0	Hopeful	—
1	Fighter	Gun combat (any)
2	Combat Leader	Leadership
3	Force Commander	—
4	Area Commander	Tactics (military)
5	Movement Sub-Leader	—
6	Movement Leader	—

MISHAPS

1D	MISHAP
1	You are ambushed by opponents of your belief system. You must roll on the Injury table and leave this career.
2	You direct someone to the True Path but this angers a friend or relative of theirs. Gain an Enemy.
3	You are caught on the periphery of a scandal. Lose 1 rank and one Benefit roll but you are not ejected from this career.
4	You have been following false teachings! Lose 1 skill level from either Profession (religion) or Science (belief). You do not have to leave this career.
5	Your faith is shaken (or you develop a conscience about your false religion). Lose all Benefit rolls gained thus far in this career but you do not have to leave this career.
6	You come into conflict with a splinter group of your own religion, which maintains your version is the wrong one. Gain D3 Rivals.

EVENTS

2D	EVENT
2	Disaster! Roll on the Mishap table but you are not ejected from this career.
3	You are involved in good works in the community, gaining the respect of a large segment of society. Gain SOC +1 and an Ally.
4	A notable academic consults with you about a publication or documentary he is working on. Gain a Contact in academia.
5	You are sent to a new community or parish to preach The Word among the poor. Gain one level of Streetwise or Persuade.
6	You retreat from the mundane world for a time in the hope of a revelation, although this affects your work and relationships. Lose SOC -D3 but gain D3 Benefit rolls and DM+1 on these and all future Benefit rolls.
7	Life Event. Roll on the Life Events table.
8	You are chosen to represent your faith in a vid show or other highly public forum. Gain one level of Carouse or Persuade.
9	You are offered inducements to betray your faith. If you do so, you must leave this career and lose all Benefit rolls but gain Cr2D x 10,000 per Benefit roll you lose. If you choose not to sell out, gain 1D Enemies.
10	You are asked to secretly provide religious rites for a dying leader or noble, although they do not share your faith. If you agree, you gain an Ally in their household or family but also a Rival in your own faith, who does not agree with your choice.
11	Someone more charismatic but less devout than you becomes your superior. All future advancement rolls are subject to DM-2.
12	Your faith enjoys an explosion of popularity, largely thanks to your efforts. You are immediately promoted one grade and gain DM+1 on all future advancement checks.

TRAINING AND EXPERIENCE

It is possible for a Traveller to improve his skills or characteristics by being taught, by diligent practise, or as the result of experience gained in the field. All three methods are abstracted by the use of Experience Points.

Experience Points may be awarded by the Referee at the end of an adventure or for ongoing study undertaken by a Traveller. Experience takes two possible forms: Dedicated Experience and General Experience.

Dedicated Experience points are allocated to a specific endeavour and cannot be assigned anywhere else. General Experience can be allocated as the Traveller sees fit, subject to Referee approval and common sense. A Traveller who has just finished an adventure that involved a lot of academic and technical skills, plus a certain amount of running around and getting healthy exercise, could justify putting a General Experience Point into a physical characteristic or technical skill (even one he did not personally use but saw others using). Claiming that the experiences he had on the adventure helped him learn to speak Hiver or become a better astrogator would be silly and should be rejected by the Referee.

Experience Points are gained using the following guidelines.

ADVENTURE EXPERIENCE

At the end of an adventure or group of encounters, an award of 1 General Experience Point would be reasonable, with a bonus point for good roleplaying or a particularly dynamic Traveller. The Referee may choose to allocate no points to a Traveller who did little or failed to become properly involved in the game. For a very long adventure, experience may be given at suitable plot breaks for segments equivalent to a standard adventure.

These points must be allocated immediately to a skill or characteristic the Traveller is trying to develop. They cannot be held in a 'pool' for allocation all at once.

TRAINING

Travellers who are into self-improvement or learning a new job can gain experience through training or study. The typical Traveller who reads the odd journal, tries out a few things from time-to-time and occasionally has a burst of dedication and puts in some actual work, will gain 1 Dedicated Experience point per six months of game time. However much a Traveller may protest that he studies avidly in every available minute, few can keep up full-time study alongside their day job of crewing a starship, defending the free galaxy or whatever it is they do for a living.

If the Morale characteristic is in use (see page 5), it can be used to adjudicate situations where a Traveller wants to spend an unrealistically large amount of time training or studying. If the Luck characteristic is in use (page 4), taking time off and unwinding can be rewarded with regaining expended LCK points, creating a tradeoff between intense personal development and living a fulfilling and rewarding life.

A Traveller who is in full-time training, perhaps taking time to study at a planetary university or college, gains one Dedicated Experience point per four months of study, or 3 points per year.

In the case where one Traveller is teaching another a skill they know, the student may make an Average (8+) INT check with a negative DM equal to the skill level being learned every four months. Thus, a roll to learn a skill at level 0 is made without penalty; at level 2 the penalty is DM-2, and so forth. If the roll is successful, the trainee gains 1 Dedicated Experience point. It is entirely possible to learn nothing; some people are just not good students.

It is only possible to teach another Traveller to a level one below your own skill level. So a Traveller with Vacc Suit 1 can train someone up to level 0, a Traveller with Vacc Suit 3 can train someone up to Vacc Suit 2 and so on.

GAINING SKILLS

To gain a skill at level 0 costs 1 Experience point. Gaining level 1 from level 0 costs 1 more, and after that the cost is doubled, as shown on theGaining Skills table. Each skill level must be bought in turn, including skill 0.

Gaining Skills

Skill Level	Cost to Gain
0	1
1	1
2	2
3	4
4	8
5	16
6	32
7	x2 each level

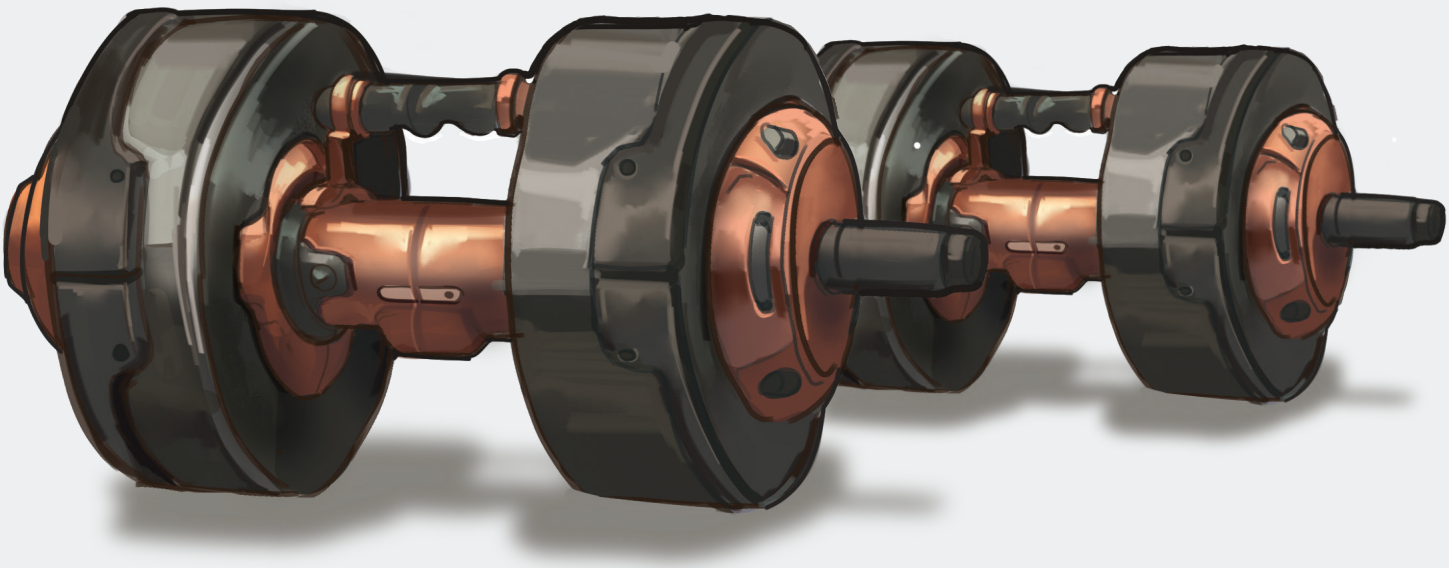
INCREASING CHARACTERISTICS

Physical and mental characteristics may also be increased by appropriate activity. Gym work, sport and general exertion are good for physical characteristics (STR, END and DEX) while study and problem-solving can be used to train the mind (INT and EDU). SOC cannot be trained; a Traveller who wants to improve his SOC will have to do it in-game and spend a lot of Credits in the process.

To increase a physical characteristic, the cost in Experience points is equal to the new level, as shown on the Gaining Characteristics table. For mental characteristics, the cost is double the new level.

Gaining Characteristics

Characteristic Value	Cost to Gain (STR, DEX, END)	Cost to Gain (INT, EDU)
1	1	2
2	2	4
3	3	6
4	4	8
5	5	10
6	6	12
7	7	14
8	8	16
9	9	18
10	10	20
11	11	22
12	12	24
13	13	26
14	14	28
15	15	30



BROAD SKILLS AND SPECIALITIES

The specialities listed in the *Traveller Core Rulebook* are not the only ones possible. The following expanded specialties can be used at the Referee's discretion. In addition, these rules also introduce the concept of a sub-speciality.

BROAD SKILLS

In the *Traveller Core Rulebook*, a Traveller who possesses a skill which has specialities associated with it is treated as having a skill level of 0 in all specialities. In most cases this is a reasonable assumption – a starship engineer who specialises in jump drives will no doubt understand at least the basic principles of power plant operation.

However, some skills are very broad in scope; notably Art, Profession and Science. If these rules are used, Travellers who possess a skill in one speciality are not treated as having skill level 0 in all others – the ability to paint a landscape does not permit a Traveller to play the piano and an understanding of linguistics does not translate to a grounding in cosmology or knowledge of xenology. Nor does the ability to write *Traveller* adventures translate to creating useful maps for them!

These three skills therefore use specialities and sub-specialities. A Traveller who has any skill level (including 0) in a sub-speciality is treated as having skill level 0 in all sub-specialties of that group but has no skill in other sub-specialities. The specialities below expand the Art, Profession and Science skills and add additional specialities (and sub-specialities) to those already listed in the *Traveller Core Rulebook*. When a Traveller gains a skill level in one of these broad skills, he must assign it to a sub-speciality.

The format for a sub-specialism skill is: Skill (specialism/sub-specialism), for example: Science (life sciences/biology).

ART

The Art skill is divided into the following specialties:

Performing: The ability to produce an entertaining or convincing performance by use of voice, expression, body movement and so forth.

Creative: The ability to create works of art by sculpting, painting and digital media.

Presentation: The ability to convey information or emotion through writing, holographic images or an impassioned speech.

The Art skill has the following sub-specialities, most of which are described in the *Traveller Core Rulebook*:

Performing	Creative	Presentation
Performer	Visual Media	Holography
Instrument	Exotic Media	Writing

Creative Arts/Exotic Media covers strange and possibly alien art forms using very unusual techniques and materials such as psionic manipulation of particles or high-technology alteration of matter.

PROFESSION

The Profession skill is perhaps the broadest of all. The rules below expand and subdivide Profession into several areas of related expertise. Those listed as specialities in the *Traveller Core Rulebook* are not repeated here.

Their descriptions remain the same but they are now sub-specialities.

Some Profession specialities deal with general fields of endeavour, such as working in hostile environments, whilst others are geared towards making a living at a general Tech Level. Possession of a speciality in an area of the Profession skill indicates a general familiarity with procedures, terminology and the working environment but does not substitute specific skills. For example a Traveller with Profession (crewmember) can find and use emergency equipment aboard a starship but is no more skilled at operating a vacc suit than anyone else without that skill. Likewise, he can operate and clean galley equipment but needs the Steward skill to make proper use of it.

When Profession is gained during a career, the speciality and sub-speciality chosen must be relevant to the Traveller's background or career. Sport, worker and colonist would be available to almost anyone, but specialisms like crewmember are only available to someone who would realistically have a chance to learn these skills.

The Profession skill is divided into the following specialties:

Colonist: This covers daily life on frontier and low-tech (TL3 or less) worlds. The Traveller will be competent in basic tasks required to establish a colony and live day-to-day, such as building basic structures like houses and barns out of available materials.

Crewmember: This covers daily life aboard a starship. The Traveller will know where to find tools and emergency equipment, and how to operate standard systems. He will also possess basic shipboard skills such as how to correctly peg down a shipping container or clean a fuel filter without damaging it.

Freeloader: This covers ways of obtaining items without buying or making them. This does not always indicate illegal activity but freeloading is often a morally grey area.

Hostile Environment: The hostile environment speciality covers operating in dangerous environments such as high and low gravity, underwater and in areas where special protection is needed such as biohazard and radiation threat zones. The Vacc Suit skill is still needed to work in a suit but a Traveller's hostile environment speciality can be used when carrying out tasks that are made more difficult by the environment, and to avoid hazards.

Spacer: This covers the basics of living and working aboard spacecraft or space stations. Someone with the spacer speciality will be familiar with spacer slang and procedures, and will not make embarrassing 'noob mistakes' or be scared by normal phenomena such as jumpspace entry. This speciality can be used when making a check to resist the effects of a bad jump entry or exit.

Sport: This covers professional and recreational sports and similar activities, although it specifically excludes combat sports. Tackling someone on the playing field is part of a game; doing something similar in a bar brawl requires the Melee skill. Similarly, where there is crossover with another skill, only the lower of the two can be applied. For example, a character with the motorsport sub-speciality at level 2 knows a great deal about competitive driving and setting up a car but performance on the track is limited by his Drive (wheel) skill.

Worker: This is a catch-all for work-related professional skills suited to a mid or high-tech environment. It includes most of the specialities listed in the *Traveller Core Rulebook.*

The Profession skill is then subdivided into the following specialities and sub-specialities:

Colonist/Ranching: Looking after herds or flocks. This speciality has some overlap with the Animals skill but deals more with tasks like rounding up cattle, slaughtering animals and ensuring herds are safe from bad weather.

Freeloader/Scrounging: Covers a multitude of sins, mostly concerned with covertly obtaining something and getting away with it. This includes some legal activities, like searching a junkyard for spares. Freeloader/ Scrounging can be used to abstract a few petty thefts for subsistence purposes or to find a suitable component in a starship scrapyard.

Scrounging up something to replace that busted-up fuel flow regulator valve: Difficult (10+) Profession (freeloader/scrounging) check (2D hours, INT)

Colonist	Freeloader	Hostile Environment	Spacer	Sports	Worker
Farming	Scrounging	Contaminent	Belter	Atmosphere Surfing	Armourer
Ranching	Security	Low-G	Crewmember	Golf	Biologicals
		High-G		Motorsports	Civil Engineering
		Underwater		Racquet Sports	Construction
				Team Ball Sports	Hydroponics
				Track & Field	Metalworking
					Polymers

Freeloader/Security: Permits a Traveller to set up or defeat mechanical and electronic locks, and other means of passive security, and also to spot alarms, traps or other passive measures intended to keep people away from valuables.

Hostile Environment/Contaminant: Used to avoid hazards originating from biological, chemical or nuclear contamination. It grants the ability to spot potential hazards and decontaminate safely but will not help if the Traveller is exposed to radiation or agents without protection. An insidious or tainted atmosphere counts as 'contamination' in this sense.

Making a chemical spill safe: Average (8+) Profession (hostile environment/contaminant) check (3Dx5 minutes, EDU)

Hostile Environment/High-G: Represents experience at operating in environments of 1.2G and upwards and is mainly used to avoid hazards or offset penalties imposed by the environment.

Staying conscious through an 8G turn aboard a combat jet: Difficult (10+) Profession (hostile environment/high-G) check (1D seconds, END)

Hostile Environment/Low-G: Represents experience at operating in environments of less than 0.2G and is mainly used to avoid hazards or offset penalties imposed by the environment. In addition, a Traveller may attack with a weapon that does 1D of damage for every level of his low-G skill without risking becoming disorientated. So, a Traveller with Profession (hostile environment/low-G) 2 can use a weapon that does up to 2D damage (plus or minus points are ignored) without any risk of disorientation.

Moving fast through a debris-littered area aboard a tumbling starship with no working artificial gravity Difficult (10+) Profession (hostile environment/low-G) check (3D seconds, DEX)

Hostile Environment/Underwater: Represents experience at operating in aquatic environments, or when submerged in other fluids. It enables the Traveller to avoid or make use of currents, avoid stirring up silt and carry out tasks made difficult by underwater conditions.

Searching a river bed for valuables dropped in the water without stirring up the muddy bottom Average (8+) Profession (hostile environment/underwater) check (2D minutes, DEX).

Spacer/Belter: The Belter sub-speciality covers life as an asteroid miner. The Traveller will be familiar with the slang and standard procedures used by both corporate miners and those who live as belters. A belter will be familiar with the art and science of finding valuable deposits of ore, minerals, hydrocarbons or other resources that can be extracted for use or to sell at a profit. They will also have at least some familiarity with the other aspects of prospecting, such as claims law, strike registry and so forth.

Spacer/Crewmember: This indicates a Traveller's familiarity with the general tasks needed aboard a starship. Many deck crew aboard large ships do not have specific skills but simply add their labour to tasks such as maintenance, cleaning, cargo loading and shepherding passengers.

Sport/Various: Represents skill at a particular activity such as ball sports or the exotic sport of atmosphere surfing – using a personal re-entry shield to drop from orbit. As a rule, skilled sportspersons tend to be able to pick up at least the basics of other activities. However, the Referee may rule that a given sport is beyond a Traveller's experience.

Worker/Metalworking: Traditional blacksmithing and the use of powered tools in a technological workshop.

Worker/Armourer: Skill at maintaining armour and weapons, and making slight alterations to equipment.

SCIENCE

There are five (very) broad areas within the general field of science. Each is considered to be a speciality of the Science skill and any skill levels in a sub-speciality normally grants level 0 in all others belonging to that speciality. The Referee may rule that this is not the case for very obscure fields or areas of knowledge that a Traveller has had no chance to encounter.

The specialities within the Science skill are:

Life Sciences: The study of living things and life processes.

Life Sciences	Physical Sciences	Robotic Sciences	Social Sciences	Spaces Sciences
Biology	Chemistry	Cybernetics	Archaeology	Astronomy
Genetics	Physics	Robotics	Economics	Cosmology
Psionicology	Jumpspace Physics		History	Planetology
Xenology			Linguistics	
			Philosophy	
			Psychology	
			Sophontology	

Physical Sciences: The study of energy, forces and matter.

Robotic Sciences: The study of organic and inorganic robotic systems.

Social Sciences: The study of interactions between people and groups.

Space Sciences: The study of astronomical phenomena and the interactions of bodies in space.

The Science skill is then subdivided into the following specialities and sub-specialities. Descriptions of those listed as specialities in the *Traveller Core Rulebook* are not repeated here.

Physical Science/Jumpspace Physics: The jumpspace physics sub-speciality deals with jump drives and associated phenomena, including theoretical research into other forms of faster-than-light travel and jumpspace phenomena not associated with interstellar travel.

MELEE

The Melee skill has numerous specialisms. The unarmed speciality represents all-round close-quarters fighting ability. This might be a formally trained fighting system such as Ju-Jitsu or mixed martial arts, or could be a familiarity with nasty grab-and-punch brawls. Other unarmed combat specialities are available, representing advanced capabilities in some areas but leaving weaknesses in others.

Grapple: This represents the ability to fight at extreme close quarters using wrestling, throwing, choking and joint-locking techniques. This may come from a formal system such as catch wrestling or Judo, or might simply be a combination of experience and nastiness.

Grapple also covers some actions that are not pure wrestling. A 'grapple' between two combatants may involve them bashing one another against walls or delivering knees, elbows headbutts and biting, and possibly even an attempt to push a handgun into the other's ribs and pull the trigger. The common denominator in all this is that it is happening in a chaotic extreme-close-quarters grabbing and wrestling situation.

A Traveller with the Grapple speciality gains no benefit from it other than when in a grappling situation. If a grapple has begun, the skilled grappler may inflict one point of extra damage per skill level any time he hurts his opponent. He also treats his effective Melee skill as twice his grapple speciality level when wrestling with an opponent.

Striking: This represents skill at delivering blows with the limbs. This might come from a formal system such as boxing or Karate, or could be nothing more than the ability to throw big swinging punches. A striker treats his Melee skill as 0 in a grapple unless he also has a speciality such as unarmed or grappling. However, he is more effective in an exchange of blows. A striker may add one point of damage per level of his striking speciality on any occasion he does damage with natural weapons, other than in a grapple.

Fencing: This represents skill with a narrow range of relatively light blade weapons including the rapier, smallsword and their sporting equivalents. A fencer treats his Melee skill as 0 when using other weapons unless he has another speciality that covers their use, such as the more general Melee (blade). When fighting with a rapier or similar light bladed weapon, he treats his effective Melee skill as twice his fencing speciality.

ALTERNATE PLAY STYLES

NARRATIVE TASK RESOLUTION

Role-playing games have their origins in wargaming which, by definition, tends to be very mechanics-heavy and simulationist. However, over the years other styles of gaming have evolved which rely less on mechanics and more on a shared narrative between Referee and players. At the Referee's discretion, a narrative component can be added into a *Traveller* campaign.

If this option is used, each Traveller is entitled to a number of Narrative Events per game session, tied to their skills and characteristics. Each Traveller may declare one Narrative Event for every positive point of their Characteristic modifiers and one for every skill level they have. These are tied to the characteristic or skill they derive from, and must fit the skill or characteristic being used.

So, a Traveller with a DEX modifier of +2 and an INT modifier of +1 has three characteristic-based Narrative Events available. Two must somehow be connected with speed, agility or manual dexterity, and one with intellect or problem-solving. If the same Traveller also has Pilot (spacecraft) 2 and Persuade 1, he may perform two Piloting-related Narrative Events and one connected with his ability to convince others of something.

A Narrative Event essentially replaces a skill or characteristic check and under normal conditions would be used to narrate something positive, although there is nothing to stop a Traveller narrating some minor disaster where they failed to accomplish their goals if circumstances warrant it. More commonly, the Traveller may use a Narrative Event to automatically complete a task.

A Narrative Event cannot make the impossible achievable; what the Traveller narrates must be plausible. For example, if the Travellers are trying to move a collapsed wall, it is not plausible for one of them to scoop all the rubble out with a teaspoon, or blow it up with explosives the Travellers do not have. A Narrative Event must also be interesting. If the Traveller were to describe how they improvise a lever and locate a large piece of rubble to move aside, creating a hole big enough to get through, this would seem acceptable. Just stating that the rubble got moved is not really narrative and should not be allowed by the Referee.

A Narrative Event essentially replaces any skill or characteristic check the Traveller might make and cannot be used if the check was impossible. It can be assumed that the Traveller succeeds solidly but outstanding results (equivalent to Effect 6+) are not possible. What a Narrative Event can do is to create a favourable circumstance, such as allowing a Traveller to shoot an enemy before they throws a grenade, no matter what the initiative order might be.

A Narrative Event cannot be used against another Traveller but can be used to rescue them from disaster. For example, when Arix the Accountant slips and falls from a mountain ledge, 'Two-Guns' Cassandra can narrate how she dives to the edge and grabs him before he falls to his death. The Referee may also rule that certain non-player characters are immune to Narrative Events or might even use them. Some situations (e.g. the climax of an adventure) can also be off-limits to Narrative Events at the Referee's discretion. This ensures that the Travellers arrive at the final scene in a condition to deal with the final threat but does not give them an easy ride in the climactic battle or challenge.

A Narrative Event can be used to cause harm to an NPC; for example a Traveller might narrate how they clobber a gunman with a chair, rather than risking a skill check that might be failed. However, damage must still be rolled, so the final outcome is in some doubt.

The use of Narrative Events creates a more cinematic style of *Traveller* game, in which the Travellers can automatically succeed or avoid disasters caused by bad dice rolls. This allows them a greater chance of getting to the big climax scene and allows a lot more creative input, but it is not suitable for all groups. Some will try to exploit the narrative style of play to gain a competitive advantage, whereas the whole concept of narrative play is that it is cooperative between the

Referee and Travellers. With the right group, narrative play creates a whole new dimension to Traveller games but if it is abused the Referee is advised to return to the normal rules.

THE MUNDANE EVENTS CHECK

Sometimes it is necessary or interesting to determine how well a Traveller completes a task that is not covered by any particular skill area, or as an indicator of how well or badly a Traveller does during a glossed-over period of inactivity. A Mundane Events check may be requested by the Referee. This is a simple 2D roll against an Average (8+) difficulty.

At the Referee's discretion, a Mundane Events check can be modified by a relevant skill if appropriate. If a Traveller is working as a starport broker, it is reasonable to expect that their Broker skill will affect how well they are doing in daily life.

Very good or bad (Effect 6+ or -6) results indicate that things went unusually well or badly but the Referee should not impose extreme results on a Traveller that are essentially unearned. For example, Arix visits his old friend Saalif, requiring a journey of several weeks by commercial starship. The trip is not particularly relevant to the storyline so the Referee asks for a Mundane Events check to indicate the general nature of events. It comes up a double-1, giving an Effect of -6 against the benchmark Average difficulty. This indicates something has gone awry.

While it would not be unreasonable (if upsetting and ironic) for a Traveller to die as a result of a disastrous dice roll in combat, it is not desirable for Arix to be killed by a freak drive explosion or pirate attack on what was a random roll. Instead the Referee decides that the trip was a nightmare, with extra fees, delays, bad food, being stuck in a backwater starport for three weeks and so forth.

Meanwhile, the Referee decides to see how Saalif has been doing since Arix saw him last. Saalif rolls a straight 12 for his Mundane Events. This is the best possible result but it does not mean he has won the planetary lottery and been made king or anything so extreme. Unearned prizes are equally unfair to Travellers. The Referee decides that Saalif has been promoted at work, moved into a nice new house and won a few hundred Credits in a competition he did not remember entering. He is also in good health and has lost a few pounds; he is doing well and looking great.

Arix and Saalif then head off on an adventure. Any rewards and hazards they encounter will be earned as captains of their own fate and so extremes are entirely acceptable.

RECOGNITION OF COMPETENCE

There are many situations where a Traveller who is competent in the appropriate area of expertise would know basic facts, recognise circumstances or be able to perform standard tasks. At the Referee's discretion, Travellers should be given information or allowed to perform actions without needing to roll dice. This is based on their level of competence, indicated by their skill level.

Skill Level 1 represents a basic professional level of competence. The Traveller should be able to perform routine tasks, maintain equipment and remember information relevant to their field of competence.

Skill Level 2–3 represents an experienced professional who will be able to undertake quite complex tasks and will know a great deal about their subject.

Skill Level 4+ represents highly advanced knowledge, training and experience. The Traveller will be able to connect apparently unrelated facts or spot small discrepancies that a less experienced individual might miss.

For example, if the Travellers are trying to figure out how a shooting occurred, they would normally use the Investigation skill. However, a Traveller with Gun Combat 1 or better would know that some of the bullets they have dug out of a wall are of a calibre used in revolvers which, coupled with finding ejected cases, suggests more than one gun – a revolver and a semi-automatic – were used.

Someone with Gun Combat 2–3 might examine the ejected cases and realise this particular ammunition manufacturer is a favoured contractor to the world government which does not sell ammunition to civilians. A skill of Gun Combat 4 or more would allow a pretty accurate reconstruction of who fired from where to be conducted 'by eye' without sophisticated equipment.

The same information might be obtained by investigation using appropriate skills but this would require dice rolls whereas a suitably competent Traveller will simply know the answers.

COMBAT

This chapter contains optional rules for combat situations. As with all other material in this book, the Referee must decide which, if any, of these rules are to be in use. Some add realism or new combat options, while others cover situations that might arise during a campaign.

AMMUNITION EXPENDITURE

Travellers can only carry a limited amount of ammunition – half a dozen rifle magazines represents a significant amount of weight and bulk! This system allows for the possibility that Travellers might run out of ammunition during a firefight, without requiring them to keep track of every shot fired.

An attack made with a firearm or energy weapon is not necessarily a single shot. For every shot that has a chance to hit the target, the Traveller may have fired several more rounds or bursts that went nowhere useful, which means that a weapon could be empty after a single attack. This represents 'walking' a weapon onto target or the general difficulty of hitting anything under combat conditions.

Every weapon that uses ammunition has a chance to run out whenever the Traveller makes an attack. This is represented by rolling a dice of a different colour along with the attack dice. If the ammunition dice comes up equal to or below the weapon's Reload Threshold, the weapon is empty and must be reloaded before firing again.

This does mean that a lucky Traveller might get through a firefight lasting 15 combat rounds without reloading his revolver. The Referee can deal with this in one of two ways. The first is to assume that the Traveller has had the opportunity to slip a couple of rounds into the weapon now and then during lulls in the action, or has swapped part-empty magazines out whenever they could. Alternatively, the Referee might impose common-sense limits on weapon capacity – a six-shot revolver is definitely empty after six attacks have been made.

The base Reload Threshold for most weapons is 2, assuming a standard capacity weapon for its type. This means that if the ammunition dice comes up a 1 or 2, the weapon is empty. Weapon modifications can alter the Reload Threshold, as can the nature of the attack being made.

To determine how Reload Threshold is affected, start with the weapon's normal mode of attack in the Reloading table. Moving up the table reduces Reload Threshold by -1 (to a minimum of 1), while moving down increases it by +1. Weapons are still limited by their maximum rate of fire – a revolver cannot deliver a Very Rapid Fire attack!

In the case of weapons that only fire single shots, such as a black powder pistol or disposable anti-tank missile, the weapon automatically requires reloading after one attack. Weapons such as a double-barrelled shotguns are treated as manual repeaters for their first attack and are assumed to be empty after the second.

Rate of Fire

- Aimed Fire
- Normal Attack
- Burst
- Autofire
- Rapid Fire
- Very Rapid Fire

DETERMINING RELOAD THRESHOLD

The Reload Threshold of a weapon is based on its ammunition capacity relative to its normal mode of operation, as shown on the Reload Threshold table.

Increasing ammunition capacity by 50% reduces the Reload Threshold by 1, while increasing it by 100% reduces Reload Threshold by 2, to a minimum of 1. Some variation can be permitted here; a weapon that is within +/1 20% of these figures qualifies for the modification. Thus an assault rifle with a 42-round magazine counts as a 50% increase in ammunition capacity.

Reload Threshold

Weapon Type	Example	Standard Capacity	Mode of Operation
Manual Repeater	Pump-action shotgun or revolver	6	Normal Attack
Semi-Automatic	Carbine or Semi-automatic pistol	12	Normal Attack
Light Automatic	Submachinegun or Assault Rifle	30	Burst
Support	General-Purpose Machinegun	50	Autofire
Rapid Fire Weapon	Vulcan Machinegun	250	Rapid Fire
Very Rapid Fire Weapon	VRF Gauss Gun	1,000	Very Rapid Fire

Weapons that carry less than the standard ammunition load have an increased Reload Threshold. A weapon that has around two thirds normal capacity increases reloading threshold by 1. One third capacity increases it by 2.

For example, Cassandra is using a semi-automatic pistol converted to full-automatic fire and has loaded a 24-round extension magazine before the fight. This is a roughly 50% increase in her normal ammunition capacity so reduces Reload Threshold by -1, to 1. If Cassandra takes careful aimed shots, her Reload Threshold is in theory reduced by -1 but cannot go below 1. However, she blazes away in full-automatic mode. This moves her two rows down the table from her weapons' normal mode of attack, increasing the Reload Threshold by +2, to 3. Cassandra rolls a 5 on her first attack's ammunition dice. She still has at least one attack's worth of ammunition left in her weapon.

USING END

The Endurance of a Traveller represents their natural toughness and ability to shrug off at the harm they suffer.

NATURAL RESILIENCE

A Traveller's END DM can be deducted from the damage taken in each attack. If the END DM is negative, this much damage is instead added to each attack. This can make combat more dangerous for low END Travellers.

KNOCKOUT BLOW

If a Traveller's END is reduced from its starting value to 0 by a single attack, the character they are knocked out instantly, despite them still having two characteristics above zero. This is a good rule to introduce when the Travellers are facing a large number of weaker foes.

RANDOM FIRST BLOOD

Instead of always applying damage to END first, the first damage sustained in any combat is applied to a random physical characteristic and further damage after that can be allocated to any physical characteristic. This makes a low END Traveller more survivable.

ALTERNATIVE INITIATIVE

Under this system, combat still takes place in six-second rounds but there is no strict initiative order to actions. Instead, everything that takes place in a given round is assumed to be a mad scramble with many things happening at once. All actions are resolved and then the effects are implemented simultaneously. Thus, a Traveller riddled with bullets as they swing their sword may still land a blow, or two combatants might shoot one another and collapse simultaneously.

This is not unrealistic. It is very rare for a weapon to instantly 'switch off' a target, so a Traveller committed to an action will carry it out before any wounds they receive in the process take effect. However, it does take time to cover a gap between two combatants, so ranged attacks against targets who are not already in close combat with the shooter are resolved before the melee attack.

In a situation where a Traveller wants to do something before someone else can act, such as shooting an opponent as they are drawing a weapon or rushing forward to attack with a knife, an opposed Initiative check is made using the following procedure:

- Roll initiative as normal, using DEX or INT. The Effect of this check is the Traveller's base initiative.
- If the Traveller has to take one very short action (e.g. stabbing with a hand weapon or pointing a gun), subtract -2 from the base initiative.
- If the Traveller has to take a longer action (e.g. drawing a weapon or crossing 2–3 metres to attack with a hand weapon), subtract -4 from the base initiative.
- If the Traveller has to take a complex or multiple action, (e.g. drawing a weapon and turning to point it at someone behind him, or drawing a sword whilst charging at the target), deduct -6 from the base initiative.

If the difference between the two combatants' initiative is 6 or more, the faster combatant may carry out their action and resolve its effects before the slower one can do anything. If the slower combatant is rendered incapable of acting (either by circumstances or incapacitation) their action will not occur. If the slower combatant is hurt but not incapacitated, DM-2 is applied to their actions during that turn.

If the difference between the two combatants' modified initiative scores is less than 6, their actions are more or less simultaneous. The faster Traveller may get off a shot a split second before the axe swinging at his head arrives but not in time to stop it.

For example, Arix the Accountant opens a door in an enemy base and is spotted by a guard. The guard draws his pistol and turns to face Arix, intending to shoot him on sight. Arix steps back and slams shut the heavy crystalliron door. Arix wants to act before his opponent, for obvious reasons. He rolls initiative using his INT modifier of +1 at a difficulty level of Average (8+) and gets an 8 on the dice. With his INT modifier, this gives Arix an Effect (and thus a base initiative) of +1.

The guard's Initiative roll comes up 9 on the dice. With his DEX modifier this gives an Effect of +2. However, he is carrying out a complex action; drawing and pointing his weapon as he turns. A -6 modifier is imposed, giving a final modified initiative of -4.

The difference between +1 and -4 is 5 – not quite enough! Arix slams the door and leans on it, breathing heavily. For a second his buddies think he closed it in time but then they see the blood seeping through his jacket…

MATERIAL DESTRUCTION

In order to damage or destroy an object it is necessary to hit it with a weapon or place explosives such that they will cause harm. This presents little problem if the Traveller is not interrupted. Attacks with hand weapons on large inanimate objects (e.g. vehicles or buildings) will usually hit them; Travellers simply need to work out how much damage they deal. It is necessary to roll to hit when attacking from a distance, say with firearms or artillery fire, and explosives must be planted using the appropriate skill.

Note that explosives rely to a great extent on blast effect caused by air pressure (or pressure in some other fluid such as water or the exotic gas mix of an alien world). Without a medium to carry the blast it is necessary for explosives to be in contact with the target, enabling shock and the cutting effect of an explosion to be carried through the target itself. This means a satchel charge lobbed next to an enemy ATV on an airless world may do no real damage to it, although one detonating in contact with the vehicle would be more destructive.

When an explosive device is detonated next to a target, or when it is attacked with weapons, the target's armour Protection protects it from some (or perhaps all) of the damage, after which its Structure value is reduced. Damage is rolled as normal.

Impaling hand weapons and low-velocity projectiles like arrows cannot be used to smash a solid object. Bullets will work, eventually, as will vigorous bludgeoning with a bladed implement or something heavy and blunt. It is difficult enough to damage a target by this method; completely destroying it would be a lengthy undertaking.

All objects have a Structure value which can be degraded by damage. If it matters what sort of state an object is in, the following levels are used:

- When an object has lost 50% of its Structure it is significantly damaged. Functionality is reduced by 50%. For all-or-nothing devices, this means a simple 50/50 chance of it working.
- When an object has lost 75% of its Structure it is seriously damaged. Functionality is reduced to 10%.
- An object that has lost 100% of its Structure ceases to function and may have lost important parts.

An object that has lost 100% of its Structure is not, however, entirely destroyed. The damage listed in the Inanimate Objects table is what is required to put a roughly fist-sized hole in the object and/or prevent it from functioning. Ten times as much damage will put a human-sized hole in the object or completely destroy something smaller than human sized. A device will be wrecked beyond repair long before it is physically smashed to pieces.

Inanimate Objects

Object	Protection	Structure
Small Kitchen Appliance	0	4
Personal Computer or Monitor	0	6
Wooden chair	2	8
Typical bar-room table	2	12
Wooden door (normal)	1	6
Wooden door (reinforced)	2	8
Wooden fence (2m section)	1	8
Internal Plastic Door	2	5
Brick Wall	4	16
Concrete Wall	8	24
Reinforced Concrete Wall	10	28
Small Boulder	10	40
Large Boulder	10	60
Steel Hatch	8	50
Steel Blast Door	12	150

Sometimes, smashing things is not enough; they must be blown to pieces instead. If explosives are used, 10 times the Structure listed in the Inanimate Objects table will shatter the target. 25 times the listed Structure will utterly destroy the item and scatter its parts across a satisfyingly large area. 50 times the listed Structure will vaporise it and 100 times is just silly… but entertaining to watch.

ADDITIONAL WOUND EFFECTS

In the *Traveller Core Rulebook*, a Traveller who has all three of their physical characteristics reduced to zero is dead. This system may be used at the Referee's discretion for Travellers and important non-player characters.

A Traveller whose three attributes are at zero has suffered a life-threatening injury, referred to as a disabling wound. They will be down, unconscious (or close to it) and unable to save themselves. However, even without medical assistance, they might make a miraculous recovery.

Where these rules refer to medical attention, they do *not* mean a quick application of on-scene first aid with no follow-up. First aid will keep a Traveller with a severe wound from dying but will not prevent permanent effects. Only successful surgery and long-term care will suffice, requiring both medical skill and suitable equipment.

Disabling Wounds

2D	Result
2 or less	The Traveller is vaporised, shredded, spread all over the landscape or otherwise destroyed in graphic and gruesome fashion.
2–3	The Traveller is either killed outright in a dramatic fashion such as having their head blown off, or lingers just long enough to make a final speech to their friends/enemies/passers-by. They cannot be saved in either case.
4–5	The Traveller will die unless given prompt medical assistance. If they survive, they will lose the limb that was injured, or an eye, or suffer some similar major permanent injury as determined by the Referee. This can of course be repaired with cybernetics but the process will be slow and expensive.
6–7	The Traveller will die unless given prompt medical assistance and suffer permanent effects if they survive at all. Lose 1D from any one of STR, DEX or END and D3 from the others.
8–9	The Traveller will survive if given even the most basic emergency assistance and suffer no ill effects providing they receive proper medical treatment whilst recovering. If it is not, the Traveller will permanently lose D3 points from both STR and END.
10–11	The Traveller will survive despite their injuries, even without assistance, and will make a full recovery if medical attention is successfully provided.
12+	The Traveller is terribly hurt but will somehow cling to life and begin to recover even if medical attention is not provided.

When a Traveller takes a disabling wound, roll 2D on the following Disabling Wounds table, with the Traveller's END modifier as a DM. In addition, the following modifiers are used:

Final attack less than 3 points of damage	+4
Final attack caused 4–6 points of damage	+2
Final attack caused more than 6 points of damage	-2

COMBAT MISHAPS

The addition of Mishaps to the combat rules creates a possibility that even the most skilled of Travellers can have a bad day. If a combat-related skill check comes up a double-1 and is also a failure, a Mishap has occurred. If the skill check was so easy that the double-1 still succeeds, there is no Mishap but the attack still fails.

If a Mishap does occur, roll 2D + the Traveller's weapon skill on the Combat Mishaps table.

Combat Mishaps

2D	Result
2	Shoot or hit themself for normal weapon damage.
3–4	The weapon is dropped somewhere inaccessible. It cannot be retrieved during this fight and if the Travellers are forced to flee it will not be recoverable.
5–6	The weapon is dropped but in sight. It can be recovered in a future round using a significant action.
7	A minor weapon malfunction or loss of proper grip has occurred. Any attack made this round is wasted but the weapon can be brought back into action by making an Easy (6+) skill check next round. This takes significant action and, if failed, the attempt must be repeated every round.
8–9	A serious weapon malfunction has occurred, putting the weapon out of action until it can be fixed in a workshop.
10–11	The weapon is destroyed in ammunition explosion or other serious incident that causes critical structural damage to it.
12+	The skill attempt fails but no Mishap has occurred beyond that.

HIT LOCATIONS

Sometimes it can be important to know where a blow or shot landed. This can be abstracted from the damage dice – a high damage score suggests something important has been hit; lower damage indicates a less critical area. However, with some kinds of armour offering only partial coverage, a system for resolving where a Traveller is hit may sometimes be useful.

1D	Location
1	Head
2	Arms
3–5	Torso
6	Legs

GENERAL HIT LOCATION

When a Traveller is struck by a weapon, roll on the Locations table to determine the precise location struck.

Most attacks tend to be directed at the centre of body mass, which is also where most vital organs are located. Fortunately, the torso is the easiest part of a Traveller to armour. Many armour types – such as a flak jacket – protect only the torso but represent a good bargain in terms of weight and coverage as there is a good chance an attack will strike there.

If a Traveller is hit in a particular location, the default option is that they gain the benefit of the best armour they are wearing on that location. If additional detail is required, the Referee may impose a check to see if armour was hit or an exposed area struck. For example, if a Traveller is hit on the head whilst his vacc suit faceplate is open, the Referee might impose a check to see if the weapon entered the Traveller's helmet or struck an armoured area. This is more detail than most *Traveller* games really need, however, so should only be used in critical situations.

WOUND EFFECTS

In general, the severity of an injury is indicated by the amount of damage it deals. However, blows and shots to particular locations may have specific effects. There are three levels of wound severity: Minor, Major and Severe. The amount of damage required to inflict these wounds is based upon the Traveller's starting END.

A **Minor Wound** is inflicted if damage is less than half the Traveller's END score. Minor wounds have no additional effects.

A **Major Wound** is inflicted if the Traveller receives between half his END score and his full END score in a single instance. A major wound will affect the Traveller's ability to carry out actions relevant to the damaged body part until it is healed.

A **Severe Wound** is inflicted if the Traveller receives more than his END score. A Severe wound will cause the Traveller to lose consciousness and will have serious consequences even after he recovers.

The consequences of a wound persist even after the Traveller has recovered any END points after a fight. Healing from a Major wound requires a successful routine (6+) Medic check and D3 days of recuperation. A Severe wound requires an Average (8+) Medic check and 1D days of recuperation, after which the Traveller suffers the effects of a Major wound for another D3 days.

The effects of even more severe wounds are likely to be irrelevant; receiving more than twice the Traveller's END score will likely kill him. If further wound effects are desired, the following rules can be applied:

A **Crippling** wound results from taking at least twice the Traveller's END score in one attack. If the wound is survived, the location hit is completely out of action and suffers permanent damage. STR, END or DEX (selected at random) is reduced by D3.

A **Critical** wound results from taking at least three times the Traveller's END score in one attack. If the Traveller survives, the location hit is completely out of action and suffers permanent damage. STR, END or DEX are reduced by D3+1 each.

A **Mortal** wound results from taking at least four times the Traveller's END score in one attack. This is unlikely to be survivable and is sufficient to shear off a limb or decapitate a Traveller. If the Traveller somehow survives they will need to replace or regrow a limb or some organs.

A **Devastating** wound results from taking at least five times the target's END score or more in a single attack. The location struck is completely destroyed, vapourised or smashed beyond recognition. This is mainly a cinematic effect but can have implications when facing certain foes.

Wound Effects

Location	Major Wound	Severe Wound
Head	DM-1 on all checks.	DM-2 on all checks.
Arms	DM-1 on all checks involving the arms.	DM-1 on all checks involving the arms.
Torso	DM-1 on all physical checks; speed reduced by 1m.	DM-2 on all physical checks. Traveller can only crawl unless supported.
Legs	Speed reduced by 2m. DM-1 on all movement-based checks.	Leg disabled; Traveller can only hobble slowly with support. No movement-based activity is possible.

UNUSUAL CREATURES

Some creatures do not obey the usual rules for damage. For example, dispersed creatures without the organs most animals have might be more difficult to stop than their END score suggests. For example, a crippling wound to a dispersed creature's tentacle might be sufficient to disable it and allow the Travellers to escape; in this case the effect of the wound is more important than the damage delivered, as the creature will not be rendered unconscious by loss of END points in the conventional manner.

For another example, the Travellers are investigating a derelict space station whose inhabitants have been turned into zombie-like creatures by alien spores infesting their nervous system. After seeing Cassandra riddle a couple of them with pistol bullets to no effect, Mike the Marine realises they need to be shot apart to stop them. He takes careful aim and blasts one (a former dock worker with an END of 8) in the leg with his shotgun. Rolling damage, Mike gets a total of 17 points – enough for a Crippling wound. The spore-zombie's leg is completely out of action. It continues to crawl towards Mike, who can now easily avoid its advance providing he maintains a brisk walking pace.

Meanwhile, Arix the Accountant has found a plasma gun. He is not a great shot but manages to hit one of the spore-zombies. A roll for hit location comes up a 1; the head. Rolling damage for his 1DD weapon, Arix gets a 4, 40 points of damage! The spore-zombie's head is completely vaporised along with a chunk of its torso and a nearby wall. What remains of the spore-zombie is no longer a threat. Arix nods in grim satisfaction.

SPECIFIC LOCATIONS

The *Traveller Core Rulebook* assumes that Travellers are shooting at the centre of body mass and that limbs or heads are hit more or less by accident. If a Traveller wants to shoot or strike at a specific body part they may try to do so. Hitting a specific location is tricky even with an aimed shot and is subject to DM-2. If using more rapid-fire modes of combat, DM-6 is used instead. Failure indicates the target has been completely missed.

The main benefits of shooting at specific locations are to bypass cover or armour, for example shooting an opponent in the leg if his torso is armoured. A wound to a specific location will have the effects noted under Wound Effects, depending on its severity.

WEAPON SCANNERS AND SEARCHES

Getting past weapon scanners is not a combat action – unless something goes very badly wrong, perhaps – but it can be important if combat occurs within a secured area. There are essentially two ways weapons can be detected: by technical means (scanners) and by a search made by security personnel.

Attempts to bypass security by having weapons brought in elsewhere or by negating the security (such as by bribing guards to allow a person or container to pass unsearched) are not covered here. We are purely concerned with attempts to sneak a weapon past the security station.

How difficult an item is to slip through security depends on its size and how much like a weapon it appears. If scanners are in use, the composition of the weapon also matters. The modifiers here assume an object is no larger than a typical handgun and shaped like a recognisable weapon. The following DMs are applied if the weapon differs from this basic type:

Weapon is disassembled or concealed (weapon is concealed inside some innocent looking object, or is in parts dispersed where they will seem to be normal components of the Traveller's luggage): DM+4

Weapon does not look like a weapon (weapon is disguised somehow): DM+2

Weapon is very small (small knife, tiny high-tech projectile or energy weapon): DM+1

Weapon is small (compact handgun, body pistol or similar weapon): DM+0

Weapon is large (Bulky handgun, very small submachinegun): DM-2

Weapon is very large (submachinegun or laser carbine): DM-4

Weapon is extremely large (Rifle or light machinegun): DM-6

Note that in this case 'large' and 'extremely large' simply mean the weapon is big enough to be difficult to conceal and will tend to attract notice even if it is disguised as something else.

DIRECT SEARCHES

Direct searches are available at any Tech Level and are not always intrusive. At the most basic, security personnel may be simply looking for weapon-shaped objects or strange bulges in clothing. They will also try to 'read' people to see who looks a little bit 'off'. Anyone who stands out – such as being unduly nervous – may be searched more diligently. A member of an alien species or culture with unusual or difficult to read mannerisms may attract more or less attention than more typical starfarers.

To get past a simple visual search – i.e. the guards are simply looking people over to see if they are behaving oddly or carrying something they should not – requires an opposed Persuade or Stealth check against the Recon skill of the guards. DM-2 applies to the Travellers' check if the guards are unusually alert. Very alert guards, or those who are looking for a weapon they are sure is there somewhere, will conduct a diligent search, inflicting DM-4.

Direct searches take time and are typically used where technical means are not available or where suspicion has been aroused. Arguably, Travellers will encounter a simple visual search any time security personnel look at them but if they seem to be going about their normal business and do not have weapons on display they will not attract attention and the 'search' can be assumed to have been nothing more than a cursory glance. Essentially this means that unless the Travellers are stupid or careless they will not have to make a check every time a security officer walks by.

TECHNOLOGICAL SEARCHES

Technological weapon searches become possible at TL4, with metal detectors used to spot items. Metal detectors, as the name suggests, can only detect items that contain metal. A ceramic knife, or body pistol made from non-metallic components, will automatically pass the scanner. Note that handgun ammunition is normally of metal, so a non-metallic weapon needs to be accompanied by non-metallic ammunition.

Metal detectors are all-or-nothing devices. If any significant amount of metal is present the detector will pick it up if it is calibrated properly. If the detector is triggered, security personnel will investigate and a direct search will be made. On some occasions a metal detector will be badly calibrated and metal objects will not be detected. This is a matter of good luck or judgement on the Travellers' part however, and can be done by making a Very Difficult (12+) Streetwise check to pick a time when the detectors are not working properly.

At TL7, complex scanners become available which include metal detection, ultrasound or 'soft' X-ray imaging to build up a picture of what is under clothing or inside luggage, and higher-tech sensors such as nuclear magnetic resonance devices which can tell what materials are present. Chemical detection systems can spot explosives (and other compounds) by sampling the air around a Traveller. This includes most propellants used in firearm ammunition.

From TL7 upwards, weapon detection suites become steadily more sophisticated. The base difficulty to get any weapon through security is Average (8+); the Persuade or Stealth skill can be used depending on whether the Traveller wants to hide the item and hope it is not discovered or rely on it not being recognised. The Tech Level of the detection suite is used as a negative DM on this check, so slipping a handgun through a TL8 detection suite requires an Average check at DM-8. Modifiers for size and concealment still apply.

For 'stealth' weapons designed to defeat security, a DM+1 applies for every two full Tech Levels of the item, in addition to the previous modifiers.

Laser weapons do not use explosives and may not be shaped like standard firearms, so gain DM+2 to defeat conventional scanners. However, from TL9 upwards detection suites contain an energy emissions detector that will be set off by a powerpack – the same applies to the batteries in gauss weapons and other powered weaponry. This will trigger a direct search unless the power unit is convincingly disguised as something innocuous.

As a baseline, it is reasonable to assume that most starports where weapons are restricted have at least TL12 detection equipment. Better detectors may be used on higher-tech worlds; lower-tech operators will usually import them if they hope to restrict weapons use.

For example, Cassandra wants to slip a gun into the heavily secured starport. She chooses a TL10 body pistol and dismantles it, concealing it throughout her luggage inside items that look innocuous on a scanner. The port has TL12 detection equipment, so Cassandra is trying to make an Average (8+) Stealth check at DM-12. She gains DM+5 (half her stealth weapon's Tech Level) plus DM+4 because the weapon is dismantled and concealed in parts, and another DM+1 because she is using a smaller than average weapon. This is a net DM-2, making the Stealth check a tricky challenge but doable.

GETTING CAUGHT

Travellers who get caught with weapons they are not supposed to have may face serious consequences. However, they might be able to reduce those consequences. If the weapon is within one Law Level of what is allowed (for example a small submachinegun in an area where handguns are allowed), the Traveller may face only a token fine and refused entry provided they can provide a suitable excuse. A gun carelessly left in a bag from the Travellers' last stop – a lawless freeport – will attract less official displeasure than a disassembled body pistol the Traveller was clearly trying to smuggle into a secured area.

The Traveller thus has a chance to blag their way out of the situation and escape with only a token fine (3D x Law Level in Credits) and a stern warning. To do so, the Traveller must make an Easy (4+) Persuade or Diplomat check with the world's Law Level as a negative DM.

The Traveller will not be permitted entry to the secured area with the weapon. It may be confiscated, or returned to allow the Traveller to put it in his ship's gun locker where it belongs. The Traveller will be subject to greater scrutiny when they next present themselves at security, assuming they are allowed entry at all.

Getting caught with very illegal weapons, or where the Travellers are obviously trying to smuggle weaponry into an area rather than just making a dumb mistake, is grounds for arrest and a first-hand encounter with the local judicial system. Any weapon two Law Levels or more above what is legal (such as a military gauss rifle in an area where only shotguns are permitted), or which seems to be intended for criminal purposes, will result in automatic arrest.

The Travellers' fate is determined by rolling 2D on the Sentencing table (see the *Traveller Core Rulebook*, page 225), at DM-4.

The Travellers may be able to circumvent this process by various means, such as presenting faked (or even real!) diplomatic identification documents, bribing or suborning the guards, or otherwise sidestepping the problem.

GRAVITY AND RELATED EFFECTS

The gravitational forces experienced in an environment can have very significant effects on Travellers. The following general definitions are useful as a starting point.

Gravity is rated in G, equivalent to the average surface gravity on Earth. 1G of surface gravity produces an acceleration on a falling object of 9.81 metres per second squared, usually rounded up to a convenient 10m/s squared.

Microgravity is defined as 'no significant gravitational effects' such as deep space or orbit around a planet, far enough out that its gravity does not significantly affect objects or people. Note that space vessels in orbit are held by gravity but still experience no significant gravitational effects on the crew.

Minimal Gravity is defined as where there is a significant (noticeable) gravitational pull but less than 0.2G. In the Sol system, the surface of Pluto has a gravity of 0.05G; Titan has 0.14G and the Moon (Luna) has 0.17G. Most asteroids and moons have minimal gravity conditions.

Very Low Gravity is between 0.2–0.4G and might be encountered on a small planet like Mercury (0.39G), or a larger but not very dense one like Mars (0.38G). Very low gravity is sufficient to retain an atmospheric envelope, although not a substantial one. Small planets (Size 3 or less) typically have very low gravity conditions and can retain only a trace atmosphere. This is not sufficient to breathe even with a compressor mask and a pressure suit would be necessary for humans.

Low Gravity is between 0.4–0.7G and is sufficient to support a decent atmosphere, although it would be too thin for humans to breathe unaided. A pressure suit would not be necessary in such an atmosphere, although operating without one would be uncomfortable. A compressor mask or air supply is necessary.

Standard Gravity falls in the range 0.7–1.4Gs and allows the normal range of human activities without many problems. Earth's gravity is rated as 1G, with Neptune (1.14G) and Saturn (1.11G) being higher and Venus (0.91G) and Uranus (0.88G) being lower.

Normally a standard-gravity world can retain any atmosphere type but extremely dense types are unlikely. However, large worlds have deep enough atmospheres to be extremely dense at low altitudes even if gravity is not especially high.

High Gravity, ranging from 1.4–1.8G, is tolerable by humans for extended periods but unaccustomed individuals will tire quickly and accidental injuries are likely. High gravity worlds tend to have thick, dense atmospheres.

Extreme Gravity (upwards of 1.8G) is dangerous and not commonly encountered (Jupiter's 'surface' gravity of 2.33G is an exception but it is not possible for humans to survive there so the point is academic). Note that humans can tolerate much higher forces for short periods, especially if they are oriented properly or have the correct equipment. For example, a race driver may walk away from a crash in which he momentarily experienced as much as 250G and fighter pilots can remain conscious in a brief 9G turn. However, just a couple of G in the wrong direction (forcing blood into the brain instead of out of it) can cause 'red out' and render the same pilot helpless.

Low and high gravity conditions are primarily important to Travellers with a propensity for falling off things but unusual gravity makes all manner of tasks increasingly tricky. It also affects the sort of plants and animals that exist in the environment. High gravity worlds typically have vegetation that clings to surfaces whilst creatures tend to be squat and compact. Lower gravity environments produce taller creatures and plants.

Gravity Types

World Size Code	Gravity Type
0	Microgravity
1–2	Minimal
3–4	Very Low
5–6	Low
7–8	Standard
9–10	High
Unusually large, dense planet	Extreme

Very dense worlds can have higher than average gravity for their size – although normally no more than one or two categories higher. Similarly, some worlds are composed of low-density materials and may have gravity a category lower than indicated.

OPERATING IN MICROGRAVITY

Sometimes referred to as zero-gravity, microgravity is a situation where gravitational forces are minimal. However, this does not mean objects lack mass or inertia. A cargo crate that has started moving will still crush a Traveller and require some force to get it moving or to stop. Operating in microgravity can be tricky and sometimes dangerous.

Microgravity is encountered aboard space craft without artificial gravity (or devices like spin sections to simulate it) and when operating on or around very small bodies like comets or small moonlets. For example, Deimos, one of the moons of Mars, has a surface gravity of 0.0004G and can be considered a microgravity environment.

One of the hidden hazards of microgravity is that objects do not fall. That means something moving towards a Traveller will get there eventually; it will not drop to the deck and stop. Similarly, a Traveller who loses contact with other objects can end up stranded just centimetres from something they could grab or push themself off. It is possible to jump off a small body like an asteroid and simply float away into the void. Thus it is commonplace for spacers to use tethers when working in such an environment, even if thrusters and reaction packs are available for manoeuvring.

Despite the fact that microgravity is sometimes called 'free-fall', there is no such thing as falling in the conventional sense in this environment. It is, however, possible to float at some speed for a considerable distance and smash into something. The Traveller does not accelerate as they would in a true fall but will be helpless to avoid a collision unless they can grab something or otherwise arrest their movement. Thus it is reasonable to say that actions taken in microgravity have permanent consequences and need to be considered in that light before acting. Those who want to jump from one handhold to another need to be very skilled and not make any mistakes.

Microgravity is an entirely alien environment for most. Objects do not behave as they 'should' and even concepts like up and down can become confused.

Anyone who does not have experience of microgravity (indicated by the possession of skills such as Athletics (dexterity) and Vacc Suit) suffers DM-2 on all physical actions, even if firmly anchored.

OPERATING IN LOW GRAVITY

At the higher end of the low-gravity spectrum, operating in low gravity is not difficult even for those unaccustomed to it. Little mistakes are common, such as failing to estimate how fast an object will fall or moving too quickly and losing balance, but the single biggest problem for most is poor contact with the ground.

Those raised in a normal gravity environment tend to take it for granted that they will be firmly rooted when they carry out an action. However, this may not be the case unless they take due care, which can lead to overbalancing even when doing something as simple as reaching for an object on a shelf or opening a refrigerator door. Steps also tend to be quite long and bounding, which can result in a lack of coordination between legs and body.

For every 0.25G difference between the gravity a Traveller is used to and the gravity they experience, DM-1 is imposed on all physical actions. Assume a 'home' gravity of 1G for most people living and working in space, as most space stations and a starships are maintained at this level. The DM is increased by +1 for every level of the character's highest relevant skill, up to DM+0. Normally this will be Athletics (dexterity) or Vacc Suit but others may be used if applicable.

FIGHTING IN LOW-G AND MICROGRAVITY

Fighting in low gravity can be a tricky business for those not used to it. Objects do not fall in the expected manner, projectiles follow a flatter path and it is very hard to absorb any sort of force without being pushed or disorientated. In low gravity there is less force holding a Traveller to the ground and it is therefore much more difficult to establish a solid base to fight or shoot from.

Hand weapons are particularly difficult to use as they require interaction with the environment (usually the ground) to enable the user to generate force. An inexperienced combatant might send himself bouncing off the walls instead of delivering a powerful cutlass blow. Most projectile weapons generate sufficient recoil to send the firer spinning and for this reason energy weapons such as lasers are often favoured by those expecting to fight in low gravity conditions.

As per the *Traveller Core Rulebook*, any Traveller who uses a ranged weapon that does not have the Zero-G trait, or who attacks with a melee weapon, must make an Average (8+) Athletics (dexterity) check to avoid spinning out of control. The attack automatically misses if this is failed. If the Traveller has the Profession (hostile environment) skill, this may be substituted for the Athletics check. This also allows the Traveller to use a weapon that delivers 1D of damage per level of skill without having to make the check at all; this includes melee weapons.

A Traveller who is disoriented after failing this check will fall to the ground, albeit slowly, and be brought to a stop. This takes D3 rounds, during which they can try to orient themselves with an Average (8+) Athletics (dexterity) check, although Profession (hostile environment/low-G) can be used instead. In microgravity or true zero-G conditions, the Traveller will spin forever if something does not stop them.

Another Traveller can rescue them by grabbing them but this risks both going out of control. A Routine (6+) Athletics (dexterity) check is needed to avoid being sent out of control whilst undertaking a rescue.

If the spinning Traveller wants to carry on fighting regardless, or take some action other than self-rescue, all checks are subject to DM-2. It is possible to shoot a firearm or make an attack in such a way as to counteract the spin but this is highly unlikely to succeed. Both the attack and chance to correct the spin are subject to the usual penalty for doing two things at once, so the Traveller needs to make Difficult (10+) check to attack and to right themselves, whilst subject to DM-2 for being out of control in the first place.

OPERATING IN HIGH GRAVITY

High gravity makes even simple tasks tiring and often more dangerous. Falls in particular are extremely dangerous and it can be difficult to estimate how much effort will be needed to carry out a given task. As a result, DM-1 is applied to all tasks for every 0.25G difference between the Traveller's home gravity and their current environment.

High gravity also causes Travellers to fatigue very rapidly. A Traveller undertaking intense activity such as hard physical labour or hand-to-hand combat, reduces their effective END by -2 each round. This END is recovered at the rate of 1 point per round of rest. If it reaches zero, the Traveller can do nothing but gasp for breath until effective END is once again positive.

All Travellers not adapted to a very high gravity environment (perhaps by way of genetic or cybernetic enhancement) suffer DM-4 to all actions. This DM can be reduced by one for every level of Profession (hostile environment/high-G) the Traveller has. An Effect of -6 on any action, even something as simple as firing a weapon, indicates the Traveller has strained themselves, fallen over, or otherwise fallen foul of the high-G conditions. They take 1D damage, ignoring armour. This will happen even to Travellers with the Profession (hostile environment/high-G) skill, but is less likely.

Extremely high gravity – anything over 2.5G – cannot be tolerated for more than a few moments without artificial assistance. Someone strapped into an acceleration couch can still operate controls even under extreme gravity conditions but moving around unsupported becomes virtually impossible. All tasks suffer DM- 8, again reduced by the level of Profession (hostile environment/high-G) the Traveller possesses and the consequences of a mishap (Effect -6 or worse on any check) is 2D damage.

FIGHTING IN HIGH-GRAVITY

Fighting in a high-G environment is subject to the penalties above. There are no additional penalties, although projectile weapons are reduced in range. For every G above 1, projectile weapon ranges are halved; this does not apply to energy weapons such as lasers.

CHANGING GRAVITY

One technique used by spacer crews to defeat boarders is grimly named 'grav pong', consisting of using artificial gravity to repeatedly smash intruders against the deck. Most ships and stations have unidirectional artificial gravity, i.e. the field cannot be reversed to send a victim up to the ceiling before pulling them back down, but such as system could be implemented. Likewise, few designers are willing to go to the expense of creating long corridors with dedicated gravity systems that turn them into deathtraps. There are still ways that a Traveller might fall 'along' a corridor, however.

More commonly, grav pong takes the form of cutting artificial gravity in an area then turning it back on. Anyone caught may be able to position themselves so they land feet-first when the gravity comes back on, in which case they suffer no harm. This requires an Average (8+) Athletics (dexterity) check. Those who fail the check tumble when the gravity is cut. If they do not reorient themselves in time, they will fall awkwardly, although not from any great height. The result is 1D damage from a normal internal gravity system. This damage is reduced to D3 if the Traveller makes a Difficult (10+) Athletics (dexterity) check or uses a similar relevant skill such as Vacc Suit.

GRAVITY, G-FORCES AND FALLING

Per the *Traveller Core Rulebook*, falling damage in normal gravity environment is 1D per two metres fallen, plus 1D per four metres in a high-gravity (up to 2G) environment and minus 1D per four metres in a low-gravity environment. The following rules can be used to replace this system.

FALL-LIKE SITUATIONS

As noted elsewhere, 'falling' as such does not really happen in microgravity, although a fast-moving Traveller might crash into something. A Traveller can be subjected to a fall-like situation if a starship begins accelerating with the internal gravity turned off, making long fore-and-aft corridors dangerous. If artificial gravity is on, Travellers will be in contact with the floor or other surfaces and will not slide far. If they are floating around unsecured, they will 'fall' along the corridor. Aboard a high-G ship this can be fatal, although it is possible to slow the 'fall' by friction with the sides of the corridor.

In a fall-like situation like this, treat the distance the Traveller is accelerated for as the distance fallen. This will usually be the distance they travel before hitting an object but if the ship's drives are only on for a moment the Traveller will coast the rest of the way and be hurt less.

A Traveller may reduce the effective G-force experienced by the Effect (in Gs) of an Average (8+) Athletics (dexterity) check. Microgravity imposes DM-2 on all skill checks for those without relevant skills; this applies despite there being a gravity-like effect occurring.

Gravity-like effects greater than 2Gs increase falling damage.

Falling Damage

G force Experienced (World Size Code)	Damage from Falling
Microgravity (Size 0)	None
Minimal Gravity (Size 1–2)	1D-3 per 2 metres fallen
Very Low Gravity (Size 3–4)	1D-2 Per 2 metres fallen
Low Gravity (Size 5–6)	1D-1 per 2 metres fallen
Normal Gravity (Size 7–8)	1D per 2 metres fallen
High Gravity (up to 1.6G) (Size 9–10)	1D+2 per 2 metres fallen
Very High Gravity (up to 2G)	1D+4 per 2 metres fallen
3–4G	1D per metre fallen
5–6G	2D per metre fallen
7–8G	3D per metre fallen
Each 2G thereafter	+1D per metre fallen

SOFT AND HARD LANDINGS

Falling damage assumes the Traveller falls on something hard such as rock or hard earth. A more yielding surface such as water or springy turf reduces the effective distance of a fall by 20%. A very yielding surface such as a deep pile of hay reduces fall distance by 40%.

Travellers who fall onto a surface that can cause damage in its own right may suffer harm even if the fall does none. A modestly hazardous surface like rough rocks inflicts +1D damage on the Traveller, whilst very hazardous surfaces with numerous sharp edges and points inflict +2D damage. Extremely hazardous areas festooned with stalagmites or artificial spikes will inflict +4D damage in addition to the fall. Armour protects normally against this damage.

COLLISIONS AND FALLING OBJECTS

A fall is, in reality, a form of collision between a small object (like a Traveller) and a large one (like a planet). However, it is simpler to consider the incident only in the context of the Traveller. Likewise, the effect on one object is often irrelevant, such as when an out of control vacc-suited Traveller slams into a cargo container. The container can be assumed to have suffered minimal damage at most. Collisions between smaller objects might have more mutually detrimental effects.

A small but reasonably heavy thrown object can be assumed to do 1D damage. Something heavier like a rock that requires both hands to throw would normally do 2D. This assumes a short fall or an object thrown by muscle power. Larger or heavier objects will do more damage.

Vehicle or starship-sized objects will normally crush something as insignificant as a Traveller into a pulp. For expediency, the Referee may invoke this 'meat paste' rule for anyone hit by a falling object the size of a vehicle or starship.

A Traveller who has no warning cannot avoid something falling on them, except by blind luck. In the situation where a Traveller is caught in a meteorite shower or under falling rocks, the Referee might call for an Average (8+) check with no skill or attribute applying (Luck could be used if it has been used as an additional characteristic). A Traveller who fails the check takes a number of dice damage equal to the negative Effect of the roll. Armour will usually protect in this case.

However, if the Traveller looks up in time or is otherwise warned, they have two chances to mitigate or avoid damage. Both of these apply to falling objects and other collisions.

First, the Traveller may dive, roll, scramble or otherwise get out of the way. This requires an Average (8+) Athletics (dexterity) check. If the object is vehicle-sized or larger, DM-4 applies. A starship-sized object increases the penalty to DM-12. Of course, a falling boulder the size of a merchant starship falling at great speed is not only a starship-sized object, it is also a fairly significant geophysical event.

If the Traveller makes their check, they get out of the way and suffer no damage. If they fail, they suffer the damage determined on the Falling Objects table. However, it is possible to mitigate the effects to some extent.

A Traveller about to be hit by a falling object or otherwise involved in a collision may attempt an Athletics (dexterity) check (with no penalties for the size of the object) to roll with the collision, try to bounce off rather than take the full impact, or at least to cover their head and take the worst of it on their arms rather than skull. If the check is successful, damage from the collision is reduced by 1 point per dice.

Worn armour does not help against collisions with large objects. It will protect normally against a thrown rock or similar object but larger objects will crush armour and inflict damage right through it. Flexible armour has no effect on impacts with large objects but there are exceptions:

- Rigid armour such as battle dress or a hostile environment suit protects at full value against crushing impacts.
- A Traveller wearing a hard hat or suitable helmet may count this at full value against damage inflicted by an object falling from above.

DAMAGE FROM FALLING OBJECTS

The damage inflicted by a falling object depends upon its mass and local gravity conditions. The object will usually suffer the same amount of damage but this is rarely relevant:

- Light objects include relatively small but dense items like a rifle magazine or can of soup.
- Medium objects are equivalent to a fist-sized rock.
- Heavy objects are equivalent to a head-sized rock.
- Very Heavy objects are equivalent to a large rock that can be picked up in both hands.

Larger objects the size of vehicles (anything that requires more than one person to lift it fits into this category) are also rated light to very heavy but are considered to be Destructive objects when hitting a Traveller. Any modifier to damage is also multiplied by ten, so a light vehicle falling six metres in heavy gravity will do 6D+6 damage, multiplied by 10:

- Light vehicles are equivalent to a motorcycle or large animal like a horse.
- Medium vehicles are equivalent to a small family car or very large and heavy animal such as a rhino.
- Heavy vehicles are equivalent to a minibus or similarly large vehicle, or an elephant.
- Very Heavy vehicles are equivalent to an articulated truck or gigantic animal such as a whale. Being hit by a falling whale is grounds for both using the 'meat paste' rule and asking some questions about the Traveller's lifestyle.

There is really no way a Traveller can survive being hit by a falling spaceship. However, for completeness we will consider various starship-grade objects in case a collision between a train and a horse occurs and someone absolutely insists on rolling all the dice.

Falling Objects

Object	Damage from and to Object
Light Object	1D per metre fallen
Medium Object	2D per metre fallen
Heavy Object	3D per metre fallen
Very Heavy Object	4D per metre fallen
Gravity	**Damage Modifier**
Low Gravity	-1 per dice
High Gravity (up to 2g)	+1 per dice
Each 2g thereafter	+1 additional damage per dice

A starship-sized object counts as Doubly Destructive when hitting something smaller, multiplying the damage by 100:

- Light starships are equivalent to a cargo shuttle or maritime patrol boat. A light railroad train, consisting of just a couple of carriages, would also count as a light starship.
- Medium starships are equivalent to a corvette or maritime combat vessel. A large goods train would also be considered an object of this type.
- Heavy starships are equivalent to a maritime or space-going frigate, or a small freighter.
- Very Heavy starships are equivalent to a maritime or space-going light cruiser, or a mid-sized freighter.
- Huge starships include heavy cruisers or large liners. Such an object would roll 5D per metre fallen, with modifiers, if it really matters.
- Enormous starships include battleships and bulk freighters. Damage would be 6D per metre fallen, with modifiers.

DETERMINING DAMAGE FROM COLLISIONS

When two Travellers run into one another, the results tend to be survivable. However, being run into by a train or charging rhino is a rather more serious event. In a collision, an object delivers damage equal to 1D per Speed Band it was travelling at, modified by the relative size of the object as per falling damage on page 61.

A person or similar sized object that is free to move will simply be pushed aside by a vehicle or starship travelling at Idle. No damage is taken if the Traveller can make an Average (8+) Athletics (dexterity) check.

Armour does not normally protect against the impact or crushing effect of a collision. However, it will protect against additional damage caused by projections, spikes, antlers or other potentially dangerous parts of a creature or vehicle.

Travellers inside a vehicle that collides with something will usually be thrown around and collide with internal surfaces. Damage from such a collision is 1D per Speed Band of the collision, modified as follows:

- A normal vehicle or starship will absorb some of the energy of impact, reducing the damage by 1D.
- A vehicle designed to protect its occupants (with crumple zones and airbags, for example) reduces damage by 2D.
- If the Traveller is strapped into a seat with a good harness, such as a pilot's chair, damage is reduced by an additional 1D.
- A survival cocoon or similar device designed to protect its occupants reduces damage by an additional 2D, provided the occupants are properly secured in crash seats or couches.

ATMOSPHERE AND VACUUM

Humans and most similar creatures need a particular mix of gases, at roughly the right temperature and pressure, to survive. Even if these conditions are met there may be something in the air that is harmful or even fatal. A fluid environment such as underwater is an atmosphere of sorts, although the greater densities of fluids result in a much quicker increase in pressure as depth increases.

PRESSURE

Almost any conceivable kind of creature requires gas or fluid around it to balance its own internal pressure. A science-fiction game like *Traveller* can stretch a point to allow extremely low-pressure or even vacuum dwelling animals, but they are likely to be rare and highly unusual.

The baseline for measuring atmospheric pressure is that of Earth's atmosphere at sea level, a measure imaginatively known as one Atmosphere. The following general levels of pressure are used in *Traveller*:

Hard Vacuum (Atmosphere 0) means there is no (or virtually no) gas pressure. Hard vacuum will render humans unconscious in 10–15 seconds or so and kill them within two or three minutes.

Partial Vacuum (Atmosphere 0) means there may be some air or other gases present but full protective gear is needed. Partial vacuum will kill a human about half as fast as hard vacuum, basically just ensuring the victim suffers for a while longer.

Trace (or minimal) Atmosphere (Atmosphere 1) is not breathable by humans but will not kill them quickly. Enough gas pressure exists that an unprotected person could function for a few minutes so long as an air supply was available. Prolonged exposure will be harmful, however, so pressure suits are advisable except in extreme emergencies. Life is possible in these conditions but not in forms commonly encountered on Earth.

Very Thin Atmospheres (Atmosphere 2–3) are experienced on Earth in places like the top of Mount Everest, where pressure is about a third of an Atmosphere. This is enough to support respiration for a period but not indefinitely. Effects such as nausea, disorientation and dizziness become gradually worse until the subject becomes incapable of functioning coherently. It is possible that creatures could develop which are adapted to these conditions.

Thin Atmospheres (Atmosphere 4–5) can be tolerated indefinitely by humans who have become acclimatised but those who are not used to the thin air may be prone to altitude sickness, which can cause confusion, headaches and nausea. Even individuals not affected by altitude sickness will tire quickly and not rest well until they become used to the conditions. The equivalent on Earth is encountered at altitudes from about 2,000 to 4,000 metres, in pressures of around two-thirds of an Atmosphere.

Standard Atmospheres (Atmosphere 6–7) are roughly comparable with that found on Earth at sea level, to within a third greater or less pressure. This is optimal for the comfort and well-being of most Terran humans, although those adapted to different environments may be uncomfortable.

Dense Atmospheres (Atmosphere 8–9) with a pressure up to 2 Atmospheres can be uncomfortable for normal humans but are breathable. The combination of dense atmosphere and high humidity produces a sensation rather like drowning.

Extremely Dense Atmospheres (Atmosphere 10–13) of greater than 2 atmospheres pressure can be coped with for short periods with careful compression and decompression, and a suitable air supply (in the manner used by divers), but without careful pressure adjustment and support equipment humans cannot survive in this environment.

Superdense Atmospheres such as those found on Venus or gas giant planets are totally unbreathable to humans, no matter what their gas composition may be. The pressure may cause physical damage long before breathing becomes an issue. A superdense atmosphere would normally be assigned a code of 15 – unusual – (if they were given one at all) as they lie well beyond the normal range.

BREATHING DIFFICULTIES

Most creatures can withstand a degree of imbalance between their internal pressure and conditions outside but major changes of pressure, especially sudden ones, can cause severe harm. Physical effects such as tissue damage require very low pressure but a Traveller may encounter respiratory difficulties long before pressure becomes low enough to cause direct harm.

Low pressure reduces the availability of oxygen, which can have rapid and obvious effects or be more insidious. Those who are acclimatised to lower pressures can function normally, although there is a limit to how little oxygen a Traveller can get by on. Those not acclimatised will often display symptoms of altitude sickness or in more serious cases be distressed and unable to process enough oxygen. Starships normally alter their internal conditions slowly whilst in jump, allowing passengers to arrive already acclimatised.

One way to deal with the problem of lacking enough air is to use a compressor system or air supply. Most forms of armour do not include an air supply and are therefore no use against respiratory hazards, but some military systems do incorporate emergency breathing equipment.

Many breathing systems are simply a mask with either bottled air or means of obtaining a breathable gas mix from the outside environment. Examples include compressor masks, which draw in the outside air and compress it sufficiently that the user can breathe easily. Filter systems, or combination filter/compression systems, are necessary when the outside air contains a harmful substance. An artificial gill preforms a similar function in water, drawing in oxygen and storing it for use.

Filter or compressor based units are little use when immersed in liquid but most bottled-air systems will allow breathing in any environment that does not require a sealed suit. A simple face mask is sufficient where air pressure is very low or the Traveller is operating in a gas mix that is not harmful but which they cannot breathe. In extremely low pressure environments or vacuum, a sealed pressure suit is needed to protect against the environment – humans need a certain gas or liquid pressure around them to function properly. For very low pressure and vacuum environments, a sealed suit is required. A vacc suit or similar garment maintains pressure around the body as well as providing air.

Assuming there is sufficient atmospheric pressure to avoid other problems, a Traveller can hold their breath for a number of combat rounds equal to their END under conditions of moderate activity. This includes walking briskly, struggling to open the emergency breathing gear locker or swimming underwater.

Heavy activity such as fighting or running uses up air much faster. Roll D3 for every round of such activity; this is how many rounds' worth of normal activity have been used up. A Traveller undertaking very light activity such as moving slowly and carefully, or who is keeping still trying to conserve oxygen, will double the time before they need to breathe.

Once this time is exceeded, the Traveller must make an Athletics (endurance) check each round to continue holding their breath. Difficulty starts at Simple and increases one level every other round until it reaches Formidable. Sooner or later this roll will be failed but it is possible to hold one's breath for a long time at need.

Once the roll is failed, the Traveller must breathe in. This may mean taking in a lungful of smoke, water or toxic gas mix, or trying to breathe something that will not support respiration but causes no direct harm. If the Traveller breathes in something harmful mixed with breathable air, the effects will depend upon the substance breathed in. Neutral gases, water and the like do not cause harm as such; they simply do not provide any oxygen. This will kill the Traveller in a short time. Each round they are unable to breathe, they suffer 1D damage.

In the case of breathing harmful substances alongside useful air, the Traveller will not immediately begin to suffocate but will still take damage. Some chemicals or substances will have additional effects, depending on their nature. For example, a cloud of spores might cause problems breathing and also have a hallucinogenic effect. This is dealt with under the chemicals and diseases rules on page 71.

DECOMPRESSION

Decompression occurs when a vacc suit or spacecraft compartment loses its ability to contain air, or when air is deliberately removed from a compartment. This will expose Travellers to vacuum or very low pressures, and may also have secondary effects such as objects being flung around by the rush of escaping atmosphere.

Explosive Decompression takes place when a pressurised suit or space craft is suddenly and seriously holed, or a hull section fails. Internal pressure will quickly push out all the air, along with anything else that is not properly secured.

When a compartment explosively decompresses, the occupants will be flung around (this does not apply to suits that are suddenly holed). Everyone within the compartment must pass an Average (8+) Vacc Suit or Athletics (dexterity) check to grab something and secure themselves, or they will be propelled towards the breach. If they are fortunate, these Travellers will strike something on the way. This inflicts 2D damage but gives the Traveller an extra chance to grab hold of something.

Assuming the breach is not so huge that there is no chance to impact an intact part of the wall or bulkhead, Travellers have a final chance to avoid going straight out of the hole. Another Athletics or Vacc Suit check can be made and, if passed, the Traveller snags on wreckage or impacts an intact section of bulkhead. This causes an additional 3D damage. Those who are unlucky go straight out of the breach into open space, possible ripping themselves to pieces on jagged edges in the process.

In the round that a catastrophic suit breach occurs or a compartment is holed, explosive decompression takes place as noted above. The following round the compartment is in a state of a Partial Vacuum and all Travellers will be harmed accordingly. The round after that it will be a complete (hard) vacuum and will remain so until sealed and re-pressurised.

Round 0: Explosive Decompression effects
Round 1: Partial Vacuum
Round 2+: Hard Vacuum

See page 66-67 for the effects of partial and hard vacuum exposure.

Rapid Decompression is not quite so serious. It occurs when a minor breach is made and air begins to escape. Although there will be discomfort and possibly damage to eardrums and the like from rapidly dropping pressure, any Travellers in the breached compartment have a little time to self-rescue. Small objects may be flung towards the breach but the escape of air will not be fast enough to endanger humans.

Rapid decompression takes place over several combat rounds. In the round the compartment is holed, the situation is apparent but occupants take no immediate damage. The Referee should secretly roll D3. This is the number of rounds for the atmospheric pressure to fall to dangerous levels. After these rounds a minimal atmosphere exists in the compartment. The Referee should then roll another D3. This is the number of rounds until pressure can be considered a partial vacuum. D3 rounds after that, all the air is gone and occupants are exposed to hard vacuum.

See below for the effects of minimal atmospheres, partial and hard vacuum:
Round 0: No harmful effects but decompression becomes noticeable.
Stage 1: Roll D3. Atmospheric conditions can be considered normal for this many rounds.
Stage 2: Roll D3. Minimal pressure conditions exist for this many rounds.
Stage 3: Roll D3. Partial Vacuum conditions exist for this many rounds.
Stage 4: Hard Vacuum now exists.

VACUUM EXPOSURE AND EXTREMELY LOW PRESSURE

The following effects assume a Traveller is totally exposed, i.e. wearing nothing more protective than normal clothing. Breathing equipment is not relevant here – low pressure causes damage by exposure whether or not the Traveller has enough air to breathe. Protection requires a sealed pressurised suit. Correctly speaking, low pressure and vacuum exposure should be combined with hypoxia/suffocation effects but a vacuum-exposed Traveller is in enough trouble already.

Minimal Pressures can be tolerated (at great discomfort) for a Traveller's END in minutes providing they have air to breathe, e.g. from an emergency mask and bottle. If they have not, they will die of hypoxia long before the lack of air pressure harms them. However, in the case where a Traveller is, say, trying to cross a low-pressure compartment wearing just a firefighter's air supply (i.e. they have bottled air but no pressure suit) they will be uncomfortable but unharmed for the period above. After this, END is reduced by 1 point per minute. Unconsciousness occurs when END reaches 0, at which point damage is taken alternately by STR and DEX until the Traveller dies.

Partial Vacuum cannot be tolerated by unprotected humans for long, whether they have an air supply or not. The fact that there is a little air pressure enables the Traveller to survive a while longer but not much. A Traveller who is exposed to partial vacuum suffers 1D damage per round, with unconsciousness and death occurring as above.

Hard Vacuum is even more dangerous. Travellers exposed to hard vacuum suffers a cumulative 1D damage each round, suffering 1D damage the first round, 2D the second and so on. A typical person will be unconscious in one to three combat rounds (about 6–18 seconds) and dead soon afterwards.

PARTIAL EXPOSURE AND SUIT BREACHES

The previous effects assume a Traveller in their shirtsleeves, exposed to the hazard. However, partial protection is possible. A Traveller in a sealed vacc suit is completely safe but if their suit becomes damaged they may be partially exposed. A minor suit breach such as a gunshot wound (or several) allows the suit to continue providing some protection. A major suit breach such as a rip caused by jagged debris or knife slash allows the suit to offer a minimal level of protection. In some cases, a suit may have a minor malfunction and cause a body part to be slightly exposed. This is not very serious except over long periods.

A breached vacc suit will cause exposure to vacuum with the effects described previously. Most suits have a measure of self-sealing capacity and the internal pressure of the Traveller's body will often push their flesh against a small breach and partially seal it, so that only the local area is exposed.

To cause explosive decompression from a vacc suit, it would be necessary to shred it, shatter the helmet or at least rip it right open, very suddenly. Most of the ways this might happen would render decompression effects academic.

Less severe suit breaches are possible without killing the suit's occupant, or at least leaving enough of them to suffer decompression effects. Rapid decompression is possible if a helmet or limb seal failed catastrophically, or the faceplate shatters. In this case, the suit would still offer some protection if it covers at least part of the wearer. Otherwise, the Traveller will usually still be able to breathe as air leaks out. They will be partially exposed to vacuum but able to continue functioning, perhaps conducting a self-rescue.

Vacuum Damage

Suit Breach	Hard Vacuum	Partial Vacuum	Minimal Atmosphere
No Protection	2D damage per round	1D damage per round.	1 Point of damage per minute after END in minutes
Suit with Major Breach	2D-4 damage per round	1D-2 damage per round	1 point of damage Reduction per 90 seconds after END x 2 in minutes
Suit with Minor Breach	2D-8 damage per round	1D-4 damage per round	1 point of damage Reduction per 120 seconds after END x 3 in minutes

As a rule, a shattered faceplate, major failed seal, or a suit torn open by debris or a blade weapon will allow the Traveller to continue to function – or, at least, remain conscious and suffer as they die of vacuum exposure. A smaller breach such as a minor seal failure or gunshot wound will allow air to escape rapidly from the suit but it will continue to provide sufficient protection that the Traveller will remain conscious and be able to act, so may well be able to self-rescue.

A Minor Suit Breach exposes the wearer to outside conditions but reduces damage by 4 points per dice (i.e. hard vacuum causes a cumulative 2D-8 damage per round).

A Major Suit Breach exposes the wearer to outside conditions but reduces damage by 2 points per dice (i.e. hard vacuum causes a cumulative 2D-4 damage per round).

Slight Exposure caused by a minor suit malfunction such as a faulty glove seal causes minor localised effects. The Traveller takes one point of damage after his END in minutes, repeated at the same interval.

A Minor Breach in a vacc suit occurs when there is a short tear, failed seam or puncture wound resulting from a gunshot or similar occurrence. A Major Breach occurs when a suit's faceplate is shattered or the suit has a significant hole in it such as that caused by a slashing weapon doing six or more points of damage above the suit's Protection.

HIGH PRESSURE

High pressure can also be a problem, although it is more likely to be a plot element or additional complication than a direct hazard. After operating in a very high pressure environment, Travellers have to undergo careful decompression which can take several hours. This is not the stuff of exciting adventures in the far future. Thus deep water and extremely dense atmospheres are normally tackled in a manner that protects the Travellers from them, such as deep-diving suits, submarines or special exploration starships.

Extreme environments like this are an all-or-nothing proposition. If the Travellers remain protected, they are fine. If not, they die almost immediately. This can be useful for creating threats, tension and barriers in an adventure but it does limit what the Travellers can do in such an environment. Less extreme situations are unlikely to be immediately harmful and may be encountered in the course of a game.

High-pressure atmospheres can make it difficult to breathe and have a tendency to force their way into suits and vehicles through seals that would keep atmosphere inside against a vacuum. This is why spacecraft do not make good submarines – keeping air pressure in against a vacuum means operating at a differential of one Atmosphere (i.e. the mean pressure of Earth's atmosphere at sea level), whereas even just a few tens of metres down, water pressure on the hull of a submerged vessel (and all of its weak points) can be many times as much. Extreme pressure can flatten a hull but seals will normally fail long before this occurs.

On a world with normal gravity, water pressure increases by one Atmosphere for every 10 metres below the surface. Gas pressure increases much more slowly with depth; for a standard atmosphere world with gravity equivalent to that of earth, the pressure at a depth of 10 kilometres below the surface is around 2.9 atmospheres. At 50 kilometres, where the earth's crust meets the mantle, pressure would be 52 Atmospheres. At 100 kilometres, pressure would be around 500 Atmospheres.

By way of comparison, atmospheric pressure at 'sea level' (if such a thing existed) on a gas giant planet such as Jupiter is estimated at around 990 Atmospheres.

Modestly high pressures are not directly harmful to people but can cause secondary issues. A fluid depth of 30 metres exerts just 3 Atmospheres of pressure (plus one for normal air pressure) but this is enough that divers breathing bottled air risk nitrogen narcosis. This produces an effect somewhat like drunkenness due to the narcotic and anaesthetic effect of many gases at high pressure. Nitrogen is the most common problem since it makes up most of a standard air mix.

At a depth of 60 metres underwater, with about 7 Atmospheres of pressure on a diver, there is an increasing risk of oxygen toxicity; the result of the body retaining too much oxygen. A normal air mix at high pressure will produce this effect, so those operating under high pressures require a lower partial pressure of oxygen. Similar effects can be encountered when breathing very high concentrations of oxygen under normal pressures – which means that high-oxygen atmospheres can actually be unsafe for humans to breathe as well as posing a serious fire hazard.

It is possible for a human to function well enough to carry out complex tasks and suffer no ill effects afterward, when exposed to pressures of at least 50 Atmospheres (500 metres underwater) but this does require a special gas mix and very cautious movement into and out of the high pressure region.

Extreme pressures (30–50 Atmospheres) are sufficient to cause High Pressure Nervous Syndrome (HPNS) in humans even when breathing a mix composed mostly of helium, the least toxic of all gases. HPNS is debilitating and can prevent a diver from functioning coherently. Thus 50 Atmospheres represents the limit that humans can tolerate using special gas mixes.

It is possible to go deeper than these depths using a vehicle or suit whose structure will resist the external pressure, and even to live on the seabed in cities designed to withstand the huge pressures encountered there. Hard suits exist on Earth (TL8-ish) which can operate at a depth of 700 metres (70 atmospheres) for several hours without needing to decompress the user afterward or breathe exotic gas mixes. Small research submarines have penetrated to the deepest point of Earth's oceans (almost 11,000 metres, at 1,100 Atmospheres of pressure) with a human crew aboard.

STARSHIPS UNDER PRESSURE

The average starship does not make a very good submarine; seals and components designed to keep one Atmosphere of pressure in are less effective against 100 in the opposite direction. Typical starships can withstand 10 Atmospheres of pressure without structural damage and up to three times that much before danger of a major structural failure. However, even at half the 'safe' depth of 100 metres (10 Atmospheres) there will be minor leakage and perhaps damage to electronics or fragile components.

Thus the average starship has more than sufficient margin to skim fuel from a gas giant's atmosphere but this is not enough to dive deeper than the upper layers (to hide from hostile vessels, for example) without some risk to the vessel.

Ships specifically designed or heavily modified for high-pressure operations can typically withstand 100 Atmospheres of pressure (about one kilometre of water depth), which is enough to hide on the bed of a shallow sea. Three times as much pressure could be tolerated with increasingly rapid leakage and danger of serious structural failure, which could cause a cascading hull collapse. It might be possible to build a starship for extreme pressure operations, for example to dive to the bottom of a gas giant's atmosphere, but this would be inefficient and extremely expensive.

Getting water out of a spacecraft can be a challenge unless it has been adapted for the task. The vessel's internal life support systems are not likely to be set up for removing loose water but a clever crew might be able to rig additional hoses to make use of the ship's existing systems.

It is possible to undertake a set of modifications, readying a starship for underwater operations. This has the effect of tripling the tolerable depths and adding pumps to remove leaked water and usually includes the addition of an underwater manoeuvring system. A modified ship is thus capable of operating at a 'safe' depth of up to 300 metres and with some risk down to about 900 metres.

By way of comparison, the continental shelves on Earth are mostly less than 150 metres beneath the surface, with an average depth of 60 metres, thus having a pressure of about 6–15 Atmospheres. A standard starship could sit on the bottom more or less indefinitely but might suffer some leaks. A modified one could be based there, or operate directly out of a seabed city.

Average ocean depth on Earth is about 3,700 metres, giving a pressure of about 370 Atmospheres. This is too much for even a hardened spacecraft to tolerate but the seabed is not flat. A ship could probably locate a seamount or ridge to lie upon. Exploring the very deep oceans in a starship is not feasible, unless one were specially developed to handle immense pressures; a better alternative might be to use a submerged starship as a base for deep-diving submersibles or robotic craft.

UNDERWATER ENVIRONMENTS

Water and other dense fluid mediums create a difficult environment for combat and other operations. The problem of breathing must of course be solved and in addition water resistance makes many actions impossible. Most conventional firearms will work underwater but a projectile loses energy very quickly in a dense medium. Some weapons, such as spearguns and specialist firearms, are reasonably effective underwater but ranges are still short.

Plasma weapons and similar devices pose a severe threat to the user and anyone within a radius of three metres. Firing any plasma weapon underwater causes an explosion of superheated vapour that causes half the weapon's normal damage to the user and those close by and an almighty bubble of gas heading for the surface. The weapon is likely to be destroyed, whilst anyone more than three metres away will not be greatly harmed. The typical plasma gun is a 1DD weapon, i.e. damage is usually rolled on one dice multiplied by 10. In this case, a plasma gun would be treated as doing 10D damage and therefore inflicts 5D on its user.

Lasers suffer an extreme shortening of range; even those keyed to wavelengths that travel well underwater are inefficient compared to lasers firing through air or vacuum. Similarly, most hand weapons are useless as they cannot gain enough momentum to be effective. Small sharp blades and stabbing implements retain their usefulness, however.

When firing any laser or projectile weapon underwater, other than one adapted to this environment, range is reduced to a tenth of normal. Specialised underwater weapons reduce their range by a fifth instead.

All close combat attacks are subject to DM-4 when fighting underwater and blunt weapons are useless. A long sharp blade can still be used to cut or stab but it is awkward. The Referee may choose to disregard the penalty if a Traveller is fighting with a specialised underwater weapon or knife.

DISEASES, TOXINS AND CHEMICALS

The mechanics for dealing with the effects of harmful substances are very similar, despite their origins being quite different. We will use the term 'agent' as a catch-all to describe these substances.

Agents can harm the victim in various ways. Some interfere in the body's natural processes whilst others damage specific organs. Some biological agents actively grow within the body, such as fungal spores, whilst others cause diseases by viral or bacterial infection. The details can vary significantly but for the purposes of *Traveller* we are primarily interested in how the agent is introduced to the body, the effects of the agent, the time between exposure and the beginning of the effects and whether the effects can be resisted.

It may also be important to know if an agent can be passed from one person to another. As a rule of thumb, diseases and biological agents can often cause one host to infect other people but non-biological agents generally cannot. There are exceptions to both, however. The notes on any specific agent will indicate its capabilities.

Agents can be divided into three basic types:

Biological agents are of natural origin, in that they are created by life processes even if those processes have been manipulated to create the agent. Viruses and bacteria, parasites and biological toxins such as snake venom all fall into this category, although they have different capabilities. Most biological agents are destroyed by heat (and sometimes cold) or radiation – often including ultraviolet light – and will rapidly become harmless if supporting life processes are terminated. For example, a virus living in a person's body will usually cease to be dangerous within a few hours after the death of the host.

Chemical agents are typically inert, i.e. they cannot reproduce themselves but can usually survive conditions that would destroy a biological agent. Toxic chemicals remain toxic unless their nature is changed, perhaps by reaction with a neutralising agent.

Energy-Based agents cause harm by damaging living cells. The most obvious example is nuclear radiation but various exotic forms of energy might exist in a *Traveller* universe. Energy-based agents might harm the victim directly, such as when a Traveller is exposed to radiation in a solar flare, or might irradiate an object which is then ingested or comes in contact with skin. This is why radioactive fallout is dangerous – radioactive dust can be breathed in or ingested, or lie in contact with the skin and thus allow its radiation to cause damage to the victim. Protection against secondary hazards of this sort requires preventing contact, perhaps by using a sealed suit and breathing system. Direct radiation is harder to protect against, requiring a material that absorbs the energy to be placed between target and agent.

DELIVERY METHOD

The delivery method of the agent is important, since avoiding exposure is the surest method of protection. Some agents cannot affect a victim without getting into the bloodstream. Skin is an effective barrier against many such agents, providing it is not broken. Others need to be ingested or inhaled and in many cases will not have any effect unless they pass through the respiratory or digestive system.

Ingested agents are the easiest to defend against. If not eaten or drunk they cannot affect the victim. Detection of many chemical agents is fairly easy due to their odour or other characteristics. Some toxins cannot be smelled or tasted and require the use of technological sensors to detect.

Injected agents can be delivered by medical injection but are more often encountered on the stingers or fangs of hostile wildlife, or delivered as darts, needles or bullets by projectile weapons. To have effect, injected toxins must enter the bloodstream. This normally requires breaking the skin or contact with an open wound. Weapons that do no damage (other than to deliver a chemical payload) will penetrate most normal clothing but will be stopped by any form of armour useful against projectiles. A weapon that does some normal damage will fail to inject its toxin if it is stopped by armour.

Inhaled agents will affect anyone who breathes them in. They generally take the form of a vapour but can be a toxic gas, cloud of spores or dust. A Traveller who is aware of a gas cloud may try to hold their breath and run clear of it. To do so they must be aware of the gas and make an immediate Athletics or Survival check. Difficulty is at the Referee's discretion and will be higher if the Traveller must do something strenuous such as force a heavy door, or if they are hit and take damage. This check must be made each round the Traveller is exposed to the airborne agent.

If the Traveller fails the check at any point, or fails to notice the threat, they breathe in the gas and suffer whatever effects may apply. A Traveller in a sealed suit or who is wearing a respirator is immune to the effects of most gases.

Contact agents may also be dangerous if breathed but their primary mode of attack is by contact with skin or mucous membranes such as eyes, throat and so forth. Contact agents are usually in liquid or gaseous form but may be spores, dust or even a large object such as a strange monument made from a toxic metal.

Some creatures (and certain weapons) spray a noxious chemical at enemies. Such a spray must hit the target, usually in the face. This requires an attack roll and is ineffective against Travellers wearing a full-face helmet or mask, although a coating of liquid can make it hard to see.

Other gases require only contact with eyes to have some effect, e.g. tear gas. A Traveller in a sealed suit is immune but while a respirator will protect against breathing in the gas and the effects thereof, eye protection suitable to keep out gases is required. Thus a respirator mask with integral goggles will protect the user from tear gas and the equivalent chemical in liquid spray form, while a visored security helmet will stop the spray but not gas.

Some powerful chemicals need only be absorbed through skin contact. A complete suit such as a vacc suit or battle dress gives protection so long as it is kept sealed and suitably decontaminated after exposure. Other protection is marginally effective. Measures such as covering as much skin as possible with clothing or donning a breathing mask may be sufficient to reduce exposure. A Traveller attempting such measures may achieve partial protection.

A Traveller who is exposed to a skin-contact agent may try to make an Athletics (dexterity) check to avoid intoxication (by rushing into clear air). The difficulty is decreased by one for partial protection as noted previously and by an additional level if conditions are not favourable for gas weapons (e.g. a windy day).

Radiant Agents are propagated by electromagnetic radiation and may be powerful enough to penetrate protection or intervening solid objects. The only effective means of defence are barriers (such as protective clothing or walls) and distance. Radiant agents can usually be detected by appropriate instruments in time to avoid moving into the danger area.

If a Traveller is exposed, they may still resist the effects of the agent.

DETECTION OF AGENTS

Many agents can be detected by simple means. Gas or spore clouds may be obvious to the naked eye, although it may not be obvious that a mist or dust is toxic. However, observation combined with a knowledge of local conditions is often sufficient to warn Travellers. If they know local swamps are prone to clouds of toxic gas and they see a strange mist over the nearby pond, they should be able to figure out what is happening.

Other agents are relatively obvious but in other ways. Many chemical toxins have an appearance or smell that can give warning before full exposure occurs and Recon and Survival skills are useful in providing a warning. However, more subtle toxins may be difficult to detect. An experienced outdoorsman may know the signs of local hazards, or rules of thumb about which plants and animals are safe to eat. Likewise, those used to working with chemicals will know that *this* combined with *that* produces something dangerous and will be alert to the possibility in a way a layman would not.

Figuring out that a toxic or harmful agent may be present requires a Difficult (10+) Science check (the speciality or sub-speciality depends upon the type of agent). Success indicates the Traveller has realised an agent is likely to be present in the local environment, although this does not necessarily mean a specific threat has been spotted.

Spotting a threat requires a Difficult (10+) Recon or Survival check. The difficulty is reduced to Routine (6+) if the Traveller has studied the environment or been informed that an agent may be present – after a couple of brushes with spore or gas clouds, the Travellers will become adept at spotting them.

Complex or subtle toxins can usually be detected using chemical or biological instruments. Diseases, on the other hand, generally require observation of symptoms or analysis of samples. Since many diseases have a period in which they can be transmitted before they exhibit symptoms, there is a real danger that an infected Traveller can spread a disease, especially if they move over a wide area and come into contact with many people.

EXPOSURE, DELAY AND INTERVAL

When a Traveller is initially exposed to an agent, it is necessary to determine if they are affected by it. In some cases the agent takes effect immediately but often there is a delay before symptoms appear. This may be due to the growth of spores, damaging effects of a chemical, incubation of a disease or many other factors but the effect is the same. In the case of radiant weapons, the process is slightly different as the cumulative dose of radiation is what matters. In such cases the Referee should impose the effects of exposure when the full dose has been taken, i.e. when the Traveller has ceased to be exposed. The exception is where ongoing exposure will produce symptoms which will warn a Traveller of what is happening and enable them to prevent further exposure.

A Traveller cannot be affected by an agent if they are not exposed to it, so someone who maintains vacc suit protocol whilst in a disease area and undergoes proper decontamination after leaving runs no risk unless a critical error has been made.

Once a Traveller has been affected by an agent, there may be a delay – sometimes quite a long one – before the first effects appear. This may be the only set of effects but many agents will produce repeated effects over time. This is referred to the Interval of the agent. The affected Traveller usually has a chance to resist the effects each time they are applied and, if successful, the agent no longer affects them. The same process is used for diseases; much of the time a Traveller's body will eventually fight off the disease if it does not kill them in the meantime. Persistent diseases do exist but even then there is usually a cure if advanced medical assistance is available.

The Referee might choose to determine if the Trveller is affected at the time of exposure, or instead make the determination after the agent's Delay period, making the determination at the point where symptoms would appear. Effects are then applied and after the agent's Interval a new determination is made to see if the Traveller is still affected or has begun to recover.

For agents that may affect the victim more than once, or over time, the Interval value indicates the time between incidents. If the victim has a chance to resist the effects, they may attempt to resist each time the effect is applied and once an effect is resisted the Traveller will – in most cases – no longer be affected and may begin to recover. Occasionally an agent may continue to attack the Traveller even after being successfully resisted, such as a poison still present in the body. In such cases, outside intervention is required to remove the threat, otherwise it is only a matter of time before the victim succumbs.

RESISTING AN AGENT

When a Traveller is exposed to any agent, they get a chance to resist its effects. It may or may not be obvious that they have failed to resist the agent. For example, most diseases have an incubation period before symptoms present themselves and some chemical agents do not have an immediate effect. A Traveller might be exposed to chlorine gas and think they have escaped the effects, only to become ill several hours later.

All harmful diseases, organisms and chemicals that do not have a direct physical effect (e.g. acid, which causes wounds in the normal manner) are rated according to the difficulty of the END check required to resist their effects. If the Effect of the check is positive, the Traveller has not been affected; if it is negative they have. If the Effect is exactly zero, then in some cases the Traveller could become a carrier for the disease or agent, or have a delayed onset of symptoms. If so, a second attempt to resist the agent is made when it finally manifests itself.

Remember that a properly protected Traveller cannot be affected by an agent. For example, someone in a gas-proof suit cannot be attacked by gas unless the suit is breached or deliberately unsealed.

Damage from harmful substances may occur each round or at intervals. In some cases, a Traveller may make an END check to avoid damage on that occasion, although after the interval has passed another check is required to avoid the next set of damage.

AGENT EFFECTS

Most agents cause damage to the victim in much the same way as any other form of attack, although some have additional or alternative effects. It is possible to contract a chronic disease that injures the victim every day, resulting in a Traveller being able to go adventuring but be more prone to injury due to a damaged END characteristic. Some agents directly reduce a characteristic, either permanently or on a temporary basis.

Temporary damage to a characteristic is regained at the rate of one point per week if the Traveller is resting and undertaking only light activity. If they are receiving proper medical care then their physician can reduce the time to regain a point by the Effect of an Average (8+) Medic check. A new Medic check can be made the following day, potentially allowing very rapid recovery.

Specific effects may have a set period or last until the agent is countered by medical means. They may go away when the Traveller successfully resists the agent's effects, or may linger afterward. This is dealt with in the notes on specific agents.

SAMPLE AGENTS

The following are a range of threats that a Traveller might have to deal with. Other agents can be modelled upon these examples.

Agent	Resistance Difficulty	Delay	Method of Exposure and Effects	Interval	Comments
Mild Poison	Easy (4+)	1D x 30 minutes	Ingested, 1D damage	1 hour	Naturally occurring biological poison
Very Strong Natural Toxin	Difficult (10+)	1D Minutes	Ingested, death	None	Lethal biological poison
Snake Venom	Average (8+)	Immediate	Injected, 2D damage	10 minutes	Must break skin to be injected
Pepper Spray	Average (8+)	Immediate	Contact, irritation of eyes and respiratory passages, 2D Stun damage	1D rounds	Must achieve a contact with face and eyes
Lethal Chemical Agent	Formidable (14+) if inhaled, Very Difficult (12+) if contact only	Immediate	Inhaled or contact, immediate collapse and 3D damage	1 round	Typically fatal; intoxication can occur on skin contact
Soporific Chemical	Difficult (10+)	Immediate	Inhaled, unconsciousness	2D seconds	Gas attacks every round until the victim moves clear of cloud
Mild Neurotoxin	Very Difficult (10+)	Immediate	Inhaled or injected, confusion and disorientation, 1D INT damage	1D seconds	Injected if naturally occurring, gas if weaponised
Extremely Lethal Biological Toxin	Very Difficult (10+)	Immediate	Contact, 4D damage	1 minute	Inhalation is by definition 'contact'

DISEASES AND BIOLOGICAL HAZARDS

Whilst diseases and biological weapons are treated much the same as other agents, they can have additional complications. A poison created by a biological process is more or less the same as a poisonous chemical but a biological threat will typically infect the victim with a disease or disease-like condition. This requires a longer period to take effect than a chemical-based agent. Thus whilst a chemical agent (such as nerve gas) tends to kill instantly or quickly, a biological agent is more insidious.

A biological threat must get into the body, just as with a chemical agent. A Traveller in a sealed suit is safe from airborne diseases unless they open the suit without decontaminating it first. To determine if a Traveller has been exposed to a hazard, the same classifications are used as for chemical attacks – e.g. a blood-borne disease must be injected; a droplet-based infection is effectively a gas cloud.

Disease effects are highly variable. Most diseases cause some kind of fever and flu-like symptoms within 1–14 days of infection and last a similar period. Diseases can be rated like lethal toxins in terms of the ability to resist. How deadly a given disease might be is a matter for the Referee to decide, although dying of anthrax or a mutant form of chickenpox is not the stuff of free-wheeling interstellar adventure. Diseases are thus better used as a plot device than a way of making Travellers' lives miserable.

SAMPLE DISEASES AND BIOLOGICAL AGENTS

There are plenty of ordinary diseases a Traveller can catch. The common cold will undoubtedly still be making people miserable in the far future and most illnesses are nothing more than a nuisance. A starship in jump might ring to the sound of sneezing but it will still get to its destination. Some diseases are more serious and some can have effects that might create or complicate an adventure. A truly devastating disease might influence the course of a campaign or even define the setting.

The diseases that follow are presented in a standard format consisting of their name and general nature followed by the difficulty of the END check required to resist the illness. This can be modified by the Effect of a Medic check if proper medical care is available.

Most diseases have one to three stages. At the beginning of each stage the victim attempts an END check to resist. If it is made, they begin to recover. If not, they proceed to the next stage.

ATLANTA HAEMORRHAGIC FEVER

Nature: Blood-borne, natural disease
Difficulty: Formidable (14+)

Stage 1: After an incubation period of 4D+12 hours, the victim begins to display flu-like symptoms. This soon proceeds to minor 'bleeds' both internally and externally.

Stage 2: After 4D hours, the disease proceeds to Stage 2 unless a Formidable (14+) END check is made. The victim suffers serious internal haemorrhaging resulting in collapse and death. If the check is successful, the victim will recover over the course of 1D+2 days.

Notes: Haemorrhagic fevers cause a breakdown in the walls of blood vessels and organs. Most are less than 30% fatal but this very nasty variant is almost always terminal. It can only be passed by contact with bodily fluids, notably blood. An outbreak of a disease this virulent would normally result in the quarantine of the entire affected area, creating interesting plot possibilities. A small community such as a backwater starport could be completely wiped out in between starship visits or, worse, infected individuals might be taken elsewhere aboard a passing ship.

QUARETE FEVER

Nature: Natural ailment, can be weaponised as a bio-weapon
Difficulty: Average (8+)

Stage 1: After an incubation period of 2D+8 days, the victim begins to display symptoms of fever, headache and possibly chest pain and coughing. Pneumonia is very common as a secondary effect. END and STR are both reduced by 1D each, to a minimum of 1. The patient is contagious during stage 1 but ceases to be once symptoms appear.

Stage 2: After 2+2D days, the patient begins to recover at the rate of one point each of STR and END per day. This period is halved to 1D+1 days if medical treatment is available. Most patients recover without long-term effects.

Notes: Quarete fever is very rarely fatal. It does, however, debilitate the victim and make them a carrier. Stage 1 sufferers have DM-2 applied against any and all tasks undertaken. Quarete Fever is sometimes used as a non-lethal biowarfare agent because it can debilitate personnel for long periods and is often mistaken for naturally occurring pneumonia. If weaponised, Quarete Fever can be dispersed as a vapour, infecting victims in the same way as any other droplet-borne virus.

WEAPONISED ANTHRAX

Nature: Bioweapon (inhaled spores)
Difficulty: Very Difficult (12+)

Stage 1: After an incubation period of 1D days, the victim begins to display flu-like symptoms. STR and END are each reduced by 1D to a minimum of 1.

Stage 2: After D3 days, check to see if the disease progresses to Stage 2. If the END check is made, the victim begins to recover at the rate of one point of STR or END (determine randomly which) every day of rest and good medical care. Stage 2 is accompanied by severe respiratory distress. STR and END are each further reduced by 1D each. If either reaches zero, the patient will die.

Stage 3: After D3 days, the patient must pass a Very Difficult (12+) END check. If it is failed, the patient dies of respiratory failure. If the check is passed, the patient continues to suffer acute respiratory distress for 2D days before beginning to recover. STR and END recover at a rate of one point each per day after the end of Stage 3.

Notes: Anthrax is caused by a naturally occurring bacteria. It can cause skin infections but is most dangerous when inhaled. To be really dangerous, Anthrax or some similar bacterial agent must be weaponised, i.e. it must be combined with a delivery system enabling it to enter the victims' respiratory system. Other spore-carried respiratory infections are similar, with a greater or lesser fatality rate.

NEURODART TOXIN

Nature: Biological poison, ingested or injected
Difficulty: Automatic fail injected, Average (8+) if ingested

Stage 1: Almost instantaneously after the toxin enters the bloodstream (this takes 1D minutes if the toxin is ingested) the victim suffers neurological disruption beginning with tingling sensations and occasional vomiting. DEX and INT are reduced by 2D each. If either reaches zero, the victim loses consciousness. If both reach zero the victim will die.

Stage 2: DEX and INT begin to recover at the rate of one point each per hour after exposure.

Notes: Neurodart toxin gets its name from the fact it is often used to coat projectiles from 'needle' or 'dart' guns which are not designed to cause damage beyond delivering the toxin. Some creatures have the ability to project similar darts or may secrete a toxin to coat thorns. Neurodart toxins are often derived from shellfish and the like, and may be ingested in their natural state. If so, it is possible to resist the effects. Direct injection into the bloodstream cannot be resisted but is not usually fatal – at least, not directly.

SPACER 'FLU

Nature: Common ailment, droplet infection (inhaled)
Difficulty: Average (8+)

Stage 1: After an incubation period of 2D days, the victim begins to display mild flu-like symptoms. STR and END are each reduced by D3 to a minimum of 1.

Stage 2: After 2D days, check to see if the disease progresses to Stage 2. A Stage 2 patient appears to have recovered from what might be mistaken for a cold. STR and END return to normal and the Traveller feels well. Note that this means a Traveller who fails the END check will actually seem to recover.

Stage 3: After 2D days, the disease progresses to Stage 3. There is no END check – a Stage 2 patient progresses to Stage 3 automatically. Stage 3 is accompanied by the return of acute 'flu symptoms accompanied by fever, vomiting and headache. The disease is rarely fatal in its own right but STR and END are each reduced by 2D for the duration of Stage 3, which could kill a weak Traveller. After 2D days of total misery, the disease runs its course and the patient recovers.

Notes: As people move around and despite the best that medical science can do, there is always a 'flu virus making the rounds. This one is hugely unpleasant but rarely fatal for people in generally good health.

TILT FEVER

Nature: Common ailment, droplet infection (inhaled)
Difficulty: Routine (6+)

Stage 1: After an incubation period of 1D days, the victim begins to suffer inner-ear problems resulting in a loss of balance and general inability to stand upright without clinging to something. The victim suffers DM-2 to all actions other than purely mental ones.

Stage 2: After 1D days, check to see of the disease progresses to Stage 2. If so, the Traveller suffers acute disorientation and hallucinations, reducing DEX, INT, EDU and SOC by 1D each. This stage lasts 1D days before ending abruptly. There is no third stage.

Notes: Tilt Fever is a droplet-borne infection picked up from other people. It is debilitating and can be highly dangerous in some occupations as onset is sudden, with no obvious symptoms before Stage 1 manifests itself. Recovery is complete once the disease progresses through Stage 2. Tilt Fever will prevent a pilot from operating a vehicle of spacecraft safely, and has been cited as one of the most common reasons for requiring a replacement at short notice.

ACIDS AND OTHER CORROSIVES

Corrosive substances can come into contact with a Traveller through being squirted or splashed, or as a gas cloud. Armour will protect against a corrosive substance to some extent, although it will be degraded to uselessness over time.

Weak acids such as those found in the atmospheric vapour of less lethal hell-worlds cause relatively little damage providing they are not breathed in. If a corrosive agent is inhaled, treat the effect as one level more serious.

Once a Traveller is exposed to an acid (or other corrosive substance) it will attack each round until it has neutralised itself by reacting with the Traveller's armour or skin. Damage drops by one dice each round until the acid is consumed. If the acid is attacking armour, each dice of damage that is resisted destroys one point of Protection.

This assumes the Traveller is splashed with a small quantity of the substance or exposed to vapour. If the victim is immersed or splashed with a large quantity of the agent, damage is tripled.

If a Traveller is hit again a second time by acid, or remains within an acid cloud, this new attack begins at its full value and begins to drop from there. Much as with Fire attacks, only the most serious corrosion attack currently ongoing is considered, so remaining within an acid cloud means the victim is exposed to the full strength of the agent each round.

Conventional (i.e. non-sealed) armour will protect against acid splashes at its normal value until dissolved. Conventional armour is no use against vapour; only a sealed suit (e.g. a vacc suit) offers protection from skin contact or breathing corrosive vapour. Armour of this sort will still be degraded by vapour.

Some hostile-environment suits are treated to resist acid exposure. Corrosive agents of Typical or lesser strength will affect them but only over a period of hours. After 1D hours of exposure, begin checking for suit failure each hour. Roll 2D: on a 12+ the suit will fail; the acid then begins to attack the Traveller within. For each check after the first, the chance increases by +1, i.e. the chance of failure is 11+ on the second check, 10+ on the third and so on.

Strong and Very Strong acids will attack even acid-hardened suits more quickly. Roll for suit failure every 10 minutes of exposure.

Type	Damage	Comments
Mild	1 per round	Mildly caustic substance, e.g. cleaning products, mildly acidic atmospheric vapour
Weak	D3 per round	Most weak laboratory acids, dilute naturally occurring acids
Typical	1D per round	Most naturally occurring corrosive agents in their normal state
Strong	2D per round	Concentrated laboratory acids, corrosive vapour found in some hell-world atmospheres
Very Strong	3D per round	Very powerful acids

STARVATION AND THIRST

Being hungry and thirsty is not much of a problem when the Travellers are a few minutes' walk from their favourite starport restaurant. However, the need to locate proper sources of food and water can be a major driving factor when out in the wilds. Hunger and thirst are often limiting or 'pushing' factors, in the sense that a particular action may not be possible due to the need for more supplies than the Travellers can carry, or an indication that the Travellers need to get moving before their supplies run out.

These rules are normally an indication of what-is-to-be-avoided. Occasionally, things may go wrong and the Travellers might find themselves in a bad situation. Knowing how long they can survive might suddenly become very important.

LACK OF PROPER FOOD

A typical human needs about one kilogram of decent food per day to avoid beginning to starve. It is possible to survive with no food or minimal food for a number of days equal to the Traveller's END score before any real harm is suffered, providing the Traveller has sufficient water. During this period of pre-starvation, the Traveller heals normally and is not greatly impaired, although they will be in considerable discomfort and may lack energy.

Assuming the Traveller engages in modest levels of activity, starvation begins to take effect after the Traveller's END score in days. After this, the Traveller can function for another period equal to twice his END score in days, during which he does not heal from injuries and is sufficiently impaired to suffer DM-2 on any physical actions.

Symptoms of severe starvation appear after this period, and can lead to death. The highest of the Traveller's STR and END is reduced by one each day – determine randomly if they are equal. When one or the other reaches zero, the Traveller collapses and cannot take any further action. Their highest physical attribute (this is likely to be DEX at this point) is then reduced by one per day until all three physical attributes reach zero. At that point the Traveller will die.

Recovering from starvation depends on at what stage the Traveller begins to eat properly again. If the Traveller gains access to sufficient food (i.e. more than what would be required to prevent starvation) at any time before they begin to lose points from STR and END, each day of eating erases one day of starvation. A medically tailored diet or consumption of high-quality foods increases this to two or even three days. So, a Traveller who has had no food for 11 days might stuff themselves with high-protein foods upon their return to civilisation. After two days of this, they have erased four days from their 'starvation clock' but have not rebuilt their body's reserves. If the food supply is cut off, they are treated as already having suffered seven days of starvation.

It is possible to eke out a Traveller's supplies, for example by eating just enough food one day and starving the next but this does not 'reset the clock' – the only way to do that is to rebuild the Traveller's reserves by eating a good diet for a number of days equal to the time the Traveller was on the brink of starvation. Days when the Traveller is able to eat enough do not rebuild their reserves but do prevent things from getting any worse.

If a Traveller has suffered a reduction to STR, DEX or END due to starvation, the effects will be very visible and reversing them requires a lengthy process. One point is recovered to each damaged characteristic per week of good diet. This period can be reduced by the Effect of a Difficult (10+) Medic check.

A typical person (physical characteristics of 7, 7 and 7) can last 7 days without ill effects, 14 more with moderate ill effects and then begins to deteriorate. They will collapse after 13 more days, then linger in semi-conscious misery for eight more. Time from beginning to end is 42 days. This may seem like a long time but real-world incidents produce similar results.

WATER SHORTAGE

Under fairly normal conditions, a typical human needs about three litres of water each day. Hot conditions increase this amount by a factor of two to three. If adequate water is not available, a Traveller can survive 36 hours without suffering serious ill effects. After this they must make an Average (8+) END check every three hours or suffer a reduction of -1 END. For every check after the first, then a cumulative DM-1 applies. The difficulty is reduced to Routine (6+) if some (but not enough) water is available and increased to Difficult (10+) in hot or dusty conditions, such as a desert.

Once END has reached 0, the Traveller collapses. He loses D3 points from the higher of STR or DEX (randomly chosen if they are identical) per hour until those, too, reach zero and they die.

For example, Ed the Explorer is lost in the wilderness with starvation rations for five days. He has END 9 so can go for nine days without food without suffering serious ill effects (he will be pretty miserable however) and 18 more days with DM-2 to all physical activities and no natural healing. After 27 days, he will begin to suffer serious effects. Ed loses one point to the higher of STR or END each day. This is not damage in the physical sense; it is the deterioration of his body's capabilities as it tries to survive by feeding on itself. If either STR or DEX get to zero he will collapse and be unable to take any significant action as his body uses up its last reserves.

If Ed has brought five days' worth of rations with him, he can use them at any point in this process. He can alternate days where he eats and days where he does not, eat all his rations then tough it out, or suffer for several days before eating anything, eat for five and then begin to starve again. The effect is the same – minimal rations are not enough to reset his 'starvation clock'.

If Ed was rescued after 14 days (i.e. he ate his rations but was found just before true starvation set in) and was properly fed for two days before becoming lost again, he would be able to survive only two days before starvation sets in once more – his reserves are not yet rebuilt. What he needs is a couple of weeks in a nice hotel with a cooked breakfast every day and unlimited access to the buffet.

If Ed were not rescued at all, he would be able to operate reasonably well for 21 days and then could stumble around the wilderness for a few more days after starvation set in, eating the odd beetle and leaf but gradually becoming weaker and weaker. Once STR or END reached 0, he would be unable to move and become even weaker each day until his body just gave up from lack of food.

EFFECTS OF TEMPERATURE

Injury from extremes of temperature tends to be localised, such as when a Traveller burns a hand or is splashed with cryogenic fluids. Such injuries are treated like weapon damage. Armour and/or insulation can help and it is up to the Referee to decide whether armour is of any use. A Traveller using heatproof gauntlets to handle a hot object should be able to count their Protection against it.

However, if a Traveller is immersed in the source of the damage (this is what Fire weapons are designed to do), then it is much harder to protect against harm. Armour does not work well against such attacks. Most body armour is reasonably fireproof but counts at only half Protection against Fire attacks and cryogenic fluids.

Natural resilience and armour from, say, a creature's thick hide, counts as full Protection, as does a sealed full-body suit like a vacc suit. Naturally, armour specifically intended to protect against such attacks, such as a fireproof suit or Reflec, defends at full Protection.

Temperature Damage

Example	Damage
Small flame, e.g. lighter	1 per round
Moderate flame, e.g. wood fire	1D per round
Small intense flame, e.g. blowtorch	2D per round
Steam or burning building	1D per round
Jet of live steam or Furnace	3D
Molten metal or rock	6D
Liquid carbon dioxide	1D per round
Liquid nitrogen	2D per round
Liquid hydrogen	3D per round

This assumes brief contact, such as a gobbet of lava spitting at a nearby geologist or an unwary engineer sticking his hand into a jet of live steam from a cracked pipe. If a Traveller is immersed in the threat, damage dice are tripled before any reduction for armour Protection is considered.

LONG-TERM EFFECTS

The comfortable range of temperatures for humans who do not have protective equipment is not great. It is possible to tolerate quite extreme temperatures (e.g. inside a meat locker or near a furnace) for a short time in shirtsleeves without ill effect but temperature can be insidious and within a fairly short period the Traveller will begin to suffer harm.

Note that a Traveller wearing an environmentally-controlled suit is not exposed to outside temperature and will be immune from all effects so long as the suit continues to function. Extremes of temperature will drain power fast and may overload the suit beyond what it can handle.

HYPOTHERMIA

A Traveller dumped in the arctic in his shirtsleeves has minutes to live at best and fairly unpleasant ones at that. However, with suitable clothing, plenty of high-calorie food and care not to get wet, it is possible for a human to cope with very low temperatures.

A Traveller exposed to cold conditions with inadequate protection will gradually begin to suffer from hypothermia and related effects such as frostbite. How long this takes depends on the temperature. The effects are much the same – hypothermia is hypothermia whether it is caused by sitting in shirtsleeves in a cold room or trudging through arctic wastelands with inadequate clothing. Cold severe enough to cause immediate injury is treated as any other form of damage; these rules cover situations where a Traveller is being slowly chilled to death.

Hypothermia is held at bay by making successful END checks. If successful, the Traveller does not suffer from ill effects until the next time a check is required. Difficulty of the check depends upon temperature and the interval between checks is also determined by the conditions. On a failed check, END is reduced by -1 and this new value is used for subsequent checks. If END reaches zero the Traveller begins to suffer from acute hypothermia and loses D3 points from the highest of STR or DEX until both reach zero.

Reduced END is regained at the rate of D3 points per hour spent in a warm place, unless it reached zero as a result of hypothermia. In this case, the Traveller needs medical care and regains one point to each reduced characteristic per day of rest.

Travellers wearing basic cold-environment protection treat the conditions as one category less serious. Travellers wearing excellent arctic clothing treat the conditions as two categories less serious.

Hypothermia

Temperature or Conditions	Time Interval	END Check Difficulty
Normal or fully protected	No danger of hypothermia	None
10º to 0ºC	1 hour	Routine (6+)
-1º to -10º	30 minutes	Average (8+)
-11º to -20ºC	15 minutes	Difficult (10+)
-21º to -30ºC	5 minutes	Very Difficult (12+)
-31º or lower	2 minutes	Formidable (14+)

HEATSTROKE

Heat concentrated enough to cause immediate physical injury is dealt with as normal damage. However, when a Traveller is operating in a hot environment for a protracted period they may suffer from the effects of heatstroke. This is modelled much like hypothermia, with a reduction in END. Protective equipment such as reflective clothing works well against radiant heat, such as that coming directly from the sun or an open furnace door but is less use against heat absorbed from hot air or water surrounding the Traveller.

Travellers operating in an environment up to a little above body temperature may be uncomfortable and require more to drink but will otherwise suffer no ill effects. Higher temperatures are a problem. Travellers wearing basic protection (e.g. loose light-coloured clothing and a hat in the desert) treat conditions as one level less severe, while those with excellent protection (e.g. a reflective anti-heat suit) treat the conditions as two levels less severe.

Heatstroke

Temperature or Conditions	Time Interval	END Check Difficulty
Normal or fully protected	No danger of Heatstroke	None
40–50ºC	4 hours	Routine (6+)
51–60ºC	2 hours	Average (8+)
61–70ºC	1 hour	Difficult (10+)
71–80º	20 minutes	Very Difficult (12+)
Over 81ºC	1 minute	Cannot be tolerated

Each time an END check is failed, END is reduced by -1. Once it reaches zero, the Traveller becomes badly disorientated and collapses soon after. The higher of STR or DEX is then reduced by one point at the indicated interval (randomly chosen if they are identical). If both reach zero, the victim will die.

Recovery from heatstroke requires a cool environment, rest and plenty to drink. Reduced END is regained at the rate of D3 points per hour spent in tolerable temperatures, unless it reached zero. In this case the Traveller needs medical care and regains one point to each reduced characteristic per day of rest.

TERRAIN, CONDITIONS, AND MOVEMENT

Terrain can be more than an impediment to movement. It can be hazardous in a variety of ways, albeit most of which are passive in nature. Terrain can also conceal dangers and multiple hazards can co-exist. It is possible to encounter an aquatic arctic region with an atmospheric hazard, all of which adds up to significant difficulty for anyone living or working there. Terrain and local conditions can also affect speed of movement, even for grav vehicles. A mountain range is not much of an obstacle for an air/raft flying high above it but a g-carrier threading a path between the peaks and along valleys will have to slow down or risk a disaster.

The movement speeds given in this chapter are a guideline only. As a rule, a person can walk about one kilometre in 10 minutes, or six kilometres in an hour, in easy terrain. A speed of about 35 kilometres per day is possible when marching or hiking in a disciplined fashion whilst carrying a load such as an infantryman's equipment or camping gear. Difficult terrain will greatly reduce these distances in addition to increasing the risk of mishap. Some terrain can only be crossed with technological assistance or extensive preparation, although in many cases a Traveller might cope for a short while; it is possible to make a quick dash between a building and a vehicle in arctic conditions that would kill someone trying to hike a few kilometres. It may be possible to swim, scramble or otherwise proceed through terrain impenetrable over longer distances. Any such short-range endeavour is a risk of course but this is what adventures are made of.

VEHICLES IN HAZARDOUS TERRAIN

Any vehicle or conveyance that makes contact with terrain may be slowed or endangered by it. This applies also to vehicles passing so close to the ground as to be affected by ground features. Thus an air/raft threading its way between bushes and trees is slowed as much as a wheeled vehicle.

Listed speeds for ground vehicles and watercraft assume good conditions – flat ground, calm water or perhaps a road. A vehicle with off-road capability can travel at its road speed on any reasonably flat, firm surface. Rougher terrain will slow the vehicle and/or endanger it if it tries to go faster. A vehicle without off-road capability, such as a normal ground car, is limited to 25% of its normal road speed at the absolute best, except on the flattest and firmest of terrain. 'Indoor' vehicles such as starport baggage trolleys might be able to manage 10% of road speed at most but will be stopped or damaged by the slightest obstruction. These speeds are subject to further reduction by terrain.

For example, a normal ground car has a normal Speed Band of Medium (100–200 kilometres per hour). It is limited to 25% of its road speed when driving on reasonably flat grassy fields, i.e. 25–50 kilometres per hour. This is still quite a high speed for an unmodified car to be going cross-country and may not be advisable. When struggling through tougher terrain that limits speed to 50%, this reduction is applied to the already reduced speed, dragging top speed down to just 12–25 kilometres per hour. It might be quicker to walk, especially if there is a danger of the vehicle becoming stuck or suffering a disaster.

Hazardous terrain imposes two effects upon vehicles. The first is a reduction in speed. A vehicle that is forced to crash through scrubby bushes or labour through heavy seas will be slowed no matter how hard the crew tries to go faster. Hazardous terrain also imposes a risk of mishap or disaster. At the Referee's discretion, some vehicles may not be slowed as much as others, if at all. A submarine running deep will not be affected by surface chop; a motorcycle may be able to slip between bushes that would slow down an ATV.

TERRAIN ADAPTATION

Vehicles well adapted to the terrain will not be affected as badly by hazards, although they can still encounter conditions that slow or endanger them. A vehicle that has good adaptations suited to the terrain – such as an ATV with an additional aquatic drive negotiating a swamp – halves the normal movement penalty and, in the event of mishap, allows the driver a chance to avoid it using his appropriate vehicle skill.

The normal difficulty to avoid a mishap is an Average (8+) check for a vehicle with a suitable adaptation. The difficulty might be increased for a particularly hazardous area, or reduced for a vehicle with very good terrain-handling characteristics such as two or more applicable adaptations.

VEHICULAR MISHAPS

If circumstances indicate a mishap has occurred, the Vehicle Mishaps table can be used to determine its nature. The Referee is encouraged to flesh out possible hazards for specific environments, using the table as a starting point. Roll 2D and add the vehicle's Speed Band, then subtract the driver's skill level.

Vehicle Mishaps

2D	Hazard
4 or less	Scary near-miss, passengers and crew are shaken but no serious harm is done.
5–6	Control loss leads to the vehicle suffering cosmetic damage and becoming stuck. Extricating it will take 2D person-hours (i.e. the result of a 2D roll divided by the number of people working).
7–8	Minor component failure – broken lights or windows, damaged tyre, or failed engine component. The problem can be fixed or jury-rigged with the vehicle's own tools and spares. Make an Average (8+) Mechanic check each hour to complete a workable repair.
9–10	Navigational difficulties put the vehicle in a place where there is no way forward. Backtracking around the obstruction will take 1D hours.
11–12	Serious control loss results in a collision and 1D damage to everyone aboard. The vehicle is stuck as per 5–6 and suffers a component failure as per 7–8.
13 or more	The vehicle crashes and is immobilised, at least temporarily. It may or may not be repairable locally. Everyone aboard suffers 2D damage and several components are put out of action.

FLYING IN CLUTTERED AIRSPACE

Grav vehicles and aircraft flying above terrain hazards can ignore them and are subject only to wind and weather effects. Flying at an altitude where terrain can pose a hazard, such as between buildings or along a valley, does not reduce speed but requires care. Navigating lightly cluttered airspace (a few mountain peaks or very tall buildings) requires a Routine (6+) Flyer check every 4D minutes. Cluttered airspace such as a heavily forested valley with crags requires an Average (8+) Flyer check every 2D minutes. These checks are subject to a negative DM equal to the vehicle's Speed Band (see the *Traveller Core Rulebook*, page 130).

A vehicle with collision-avoidance equipment (an Enhanced or Advanced Autopilot will have this) can be relied upon to get the Travellers safely through the hazardous area at one Speed Band less than its cruising speed. If the Travellers wish to inflict a hair-raising and violent passage on themselves the automatics will keep them alive at cruising speed but the experience will not be pleasant and anyone who is not properly strapped into a seat risks being bashed off the interior fittings every couple of minutes.

Airborne Hazards

2D	Hazard
6 or less	Urgent evasive manoeuvre required. Unpleasant for everyone aboard but no serious hazard.
7–11	Minor collision with flying creature, tree branch or similar object. A Routine (6+) skill check is required to maintain control.
12–14	Collision with a branch, rock, creature or antenna. 1D damage is applied to the vehicle and an Average (8+) skill check required to maintain control.
15 or more	Collision results in heavy damage to vehicle requiring an immediate emergency landing. In addition, a Difficult (10+) skill check is required to maintain control.

At higher speeds, skill checks are required as previously described. Failure indicates a hazard has been encountered, although immediate corrective action may be taken in some cases. Roll 2D on the Airborne Hazards table and add the vehicle's Speed Band, then subtract the driver's skill level. DM-2 applies in lightly cluttered airspace.

If control is lost, the vehicle will go out of control and crash. A skilled pilot might mitigate the crash but it cannot be avoided at this point. Rather than wiping out all the Travellers on a random failed skill check, the Referee can impose what might be termed a 'setback crash' which grounds the vehicle until repairs can be made and imposes difficulties on the Travellers. These can be quite serious; having to yomp 200 kilometres back to the starport with little food might be an adventure in its own right. Then there is the problem of recovering the vehicle and repairing it, or the cost of a new one... at least nobody is dead. That is good, right?

USING HAZARDOUS TERRAIN

Hazardous terrain can be used by the Referee to add an extra dimension to an adventure. This might be little more than scenery; one climate-controlled building is much like another but the fact that this adventure is taking place on the seabed or high up in cloudy mountains adds interest. In many cases, hazardous terrain can be used to either make an adventure more dangerous or contain the Travellers in a specific area. If it is not possible to survive outside the world's only settlement, it is less likely that the Travellers will decide to ignore the adventure in front of them and go wandering off.

Hazardous terrain can also be used as a 'clock' in an adventure. An underwater base that is slowly filling up or an arctic settlement that will be flattened by a storm in a few hours, will impose a time frame on Travellers. This can be used for obvious dramatic effect but can also impose limitations on the activities. Some Travellers will insist on stripping every saleable thing out of a site they visit; destroying the place after a few hours prevents this sort of munchkinistic looting being taken to extremes.

OPEN COUNTRY

Open country is the easiest natural terrain to move through. Typically, assuming some sort of atmosphere and availability of water, it will be characterised by light vegetation with clumps of bushes or trees. Vehicles without off-road capability are slowed and weather can severely limit mobility in various ways. There is little cover in open country and heavy rain or high winds can cause serious problems. However, open terrain is rarely entirely flat. This can be beneficial under some circumstances and an impediment in others. For example, an area of apparently open grassland might have low-lying areas that are boggy or contain rain-cut crevices that can snare a vehicle.

Open grassland is the easiest natural terrain to move through. Grassland is excellent for cultivation, so may be replaced in colonised areas by farmed terrain which may or may not have useable roads. Grassland will typically contain rolling hills and various watercourses, along with the occasional lake. The immediate area around these features may differ from the rest of the grassland.

Upland areas of grassland are typically termed moors and generally characterised by hardy, low-lying vegetation which can conceal hazards and is surprisingly difficult to push through. Some regions of open country may be further categorised as steppe, semi-desert, montane grassland (high altitude grasslands found in mountainous regions) or tundra. Characteristics are similar, although specifics of vegetation and animal life vary.

Walkers and vehicles can typically make their normal off-road speed in grassland unless there are additional hazards and are slowed by 50% in rougher terrain such as moorland.

SHRUBLAND

Shrubland is characterised by bushes and small trees, often with grassy areas between. Shrubland differs from open country which has a few bushes here and there and is extremely dense and difficult to navigate through. Very thick shrubland may be all but impenetrable for hundreds of kilometres but there are usually gaps that can be navigated at half normal speed. Shrubland offers good concealment to predators and prey alike, although larger creatures will tend to be channelled into the passable areas. This may make encounters more likely and potentially more hazardous as well.

Shrubland can exist in wet, dry or cold conditions, and may be combined with rocky terrain as well. If a route can be found, progress is typically at half normal speed but those who have to hack their way through dense areas or crawl through in an ATV, crushing bushes as they go, will be lucky to make 5–10% of normal speed.

WETLAND

Wetland typically occurs in small patches near watercourses and lakes but extensive wetlands can be found in low-lying areas. Marshes, swamps and watery forests are all wetlands, as well as grassland or shrubland with considerable amounts of free-standing or flowing water. Wetlands can be totally impassable to ground vehicles, or navigable with great difficulty. Movement off the roads or dry areas is difficult at best and often treacherous. It is hard to tell if the 'solid' ground up ahead is in fact nothing more than reeds growing in loose mud, and even an ATV can become stuck in such conditions.

Movement on a good road in wetlands is much the same as on any other road but navigating tracks and known paths is slower. It is possible to make 75% of normal speed on tracks or in a boat. Navigating a wild wetland is much slower, with Travellers making 25% of their normal speed at best.

FOREST AND JUNGLE

A forest is characterised by large vegetation such as trees, giant ferns or fungi, and the like. It is generally not possible to take a large vehicle (anything larger than a motorcycle) through a forest except on a cleared or naturally occurring trail. Very dense forest may be impenetrable without hacking a path – which may be overgrown and essentially gone in just a few days. Forests can occur on flat land or hills, which may create further difficulties.

Forest can include temperate deciduous or evergreen types, sub-arctic taiga, rainforest or jungle. Wildlife will vary according to conditions; as a general rule, the warmer the climate is, the more of a nuisance insects and other small creatures can be. Some forests teem with biting or poisonous insects or dangerous parasites, making them dangerous to pass through.

A light forest can be navigated at half speed on foot or using agile transportation such as motorcycles, horses and the like. Dense forest can be navigated at 25% speed on foot; it is not possible to get far with vehicles or animals in such terrain. 'Impenetrable' forest is not completely impenetrable as such but requires a path to be cleared or a Traveller to traverse slowly and carefully with many delays to go around obstacles or climb over them. Impenetrable forest can be navigated at 5–10% of normal movement speed, although some areas will be truly impassable.

ARCTIC TERRAIN

Arctic terrain is characterised by extreme cold but does not necessarily mean there are ice sheets or snow banks. A very dry area may not have ice yet pose the hazards of arctic terrain. Arctic terrain tends to be exposed to strong winds which can make movement hazardous or even impossible. Dry, cold terrain of this sort does not slow movement for vehicles or Travellers on foot unless there are strong winds.

Movement on an ice shelf can be almost unimpeded if the ice is very flat. However, it can be very difficult to spot dips, undulations or bumps amid a landscape with little contrast. Most such undulations are minor but can lead to control loss if hit at an awkward angle whilst driving fast. Traction on ice can also be a serious problem. If the pressure from a vehicle or foot is sufficient to cause the surface to melt, this can create extremely slippery conditions. Low ground pressure or extremely cold conditions can reduce this effect. However, the commonest technological solution is to use studs, spikes or chains to bite into the ice and improve grip.

A vehicle or Traveller without grip aids risks losing control on the simplest manoeuvres. A Difficult (10+) Drive check (Survival if on foot) is necessary to avoid falling or going out of control at any time a manoeuvre is attempted at more than 10% of normal speed. With suitable grip aids it is possible to move on sheet ice at normal speeds, although any manoeuvre made at more than 50% of this speed requires an Average (8+) Drive check to avoid a mishap.

Broken ice is much harder to move safely on. Broken ice conditions exist where ice has melted and refrozen or chunks of ice have been moved about. Rocks and other protrusions are can also create broken ice conditions. A vehicle that stays under 25% of its normal road speed can travel more or less safely providing it is using traction aids. Beyond this, the chances of an incident increase rapidly. An Average (8+) Drive check is required every hour, with a negative DM equal to the vehicle's Speed Band. Failure indicates a mishap has occurred.

Sub-arctic terrain typically occurs close to permanent ice sheets but can also be found at high altitudes in more temperate regions. Often tundra is covered in snow or ice for much of the year, with vegetation appearing in an explosion of growth when the temperature rises. Sub-arctic terrain can also include taiga; dense forests of evergreen trees or similar vegetation. The region between taiga and tundra is characterised by Krummholz; inhospitable areas where trees can only grow in sheltered spots and tend to be twisted and deformed by constant wind action.

Taiga is similar to temperate forest in many ways, other than being very cold and prone to heavy snow cover. Taiga can typically be navigated at half speed on foot or using agile transportation such as motorcycles, horses and the like. Dense taiga can be navigated at 25% speed on foot; it is not possible to get far with vehicles or riding animals in such terrain. Some areas, especially those populated with tough, springy bushes rather than trees, can be all but impossible to move through.

Tundra is generally more accessible and may be flat enough to be considered open plains. However, the ground is often littered with stones left behind by ice cover; some of them very large. Tundra can sometimes be prone to becoming boggy or may be cut with meltwater channels which can be deep. Tundra can be crossed at up to 50% of normal speed without undue hazard. Trying to go faster requires a Routine (6+) Drive check every 1D hours to avoid a mishap, with a negative DM equal to the vehicle's Speed Band.

MOUNTAINOUS OR ROCKY TERRAIN

Mountainous terrain forces Travellers to think in three dimensions. A destination may not be far away but if it is on the shoulder of a different mountain then getting there might be a challenge. Some mountainous terrain is essentially impassable to ground vehicles; Travellers on foot might have to laboriously climb steep slopes or cliffs. Even non-mountainous rocky terrain like Badlands can be very difficult for vehicles, with sudden drops or gulleys requiring a long backtrack to get around.

Ground vehicles operating in mountainous terrain will be able to manage at most 25% of normal speed unless a good road has been driven through the mountains. This is an average, of course; there may be areas where the terrain is flat enough for short bursts of higher speed but there will also be those that have to be crawled through. Rocky Badlands can be traversed at up to 50% of normal speed without undue hazard. Beyond this, a Routine (6+) Drive check is needed every 1D hours to avoid a mishap. The vehicle's Speed Band serves as a negative DM on this roll.

DESERT

A desert is defined by extremely low rainfall and not by any temperature conditions. Some deserts are very hot, others are dry arctic regions. A rainshadow desert can be caused by a mountain range, which causes moisture-laden air to rise and dump its contents on one side of the mountains with little reaching the other.

An arid plain or semi-desert can be traversed at normal speed, although there may be deep gulleys where intermittent flooding has cut steep-sided channels. These are sometimes concealed or resemble folds in the ground which turn out to be much more hazardous than they first appear.

Sandy or dusty deserts are much slower going. Firm sand or dust-covered rock can be traversed at full speed by hovercraft or low ground pressure vehicles such as tracklayers and multi-wheel ATVs but will slow more conventional vehicles to 75% of normal speed. Soft sand or dunes will slow low ground pressure vehicles to 50% of normal speed. Normal vehicles such as a typical off-road car will become stuck within a few kilometres and only be able to progress by a laborious round of digging out and struggling along for a while until the next difficult stretch. This process slows the vehicle to 10% of normal speed.

Very soft sand or dust can be completely impassable even for track-laying vehicles. Low ground pressure vehicles can labour along at 20% of normal speed most of the time but a Difficult (10+) Drive check is required every 2D hours to avoid becoming stuck. Extricating a vehicle which has become stuck in soft sand is virtually impossible, making such areas an effective barrier to ground transportation.

AQUATIC TERRAIN

Aquatic terrain includes deep water, the surface of seas and lakes, and shorelines or shallows. It poses some very obvious problems to Travellers – namely breathing underwater and moving around in an aquatic environment – but there are many other factors to consider. Chief among these is pressure, which increases very quickly with depth (see page 68).

The surface layer of a sea or large lake can be very active and waves can affect underwater craft. This is hazardous in shallow water, dragging a submarine around and possibly causing collisions. At depths of more than 30 metres, the effects of most surface waves are negligible. However, deep water can have violent currents and eddies around seabed terrain and other hazardous phenomena can be encountered. Seabed 'rivers' are sometimes cut by fast-moving currents and 'waterfalls' can occur when a current crosses the edge of a steep depression in the seabed. These currents can endanger underwater craft or structures.

A vehicle that is not adapted to operate in water will, obviously, sink sooner or later. Very well sealed vehicles might bob about for some time but will not function properly and ultimately fill up with water. A properly adapted vehicle may float but it will need some means of propulsion or it will be at the mercy of wind and current. Adaptations usually include ballasting to reduce the chance of rolling over but even so, most semi-aquatic vehicles are capable of operating only in calm water. A vehicle with a drive system designed to be used in water, such as a water-jet system, will be able to travel at the speed dictated by its drive system. Those that use a basic system such as wheel rotation or a tiny auxiliary propeller are typically limited to 5% of their road speed. Unless a vehicle has a boat-form hull or similar design, it will be very clumsy in water and subject to a great deal of drag. This will limit its ability to go against a current that a boat with a similar drive system could power through.

Marshy or boggy terrain slows ground vehicles to 25% of their road speed; less if there is thick undergrowth. Water that is shallow enough to drive through slows vehicles to 50% of their road speed if the bottom is firm and 10–20% if the bottom is uneven or soft. Both kinds of terrain can conceal hazards such as deeper areas, soft mud or concealed obstructions.

VACUUM

A world with a Trace atmosphere, or none at all, will have little or no erosion in the usual sense. Rock formations tend to be jagged and some areas will be impenetrable to vehicles. In addition to the difficulties associated with operating in vacuum – such as needing to maintain suit integrity and a reliable source of air to breathe – this terrain can impose a number of additional hazards.

Areas of bedrock may be fairly smooth, especially if they originated as lava flows, but typically there will be crevices and uneven areas which make movement at speed hazardous. Bedrock or the bottom of a meteorite crater can be navigated at 75% of off-road speed without undue hazard.

Regolith is uncompacted material such as dust and small rocks covering bedrock in a layer that may be very deep. It is not unduly hazardous to move on in and of itself but can conceal hazards such as dust pools or crevasses. Regolith slows movement to 50% of off-road speed.

Rocky terrain includes crater walls and generally uneven areas. Parts of a rocky region may be entirely impenetrable to vehicles and could pose a severe threat of falls or suit damage to personnel on foot. Best speed through even the most navigable parts of a rocky region is 25% of off-road speed.

ATMOSPHERIC CONDITIONS

Atmospheric conditions cause a variety of problems for Travellers. Very thin or dense atmospheres can cause breathing difficulties, requiring a respirator or similar equipment. However, there are more subtle hazards that can result from local atmospheric conditions; hazards that might not be recognised in time.

Thin atmospheres tend not to carry dust particles and moisture as readily as thicker air. Erosion will be less evident and clouds are likely to be thin and wispy. This can improve visibility but also reduces the temperature regulating effects of a thick cloud base. Night-time temperatures will drop quickly, although the air will usually be dryer so frost and ice are less likely to form. Rain will fall closer to the water sources it evaporated from, resulting in dry areas, and dust will also fall out of the air more quickly. Travellers trying to predict the movement of an ash cloud from a volcano, for example, may find their calculations quite wrong. Strong winds are unlikely to be common and flying creatures will have to be very light if they exist at all, assuming local gravity conditions are similar to those of Earth. Similarly, vegetation may grow taller and be generally more spindly than Travellers might expect since wind effects are minimal.

A thin atmosphere makes winged aircraft problematic but can make operating grav craft safer than elsewhere since they are unlikely to be blown around or encounter visibility-reducing conditions. Conversely, a dense atmosphere will have many opposite effects, increasing erosion and regulating temperatures a little more evenly. Wind effects can be quite extreme, with pressure changes sometimes sufficient to cause damage. Dense-atmosphere worlds with a fair amount of surface water can be very wet, with thick clouds carrying large quantities of water far inland and dumping it in spectacular storms.

Hurricanes and similar phenomena are also likely to be more intense on a dense-atmosphere world than on Earth and what constitutes a windy day on a dense atmosphere world might by quite different to what the Travellers are expecting. Wind is not normally that much of a hazard to a vehicle or starship but trying to drive an ATV on ice in extreme wind conditions, or land on a narrow starport pad in very gusty conditions, might be a real challenge. Some dense atmosphere worlds are sufficiently violent that small objects are routinely flung around by the wind. It may be that outside a few sheltered locations, an otherwise habitable world might be simply too windy to be useful.

Modest winds pose no unusual problems for flying vehicles or spacecraft but high winds and storm conditions can make take-off and landing difficult and can even bring down grav vehicles.

High Winds impose DM-2 on Pilot or Flyer checks
Storm Winds impose DM-4 on Pilot or Flyer checks
Hurricane Winds impose DM-6 on Pilot or Flyer checks and make winged flight all but impossible
Hurricane Plus conditions are rare but can occur on some worlds. All Pilot and Flyer checks are subject to DM-8 and most vehicles cannot take off at all. Starships have the mass to give them some stability but operations are highly dangerous all the same
Very Thin atmospheres alter these DMs by +3
Thin atmospheres alter these DMs by +2
Dense atmospheres alter these DMs by -2
Super-Dense atmospheres alter these DMs by -4

Thus a hurricane in a Thin atmosphere world imposes DM-4 on Pilot checks; a storm on a Dense atmosphere world imposes DM-6.

More extreme atmospheric conditions can result from oddly shaped worlds or unusual surface features, or from very high or very low atmospheric pressure. A world with very pronounced equatorial bulges might have significant pressure differences between the equator and the poles, making one or the other hazardous. Alternatively, a world with a very thin atmosphere might have deep valleys where the air is breathable and one with an excessively dense atmosphere could have plateaux or mesas where again the air is at a breathable pressure. Whilst a technological society could build cities anywhere, travel between these safe zones might be hazardous and a regressed colony might be broken into isolated sub-groups by the invisible barriers between habitable regions.

LANDING IN DIFFICULT TERRAIN

Starships and grav vehicles do not usually need to make a rolling, aerodynamic landing, although it is still common to approach a landing area on a gradual descent in the manner of a winged flying vehicle as this reduces clutter in the airspace directly above the port. A relatively light grav vehicle such as an air/raft can land almost anywhere; even on water if it is capable of floating. Starships have rather more ground pressure and normally require a prepared landing area.

Starship Landing

2D+Effect	Distance From Target
0 or less	No suitable landing site is found within 100km x the planet's Size code
1–3	A suitable landing site is located within 2D x 10 x the planet's Size code from the target
4–7	A suitable landing site is located within 2D x the planet's Size code from the target
8–11	A suitable landing site is located within 2D km from the target
12–14	A suitable landing site is located 2Dx100m from the target
15 or more	A suitable landing site is located within a few metres of the target

Travellers approaching a designated landing area, even if it is just a stretch of marked bedrock, can normally be confident it will support the weight of their ship. Disasters do happen, of course; a landing area might have been undermined by subsidence or even deliberately sabotaged to damage the next vessel that arrives. However, in most cases a prepared landing area will be able to support any craft that can fit on it.

Wilderness landings are more hazardous. It is not possible to be entirely certain the terrain is as firm or even as it looks. A good sensors operator can take a lot of the guesswork out of finding a suitable landing site but nothing is certain. If the Travellers fly around looking for somewhere suitable to land their ship, they must make a Difficult (10+) Electronics (sensors) check (2D x 10 minutes, INT) and apply the Effect as a DM on the Starship Landing table. DM-2 applies per attempt after the first.

This assumes active sensors such as radar are in use, which will advertise the Travellers' presence to anyone scanning for electromagnetic emissions. If a site is to be 'eyeballed' instead using only passive sensors, the Recon or Pilot skill can be used but the check is Very Difficult (12+) and the landing is subject to all the potential hazards of a wilderness landing.

If the Travellers successfully locate a suitable landing area or one is marked for them, the landing is no more difficult or hazardous than usual. Gusts and eddies might make things tricky for the pilot but the ground will support their ship once it gets down. If, on the other hand the Travellers choose to put their ship down right here, they are exposed to all the risks of a wilderness landing.

Assuming the pilot makes some attempt to land in a fairly clear area, a Difficult (10+) Pilot check (DEX) is required to get the ship on the ground safely. If the Travellers decide to land in a particularly hazardous area this check is Formidable (14+). For example, the Travellers decide to set down in very rugged terrain or settle into the treetops and allow their ship's weight to crunch through the branches until they reach the ground. The Effect of this check is applied to a 2D roll on the Wilderness Landing table.

A ship can become stuck against solid objects like rocks or buildings, or may sink into ground that is softer than it looked. This may require digging, shoring up of loose ground, or other heavy work to free the vessel.

Wilderness Landing

Result	Nature of the 'Landing'
0 or less	Basically, a crash. Everyone aboard suffers 3D damage (6D if they are not secured by straps). The ship takes 8D points of damage for every 100 tons of its displacement. The ship is stuck and will require significant work before it can take off again.
1–3	Extremely rough landing, resulting in 2D damage to everyone aboard (4D if they are not secured). The ship takes 2D points of damage for every 100 tons of its displacement. In addition, it is very awkwardly inclined, making access tricky and imposing DM-4 on Pilot checks to take off again.
4–7	Very rough landing, resulting in 1D damage to everyone aboard (2D if they are not secured). The ship is awkwardly inclined, making access tricky and imposing DM-2 on Pilot checks to take off again.
8–11	Good enough. The ship is not quite level and everyone got bounced around a little. Some small objects may be shaken loose or damaged but the ship itself is intact.
12–14	An entirely acceptable landing, not much rougher than usual.
15 or more	A perfect landing despite all hazards.

ANIMAL ENCOUNTERS

Travellers may encounter all manner of animal life during the course of their adventures. It is relatively easy to figure out where a given creature fits into the local ecosystem and how dangerous it is likely to be but, occasionally, Travellers might encounter something very odd or which does not fit the usual description of an animal. There is always a reason for any given feature an animal possesses but nature sometimes moves in very mysterious ways.

Resilient Animals
The physical nature of some creatures means that some weapons do not adversely affect them very well, or at all. Some creatures are resistant to particular types of injuries, which modifies any armour Protection they have.

Reduced Damage indicates a weapon's damage dice should be reduced to D3, retaining any plus or minus. Thus, a handgun normally doing 3D-3 damage would do 3D3-3.

Minimum Damage indicates a weapon delivers only one point of damage per dice, ignoring any plus or minus. Thus, a handgun normally delivering 3D-3 damage and a powerful rifle normally doing 3D+2 would both deliver only three points of damage as their bullets pass through the creature with equally poor effect.

ANIMAL TRAITS

The following Traits can apply to any creature, although some are obviously unsuitable for certain environments.

Clever: Clever animals can learn to operate simple devices. They will know what effect they are trying to achieve but have no understanding of the principles behind it. For example, a Clever creature might observe Travellers operating the cargo hoist in their ship and learn that it can ride the containers into the ship, or lift one up to obtain a higher vantage point. Cleverness combined with aggression creates a very dangerous predator capable of stalking Travellers through doors they think are secured; less violent creatures can still cause havoc by playing with the controls of a vehicle. A Clever animal can figure out how to use a simple device or control such as a door panel on a 2D roll of 10+, made each time it sees someone perform the task.

Composite (x+y): Composite creatures are actually made up of multiple parts than can operate independently. For example, a creature may appear to be a single organism until disturbed, at which point several parts detach themselves and attack intruders. Composite creatures are rare and often confuse observers into thinking they are entirely separate organisms. Hits for a Composite creature refer to its main body, if it has one. Detached parts have a quarter of this amount but harming them does no damage to the main body. The number of component parts is denoted in the format x+y, where x is the number of critical, or main, components and y is the number of detachable parts.

Dispersed: Dispersed creatures do not have the usual concentration of functions into large organs but instead disperse life processes throughout their bodies. Dispersed creatures take Reduced Damage from most weapons but full damage from blades and fire – they can be cut apart or burned but poking them full of holes or bashing their squashy appendages has little effect.

Energy: Creatures composed of pure energy are postulated to exist, although their life processes are so exotic as to defy explanation. Energy creatures are not affected by conventional weapons.

Explosive (x,y): Explosive animals contain substances that burn hotly or even explode when exposed to the atmosphere. Such organisms tend to be extremely exotic and rare, since exploding on contact with air would normally be an evolutionary liability. An Explosive creature's capabilities are denoted in the format: (damage, radius) so one listed as Explosive (1D, 3m) causes 1D damage to everything in a three metre radius if it is exposed to atmosphere.

Floater: Floaters are very low-density creatures which drift on air currents without actually being able to fly. By definition they have little structure and are not resilient, and thus usually also possess the Gossamer trait. Floaters can move under their own power but only at a rate of one metre per combat round.

Gossamer: A Gossamer creature has virtually no structure and few solid parts for a weapon to damage. Gossamer creatures take Minimum Damage from most weapons – stabbing, crushing, impaling, projectile and even laser weapons do Minimum Damage.

Gigantic: Gigantic creatures normally exist in liquid environments, although there are exceptions from time-to-time. The smallest creature considered to be Gigantic might weigh 100,000 kilograms – equivalent to a Blue Whale. A creature with the Gigantic trait is treated as a Spacecraft scale object (see page 157 of the *Traveller Core Rulebook*) for purposes of dealing and sustaining damage.

Ornery: Ornery creatures are unnecessarily aggressive and might attack in response to trigger behaviour that cannot be predicted. They will seem to kill for no reason, slaughtering livestock and eating only a small proportion of the kills. Ornery creatures will attack Travellers (or even vehicles) on a roll of 8+ on 2D, increasing to 10+ on 2D if the creatures are heavily outnumbered.

Particulate: A Particulate animal is made up of small and more or less independent components; a swarm of bees or ants could be considered to be a single particulate creature. Some highly exotic organisms are made of particles, making them very difficult to kill. Fire-based attacks have full effect; all other weapons do Minimum Damage.

Strange: Strange creatures are disturbing to humans and most other sentients who see or hear them. They may make sounds or project a low-level telepathic field that causes unease, or simply look 'wrong' in a way that inspires fear and even madness. Strange creatures range from normal animals that move in a particularly sinister way to something straight out of a horror movie. Any Traveller encountering a Strange creature must make a Difficult (10+) END check. If it is failed, roll 2D on the Strange Animal table and apply the Effect of the failed check.

Strange Animal

2D + Effect	Result
0 or less	The Traveller panics or faints and is out of action for 3D rounds.
1–3	The Traveller recoils in horror and must flee for 1D rounds.
4–6	The Traveller is shocked and confused by the creature's appearance and freezes for 1D rounds.
7–9	The Traveller is shocked or confused, and is unable to act for 1 round.
10+	The Traveller is momentarily shocked, and suffers DM-4 on Initiative checks.

Tough: Tough animals are unusually resilient. They take Reduced Damage and when disabled or killed there is a chance that the creature will rally and continue the fight. 1D rounds after the creature goes down, the Referee should roll 2D. On 8+ the creature regains a quarter of its normal Hits and continues to act as normal. It is unusual for a creature to be able to do this more than once but at the Referee's discretion a Tough creature can keep rallying until it fails, at which point it will expire.

Toxic (range, damage): Toxic animals have some noxious substance within their tissues or on their skin. This is not the same thing as a venomous creature introducing a toxin with a bite; it is a more unusual situation in which the creature may spit or bleed acid or some other dangerous substance, or undergoes a change when it dies which causes its carcass to become hazardous.

Vacuum: Very few creatures can exist in a complete vacuum and those that do tend to be very strange. A greater variety of organisms live in partial vacuum or extremely low pressure environments and some of those can survive a complete vacuum for a time. This trait indicates the ability to function in hard vacuum even if the creature cannot live there indefinitely.

The following creatures can be found on worlds with a breathable atmosphere and conditions that humans would at least find tolerable with assistance.

Alversen's Nightmare

The nightmare is a long, sinuous creature with thickly muscled hind legs and three more sets of smaller limbs along its body. The front pair are positioned for digging, the others for pushing its body though the resulting tunnel. The nightmare's head is protected by a thick bony plate, giving it a nightmarish (hence the name) aspect. The way it moves above ground in a series of sinuous rushes and its generally disgusting slime-covered aspect causes a mix of revulsion and terror in most observers.

Nightmares are carnivorous and will often tunnel into an area then hide below the surface before striking at livestock or even people. They are hard to kill and extremely aggressive. Rumours of nightmares nesting in groups have never been proven.

Animal	Hits	Speed
Alversen's Nightmare	30	4m
Skills	Melee (natural) 1	
Attacks	Bite (2D)	
Traits	Armour (+4), Large (+1), Strange	
Behaviour	Carnivore, Pouncer	

Rajjers

Rajjers are herd creatures resembling large deer, although rather than antlers they have forward-curving horns like a bull and a set of tusks that allows them to present a set of sharp points to an aggressor. They are normally found in small herds of around 20–30 individuals, grazing on ground vegetation and nibbling at bushes. Rajjers are normally docile and will wander away from Travellers who get too close. They are not territorial and will share a region with other herds or entirely different species if grazing is good and they are not threatened.

A low-level threat will be countered by one or more males, which will attempt to drive off interlopers with a display of stamping and a strange neighing bark that many humans find comical. This is unfortunate, as the warning is very serious. Rajjers have a matriarchal society and at a command from the dominant female one or more males will become suicidally aggressive. This command may be pheromonal or a combination of behaviour and stance but is thought by some to be telepathic.

A Rajjers that has been triggered in this manner gains the Rage and Tough traits. It is thought that the dominant female can calm an enraged male but little research has been done on the subject.

Animal	Hits	Speed
Rajjer	30	8m
Skills	Melee (natural) 1, Recon 0, Survival 0	
Attacks	Kick and Gore (2D)	
Traits	Large (+1)	
Behaviour	Herbivore, Grazer	

Kanderson's Greymass

Kanderson's greymass resembles a shapeless grey blob (hence the name) that gloops slowly up a bush or tree and hangs from it, or secretes itself in a place where small creatures may pass by. It is found on several worlds, having been unwittingly carried in spore form by colonists and explorers.

The greymass does not seem to like dry environments but has adapted to many worlds across a range of temperature and atmospheric conditions. The mass is an extremely simple creature which feeds mainly on plant and animal matter that drifts into it on the wind or blunders into a semi-camouflaged maw where it is trapped by muscle contractions. The maw can crush small creatures but cannot harm something as large as a human's foot. However, it is difficult to pull anything out once a greymass has a good grip on it and digestive acids will slowly dissolve anything that does not escape.

To drag something (like a trapped foot) out of a greymass, a Difficult (10+) STR check is necessary. DM+2 applies for each of up to four people assisting the trapped Traveller. One attempt can be made to free a Traveller every 10 minutes. The victim will sustain 1D damage from acid every 10 minutes, including the period in which they are freed.

Lacking much in the way of a brain or developed organs, the greymass is hard to kill. Fortunately it poses relatively little threat to humans, being only about three metres across and unable to 'swallow' more than a boot. Indeed, the biggest hazard to humans is self-injury caused by trying to pull a trapped foot out of the greymass' maw. The greymass is apparently unable to let go of anything that is still moving and has quite a grip.

Animal	**Hits**	**Speed**
Kanderson's Greymass	4	Essentially Static
Skills	None	
Attacks	Acid (1D)	
Traits	Dispersed, Toxic (0m, 1D)	
Behaviour	Omnivore, Filter	

Riverdipper

The riverdipper is a peculiar little beast. It seems to be some kind of mammal or marsupial herbivore that dwells in small communities of up to a dozen individuals along the banks of watercourses. 'Dippers feed off plants growing on the banks and forage among the river-bottom weeds. They are good swimmers and can also glide short distances in the manner of a flying squirrel, allowing spectacular dives into the water from improbable distances.

For all they live in family groups, these little critters are very antisocial. They bicker constantly and fight frequently. These fights tend not to be very serious, with actual blows rarely struck and never any biting. Fights involve 'dippers throwing a lot of small objects at one another, all the while posturing and squealing like crazy.

Gang fights are quite entertaining, as a mob of 'dippers will jump around squealing, flinging things at one another and occasionally run up and bash one of the opposing side before gliding or running away. Their antics are made more interesting by what seems to be a sense of fair play – if one side is being roughed up too much, some will change sides to help them out. They also do this to gang up on an individual that is being too rough.

Human scientists have no idea why these little guys fight or even who is winning much of the time, but it is fun to watch. 'Dippers pose little threat to Travellers, although they will steal small objects to throw at one another and may try to eat bootlaces and other small semi-edible items. Attempts to turn them into pets have universally failed.

Animal	**Hits**	**Speed**
Riverdipper	2	7m
Skills	Survival 1	
Attacks	Bite (1)	
Traits	Small (-4)	
Behaviour	Herbivore, Grazer	

Stingstorm

A stingstorm is a mob of small creatures resembling very small flying lizards. Often known as stormers, these creatures are aggressively territorial and will attack quite large creatures. Individually puny (and less than three centimetres long), they are capable of bringing down a large animal or human.

A mob of stormers makes a confusing target and although individuals are easy to kill there are many of them. Some will be attached to the target, nipping and biting, while others fly about screeching. One tactic stormers like to use is to crash themselves into the head of the prey, latching on with their tiny claws for a few seconds then flying off leaving a mass of scratches behind.

Wounds inflicted on a stingstorm (as the swarm is known) represent casualties and Stormers driven off. When enough damage is done to 'disable' the swarm (enough hits are inflicted to make a normal creature unconscious), the Stormers will usually retreat. A Stingstorm can attack only as a mass of tiny nips but blood loss and damage to fingers or eyes can be serious.

Animal	Hits	Speed
Stingstorm	34	8m
Skills	Persuade 1	
Attacks	Many Small Nips (D3)	
Traits	Flyer (very slow), Ornery, Particulate	
Behaviour	Carnivore, Intimidator	

Peak Floater

Peak floaters have been described as 'jellyfish of the air', which is a reasonable approximation of their appearance. A floater consists of a central gasbag and numerous tendrils, which have poisonous stingers along their length. These cannot harm a Traveller through clothing but will inject a nasty venom into surface tissues they contact, causing swelling and pain. The gasbag is filled with an extremely low-density gas produced by natural reactions within the creature, which are themselves fuelled by exotic compounds. Rupturing the bag releases the gas, resulting in a burst of flame or a small explosion which scatters parts of the creature. These will also burst into flame, creating a minor fire hazard.

Peak floaters typically drift around hilltops or mountains where the air is cold, feeding on insects caught by their sticky tendrils. These are gently dragged over bushes and other vegetation, and can be brought into contact with Travellers this way. These creatures are of very low intelligence, just drifting and feeding, and will not take any sort of deliberate action. They can, however, be a real problem when their numbers grow beyond a handful.

Animal	Hits	Speed
Peak Floater	6	1m
Skills	None	
Attacks	Sting (1D)	
Traits	Explosive (1D, 1m), Floater, Gossamer	
Behaviour	Carnivore, Eater	

Krvn

Krvn are vaguely arachnoid creatures originally thought to be native to a single world in the Spinward Marches. They have since been identified on several widely spaced planets and it is thought they were transplanted as beasts of burden in the distant past. An adult krvn has six primary legs plus four smaller manipulators which can provide additional stability, and a central body around one metre in length. Krvn are not strong enough to be ridden but can pull a sled or carry a light pack at considerable speed, even over swampy terrain or snow.

Krvn are omnivorous and capable of burrowing through dense soil. Their nests contain dozens, perhaps hundreds, of workers and one or more large breeders which are rarely seen aboveground. Krvn are sometimes mistaken for the much more dangerous chamax, to which they bear a vague resemblance. Domestication is not really possible as such but a krvn worker will respond to simple commands (usually in the form of prods delivered manually or by a small harness) in a docile and hard-to-spook way. This makes them useful for some forms of work but they cannot be trained to carry out complex tasks.

Animal	**Hits**	**Speed**
Krvn	16	8m
Skills	Stealth 1	
Attacks	Bite (1D)	
Traits	Armour (+2)	
Behaviour	Omnivore, Gatherer	

Krvn-Espaan

Some populations of krvn live in a symbiotic relationship with a warm-blooded species known as the espaan. These are small, furry creatures resembling a six-legged starfish, which attach themselves to the undersides of worker krvn and direct their actions. It is not clear how they interact with breeders in the nest but espaan are known to live in krvn communities and presumably contribute to the functioning of the nest.

Espaan are more intelligent than krvn workers and can direct them in complex tasks. They are also more territorial than a typical krvn nest and may send a force of workers to attack a quite distant settlement if the espaan consider it is a threat. Krvn-espaan nests are less regular in layout than sole-krvn constructions, making effective use of variations in soil composition rather than simply digging random tunnels. These nests tend to be bigger and more successful than a sole-krvn nest, making the symbiosis an effective one.

Animal	**Hits**	**Speed**
Espaan	4	2m
Skills	Survival 1	
Attacks	None	
Traits	None	
Behaviour	Omnivore, Gatherer/Eater	

Cliffhanger

The cliffhanger is a surprisingly common food animal on worlds without much flat land. Resembling a tubby goat in many ways, the cliffhanger is extremely agile and can forage on near-vertical rocky surfaces that would daunt an experienced human climber. Cliffhangers have sharp claws that can be used for self-defence but are generally peaceable creatures who have few natural predators. They are herded on some worlds by airborne drones, although lower-tech societies have to rely on daring climber-herdsmen.

Cliffhangers form loose herds in the wild, generally using their difficult home environment for protection rather than any deliberate measures. They are capable of surviving on a minimal diet of very poor-quality vegetation for some time but animals that become weak or sick rarely survive long as a result of their dangerous habitat.

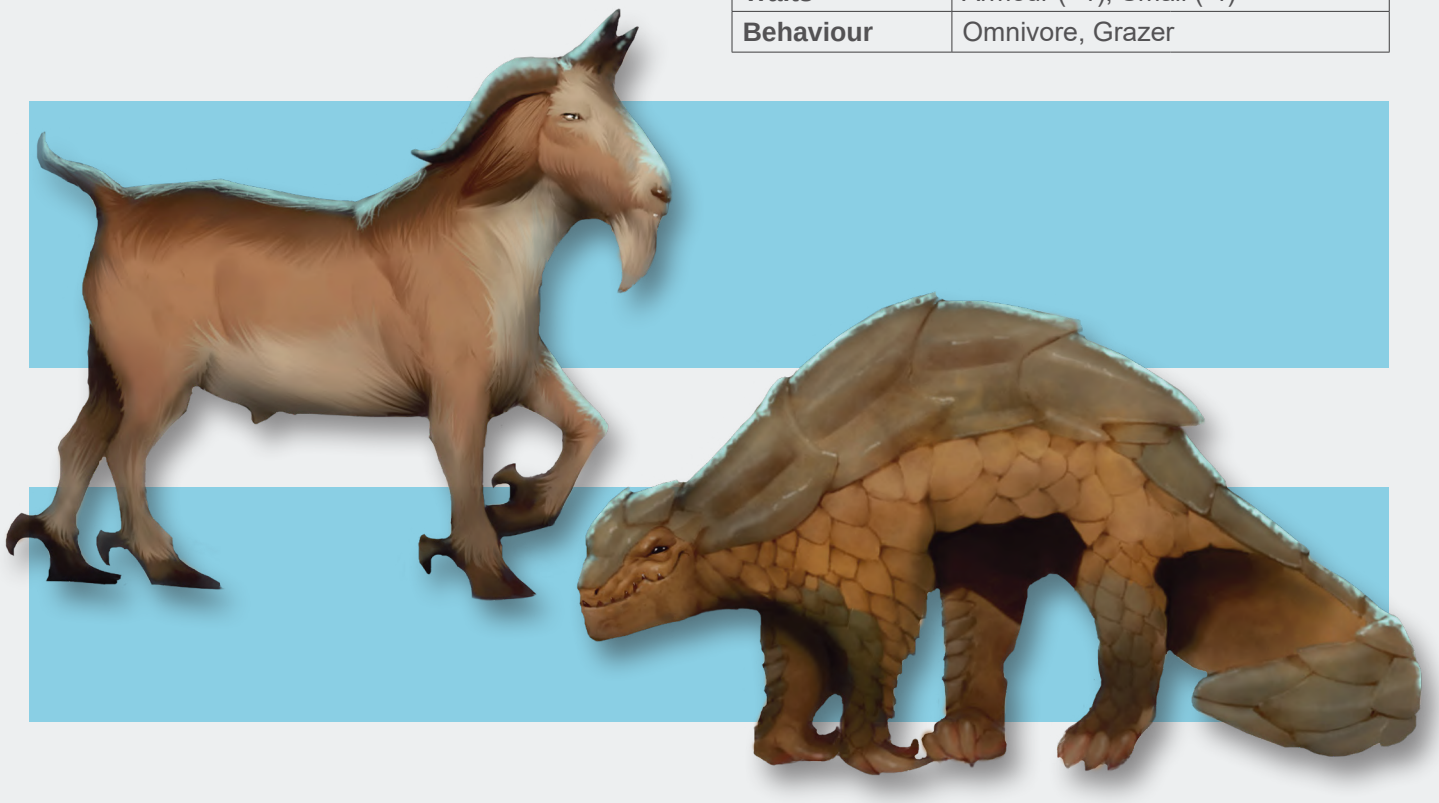
Animal	Hits	Speed
Cliffhanger	9	6m
Skills	Athletics (dexterity) 2, Survival 2	
Attacks	Claws (1D)	
Traits	Small (-1)	
Behaviour	Herbivore, Grazer	

'Trator

The 'trator is a biologically engineered creature designed for infiltration of enemy installations; hence its name. Some specimens appear to have escaped from their handlers and formed a small breeding population, although their origin is sufficiently secret that they are normally thought to be naturally occurring creatures. The 'trator is a cold-blooded quadruped about 10 centimetres long, with a flexible outer carapace and unnaturally powerful claws and teeth. 'Trators can be fitted with a camera-and-command pack but are sometimes simply introduced into an installation and allowed to roam free.

'Trators can cause immense damage, which looks to have been caused by natural creatures rather than deliberate sabotage, and for this reason are sometimes used for deniable corporate sabotage operations. They are attracted to electrical insulation and circuitry, and have an overwhelming impulse to chew and scratch through any electrical or electronic systems they encounter. A 'trator loose aboard a starship could cripple it within hours if not caught.

Animal	Hits	Speed
'Trator	4	3m
Skills	Recon 1	
Attacks	Claws or Bite (1D)	
Traits	Armour (+1), Small (-4)	
Behaviour	Omnivore, Grazer	



Oieite'aiy

The oieite'aiy has various names in different languages but official databases typically use the original Trokh (Aslan) designation. Oieite'aiy are aggressive pentapods which hunt in small packs of three to six individuals. About the size of a Terran wolf, they have four normal legs and an additional longer and more powerful hind leg which provides incredible springing ability. Oieite'aiy normally attack their prey as a team, with some individuals inducing it to run before others spring from the sides and knock it down. Once downed, the prey animal is allowed to stand before being knocked down again, rapidly inducing exhaustion.

Oieite'aiy favour open terrain but can be encountered in hilly or cluttered areas. Packs are not territorial in the long term; they migrate over long distances apparently at whim. However, a pack will defend its current hunting ground against most interlopers, although occasionally a warning display comprising a great deal of leaping and snarling is sufficient to make new arrivals withdraw.

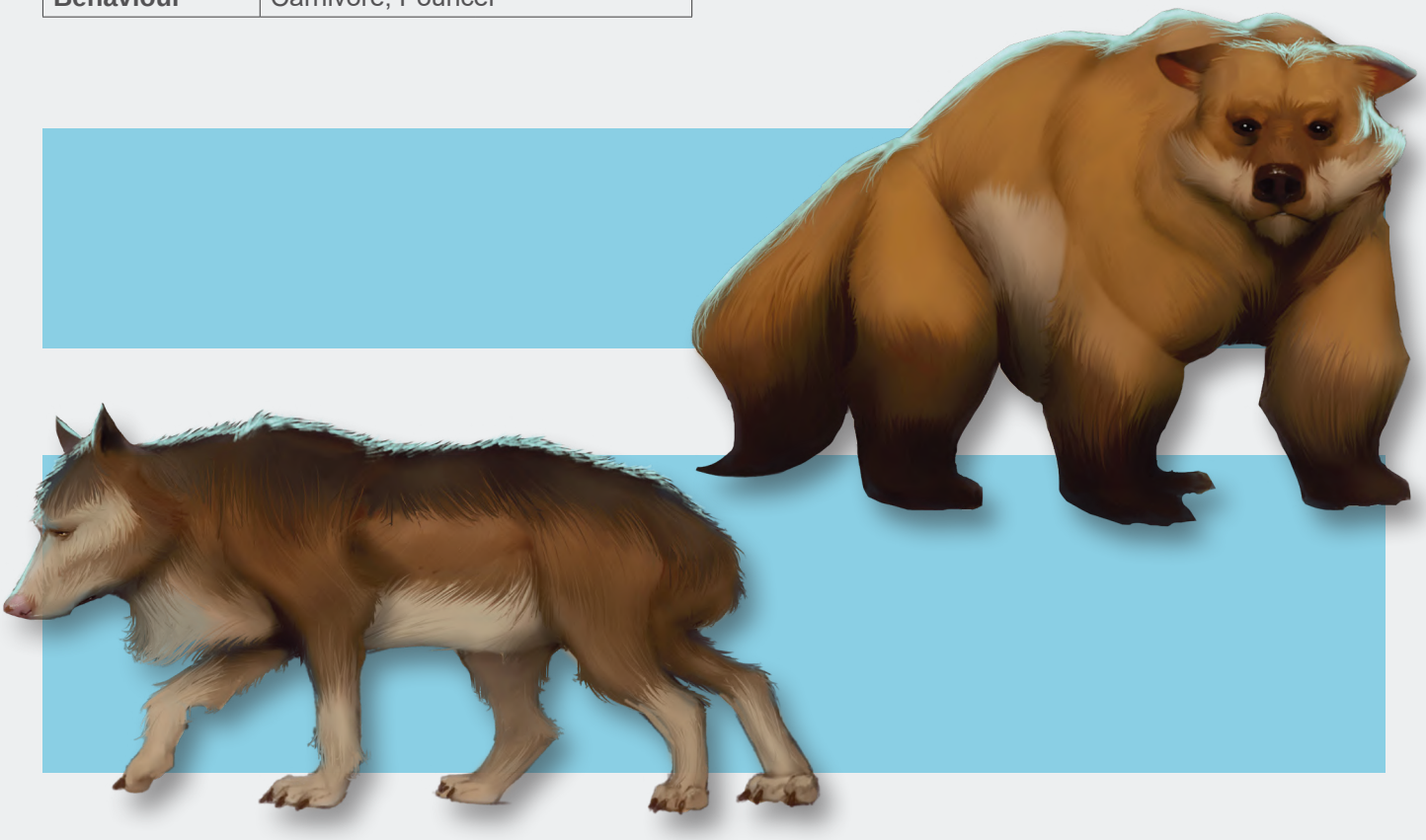
Animal	Hits	Speed
Oieite'aiy	16	6m
Skills	Melee (natural) 2	
Attacks	Spring and Bite (2D)	
Traits	Tough	
Behaviour	Carnivore, Pouncer	

Brown Forester

A creature somewhat similar to the Terran brown bear, the brown forester is normally encountered in small family groups. Powerfully muscled and covered in thick fur, this animal favours wooded uplands and can be quite territorial. According to some reports they are semi-intelligent; sufficiently so that unwary hunters are sometimes lured into an ambush.

Claims of shaped stone tools used by these creatures attracted interest a few years ago but have been dismissed as a hoax. However, brown foresters are clever creatures and quiet for their size. They have been known to sneak into camps or settlements to steal food, sometimes inadvertently taking important items that are not edible, such as tools or components of a field stove. These items are often found chewed, smashed or thoroughly 'investigated' by these inquisitive and powerful animals.

Animal	Hits	Speed
Brown Forester	34	6m
Skills	Melee (natural) 1, Stealth 1, Survival 1	
Attacks	Claw or Bite (2D)	
Traits	Clever, Large (+1), Tough	
Behaviour	Omnivore, Gatherer	



Skreee!

Named for the hideous sound they make, skreee! are generally harmless to humans and similar creatures. They are avians with a small central body and a tiny head on a long neck, with leathery wings better suited to gliding and soaring on thermals than powerful flapping. Skreee! feed on small ground-dwelling animals, swooping down to grab prey then ascending back to a high perch to feed. Their attack takes the form of a stoop, which is surprisingly fast and accurate. However, skreee! do not change direction quickly and are more successful at taking prey by surprise than catching an animal on the run.

Skreee! are native to mountainous areas and can often be heard long before they are spotted. Their normal call is loud and pitched at an extremely irritating frequency but pales into nothingness when compared to their alarm screech. This alone has been enough to drive explorers out of a region, even without the skreee! engaging in their other annoying habit, that of swooping down to snatch food, tools and random small objects. Skreee! will even take items right out of a Traveller's hand.

Animal	Hits	Speed
Skreee!	5	2m on ground
Skills	Recon 1	
Attacks	Peck (1D3)	
Traits	Alarm, Flyer (slow)	
Behaviour	Carnivore, Pouncer	

Larulli's Predator

Larulli's predator is a nasty mid-sized equivalent to the cheetah in many ways. Operating in mated pairs or packs of three to five juveniles, its usual method of attack is a sudden rush from cover, knocking the victim down. The attacking beast will usually then spring clear and begin posturing, getting the target's attention as it tries to rise. This allows the partner or pack to close and deliver a crippling bite and, once down, the victim is usually worried to death.

Predators are well camouflaged and fast, with a bullet-shaped head filled with razor teeth designed more for slashing bites than serious fighting. Their furry bodies are lean and built for short-distance speed and a powerful lunge. They have claws but these are secondary to their teeth as weapons and almost never used.

Predators seem to dislike a straight fight, even with a harmless foe. They prefer to dash in and out, presumably to avoid the lashing hooves of a victim. Larulli's predators are willing to attack humans and should be treated with caution even by armed personnel.

Animal	Hits	Speed
Larulli's Predator	8	8m
Skills	Athletics (dexterity) 2, Melee (natural) 1	
Attacks	Bite (1D)	
Traits	Camouflaged, Small (-2)	
Behaviour	Carnivore, Pouncer	

Sesquipin

The sesquipin is a large and very odd-looking flying creature, which many Travellers find quite disturbing. It appears to have three bodies, each of which has a claw-tipped prehensile tail. In fact two of the bodies are better described as organ and muscle nodes. These secondary nodes are about the size of a large dog, whilst the central body is approximately four times as large. The central body contains the digestive organs and main cardio-respiratory system, with a smaller secondary heart and lung in each of the secondary nodes, connected to the main body by a segment of the long upper wing-membrane.

A shorter pair of lower wings, tipped in vicious talons, attaches directly to the central body. These are capable of very fine control for rapid manoeuvering or can act as hands, whilst the long upper wing makes an augmented flapping motion powered by the extra muscle nodes. This movement looks distinctly unnatural to most observers but provides excellent lifting capability. Sesquipins operate in flocks of 10–30 individuals, mobbing their prey and tearing it to shreds with their lethal claws.

Animal	Hits	Speed
Sesquipin	16	4m on ground
Skills	Melee (natural) 1, Recon 1	
Attacks	Claws or Bite (2D)	
Traits	Flyer (slow), Strange, Tough	
Behaviour	Carnivore, Killer	

AQUATIC ANIMALS

These creatures require an aquatic environment. They may live entirely underwater or in an interface zone where they interact with land or air creatures.

Vent Swarmer

Vent swarmers are small creatures, typically no more than two centimetres in length. They are naturally found in chemical-rich waters such as those close to ocean-floor geothermal vents and often form colonies close to outlet pipes from industrial premises or seabed settlements. They are not harmful in their own right but can clog machinery or damage piping. Their presence in large numbers tends to attract predators which creates a secondary hazard.

Swarmers are highly active, darting about in concentrations of dozens of creatures amid an overall population of thousands. Depending on the chemical content of the waters they frequent, some swarmer communities can interfere with sensors, and most create sufficient disturbance that the surrounding waters are constantly murky due to seabed sediment. They are of little value as a food source due to their unpleasant taste and possibility of contamination, and are widely regarded as a major nuisance.

Animal	Hits	Speed
Vent Swarmer	1	2m
Skills	None	
Attacks	None	
Traits	Small (-6)	
Behaviour	Omnivore, Eater	

Cuttlehorror

The cuttlehorror was named, perhaps a little over-dramatically, for its resemblance to a Terran cuttlefish. The cuttlehorror is vastly larger however, and does not seem to have any ability to change colour. At an average of around 10 metres long, the cuttlehorror is larger on average than a great white shark and inhabits a similar ecological niche. However, whilst the great white does not deserve its reputation as a people-killer, the cuttlehorror truly does.

Cuttlehorrors are normally solitary creatures, as befits their highly destructive nature. They will attack almost anything that ventures into their territory and have been known to range widely searching for something to kill. Cuttlehorrors often attack even when not hungry and apparently kill for the fun of it. They have been known to take on submarines and surface vessels, and are astonishingly persistent even when their intended target is made of metal.

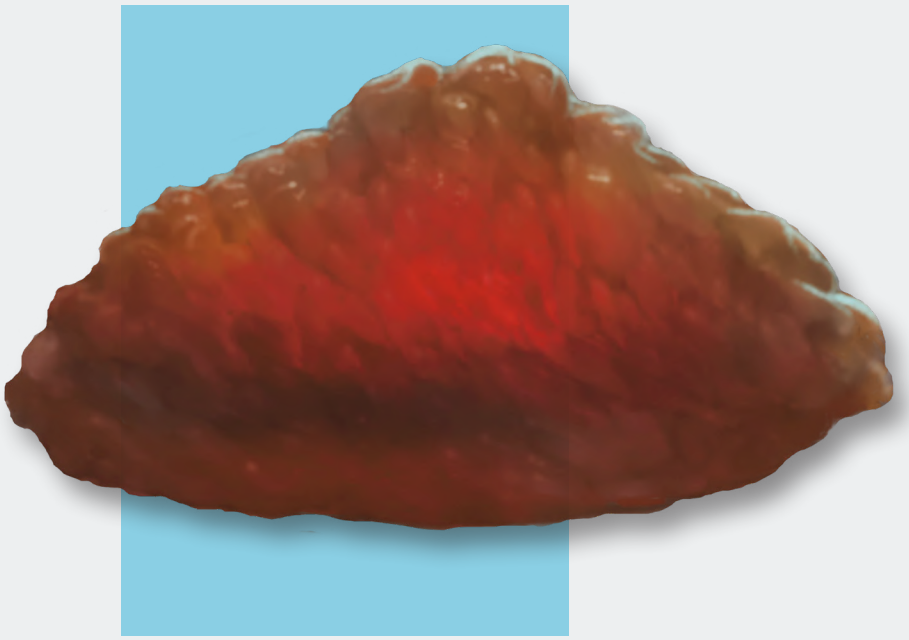
Animal	Hits	Speed
Cuttlehorror	60	8m
Skills	Melee (natural) 1, Recon 1	
Attacks	Bite or Ram (4D)	
Traits	Large (+3), Ornery	
Behaviour	Carnivore, Killer	

Bootwrap

Another creature whose scientific name is unknown to most Travellers, the bootwrap is a shallow-water dweller resembling a spongy mass one to three metres in diameter. It is possible that there are numerous species of similar creatures; bootwraps have been reported in both fresh and seawater areas. The primary danger they pose to Travellers is a tendency to bunch and clamp around an object that comes into contact with the bootwrap's upper surface.

The bootwrap is an extremely primitive creature, with life functions dispersed throughout its structure. Any tissue that touches organic material tightens around it and begins to digest its catch. This can take days in the case of a boot or vehicle tyre but during this time a Traveller might be endangered by rising tides or other hazards. Pulling a foot free of a bootwrap requires an immediate Difficult (10+) STR check. If this is failed, the check increases to Very Difficult (12+) and the Traveller may make a new attempt every hour until they escape or are dissolved. Killing the bootwrap is difficult due to its dispersed structure, although much of one could be cut away until the small remaining part is relatively easy to remove.

Animal	Hits	Speed
Bootwrap	12	0
Skills	None	
Attacks	Slow Digestion (1 per day)	
Traits	Dispersed, Small (-2)	
Behaviour	Carnivore, Filter	

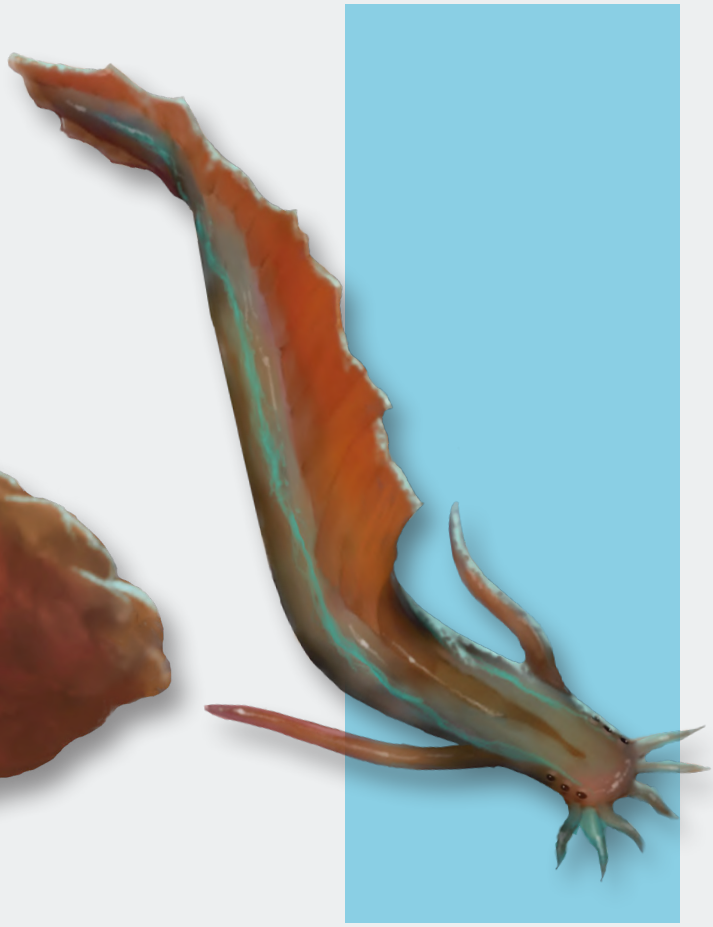


Pointer Fish

The pointer fish is a harmless cold-water fish with an unusually strong ability to detect electromagnetic fields. They are attracted to seabed cables and underwater operations of any kind, as well as naturally occurring magnetic fields. Pointer fish will align themselves with a magnetic field and follow it, sometimes without regard to obstacles. This can create concentrations of fish at choke points, which in turn attracts predators.

Pointer fish have been introduced to many ecosystems as part of aquaculture projects – they can be 'herded' by submersibles fitted with electromagnets which makes harvesting and population monitoring relatively easy. Pointer fish also breed in the wild and can unbalance an ecosystem if not kept under control.

Animal	Hits	Speed
Pointer Fish	4	8m
Skills	None	
Attacks	None	
Traits	Small (-3)	
Behaviour	Herbivore, Grazer	



Lakefang

A large air-breathing swimming predator vaguely resembling a Terran plesiosaur, the lakefang has spindly legs and is slow out of water but can reach a considerable distance with its long neck to deliver a powerful bite. Adults are solitary but young lakefangs swim in packs of anywhere up to a dozen until they are more or less mature. Packs can turn on one another; indeed, the equivalent of a coming-of-age celebration for a lakefang is the day it savages its siblings and eats them.

Lakefangs sometimes attack boats, either by bumping them from underneath to spill the occupants or more often by simply sinking its teeth into the vessel and jerking about until it is sunk, then chasing down the occupants. It is not known whether lakefangs do this because they see a boat as a threat or simply out of spite.

Animal	Hits	Speed
Lakefang	56	12m (2m on land)
Skills	Melee (natural) 2	
Attacks	Bite (4D)	
Traits	Armour (+4), Large (+3), Ornery	
Behaviour	Carnivore, Killer	

Swamp Queen

The swamp queen appears to be a composite creature comprising a central body mass – or sometimes multiple masses connected by tendrils – and numerous outlying tentacles attached to smaller fleshy concentrations. The main masses, containing critical organs, are usually located underwater or in soft sediment, with tentacles grappling prey towards a nearby mouth. An average-sized swamp queen can take prey up to the size of a small deer, although typically they feed on fish and amphibians dwelling in their body of water. Rumours persist of much larger queens which pose a serious hazard to livestock or even passing vehicles.

It is not clear if a multiple-node swamp queen should be considered a single organism or a group. Organs are duplicated, enabling a mass cut off from the rest to survive on its own, but a node can be kept alive by others for many months, healing from even the most severe damage. Getting rid of a swamp queen thus requires finding all nodes and completely destroying them, usually by fire or other indiscriminate means. A swamp queen node typically has 30 Hits, whilst its detachable tentacles have 7 Hits each. All nodes must be found and killed to eliminate the creature, which typically has 1D nodes.

Animal	Hits	Speed
Swamp Queen	30	0
Skills	Drag and Bite (2D)	
Attacks	Composite (1D+3D), Large (+3)	
Traits	Carnivore, Trapper	
Behaviour	Carnivore, Killer	

EXOTIC ENVIRONMENT ANIMALS

The following creatures exist in an environment that would kill unassisted humans. Their home conditions may include low atmospheric pressure or a hazardous gas mix, or other dangerous characteristics.

Hequib Ukide

The hequib ukide is known by various names on different worlds but most database entries use the earliest known reference. This is an anglicised variant of a phrase in the language of an obscure minor race, which rather prosaically translates as 'The Large Crustacean That Threatens Our People'. The origins of the hequib ukide are unknown but small populations can be encountered on many worlds.

A full-grown hequib ukide resembles an eight-legged lobster with an elongated body, with a pair of powerful pincers and a secondary set of smaller arms below its mouth. The hequib ukide can thrive in very thin or trace atmosphere worlds and can even function in hard vacuum for a time. Once its resources run down it will become dormant, prolonging survival by several months. It is thought these creatures have travelled between star systems in this manner.

Hequib ukide are normally solitary, meeting to mate once every few years then rapidly separating. Their young are carried in a sac within the torso until they are able to feed themselves, then dropped as the hequib ukide trundles slowly on its way. Feeding is a constant activity, with the secondary arms shovelling loose matter into the creature's maw as it moves. Most of this matter is inert on many worlds but a hequib ukide can extract nutrition from any organic material it encounters.

If turned loose on a world with a higher oxygen concentration and plentiful organic matter, the hequib ukide enters a feeding frenzy. It will eventually eat itself to death but in the meantime can be highly destructive. These creatures are also attracted to rich sources of organic matter in their home environment, such as trash dropped by Travellers or a badly sealed waste dump port on a starship. The hequib ukide will fight to get at such a rich source of food, where normally it would simply trundle on its way.

Animal	**Hits**	**Speed**
Hequib Ukide	16	3m
Skills	Melee 0, Recon 0, Survival 1	
Attacks	Pincers (2D)	
Traits	Armour (+2), Vacuum	
Behaviour	Omnivore, Filter	

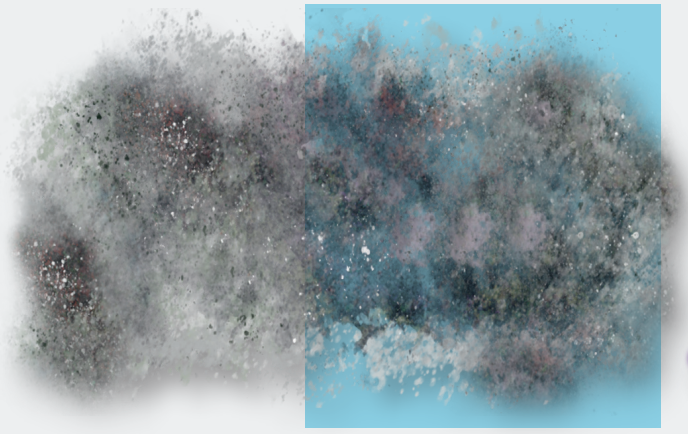
Death-Cloud

The rather dramatically named death-cloud resembles a cloud of dust particles floating freely on an airless or trace atmosphere world. The cloud adheres to surfaces it contacts – including a vacc suit or starship hull – and slowly digests any matter it encounters there. Death-clouds cannot eat through metal but will eventually cause airlock seals to fail or rupture polymer power conduits.

If a cloud gets inside a vehicle or structure, it will attack organic matter first. This makes the death-cloud an insidious threat rather than an instant one but getting the cloud out of a vehicle can be a problem. Showering will remove particles from a Traveller's skin but this will put them in the water supply where they may be consumed or come into contact with other Travellers. It is possible that there are ships drifting in space whose crew were entirely eaten away by a cloud in the water supply, although the process would take a very long time.

It is not clear how a death-cloud moves or senses food sources. Some scientists postulate that the cloud may be a particulate intelligence, with each mote in contact with the others. If this is the case then a large enough cloud might be capable of advanced thought or even communication, but there is no evidence to prove this. Clouds cannot be harmed by most weapons, though particles can be incinerated or dissolved in corrosive liquid.

Animal	Hits	Speed
Death-Cloud	4	2m
Skills	None	
Attacks	Digestion (1 per hour)	
Traits	Particulate, Vacuum	
Behaviour	Omnivore, Eater	



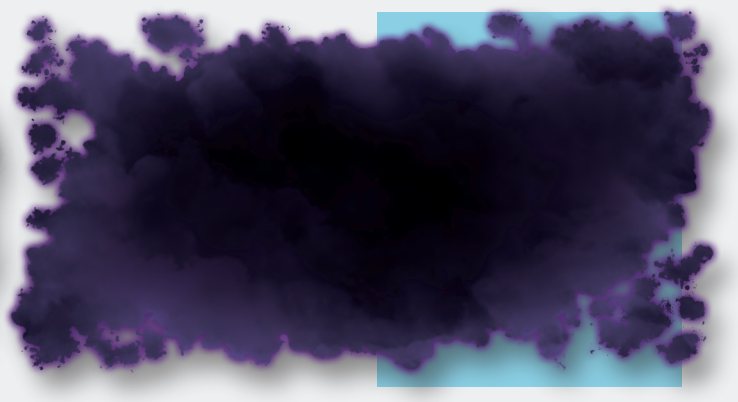
Shade

The animals popularly known as shades are possibly some kind of free energy phenomena, although they behave in a manner that suggests they are in some way alive. Most of the science connected with these creatures is of an amateurish sort – few reputable scientists even believe they exist and no detailed study has been carried out. Exactly what a shade is remains an open question. Some believe they are beings from another universe or dimension, touching this universe through a portal. Others claim they are supernatural in nature.

Shades typically manifest as a pool of darkness floating in the air and are sometimes described as some kind of energy well. Light and heat will flow into a shade, apparently obeying the laws of thermodynamics, causing an area of dimness and cold. If this contacts a Traveller, they will suffer 1D damage per round, reduced to 1D3 if inside a vacc suit or similarly protected armour. The shade will drain the suit's batteries rapidly and they seem to gravitate towards such mid-level energy sources. This makes shades dangerous to spacefarers operating outside a vessel or on a hostile planet.

A shade can be dissipated or eliminated by intense heat, light or other energy, although whether this harms the animal or simply feeds it to the point where it withdraws, sated, is unknown. Point sources such as lasers have no apparent effect on the shade; what is needed is a large energy source such as a searchlight or bonfire.

Animal	Hits	Speed
Shade	Unknown	4m
Skills	None	
Attacks	Contact (1D per round)	
Traits	Energy, Vacuum	
Behaviour	Inexplicable	



Alga Worm

The alga worm is a thick, segmented creature which can be mistaken for a section of conduit or piping, native to exotic atmosphere worlds. Specimens grow to a maximum of one metre in length and are more typically 40–60 centimetres long. Alga worms are more or less harmless in their own environment, except perhaps as a trip hazard, but their tissues react with oxygen in a violent and messy manner. When exposed to a reasonable concentration of oxygen – about 10% of a normal-pressure atmosphere – an alga worm will undergo an exothermic reaction which can lead to the animal cooking itself or even exploding.

Alga worms are harvested for the concentrated chemicals that build up in their tissues. This practice has been widely condemned as cruel and is outlawed on some worlds. Transporting worm carcasses is an additional problem; many 'unofficial' harvesting operations lack the equipment to properly treat the worm's tissues and as a result accidents are not uncommon.

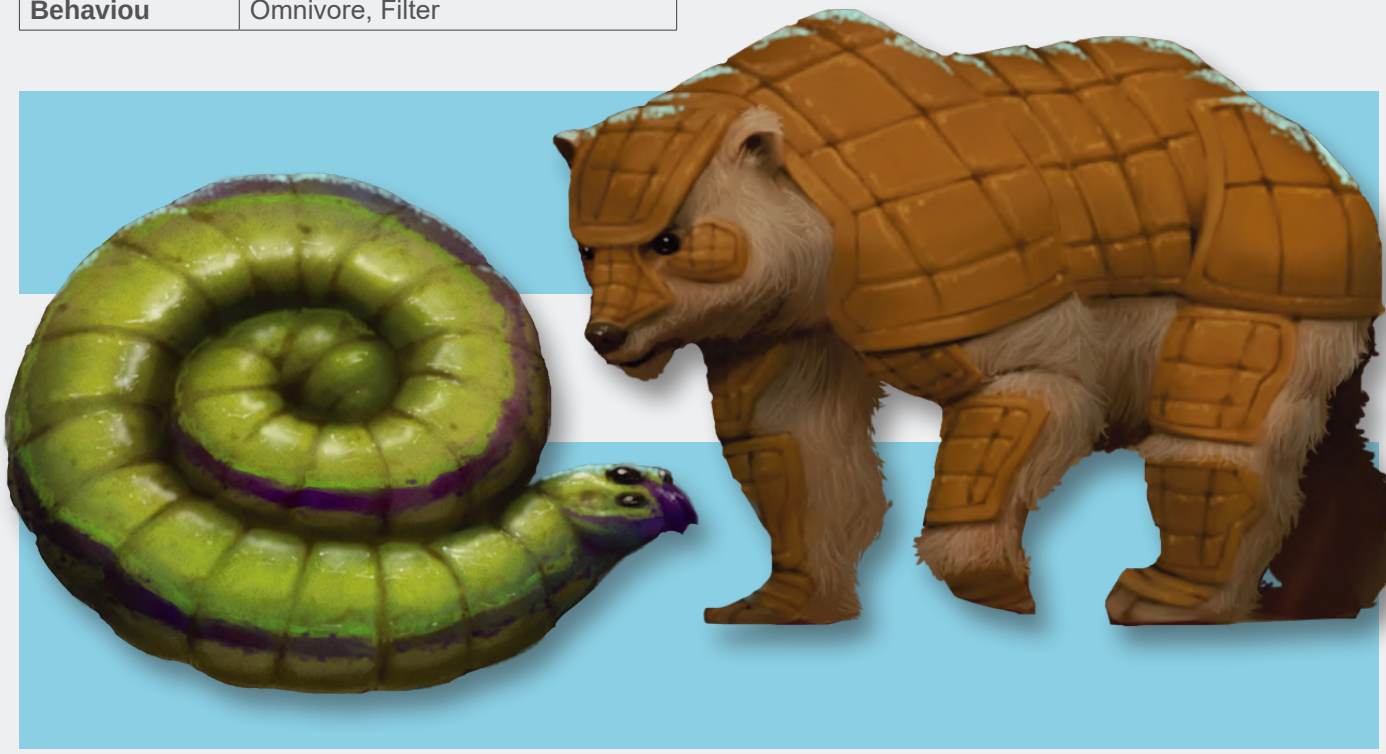
Animal	**Hits**	**Speed**
Alga Worm	4	1m
Skills	None	
Attacks	None	
Traits	Explosive (1D, 2m)	
Behaviou	Omnivore, Filter	

Kasman (Kashmanuggidagi)

The kasman was clearly known in the days of the First Imperium, although the original Vilani name has since been corrupted into something more pronounceable. The kasman is an omnivore native to corrosive-atmosphere worlds, with resemblance to an armoured bear, and is protective of its territory. Kasman are usually encountered in family groups of two adults and two to six juveniles in various stages of development.

Kasman are large but agile and possess a powerful set of claws. Their own armoured skin is more or less impervious to these claws, so fights between kasman are normally a matter of knockdown blows, driving the loser off rather than killing it. Such fights are quite common as family groups test the boundaries of one another's territory.

Animal	**Hits**	**Speed**
Kasman	45	6m
Skills	Melee (natural) 1, Recon 0, Survival 1	
Attacks	Claws (4D)	
Traits	Armour (+3), Large (+1)	
Behaviour	Omnivore, Hunter	



Lobug

The lobug is a nuisance found on several worlds, having been carried there inadvertently by spacecraft. They resemble woodlice to some extent, although a typical lobug is about 50 centimetres long and 20 centimetres high to the crest of its shell. Lobugs can survive extremely low pressures and even vacuum, although hard vacuum forces them to curl up and become dormant. They can remain thus for some years but will eventually expire unless conditions that permit the lobug to function return. Lobugs are only able to tolerate normal pressures for a few minutes before expiring; their bodily fluids tend to leak out when they die under such conditions and stink very badly indeed.

Lobugs can infest areas of starships and spaceports as well as low-pressure gray worlds. They are a nuisance more than anything else, as they gnaw at wiring insulation or burrow into cargo seeking food. Although many starships depressurise the cargo hold in transit, this rarely creates a perfect vacuum. Lobugs thrive in this sort of environment, scuttling off to hide when the pressure returns. They can be very hard to find when they do so, although the ones that did not make it to cover in time will make their position evident to anyone with a nose.

Animal	Hits	Speed
Lobug	10	4m
Skills	Survival 1	
Attacks	Claws (1D3)	
Traits	Armour (+2), Small (-2), Vacuum	
Behaviour	Omnivore, Reducer	

Species D-8071 (Hull Net)

Species D-8071 is known by many unofficial names, of which hull net may be the commonest. Native to the upper atmospheres of gas giants, Species D-8071 resembles a loosely connected web of organic nodules. It drifts on the winds and consumes primitive amino acids or hydrocarbons formed by electrical activity and turbulence. These animals are not hostile and may not even be aware of passing vehicles, but can become entangled on antennae or hull protrusions. This is not normally a major problem but can lead to examples being transferred to other atmospheres.

A ship that has become entangled in a hull net may experience electrical disruptions due to the creature's powerful bio-electrical field. This can interfere with sensors and the operation of the jump drive. The only solution is to scrape off the net from outside the ship, a time-consuming process that breaks it up but may or may not kill it. Attempting to jump with a net in place may have no effect or can cause the drive to malfunction wildly; it is not always possible to predict the effects from one jump to another.

Animal	Hits	Speed
Species D-8071	10	Drifts
Skills	None	
Attacks	None	
Traits	Gossamer	
Behaviour	Omnivore, Filter	

VEHICLE DAMAGE

The vehicle rules presented in the *Traveller Core Rulebook* and *Vehicle Handbook* work very well but there are some cases where loopholes can arise. Small, light vehicles can be destroyed or disabled with weapons that should not really be able to do them much damage, including the fists of an angry Traveller. In most cases where it is possible to destroy a vehicle with light weapons, this would take a great deal of time – blasting a sailing ship apart with a shotgun might be possible but it is unlikely anyone would expend the time or ammunition.

Then again, these are Travellers we are talking about. The following rules are designed to prevent exploitation of this loophole. Either or both can be used at the Referee's discretion.

ANTI-PERSONNEL WEAPONS

Weapons delivering less than 4D damage are defined as anti-personnel weapons, as are all personal weapons firing a multiple projectile (such as shotguns) and those with the Stun trait. Any modifier to damage is ignored for the purposes of this definition, so a weapon doing 3D+8 damage would still be an anti-personnel weapon whereas one doing 4D-4 would be outside the anti-personnel category.

Anti-personnel weapons do no damage to vehicles unless an Effect of 6 or more is scored on their attack roll, in which case damage is reduced by 2D to a minimum of 1 point.

BUILT TOUGH

Vehicles and structures are built from strong and resilient materials. Against man portable weapons that are not Destructive, a vehicle is considered to have an extra amount of armour equal to the TL of its construction.

For example, an extremely angry Traveller tries to kick his TL6 dune buggy to pieces. His unarmed combat damage is 1D, +1 for his STR bonus. He boots the vehicle as hard as he can, rolling a total of 7 for damage. This would be enough to destroy the dune buggy despite its armour Protection of 2 but for the 6 points of additional Protection it is assumed to have due to its Tech Level. Our angry Traveller can inflict quite a lot of cosmetic damage with his boot but he cannot destroy the vehicle that way.

REFEREEING TRAVELLER

Refereeing a roleplaying game is part art, part science and always a matter of personal style. There are many possible ways to set up and run a game, ranging from entirely freeform to something that resembles a computer program with every possible detail and eventuality provided for in the Referee's notes. There really is no 'right' or 'wrong' way to go about it so long as everyone is enjoying the game.

It is easy to fall into the trap of becoming adversarial towards the Travellers, especially if they insist on wandering off the planned adventure path or take unforeseen actions that derail the plot. However, the Referee's role is not to oppose the Travellers but to administer the game in terms of interpreting rules and determining the actions of other characters. The Referee is there to facilitate interactions between the Travellers and a universe that can sometimes be friendly and often be hostile.

Occasionally a rule-as-written will result in a situation that seems less than plausible; the Referee should make a call and keep the game moving along. Hours spent in pointless rules-lawyering are hours of your life wasted. It is worth looking up a critical rule if it makes a difference between a Traveller being dead or just mangled, but lengthy discussions about exactly what the game designers meant by a particular piece of phrasing are futile.

It is up to the Travellers and Referee to work together to create a game universe that is internally consistent and basically fair (if sometimes harsh) towards both Travellers and their opposition. A little common sense goes a long way and whenever things get confusing the Referee should make a call and then get things moving again.

In short, the rules are a framework to hang a Traveller campaign on. In the right hands they can perform well and, like any other tool, they can also be abused. *Traveller* is not about accurately modelling the universe; it is about playing a game for entertainment, and the Referee's part in that is applying common sense and keeping things fair.

It is the nature of adventure gaming that there will be setbacks and disappointments, and not everyone will always get what they want out of every session. Overall, however, the objective is to have fun and people who are not having fun will find something else to do with their time.

Thus the Referee must find a balance between being flexible and accommodating his Travellers' desires without just handing them what they want on a plate. Similarly, the Referee must not compromise himself too much for the Travellers' benefit. Running a game you do not enjoy is no fun.

Generally speaking, Traveller should include some, most, or even all of the following elements:

- New experiences, sights or places
- Varied obstacles to overcome
- Believability in terms of setting and actions of characters encountered
- A chance to gain in monetary or other terms
- Character development in terms of both roleplaying and material acquisition
- The occasional mystery or puzzling event, object, or concept
- A feeling that the setting is 'alive' and things change while life goes on elsewhere

Perhaps the most important thing is that the Travellers should feel they are the captains of their own fate. That is, they really do have freewill rather than being pushed around by the plotline. This is not to say that there will not be insurmountable obstacles in some directions, nor that all plans will work, but overall Travellers are more likely to enjoy a game where they can create goals for themselves and achieve them with a realistic chance of success.

The Referee's job is to create a setting in which the Travellers can do these things and people it with interesting and believable characters. These rules are a set of guidelines to assist in that task but in the end it is the Referee who makes or breaks a *Traveller* campaign.

PLAY BALANCE

Traveller does not subscribe to the concept of 'play balance'. A wealthy merchant will have as many guards as she can afford or want, with skills and weapons of a sort they would realistically have given local circumstances. The guards need not be matched to the ability or armament of the Travellers.

This works both ways. Sometimes the advantage will be with the Travellers, sometimes with the opposition. A clever group will use their skills and good roleplaying to avoid fights they cannot win (and many they could) and stack the odds in their favour. Those who just blunder around trusting to body armour and automatic weapons to solve every problem will eventually run into something they cannot handle.

The Referee should be ruthless if the Travellers do something really stupid. For example, in most localities shooting at the cops will bring more cops, then special response units with good weapons and armour. If the Travellers are armed well enough to defeat the local equivalent of a SWAT team, the authorities may decide the planetary army or even the Imperial Marine Corps will intervene. A group that decides they can defeat the army is going to get killed, full stop.

On the other hand, being pursued by SWAT and a horde of cops makes for a fun and exciting adventure. The Referee should make the response realistic and let the Travellers find a way to deal with it. Getting out of a tight corner against hopeless odds by using desperate measures is a staple of fun science fiction and good gaming. Travellers who come up with a decent plan should have a fair chance but the Referee should not flinch from killing off Travellers who think they can take on stupid odds and win just because they are the heroes of their story.

The opposite side of this coin is the avoidance of bloat. Bloat occurs when the Travellers become too wealthy or powerful for the campaign. If the Referee gives away huge amounts of Credits, dozens of starships and extensive psionic training then the Travellers will reach the stage where there is no point in them going on adventures. It is possible to come up with a reason why a duke, an admiral and a pirate lord might have to deal with a major looming threat but after a while this becomes implausible. In addition, the level of opposition has to be immense for the adventure to be a challenge and sooner or later this becomes dull or ridiculous.

It is far better to keep the Travellers hungry, letting them profit a little from their adventures but always wanting more. That way the Referee does not need to keep coming up with reasons why yet another alien invasion fleet has arrived or half the empire just revolted. A band of gunmen might be a challenge for typical Travellers. If the Travellers are all telepathic superheroes in battle dress armed with fusion guns, a different level of opposition is required, which becomes difficult to explain after a while.

There are other benefits to keeping a Traveller band hungry. One is the fact that adventures sometimes write themselves as the Travellers decide to go in search of a necessary component or make a risky trade run to raise money fast. It is also much easier to keep the typical 'five guys in a free trader' Traveller group from bypassing the plotline than it is when the 'five guys' command 1,000 mercenaries each and have a small fleet of warships at their disposal.

It is certainly possible (even desirable at times) to run a campaign at this level but the atmosphere of such a game will differ from the typical *Traveller* adventure.

BUILDING A TRAVELLER UNIVERSE

Building an entire universe can be a daunting prospect. Understanding the principles upon which the *Traveller Core Rulebook* is based can help in making some basic assumptions. Even if you intend to deviate from how things are usually done in *Traveller*, knowing the foundations they are built upon will enable you to make informed choices.

Traveller provides a means to create an internally consistent universe for one purpose only – to facilitate gaming entertainment. They are not a precise reflection of astrophysical theory as we understand it today and they sometimes throw up anomalous results. The Referee is free to tweak, adjust or 'fix' the raw data created by the rules as much as necessary to suit the needs of his universe but creative explanations for oddball results can bring a sense of wonder to a campaign. It is all down to Traveller and Referee preference.

For the most part, *Traveller* uses metric measurements such as seconds, metres and kilometres. However, other measurements are convenient for other purposes or have been influential due to their use in older editions of the game. When determining the size of a planet, for example, its Size code corresponds to the world's diameter in thousands of miles (i.e. Code 6 = 6,000 mile diameter, or roughly 9,600 kilometres).

The standard year in *Traveller* is based on the Terran year; i.e. 365 days. Named months are rarely used; instead, the day of the year is used as the date, with Day 1 being equivalent to the 1st of January and Christmas Day being Day 358. Dates are usually given in the format Day-Year, e.g. 056-1111 is the 56th day of the year 1111 since the Third Imperium was founded.

Weeks, of seven days, are important mainly in terms of local and shipboard time. Each day has a name: Oneday, Twoday, and so on. There is no overall significance to any given day but many local cultures have special or holy days. These might be fixed (e.g. Day 22 of each year), semi-fixed (e.g. the seventh Fiveday of the year) or may vary (e.g. the Emperor's Birthday).

One week (168 hours) is the baseline time for a single starship jump, although actual duration varies by slightly more than a day and a half each way in a normal jump and more in the case of a misjump. Many starship crews work on a two-week cycle; the time taken to leave port, manoeuvre to the jump point, jump to a new destination, manoeuvre to land and then spend a few days in port conducting business (and just getting out of the ship for a while!), tends to be around two weeks.

Most commercial starships make two jumps in a four-week period. For whatever reason (probably because on a fixed two-world trade route, two jumps is there-and-back), most starships work on a monthly accounting period, paying crew and calculating expenses each month. This is one of the few uses of the month in *Traveller* and, of course, one ship's month may not be the same as another's.

Distances between star systems are measured in parsecs. Parsec is a contraction of Parallax Second, a name determined from the mathematical/scientific method used to define it and corresponds roughly to 3.26 light years. In other words, a parsec is the distance a radio message, a photon, or other lightspeed phenomenon would travel in 3.26 years. Starship jump drives are capable of covering one to six parsecs per jump (depending on the drive type). Star maps are laid out in one-parsec hexes, some of which contain star systems. Other hexes have no system but may not actually be empty. Rogue planets, comets and other objects may lie between star systems, although finding them in a vast area of empty space is problematic (see *The Great Rift* box set for this type of exploration).

Star systems are not all neatly spaced at one-parsec intervals apart but jumps within a certain distance use the same amount of fuel so it does not really matter to a jump-capable ship whether two systems are 3.44 or 2.96 light years apart; the journey requires a jump-1 engine and a jump-1 worth of fuel in either case.

The actual distance between star systems would matter for a non-jump capable ship travelling between them but this is very rarely done due to the immense time taken to get anywhere. Indeed, the jump drive is often used for in-system jumps (sometimes called microjumps) where the time required to cover the distance in real space is longer than a week. Microjumps need a jump-1 engine and use a jump-1 worth of fuel, as fractional jump drives have never been invented and may not be possible. Likewise, other than in the case of misjumps (which are dangerous and not predictable), it is not possible to cover more than six parsecs in one jump in a standard *Traveller* universe.

CREATING HUMAN AND ALIEN SOCIETIES

To be plausible, a society must make sense when viewed from its own perspective. The rules governing a society may be complex to the point of being incomprehensible but they must be consistent. Weirdness for its own sake quickly becomes unbelievable and makes it difficult for the Travellers to make useful deductions or informed choices. To put that another way; everything happens for a reason, even if that reason makes no sense to outsiders.

This does not mean that variation cannot exist. Quite the opposite, in fact. Even within a major interstellar empire, cultural values and Tech Levels may vary considerably. There are all manner of reasons why this might be but the commonest is simple economics. A world that has a small population and little industrial base cannot trade for the high-tech goods it needs to improve its Tech Level and there is little incentive for others to invest in bettering the lot of a backward planet.

So within a few parsecs of one another, there might be a number of very low-technology worlds and several high-tech ones, with others in between. Technology is often a mix of local and whatever higher-tech imports can be afforded and kept running. It is not uncommon to see steam trains or internal-combustion cars operating alongside the grav vehicles and starships of a rich elite.

Unless a world is isolated, its inhabitants will usually try to obtain offworld high-technology goods. This creates markets for other worlds; a steam-powered civilisation will neither be able to afford nor maintain high-technology systems but a mid-tech world may find the lower-tech society a useful market for its more modest exported goods.

As well as toys and comforts for the elite, higher-tech imports are generally considered desirable in the military, commercial and industrial sectors. Even if a world is not actively trying to improve its technological base, as a rule higher-tech machinery represents a good commercial investment so long as it can be maintained and supported.

Even in the case where there is little offworld technology available, items will usually be recognised for what they are, at least in general terms. Outback savages might not understand what a laser rifle is but a citizen of even a pre-gunpowder society will recognise one as being a weapon. It is not uncommon to encounter local attempts to copy higher-tech items although the results are usually crude and bulky, albeit sometimes effective.

Technological sophistication does not necessarily lead to a particular type of society. A group of people struggling to scrape a living (whether with fusion-powered tractors or by gathering berries to take back to the cave) cannot manage a sophisticated social order, but once the basic needs of survival are met people will evolve whatever system works for them.

There are many different government types in *Traveller*, including corporate setups, tribal associations, dictatorships, bureaucracies and democracies of various kinds. However, two 'impersonal bureaucracies' are not necessarily alike. The basic means of government will be much the same but the actual society might be very different. One might have a king as a figurehead, with the real power lying with his administrators. Another might be the obvious strangulous red-tape ridden monster and yet another might be a frontier society where the only governmental structure is a colonial land claims registry service.

Historical or might-have-been Terran societies can be used as a source of inspiration for worlds in *Traveller* but this can be taken too far. If an alien society looks exactly like ancient China or some kind of techno-Mayan civilisation, Travellers might wonder why there are such direct cultural parallels. However, the idea of a corporate government might be inspired by British, French or Dutch commercial holdings in India and the Far East during the Colonial period. An Imperial power might be inspired by 1807-era France but if the uniforms are exactly the same as worn in Napoleon's time this will detract from the believability of the setting.

Similarly, direct historical parallels are not a good idea. It might be that the main power in a game does resemble 1880s Prussia, and there might be a great trading empire which looks somewhat like Imperial Britain nearby, but this in no way implies that the equivalent of the First World War must occur.

Once the general parameters of a society are established, the Referee needs to ensure it is internally consistent and that it fits with the rest of the universe. A great trading empire needs someone to trade with; highly militarised societies get that way for a reason. Is the threat internal or external? Current or traditional? Is the society expanding or declining? Does the government enjoy popular support?

Working through questions such as these will lead to a consistent and believable society that might well be wondrous, amazing or even incomprehensible to outsiders, but which obeys its own laws of internal consistency. Wonder has its place in Traveller, as do oddball societies that should not work or just do not make sense. However, weird-for-weird's-sake should be avoided in the interest of believability.

In short, the Referee can draw on Terran societies for inspiration but must remember that this is the Far Future, not a parallel of history. The setting must be internally consistent and make sense; it does not have to fit a particular model or paradigm.

MULTIWORLD EMPIRES

Multiworld empires have a problem in *Traveller,* the same one that faced Earth's great powers before radio – communications lag. Messages to central authority can move only at the speed of a jumping starship. Even if the capital is just one parsec away, requesting instructions and receiving them is going to take three or four weeks by the time a message goes each way and the situation has been analysed. As distance increases this becomes even more of a problem.

The solution to this problem is to devolve authority upon trusted subordinates while maintaining as fast a communications system as possible. The upshot of this is that successful interstellar polities tend to be either very compact or decentralised. In either case, an interstellar polity will maintain some kind of courier or communications service and will invest power carefully. Maintaining a proper balance between local governors being sufficiently powerful to deal with a given situation, without becoming capable of breaking away or overthrowing the central authority, is a constant problem for an interstellar society.

The usual solution is to have some kind of government at world or star system level, then subsequent layers of authority creating regional groupings. If each of these groups has sufficient resources to deal with its own problems and central authority retains sufficient power to crush dissent or deal with a large-scale disaster, then the society should be capable of functioning over a long period. The reality may prove rather different, however, as politics and economics pull the structure of society this way and that.

CREATING ADVENTURES

Traveller adventures can be very varied. A band of Travellers might thwart a planetary invasion one week and spend the next battling red tape to free their cargo from the clutches of the Port Authority's legal division. Some situations can be resolved by negotiation and interpersonal skills; others require the application of guns and gadgets. The important thing is that the Travellers and Referee enjoy the experience, and that the game does not become stale and samey.

This is not to say that the setting needs to be liberally sprinkled with alien artefacts and grand threats to the cosmic order of things. Indeed, it is best if most of the universe is relatively stable, in order to provide contrast for more unusual elements.

Stable does not equate to boring. To a Traveller from a high-tech world, grav vehicles, floating cities and rubbing shoulders with alien beings in the shopping mall may seem quite mundane, but a good Referee can still make these things interesting. Being suddenly in shadow because an entire city is passing overhead might remind the Travellers that even the relatively mundane can be wondrous.

The Referee can do a lot with details of the setting to make things interesting. Planetary ecosystems can be strange without being actively hostile to the Travellers; a vacuum landscape lit by dim stars provides a great backdrop. Adventures that take place in interesting regions tend to be more memorable.

However, it is people (of all kinds – humans and aliens) that really make a setting come alive. Some human cultures are stranger than many aliens and the mix of high and low technology encountered in starport bazaars or frontier colonies may well throw the Travellers a curve ball. The actions of every person in the setting will make sense from some perspective but the Travellers may not understand them, which may make their actions incomprehensible. This is fine so long as these people remain true to themselves, however weird they may seem to an observer.

Internal consistency is vital to a good universe. Certain 'handwaves' – for example the existence of a working faster-than-light drive – are necessary to a good science fiction setting but they must remain consistent. If there is no means of sending a message to another star system faster than a courier ship then this must always be true. It may suit the plot for the Travellers to be able to send a distress call and get help in hours but this would represent a change in the universe's fundamental rules. Such changes must be approached with care to avoid distorting the universe unrecognisably.

Conflict is an integral part of any story and therefore has its place in *Traveller*. Conflict does not necessarily mean combat, although the occasional animal attack, brawl or full-on gunfight can be fun and is an excellent finale to an adventure.

Conflict can also take the form of clashing business interests, legal or bureaucratic harassment, non-violent arguments, a struggle against the elements, or a race against time, and all manner of other difficulties. Not all problems can be fought through or blasted with heavy weapons and a good campaign contains varied threats, setbacks and hazards.

When combat does occur, this should be for a good reason. Even the dumbest and most aggressive animals will flee if overmatched or badly hurt. People will try to even the odds by use of superior weapons or tactics, and will withdraw, surrender or negotiate if this suits their interests. In short, people, like the universe in general, obey a set of sensible rules. Random encounter tables and reaction charts should always be tempered by the Referee's common sense.

ADVENTURE THEMES

The adventure themes presented here can be used as a quick-start for an impromptu game session, or when the Travellers decide to deviate from the expected path. Each can be embellished to create a myriad of possibilities.

Exploration: The Travellers need to explore unknown territory, either to find something they need or for the sake of scientific discovery. Perhaps they are investigating ancient temples in the deep jungle or on a frontier world, or diving into the thick atmosphere of a gas giant. An exploration adventure can go almost anywhere, with the Travellers facing dangers in seedy backwater ports or from things better left undisturbed.

Trade Run: Travelling from one world to the next while engaging in speculative trade is a staple of many *Traveller* campaigns which throw up unexpected adventure opportunities. Perhaps the cargo is not what it seems, or the Travellers become aware of a great opportunity they must rush to exploit. Rivalries with other traders can explode into violence, or a rival might come to the Travellers with a proposal that sounds just a little too good to be true.

Magnificent Starfarers: The Travellers are asked to help a group of people against a powerful enemy, which might be a horde of dumb 'monsters', an invading army or criminal gang. This does not have to be a straight fight; the Travellers might teach the locals how to defeat or evade their enemy, or might play out a romantic comedy in a field hospital as the battle unfolds around them. The story might begin after the locals' defeat, as the Travellers lead the survivors on a dangerous overland trek to safety.

Hostage Situation: The Travellers become entangled in a hostage situation as terrorists or desperate criminals try to escape capture or bargain for something they want. The Travellers might be among the hostages or in a position to try to rescue them. It is even possible that they might be the hostage-takers, perhaps without intending to be.

Disaster: Some disaster strikes just as the Travellers are passing through or in port to conduct trade. The nature of the disaster can be almost anything – fire, flood, volcano, earthquake, starship crash or anything else that upsets the natural order of things. Sealed environments are good settings for such an adventure, such as arcologies or orbital ports, creating a pressure-cooker environment. Often desperate people are as much a threat as the lava, floodwater or plague.

Heist: The Travellers need to remove something valuable from its current location and deliver it to someone else, or perhaps escape with it for their own use. The job might be entirely illegal, such as a bank or train robbery, or might be illegal but morally acceptable, such as the liberation of a hoard of gold bullion from a corrupt planetary dictator. A heist adventure should be set up such that a head-on attack is impracticable, forcing the Travellers to take a less direct approach. it will typically involve information gathering, misdirection and stealth, although it could lead to an A to B situation.

A to B: Travelling from one place to another overland is usually straightforward but sometimes the journey is the adventure. The Travellers may have to drive a long way in an ATV, or perhaps they become marooned and need to reach help. Matters can be complicated by limiting the equipment available and/or giving them wounded or helpless companions to look after. Crossing 600 miles of hostile wilderness in a well-equipped ATV is one thing. Getting back with a dozen civilians (including children) in tow, with little food and one handgun (with three rounds left) between the entire team is rather more of a challenge. Overland treks can lead the Travellers into incidents and adventures along the way. They may find ruins, people who need help, natural hazards, hostile animals (or people)… the list is endless. An A to B adventure can also take the form of a pursuit, with the Travellers being chased or chasing someone… or both.

Breach of Contract: The Travellers are part of, or associated with, a mercenary unit hired for what seems like a straightforward job – until it goes spectacularly awry. Perhaps the mercenaries' backer pulls out and leaves them in hostile territory. Perhaps some of the mercenaries go rogue, or perhaps it becomes obvious the mercenaries have chosen the wrong side and are acting as bully-boys for a corrupt government. Getting out of the situation with their skin and reputation intact will require the Travellers to think beyond simple gunplay.

Distress Signal: The Travellers respond to a GK (distress) signal. It may come from a community threatened by natural disaster, a crippled free trader, a starport under pirate attack, or a lone person lost in the wilderness. The rescue might require a descent into a gas giant to haul out a trader crew, landing a starship atop a burning oil platform to take off the survivors, or all manner of unusual situations. Often the reward for success is small in financial terms but sometimes a rescued person knows something important or may become a valuable friend.

Precious Cargo: Occasionally, Travellers will be stuck with a precious but fragile object. For example, during a hurried evacuation of an orbital station, the Travellers find themselves sharing an escape pod with a six-month-old baby or priceless vase belonging to the sector duke. Delivering the precious cargo to its rightful destination can be the focus of the adventure or an additional complication in a different situation.

Creeping Horror: Space has plenty of frightening unknowns, making a horror style adventure a possibility. Since Traveller is a hard-science game, the Travellers will be predisposed to believe there is a rational (if strange) explanation for it all. Perhaps there is but even the rational can be terrifying. Maybe a mad crewman, or a dangerous alien animal, is stalking the ship, or the ship's security system is malfunctioning. Perhaps there is something stranger going on. Psionic ghosts, jumpspace entities and even supernatural beings are a possibility. Whatever the actual threat, this kind of scenario is best played for tension, suspense and doubt on the part of the Travellers.

Playing Politics: The court of a powerful noble or social circles of an advanced world can be a unique adventure environment every bit as dangerous as a war-torn frontier world. The Travellers may have to thread their way through the intrigue of the court whilst trying not to commit too many gaffes during unfamiliar activities – formal dinners, parties, hunting and the like. A straightforward approach might simply not be possible, even if the Travellers can figure out who their enemy really is.

The Mystery: Mystery situations can run for a long time in the background of other adventures, with the Travellers collecting odd snippets of information as they do other things, finally leading to a big revelation. Examples include the search for a lost naval courier, whose final resting place is revealed only after a great deal of investigation, or an attempt to find a psionics institute willing to train the Travellers.

War Zone: Military situations make a good backdrop to adventures even if warfighting is not the focus of the campaign. Whilst the occasional straight battle can be an interesting change of pace – especially if the Travellers are bound by rules of engagement or enmeshed in a complex political situation, war zone adventures do not have to be straight firefights. The most interesting situations are those where the Travellers have wholly inadequate resources, or where a straight fight is an option but there is a way to avoid open war.

Revenge: The quest for vengeance can be a self-fuelling adventure plot, in which the Travellers themselves create adventure leads with no thought for reward. This might be due to the Travellers' backstory but the best revenge plots are based on events in an earlier adventure.

ENCOURAGING HEROIC BEHAVIOUR

The Travellers should have a reason to do whatever the adventure requires. The promise of reward is one way to motivate the Travellers but is best used when they are 'hungry' and in need of money. In other words, an offer of Credits is more meaningful when it translates to being able to get something the Travellers need rather than simply sitting in their investment portfolio. Giving out too much money results in 'bloat' and basing too many adventures on financial reward becomes boring after a while.

As a rule Traveller works best when the Travellers are heroes. Reluctant heroes, dark heroes or flawed heroes, maybe, but heroes nonetheless. A campaign in which the Travellers are motivated only by financial gain is severely limited, since the Referee must contrive ways to get them involved and the options are limited. The patron with a handful of Credits becomes clichéd very quickly and Travellers who shrug and walk away from the desperate villagers – or take time out for a quick pillage and slaughter – make for a poor game experience.

On the other hand, if the Referee can rely on the Travellers to (perhaps grudgingly) do what they think is right, he can drop them into all manner of adventures for little gain. Why should the Travellers comply? For one thing, it makes for a better and deeper game if they have some form of motivation. For another, the balance of the campaign is better preserved if the Travellers do not obtain thousands of Credits for everything they do. In any case, it is the adventure that makes the game fun, not the fact that the Travellers gained thousands of Credits.

The Referee can do a certain amount to encourage Traveller cooperation with this ideal. The most obvious rewards (other than cash, gear and advancement) are medals and similar accolades from authority but there are other ways for a Referee to reward heroism. Examples of hero-rewards include the Travellers seeing themselves on TV, or being invited to discuss their adventures on a chat show. Meeting people who recognise and respect them as heroes is also a powerful reward.

'Good guys' should get the occasional lucky break, like help from a rival band of adventurers or local security forces who are impressed by their reputation for good deeds. Even little things like being given a priority docking slot at the starport, or an invitation to dinner with a local personality or the captain of a navy ship, will serve to remind heroic Travellers that they are someone special. When they buy a burger and get free action figures of themselves, they will know they have really arrived!

Overall, then, Traveller works best if the Travellers are some sort of heroes rather than cynical advancement-machines. A smart Referee encourages this by rewarding heroes… and the greatest reward of all is to be treated as a hero. Not everywhere, perhaps, but from time-to-time something should happen to make it all worthwhile. And when just afterward, another situation erupts… no real hero could possibly refuse the call to adventure!

INTERPRETING UWP DATA

The Universal World Profile allows a great deal of information to be presented in a very compact form. However, like all attempts to be concise, it requires generalisation. It is easy to read off the code and assume every world with a given Atmosphere code or Law Level will be exactly the same, but this is a misuse of the UWP. It is not intended to detail exactly a world and its society down to the last nuance but instead is meant to be a starting point for the Referee's creativity.

Some inferences can be made from the UWP, particularly about the physical characteristics of a world, but beyond this there is room for considerable variation – one B687484-9 world is not necessarily like another. That said, the UWP is invaluable when the Travellers decide to suddenly veer off the adventure path and land at some backwater world the Referee has not yet written up. The vanilla-flavour interpretation of the UWP can be used when there is no time or need for anything more detailed. Indeed, sometimes only part of the UWP will be needed.

Often, Travellers are only interested in the starport. If they visit a highport – perhaps to trade or buy stuff with the payoff of their last mission – then typically it will not matter what sort of world it orbits. The planet in this case is little more than scenery but the UWP allows the Referee to present the right colour of scenery. If the Travellers land planetside, then the question of whether they can wander around in the open air or must stay inside a sealed structure becomes important. Further detail is needed when the Travellers actually go outside the starport.

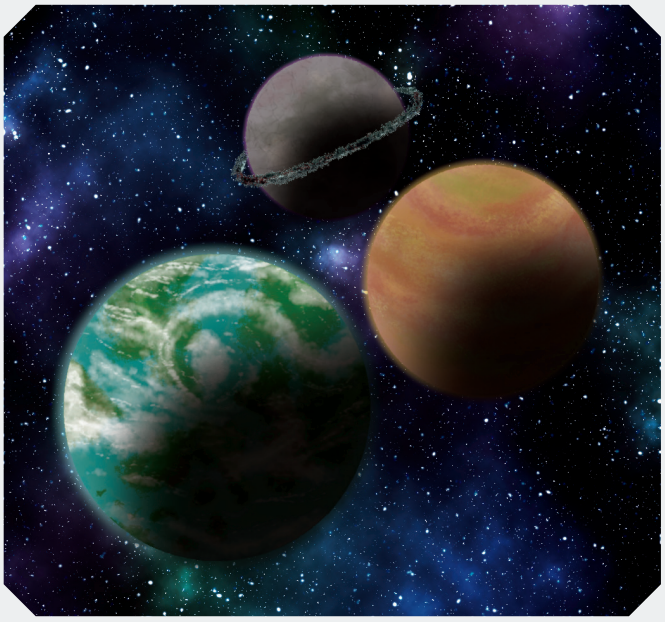
THE THREE HS

Travellers as a rule are not unduly concerned with precise details and will typically classify worlds as one of the 'three Hs' – Habitable, Hazard and Hostile. Often this is all the Referee or Travellers will need to know, especially if the visit is a short one.

Habitable is shorthand for 'fairly to very welcoming, with breathable air and enough water to support vegetation'. To qualify as Habitable, a world must be 'liveable without too much effort'. Planets with plenty of water and greenery may still be considered Hazard worlds if they have severe weather, unpleasant temperatures, serious atmospheric taints or other factors that make them less pleasant than the UWP code might suggest. Those that are more or less habitable but have factors requiring caution or equipment like a filter mask are sometimes classified as 'Borderline' rather than Hazard.

Hazard has various degrees of meaning, ranging from a near-habitable world to one with an unbreathable atmosphere and significant natural hazards such as volcanoes or meteor showers. The majority of worlds fall somewhere in this category and as a result many Travellers invent sub-classifications. The commonest of these are Rockballs, Exotic worlds, Tainted worlds, Desert worlds and Water worlds.

Hostile worlds are 'out to get you', in the sense that there is serious threat to life. This can be obvious, such as a corrosive atmosphere, or more insidious. Examples include apparently habitable worlds where the entire ecosystem wants to kill and eat visitors or where certain diseases are endemic.



The '3 Hs' can be helpful to the Referee in deciding on an adventure. If the Travellers are to be running around unhindered in the countryside, the adventure needs to be set on a Habitable or perhaps minor Hazard world. One set on a Hostile planet will require more equipment and there are some encounters that simply cannot occur in this environment. In some cases, such as one-off adventures, the Referee might decide which H is required and then assign a UWP code to create one.

GENERAL CHARACTERISTICS

The Travellers' first impressions of a world are usually determined by the Atmosphere code, with Size and Hydrographics playing a smaller part. Upon closer approach, settlement patterns will be noted. These factors create the general characteristics of the world, summed up by Travellers as 'what's it like and who lives here?'

EXOTIC WORLDS

Exotic worlds tend to be settled in order to exploit resources rather than because anyone wants to live there. They typically require specialist life support equipment, which pushes people into larger and more centralised settlements. Most Exotic worlds are obviously different to the norm, such as a large, high-gravity planet which has no atmosphere or one whose atmospheric composition is highly unusual. Life on an Exotic world tends to be very strange to humans, although creatures may not be inimical. Exotic worlds tend to fall into the Hazard category, although sometimes they are dangerous enough to be considered Hostile.

HABITABLE WORLDS

To qualify as Habitable, a world requires a Thin, Standard or Dense atmosphere (code 5,7 or 8) and sufficient water to support a diverse ecosystem – Hydrographics code 3–9. This alone does not necessarily indicate a 'garden world'; there may be other factors that make it less than attractive as a home. Those most suitable for settlement are called Habitable by Travellers, although the term is used in a wider sense by surveying agencies to mean any world that can support sentient life.

Habitable worlds typically look the part, with vibrant blues and greens of water and vegetation, with an amount of clouds indicated by the Hydrographics code. Borderline worlds with an atmospheric taint may look much the same, although many taints discolour the atmosphere.

They may show a tight settlement pattern but those with an indigenous population or where settlers have had time to spread out will tend to have more dispersed and random population groupings. There is little to prevent small groups from heading into unclaimed territory and creating a town, unless colonial development is strictly controlled. As a result, Habitable worlds tend to have a group of major cities with fringe areas between them, in which society and available technology can vary considerably. There is also the possibility of indigenous societies or races, splinter groups and the like.

Habitable worlds are by far the most diverse in terms of culture and technology. Easy living conditions and local food mean Habitable worlds are the most desirable for settlement. No reason is needed beyond 'a good place to live'. One consequence of this is that secondary colonisation often takes place when a Habitable world is opened up. The main colonial effort may be well-funded and lead to carefully planned cities but secondary landgrabs may be much less organised. It is not uncommon to find Habitable worlds with a central city culture that is quite different from that of the outback homesteads. In extreme cases, the capital/starport and the rest of the planet might as well be in different star systems, so different are their societies.

HAZARD WORLDS

Hazard worlds vary considerably, although their nature is often obvious on approach. Planets characterised by desert, covered in icefields or water will typically be identifiable 'by eye', as can the presence of some atmospheric taints. The severity of a taint will determine whether Travellers consider the place borderline Habitable or a Hazard world.

Hazards can have variable effects on a world's settlement pattern. Atmospheric taints, unless very serious, tend not to influence settlement too much. People will spread out just as readily as they do on Habitable planets, providing the taint can be handled with simple measures such as masks and sealed dwellings. Other hazards tend to concentrate people either where they can live most easily or where life support can be readily provided.

Thus on a water world, people will tend to group on islands or in seabed cities – building a small settlement in deep water is prohibitively expensive. If natural conditions that can be exploited, such as rafts of seaweed, then low-tech colonies at sea are possible. If not, the only inhabitants will be on land. The same goes for worlds with extremely dense atmospheres that can only be breathed unaided at high altitude, creating 'islands' atop high ground, and low-pressure worlds where deep canyons can be inhabited without advanced equipment. It is quite possible that two separate cultures may develop, with low-tech people living where they can and high-tech cities built where their inhabitants choose, such as atop resource sites.

HOSTILE WORLDS

Hostile worlds do not always look the part. Occasionally an apparently green and pleasant land hides an ecological deathtrap. However, more commonly Hostile worlds show it. Corrosive or toxic atmospheres tend to be obvious, with ominous clouds which may be thick above a twisted landscape. If the atmosphere is thick enough, there may be life on a Hostile world but it will not be familiar. Creatures evolved to breathe toxic gases and survive a corrosive atmosphere tend to be simple forms of life – although there are exceptions – and extremely tough.

Settlement on Hostile worlds tends to be centralised, largely due to the expense of providing protection against the environment and the ability to deal with failures. Low-tech (and possibly mid-tech) societies cannot survive on such a world without significant outside assistance. The existence of one suggests either an indigenous people or a colony that cannot maintain high technology but has received it in the past. One example is a colony that has recently been cut off, or a settlement damaged by conflict. Either way, the population's days are numbered unless they can secure outside assistance by some means.

ROCKBALLS

Worlds with an Atmosphere code of 0–3 are typically referred to as Rockballs by Travellers, although some use the term only for worlds with a trace atmosphere or less. Rockball worlds tend to have a landscape similar to Earth's moon, with many impact craters and little or no erosion. Those close enough to a star to receive significant light will have harsh contrasts between light and dark. Standing water is virtually impossible on an Atmosphere 0–1 world, although ice can be found in areas that do not receive direct light. Worlds with a very thin atmosphere may have some water and even life, although commonly this is primitive. Most Rockball worlds would qualify as Hazard; it is rare for one to be actively Hostile since this requires conditions unlikely to exist.

Settling a Rockball world requires a reason and sufficient technology to support the population. The two common reasons for establishing a colony on an uninviting world are resources and territorial control. In the latter case, a settlement may have been established simply to claim ownership of a world or facilitate the construction of a starport which would in turn support and profit from passing interstellar trade. Typically, such colonies are centralised, with the entire population living close to the starport.

Where a world was settled for its resources, the population may be more spread out if dispersed extraction sites are located. A larger population typically indicates that some or even most of the mining and extraction settlements developed industry, growing into cities rather than large workplaces. Either way, the settlement pattern on a Rockball world tends to be a smaller number of relatively large concentrations rather than a sprawl of low-population homesteads, due to the expense and difficulty of providing life-support equipment for a thinly spread population; concentration is simply more cost-efficient.

TECHNOLOGY DISTRIBUTION

The Tech Level of a world indicates the best technology locally available, although this is open to some interpretation. Maintaining a high-technology base requires a great deal of effort and industry, and is simply not possible with the local resources of a low-population frontier world. If such a world has a high Tech Level then chances are it is supplied with imported equipment provided by an offworld benefactor. This might be a colony owner, or group supporting an outpost. There is the possibility that the locals are somehow producing high-tech equipment themselves but that would be an intriguing oddity. The Travellers might well want to investigate…

Well-established cultures tend to have uniform technology distribution, at least throughout the major population centres. If a world can cheaply produce TL9 goods there is little point in trying to sell TL7 items in the shops of the capital. However, on less well developed worlds or in regions away from the cities, folks make do with simple mechanical devices and the odd imported must-have.

The Tech Level of a world is best thought of as 'this is what you can buy in the starport shops and main cities'. This technology will trickle out into the countryside but since the infrastructure to support it may not exist, its life span will be limited. It is not uncommon to encounter hybrid technologies in the fringe and outback regions, with what are essentially mid-tech railroads connecting high-tech cities. Some trains are pulled by advanced fusion-powered locomotives; most use simpler petrochemical-fuelled versions.

Technology mix can be quite extreme, with animal-drawn carts sharing streets of frontier towns with grav vehicles, or local officials using high-tech hand computers as light sources when candles burn out. A good rule of thumb is that older, more stable societies have an even distribution of technology right up to the fringes, whilst newer colonies or worlds with a troubled history have to make do with whatever the locals can get.

The general characteristics of a world tend to determine its settlement pattern, which in turn influences technology distribution and economy. A major industrial base requires population concentrations or enormous automation; more scattered communities can make advanced items only on a cottage-industry base, if at all. The critical point for a significant planetary economy – one that is relevant on the interstellar scale – is Population code 7 (tens of millions), assuming most of this population is grouped into fairly large cities.

Increasing Tech Level and Population tends to also imply more infrastructure. Cities need to be linked by heavy goods transportation and efficient passenger services. Roads, waterways and skies will become more crowded as Tech Level increases. High Law Levels might imply restrictions on travel or heavy environmental protection which limits the use of transportation outside the cities.

The kind of transportation used will change the flavour of a world. As a rule, mass transport and heavy goods movement are based on cost-efficiency rather than technical capability, so even an advanced world might have railroads and seagoing ships plying between its cities. However, gravitic technology is likely to push out other forms of transportation sooner or later. A high-tech world (TL10 or above) might use orbital craft to move cargo between the orbital port and downports at the major cities, with no need for roads or other ground links between them. Within cities there may be light ground vehicles in use but a world that has had grav technology for a long time will have a very different infrastructure pattern to one that is just developing it.

FLESHING OUT A WORLD

The Referee can run through a simple process when fleshing out a world for a brief visit or long adventure. This process begins with the general characteristics of the planet itself, then proceeds to habitation patterns based on population size, distribution and Tech Level. The general outline of a world's population distribution and habitation pattern tends to become obvious even from orbit. Concentrations of lights on the night side indicate cities, with agricultural areas standing out from wilderness by their colour and regularity of borders. However, this may not always be the case. Mid-tech and the lower end of high-tech societies tend to be very obvious but at very high Tech Levels cities may blend into the scenery and be less obvious. Few cultures deliberately hide cities but this is possible once technology reaches the point where self-contained settlements are possible or where a culture chooses to live underground.

Economic and technical factors tend to influence population and industrial distribution, with social and cultural matters both exerting influence and receiving it. Worlds colonised in the past few hundred years tend to have cities grouped relatively close together, whereas those whose society developed there or which have regressed and rebuilt usually show a more even distribution. It is not uncommon for a 'developed' world to have huge areas of wilderness which are virtually uninhabited, with the population grouped into a cluster of cities or even a single one. Most inhabitants will tend to forget about the rest of the planet; only Travellers may have reason to go there.

There are always exceptions, of course. Most are minor but the Referee can always create a unique interpretation of the UWP code that does not fit the usual pattern. For the most part, however, the UWP can be extrapolated using common sense and a guideline put forward by *Traveller's* creator, Marc Miller himself: 'everything is driven by economics'. In other words, society will develop in a manner driven by what can be afforded balanced against what is needed. People will gather where there are jobs and industry will develop where there are people.

Deviations from this typically happen for cultural or social reasons. People might establish an inefficient or cost-ineffective settlement at a holy site or just to be away from those they dislike but there will always be a reason why the simplest and least expensive approach was not used. Once extensive resources are available, grand projects might be undertaken for the sake of ego or prestige, or perhaps reasons of comfort. There will still usually be an economic factor, however.

For example, it is easier to build cities on level ground than on the seabed or a mountainside, and flying grav-supported cities are vastly expensive. They might be built for reasons of prestige, showcasing the world's technical abilities or political importance, but there must be some benefit to doing it this way or else the money will be spent on simpler and easier projects.

This principle should be used as a guide when interpreting the UWP and fleshing out a world – there needs to be a reason why the world is the way the Referee is describing. Of course, that reason can be convoluted and surprising in some cases, leading to a very odd society. For the most part, however, worlds will follow the guidelines mentioned above. Those that do not will pique the Travellers' interest and prompt investigation that can lead to unexpected adventures.

TRAVELLERMAP AND THE WIKI

Travellermap (travellermap.com) and the Traveller Wiki (wiki.travellerrpg.com) are excellent resources but some care is needed when using them. The Wiki can be edited by any user, which sometimes means segments of someone's campaign appear there and do not fit well with the Third Imperium universe. Even where a page is listed as 'canon' this is not always entirely accurate – the canon data on a given page may have been amended and expanded by a user.

For most Referees this will not matter. The data on the Wiki is a starting point at most and the universe is malleable to fit with what the Referee needs. There is no need to slavishly follow the mainstream universe's canon if you need something different for your campaign. If you do decide to use what is contained in the Wiki, it is worth being aware that two milieux are supported by it.

The first part of an entry is the 'classic' era of *Traveller*, the Third Imperium universe, with data correct for around the year 1105. Many pages also have an entry for the New Era setting, in which big changes have occurred in Charted Space. This can cause confusion, as states and regions often have similar but different names – an Imperial Navy base might become a Regency naval base further down the page.

It is also worth noting that the Wiki does not contain material drawn directly from the current Mongoose Publishing edition of *Traveller*, as canon is considered to be in a state of revision with the most recent books. In some cases, non-canon entries in the Wiki vary considerably from the current Third Imperium universe, although on the whole the two tend to broadly coincide.

Overall, the Traveller Wiki is best used as a source of ideas and general outline of conditions in the Third Imperium universe. Those wishing to write for publication have long been advised to use it as a guide to what canon materials are available rather than a repository of that information. The Wiki is an excellent resource but by its nature is prone to contain at least some material applicable to a single person's campaign rather than the mainstream Third Imperium universe.

CONTRIBUTING TO THE WIKI

The Traveller Wiki is open to contributions from anyone, although it is overseen by a small staff who make most of the additions and remove inappropriate content. Fans are very welcome to contribute to the game's background but a contribution has the best chance of becoming permanent if it fits well with the existing universe.

Ideal contributions expand logically upon or extrapolate from existing canon sources. For example, the automatically generated data page for a given world could be expanded into a highly detailed writeup of its physical features, culture and interactions with another system, but if this data clashes with the official (canon) information on that system a cleanup will eventually remove offending sections – *Traveller's* canon always trumps unofficial contributions, no matter how cool they are!

It is important to avoid universe-changing or universe-breaking entries. In some cases this is obvious; it would be clearly inappropriate to add a personality to the Wiki who shot the Duchess of Mora and led a revolt that resulted in an independent Spinward Marches, since this contradicts published sources. It would, of course, be perfectly all right to do this in your own campaign (although the duchess might object) but Wiki entries must reflect the ethos and background of the Third Imperium universe.

Some universe-breaking changes are less apparent, at least at first glance. For example, someone might decide to add a small three world power from their own campaign to the Wiki. That could be an excellent addition, happily used by other Referees. However, it is possible to go overboard without really intending to. If this power has dozens of highly capable battleships, questions start to arise. Why is it not more powerful? How is it crewing these ships or paying for them? How does this affect the local balance of power? If the addition alters the universe too much, it will not be useful.

Thus it is important to consider the implications of any addition to the Wiki. It is tempting to add your own Traveller's super-empire and fleet of reactivated Ancients cruisers but this is an exercise in ego rather than a useful contribution to the universe. A more modest insert would be far more likely to survive. The best approach is to consider whether your prospective contribution is valuable to just your campaign, or to everyone's. Adding personalities, worlds, corporations and creatures that expand the Third Imperium universe whilst fitting comfortably within it benefits all users and represents a worthy contribution to the *Traveller*-related body of knowledge.

TRAVELLERMAP

Travellermap is a bold attempt to place the whole Third Imperium universe online in a readily useable format, and it succeeds admirably. The system data is continually being updated, eliminating some rather fanciful star types and impossible UWP codes. This work is incomplete as yet but most core regions of the Third Imperium universe have been updated.

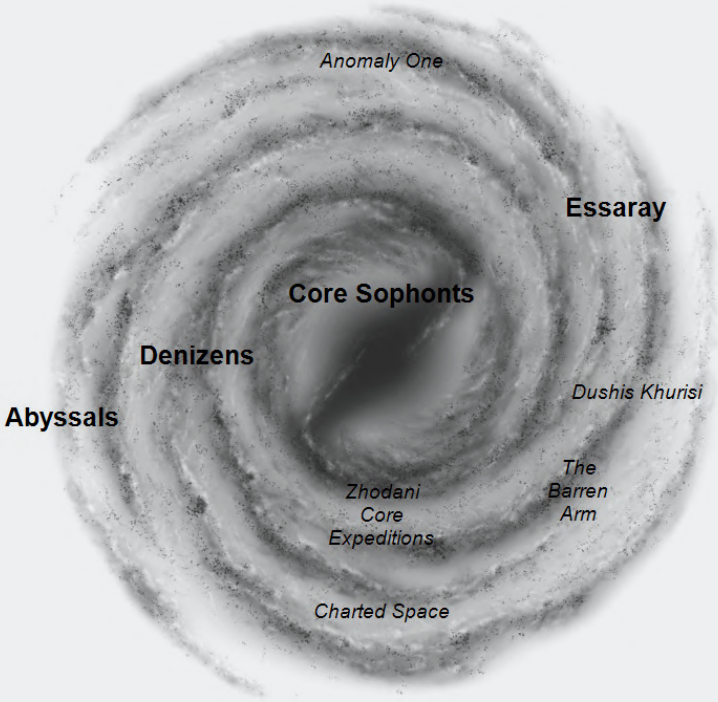
In addition to useful features such as a jump map showing all destinations within one to six parsecs, Travellermap presents the UWP code of a world, with expansion and interpretation available at a click. The entry for each world links to the wiki page for the system, which provides further expansion of the data.

However, many entries are automatically generated from the UWP codes and may not represent the detailed version presented in *Traveller* game materials. There are also some systems that have been expanded 'unofficially' and which may not match official canon publications. The rule of thumb for Travellermap is that the data on the Travellermap page is the current canon UWP, star type and so forth, whilst what is presented in the linked Wiki page may or may not be the canon expansion of that data depending on who contributed it.

THE GALACTIC MAP

Zooming Travellermap right out brings up a map of our galaxy. At this scale, Charted Space is little more than a speck. In other parts of the galaxy there are named regions, giving intriguing hints to what might be out there and what could be planned for the future of *Traveller*. One of these regions is the home of the Essaray, a culture of biological robots who feature in the Fall of Tinath campaign in the *Traveller Starter Set*.

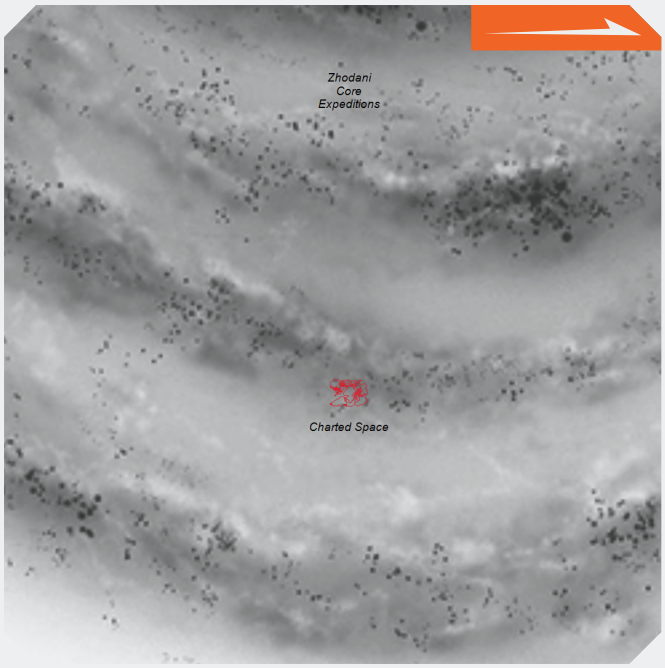
The galactic map illustrates just how little of the galaxy has been explored by humans and how much remains wide open for Referees to create their own setting far from Charted Space. It is possible that humans reached distant parts of the galaxy in the past, perhaps aboard long-range missions sent out by the Ancients. Their empires could have risen and fallen in distant pockets of stars without anyone in Charted Space ever knowing.



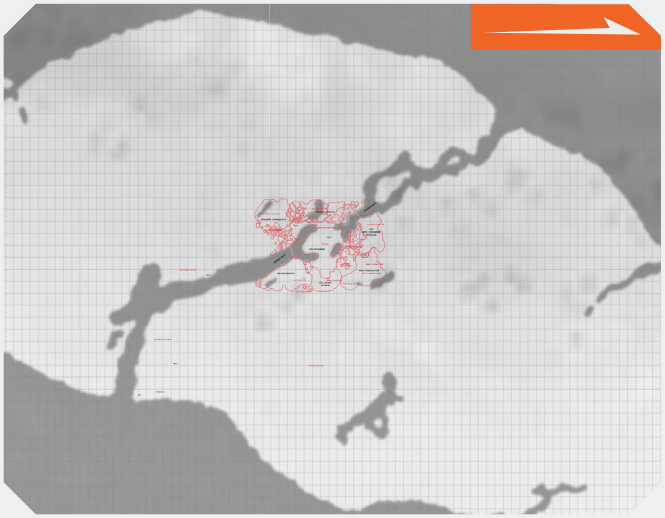
THE ORION SPUR

The region known as Charted Space lies within the Orion Spur of the Sagittarius Arm of the galaxy. It is sometimes considered an arm in its own right, although it spans the gap between the Sagittarius and Perseus Arms.

Charted Space occupies only a small section of the Orion Spur. It is possible to proceed for thousands of parsecs to spinward or trailing along the arm before reaching the end or entering the Sagittarius Arm proper. To reach the galactic core, as the Zhodani have attempted, or explore rimward as the Solomani are said to have done, requires crossing between spiral arms. This involves a long voyage simply to reach the edge of the Orion Spur, then a transit of the sparse region between arms. This region is not completely devoid of stars; there are large clusters as well as isolated star systems. Stellar density is low compared to the region within the spiral arm, making transit difficult but not impossible.



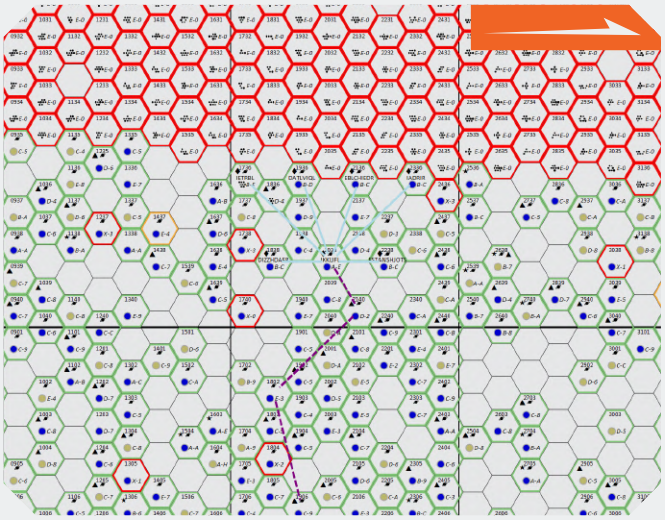
Zooming in on Charted Space reveals an intriguing fact about its location. There are wide rifts running right across the Orion Spur, whose only easy crossing point lies right in the centre of Charted Space. Known locally as the Great and Lesser Rifts, these interstellar gaps appear to be parts of the same phenomenon. Although tiny compared to the vast distances between spiral arms, these rifts have shaped the development of interstellar society within Charted Space.



THE ZHODANI CORE EXPEDITIONS

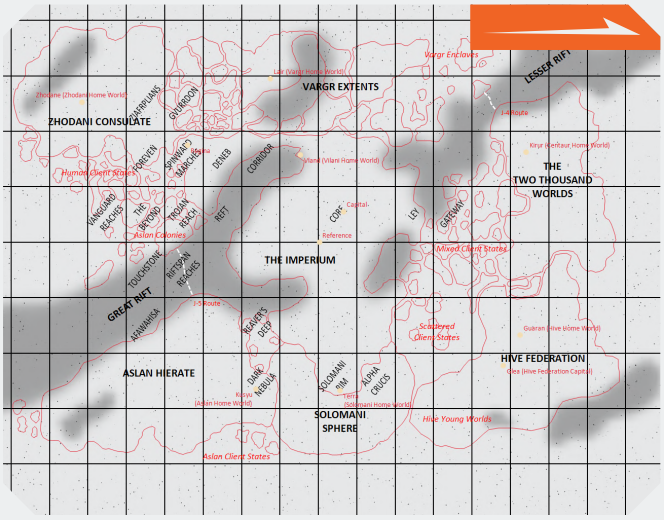
Travellermap's zoom feature gives a sense of the scale of the Third Imperium universe and the amount of effort that has gone into development over the past decades. From the major polities of Charted Space it is possible to trace the route of the Zhodani Core Expeditions. This narrow strip of mapped territory represents enormous effort and gives some idea of just how much of the galaxy is available for Referees to develop.

The Zhodani Core Expeditions terminate at Ikklifl, with a few systems beyond it explored. This is the absolute outer limit of human exploration, at least as far as the people of Charted Space are concerned. The density of stars in the galactic core is vastly higher than in the spiral arms. Exploring this region – either in-game or as a project to develop the universe – would be an enormous undertaking.

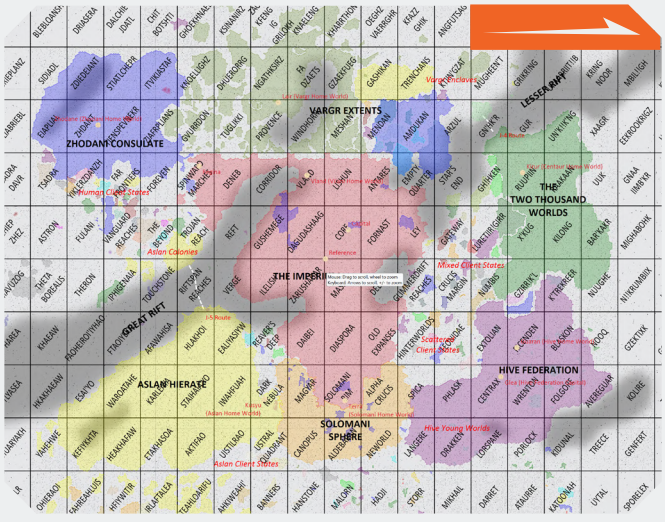


CHARTED SPACE

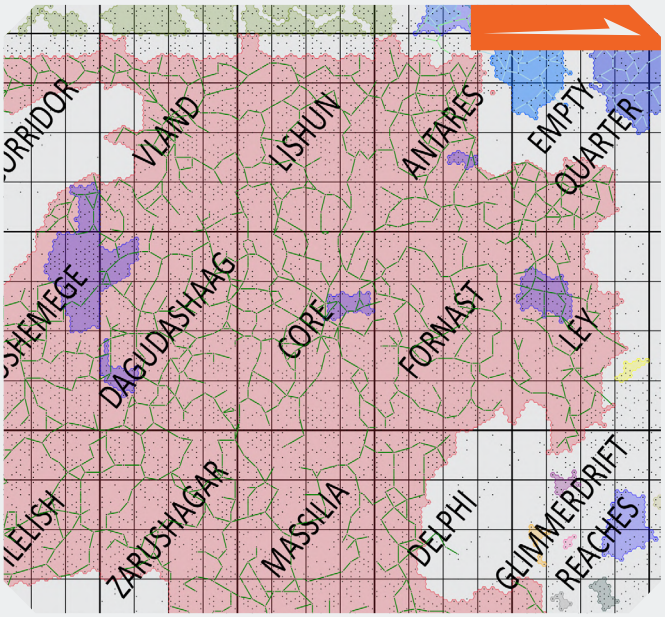
Against the backdrop of the vast galaxy, the classic map of Charted Space – first published in early *Traveller* supplements decades ago – at first seems tiny. However, Travellermap's zoom feature reveals that Charted Space is in fact huge – just on a different scale of huge to the galactic map.



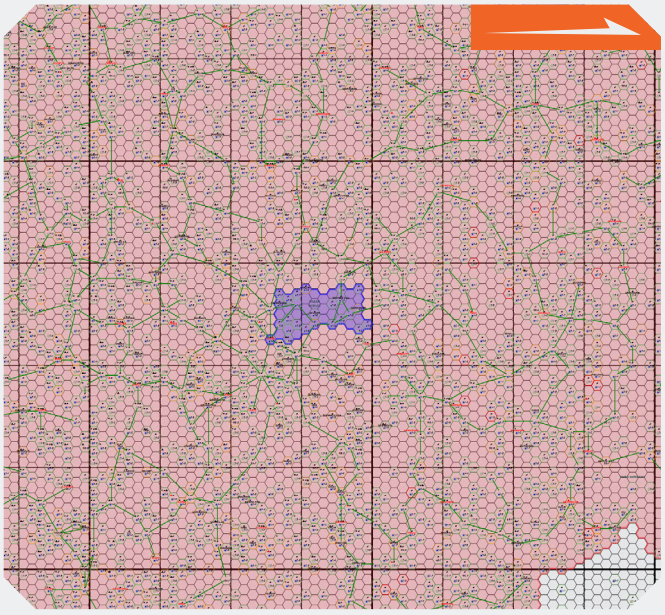
Zooming in, the map style changes and veteran *Traveller* fans will recognise the map styles used at different periods in the game's history. The general layout of astrographic features, sectors and interstellar polities is clear at the 30-parsec scale.



At the 10-parsec scale the style changes again and local details begin to appear. Trade routes and smaller interstellar polities can be studied, giving the Referee an idea of the local 'big picture'.

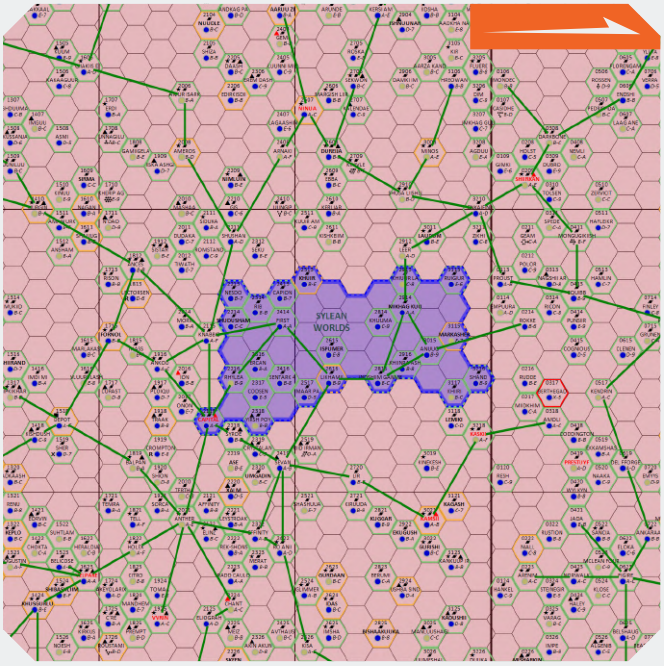


The five-parsec scale begins to feature individual star systems, although only in broad strokes.



TRAVELLERMAP AND THE WIKI

The one-parsec scale gives more information and can be considered the 'adventure scale' for *Traveller*. Roughly a subsector is presented at this level, showing starport classes and trade zones. The one-parsec scale is often used to plan trade runs or chart a route through the local area while avoiding likely naval patrol zones.



USING THE MAP SCALES

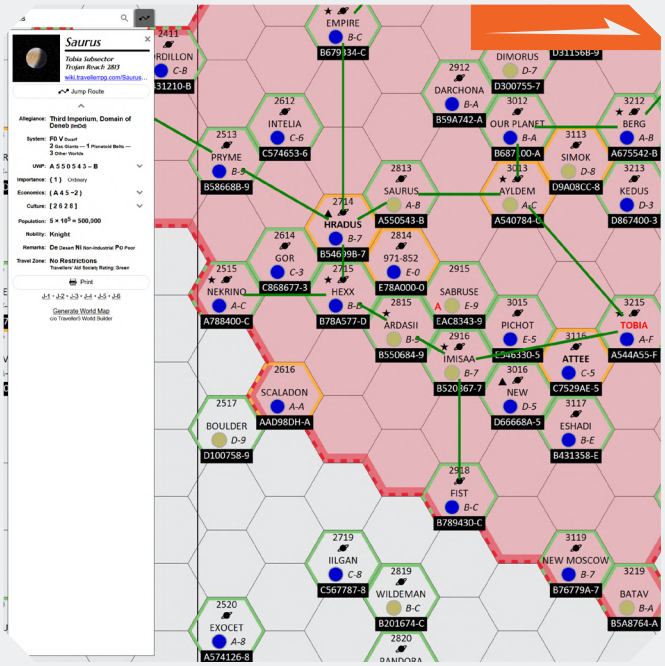
Travellermap's zoom feature can be used equally well to search for an adventure location or get an idea about the strategic and economic situation in a system. A great deal of background information can be inferred from the different map scales. Is the world in a frontier system? At an astrographic choke point? Is it isolated or on a main? How far is the nearest high-population, high-technology world or naval base?

A system that is very distant from economic powerhouses and off major trade routes is unlikely to receive a great deal of trade. Yet if it has a high-end starport there *must* be a reason why it was built. Perhaps the port was part of a failed project to expand commerce in the region, in which case the port might be a run-down shadow of its intended glory. Or perhaps the project is ongoing and the world has a boom-town atmosphere. No naval base nearby means less patrols, which in turn suggests a hazardous system prone to piracy and smuggling.

This is the great advantage of Travellermap. It allows the Referee to quickly assess the local and wider situation and acts as a spur to creativity when something does not quite fit the norm. It also permits a group of Travellers to plan their route or pick a destination, and similarly enables the Referee to quickly see where the Travellers might decide to go next.

STAR SYSTEMS

Zooming in closer than the one-parsec scale adds the world's Universal World Profile to the map and clicking on the hex calls up a box with a link to the system's Wiki entry. Once expanded, this box gives access to additional data.



At this point, the Referee has at his fingertips a quick reference to the entire star system – number and type of stars, terrestrial planets and gas giants, UWP for the mainworld and additional data. Much of this is presented as codes but expanding the entry produces an explanation.

From the entry for Imisaa, we find it is a desert world whose atmosphere is too thin to breathe, with abundant resources and a population of around 100 million. It is controlled by an offworld power and has a modest Tech Level, all of which suggests that Imisaa is a resource-extraction site rather than a homeworld. It will have some local industry but the emerging picture is of a mining colony. The starport is of high quality but may be geared more towards bulk ore transfers than general traffic.

However, a look at the local map indicates that Imisaa is part of a large cluster of worlds, which includes its owner-world, Tobia. With a number of poor quality starports nearby and trade routes marked as passing through the system, it seems more likely that Imisaa is quite an important commercial port. Could this be the world's primary source of revenue instead of mining? Perhaps, although it is possible both are important. Either way, it seems likely that most profits go to business owners on Tobia and Imisaa receives only whatever investment they deem sufficient.

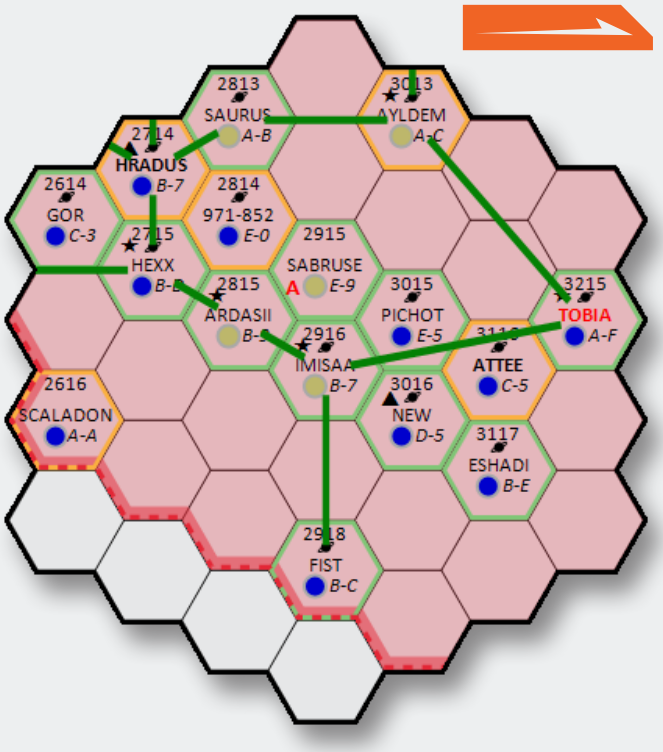
The combination of world and map data allows the Referee to quickly gain an impression of what a given world is like. This is particularly useful when the Travellers decide to veer off the intended path, land at a wholly unexpected location and start asking questions about the local culture. The Referee can interpret this information in other ways and might flesh out Imisaa quite differently to these first impressions, but for a Referee in a hurry this method is invaluable.

Further inspection of the map tells us that Imisaa has a naval base and lies close to the Imperial frontier. The nearest major power is the Aslan Hierate, separated by a buffer zone of independent systems unlikely to pose much threat to the Third Imperium. Thus whilst the base might be part of a contingency plan for the nightmare scenario of all-out war with the Hierate, it is more likely that the base is small and intended to support patrol assets along the border or into neutral space. Its facilities will be geared to destroyers and small patrol or escort vessels, rather than battleships.

The world data contains a link to Imisaa's Wiki page but this is at present an automatically generated placeholder with no information beyond standard entries derived from the world's codes.

THE JUMP MAP

Near the bottom of the world's data box is a row of links labelled J-1 to J-6. Clicking one of these brings up a map of all star systems within that many parsecs. Imisaa's jump-4 map shows all systems the Travellers might head to next and might suggest good prospects for a trade run. The local map can also be used to quickly determine where a ship is headed or has arrived from, based on its jump capability and the quality of local starports.



THE WORLD MAP GENERATOR

Below the jump map is a world map generator, which produces a map using the traditional 'triangles and hexes' format used in *Traveller* since its first publication.

The map is a flat representation of a geodesic; if it were folded together the upper triangles would meet at the north pole and the lower ones at the south. Clearly Imisaa is a rather forbidding place, with terrain composed mainly of deserts, mountains and deep chasms. Its main features are clearly obvious and there may be something interesting about that giant canyon… sometimes adventure ideas are sparked by symbols on the map and sometimes Travellers will insist on investigating whether or not there is actually anything there.

USING THE WORLD BUILDER

The world builder tool is found at the bottom of the information box in a link named Traveller5 World Builder. It can be used to expand on known data about a star system or mainworld, or create one from scratch. The Referee has control over starting data and can specify details needed for a particular adventure, or can use the world builder tool to create an entirely random star system.

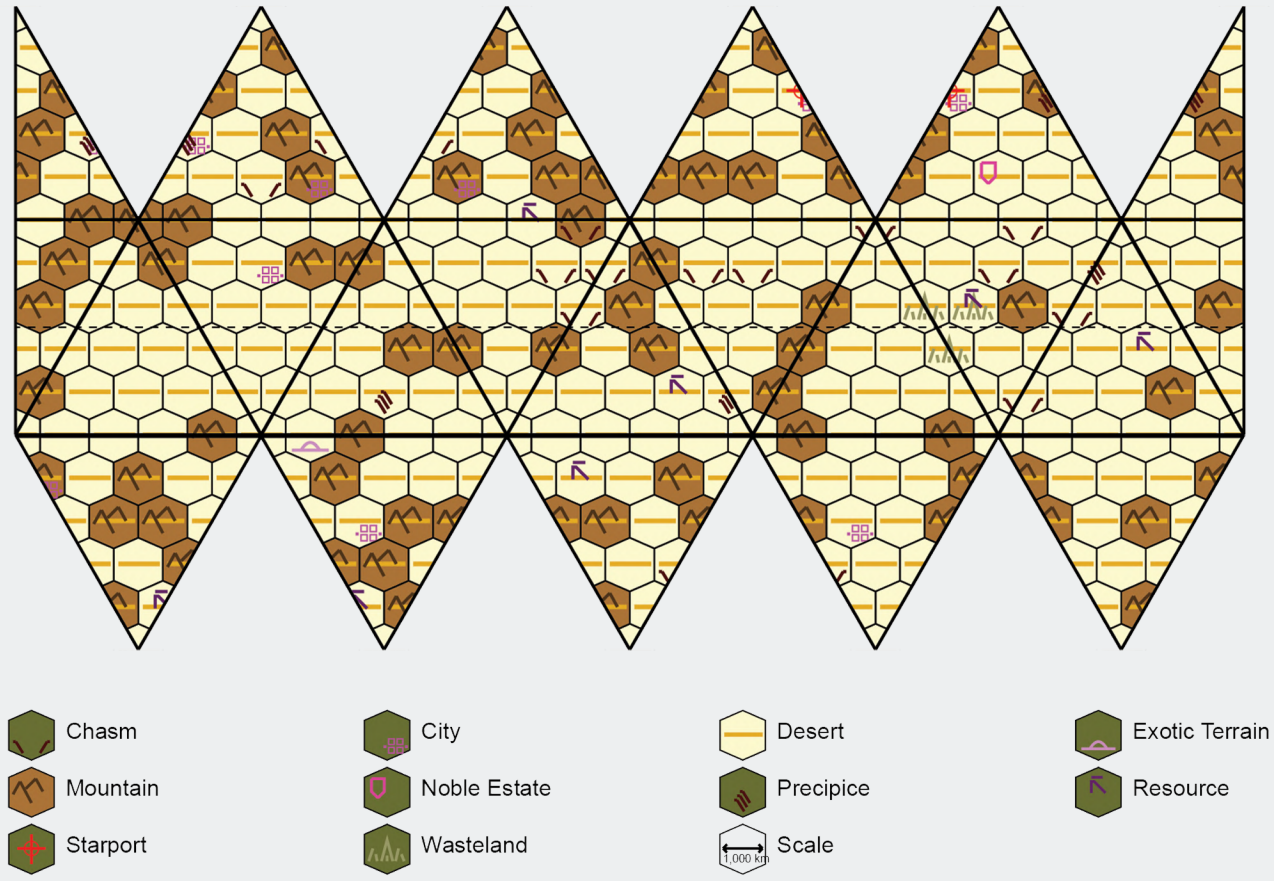
As an example, we might decide to create a random world. Some data has to be decided upon by the Referee, starting with its sector location. If a sector that has already been generated is selected, the world builder allows the Referee to choose which world to develop and automatically uses its data.

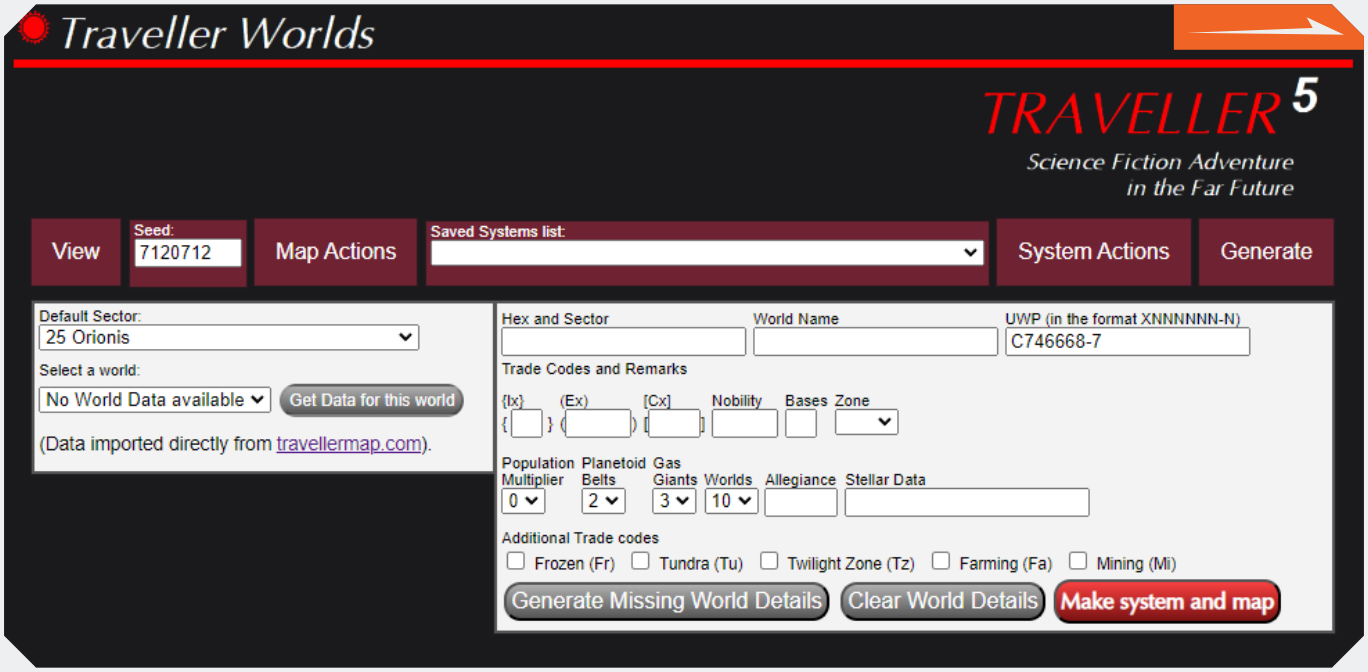
World
Imisaa

UWP
B520867-7

Trade Classifications and Remarks
De he Ph Na Pi Po

System
The Imisaa System (2916 Trojan Reach)





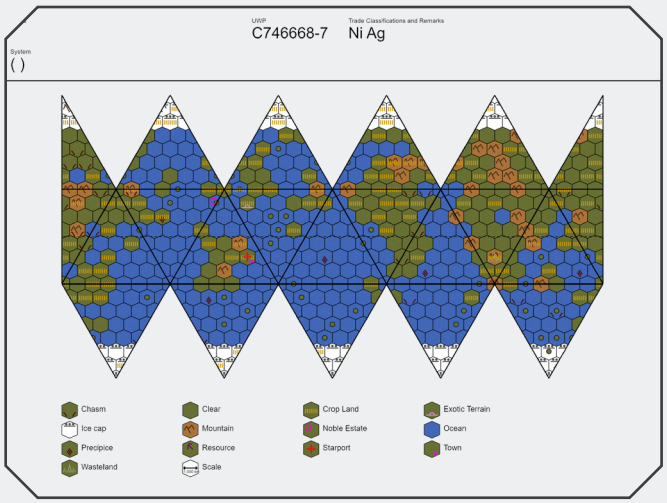
Since we want a custom world developed from scratch, we entered 25 Orionis from the menu as there is no data on the worlds of this sector yet. We are using the world builder as a tool to create a custom star system for use wherever we choose, so the sector location is not really important.

We decide our world will be a fairly low-population sort of place, located in an extensive star system with two planetoid belts, three gas giants and 10 other planets. Having entered this basic data, the Generate World Data button automatically fills in the rest, giving a UWP of C746668-7.

The generate system tool then produces a complete star system for us, complete with data on gas giant moons and all of the many bodies we want in our system. The Create System Symbol Map produces a useful graphical reference for this, with moons listed under each planetary body.

There are tools for altering orbital distances, if that seems desirable, and bodies in the system can be named. We imaginatively name the mainworld Example World and used the Generate Map button to create a surface map of it.

The world builder tool allows the Referee to completely generate an entire star system from a Travellermap hex, with data on planets and satellites in the system and surface maps of them. This represents the other end of the scale, which ranges from a map of the galaxy to one showing the features of a particular moon in a chosen star system. It is a powerful tool but perhaps the most important feature of Travellermap is that the level of detail can be chosen. Marc Miller, creator of *Traveller*, sets out various principles for preparing a game – the idea that you should Map Only As Really Necessary (MOARN) is good advice. Tools should assist the game, not govern it, and should be used when necessary rather than on every possible occasion.



STARPORTS AND SPACEPORTS

By convention, the most important port in a star system is designated the starport. This can be slightly inappropriate, such as when the grandly named 'starport' is actually a marked field with a few huts nearby, or where a mid-tech world designates an airport, sea port or railway nexus as its port for lack of anything better.

The starport code for a world gives a general indication of the level of service available and also tends to indicate its size. It is possible to find a very high-quality but tiny port but this sort of setup is not commercially viable so it is unlikely to become the system's main port even if all larger facilities are of much lower quality. Thus, whilst the starport is generally thought of as the 'best' port in a system, a better term might be 'most suitable for general traffic'.

In the Third Imperium universe, starports are considered to be Imperial territory (at least, within the Imperium; other cultures have different practices) whereas spaceports belong to the host government. This is, however, subject to variation. In most cases, the highport and downport are both run by a single port authority, usually a corporate body. Occasionally both are run by separate organisations whose interactions can cause problems for visitors.

Certain general characteristics are indicated by the starport code.

Class A: An 'A' code is assigned to excellent-quality installations, usually with construction yards attached. The size of a port's shipyards can vary considerably. Small-ship construction is commonplace, building vessels of common types up to 1,000 tons or so. Some ports can build larger vessels but many such craft are built at specialist yards. These may or may not be co-located with a major starport but the facility will need a port of some kind.

A Class A port can conduct starship overhauls and modifications, and sells both refined and unrefined fuel. Class A ports are major trade centres in their own right and may have offworld goods unavailable elsewhere on the planet. They usually consist of a large orbital component (the highport) and a planetary component (the downport).

The orbital component of a Class A port is often a large city in space. There may actually be no downport as such; multiple planetside spaceports might be served by the central highport. Alternatively, a large surface facility may also exist. If this is the case, it will be a major economic hub for the planet located at or close to the capital.

Where a low-population or economically unimportant world has a high-end port, this usually indicates the port was set up to support trade passing along a nearby route. Often the host world gets a very small slice of revenue from the port and sometimes none at all. A Class A or B downport on a low-tech world may be an island of high-technology culture surrounded by wilderness or frontier settlements. Relations between portside and indigenous populations may not be good. In some cases the downport is a token settlement, with the highport being essentially a separate culture in orbit.

Class B: Code B is assigned to large or high-quality (sometimes but not always both) installations. Ports serving systems that see a lot of interstellar traffic usually grow into a Class B installation. To qualify for this code, a starport must be capable of conducting maintenance and overhauls, and must have facilities for refining starship fuel. It will usually have yards capable of constructing non-starships such as shuttles and launches. Class B ports are often important trade centres.

Class B ports must also have at least a reasonably capable orbital component. As a general rule, the downport component of a Class B port will see more traffic than the highport and most ships will either land at the downport or dock at the highport but conduct business planetside.

Class C: Code C is assigned to 'average' starports, which can vary considerably. To qualify, a port must have at least a basic orbital facility, although this might be nothing more than a docking station with a shuttle service planetside. Both refined and unrefined fuel are usually available but starship building facilities are highly unlikely to be present, and only fairly basic maintenance or repairs are possible.

Class D: Code D is assigned to a very basic port. A Class D port is almost always a downport with no orbital component at all. Only unrefined fuel is available and no repair facilities are on offer; what facilities there are may be quite primitive.

Class E: Code E indicates what is often termed a 'frontier installation'. A Class E port can be nothing more than a 'usual place to land' or a known safe area. There are no facilities as such, although there might be a settlement close by where ad-hoc services can be obtained.

Class X: Code X applies to worlds with no port at all, such as unexplored, interdicted and uninhabited worlds. Not only are there no port facilities, there is no guarantee that a landing site will be safe. Ground subsidence, flooding and other problems can make an apparently useable site hazardous.

As a general rule of thumb, starports can be considered to offer the following services.

E: 'Safe place to land but there might well be nobody there'.
D: 'Safe place to land, you can get fuel and supplies'.
C: 'Fuel, supplies and some skilled maintenance. Commercial and freighting opportunities for small ships'.
B: 'High trade volume, skilled maintenance and repairs, regular passenger and bulk freight services passing through.'
A: 'Huge trade volume, shipbuilding. Lots of big ships coming through on a frequent basis.'

SPACEPORTS

A star system or even a single planet might have multiple spaceports. Sometimes these vie for the status of starport, especially on balkanised worlds that have a number of states clamouring for interstellar trade. Picking the wrong port on such a world can result in a very different experience. Spaceports can be assigned a code, forming a continuation of the A-E system for starports.

Class F: This is assigned to a high-quality port capable of handling a large volume of traffic. Class F spaceports usually have facilities equivalent to a Class B starport or perhaps a high-end C. A few are as large and capable as Class A ports and may have additional facilities such as large shipyards or a naval base. Class F ports often serve large cities on a planet with a central starport, or important offworld installations, such as colonies and the like.

Class G: A G-code is assigned to a basic or fairly poor spaceport, equivalent to the lower end of Class C or better than average Class D starports. A Class G port is likely to be found at a minor city or typical offworld asset such as a mining base on a gas giant moon.

Class H: An H-code is typically assigned to a very basic or improvised facility equivalent to a low-end Class D port, or simply a landing area next to a small or temporary installation. A scientific outpost with a dozen personnel, which receives a supply ship once every three months, would probably have Class H port.

Class Y: Code Y indicates no spaceport is present. The starport equivalent code, Class X, can also be used.

PORT FEATURES AND EVENTS

Some ports have additional capabilities or different characteristics to those indicated by the standard codes. Any of the special types listed can be implemented at the Referee's discretion. Alternatively, when generating a random starport, a special feature is present on a 2D roll of 8+. The exact feature can be determined by the Port Features table or chosen by the Referee. Similarly, an event might be taking place at the port. Events are less permanent than features and occur on a 2D roll of 6+.

All of these features are subject to Referee interpretation or veto. For example, a Class E starport is not likely to be a major trade nexus, at least not for interstellar trade. However, it might be a centre for unusually large amounts of planetside trade.

Port feature

2D	Special Feature
2	The port is built on the ruins of an older structure, or may be all-but-ruined itself.
3	The port has a large 'alien quarter' which may be inhabited by a single culture not normally seen in this region, or a mix of races.
4	The port lacks capability in an area that would normally be present. For example, a Class A port would normally be expected to have some starship-building capability but for some reason this port lacks it, either temporarily or permanently.
5	There is no dedicated downport as such. Instead, the orbital port serves a web of spaceports which may be in competition for business.
6	The port is a specialist type, with minimal facilities outside this area of expertise.
7	An installation is present. See Installations on page 138.
8	The port is an independently run freeport rather than being tied to the mainworld government.
9	The port is directly run by a major shipping line or political entity, giving preferential treatment to favoured clients and making life unusually difficult for others.
10	The port is a major trade nexus.
11	The system's main port is not at the mainworld but instead orbits another body in the system. Sublight craft connect the two but most visitors stop over at the starport without visiting the mainworld.
12	The port is of unusual construction. A downport might be a seaport/rail nexus; a highport may be built out of a couple of old starships welded together.

FREEPORTS

A freeport is an independent starport or spaceport, and can have a starport code even if it is not the system's main port. Where most ports are owned by a world or multi-world society, a freeport is not; it is a commercial entity in its own right. There are different kinds of freeport, from vast corporate installations which make large amounts of money supporting commercial traffic in the region to seedy backwater ports where anything can be had for a price. There is a distinction to be drawn between a corporate-owned commercial port that exists to support the corporation's ships (which are the main revenue earners) and a corporate freeport, which makes its money from the shipping that comes through. Popular entertainment links the term 'freeport' with pirates and smugglers but most make whatever profit they can in legal ways – which is not saying that their prices are fair or the service is any good, of course.

A corporate freeport will typically have a higher Law Level and be subject to a great many regulations. It is likely to be clean, efficient and rather bland. As an entity dedicated to making money rather than supporting trade, a corporate freeport is likely to have many businesses dedicated to parting Travellers from their money. Expensive and luxurious hotels, casinos and lavish recreation facilities are common; many corporate freeports are more like holiday resorts than transportation hubs. Prices in shops are likely to be 10-20% higher than usual – at least – and the selection of goods will be enormous.

The operators of a corporate freeport are always looking for a good deal and an extra Credit. They may offer preferential services – in return for an annual fee, of course – or have 'members only' areas which offer benefits unavailable to other visitors.

An independent freeport is in many ways the opposite of this. Typically run on a shoestring, independent freeports can only sell what they can obtain and that fluctuates greatly. Operators will try to make deals that guarantee a reliable source of spares, supplies and goods for their shops but are at the mercy of market conditions. Law Levels tend to be lower and trade largely unregulated. This means that, in theory, it is possible to obtain almost anything in the seedier freeports but only if it is available and the seller wants to part with it. Those who come to a freeport seeking illicit arms and advanced armour are often disappointed to find several people who would happily sell nuclear warheads to any passer-by… if only they had any.

RUINS

Starports can become ruined quickly due to catastrophe, or slowly due to neglect. A port that has suffered severe damage from war or natural disaster will normally retain its original rating until there is no longer any realistic prospect of it regaining its normal status. For example, a wrecked Class B starport will continue to be rated as such in navigational databases until it becomes obvious that it is not going to be rebuilt. This can cause problems for Travellers who arrive expecting to find a bustling port, only to discover a remnant of the former personnel struggling to keep a small section of the installation going using parts scavenged from the remainder.

Conversely, Travellers might approach a port listed as Class C, D or E, and which can provide only the services associated with installations of that kind but discover that the activities of this low-capability port go on amid the ruins of a much greater installation. Ruins may not be of a starport; some ports are built atop ancient structures or incorporate remains of a long-vanished culture. This might be a mysterious high-technology site or the home of a stone-age civilisation. A port might continue to operate alongside eerily deserted structures of an abandoned city, picked over by scavengers but otherwise largely ignored.

SPECIALIST PORTS

Most starports have a wide range of capabilities, although what level they can provide these services to depends upon their size and class. Specialist ports may have little or no capability outside their primary area of expertise. It is far more common to find specialist spaceports than starports but sometimes the only port in a system was built with a specific purpose in mind and little regard for other activities.

Industrial Ports are specialist installations catering to bulk transport of raw materials and finished goods to and from industrial or resource-production sites. Such an installation will usually have minimal passenger-handling facilities and is optimised to turn around big ships like bulk freighters in the shortest possible time. Smaller craft can be handled but not as efficiently. On some worlds, the main starport can be considered an industrial port; such places are often rather grim for visitors.

Launch Facilities are not spaceports as such but sometimes co-opted to act as one. For example, the launch facility used by a mid-tech world's own space exploration might be developed into a rudimentary starport when ships begin to arrive from other systems. Launches of locally produced vehicles may or may not continue, depending on circumstances. Where it is possible to buy advanced spacecraft, a developing port's operators will try to do so but those without the funds or in regions where nothing better is available may continue to launch chemical rockets from what has become their de facto starport. A launch facility is not really set up to handle commercial offworld traffic, although its personnel will normally be able to extend at least a measure of assistance to starfarers who come to visit.

Makeshift Ports are often improvised or set up on a temporary basis. Some will eventually gain a measure of permanence, with proper facilities built over time and services expanded until a proper starport exists. However, where populations are low or transient the port may be nothing more than a few prefabs and comms antenna plus a concreted area, or it may be the usual landing-place for the supply ship supporting a frontier mining colony, in which case the only support facilities will be the camp's own resources. Makeshift ports sometimes operate for years or even generations, often without becoming any better than they started out. Most are abandoned when the outpost or facility they serve is no longer in use. A seaport, rail junction or airport on a mid-tech world which has been pressed into service as a starport could also be considered to be a makeshift port.

Military Ports exist, rather obviously, to support military activity in space. A military port differs from a naval base in that it serves primarily logistics ships and troop transports – the vessels that put boots on the ground of other planets rather than the warships that fight for control of space. Most military ports are located in remote areas and closed to commercial traffic, although sometimes a small military port will be co-located with a civilian installation. Military ports are usually but not always crewed by military personnel; some use civilian contractors. A military port will usually have defences of some kind and may be a major nexus of a world's orbital defence system. More commonly, ground-based weapons are located away from port installations for tactical reasons.

Passenger Ports have minimal cargo-handling facilities but are geared to either large personnel movements or luxurious travel, often associated with resorts or major tourist destinations. Political centres usually have a specialist passenger port, with more conventional trade running through other installations.

Private Ports are owned and operated by a political or economic body which may or may not permit use of the facility by outsiders. A private port differs from a corporate freeport in that it exists to serve the interests of the owning group rather than making money from interstellar traffic. Some ports allow outsiders to use part of the facilities, either at greatly increased prices or subject to a lower quality of service than those with access to the main facility. A true private port is restricted to a select group. This might be heads of a government, leaders of a church, direct couriers going to and from the headquarters of an organisation, or even a single very rich individual. Private ports tend to be small and, by definition, not capable of handling large volumes of commercial traffic. Some private ports can only berth specific types of ship while others are more general and in some cases offer very luxurious facilities.

TRADE NEXUS

Some ports become an important focus for trade, either temporarily or on a long-term basis. This may result in the port seeing more traffic than its starport code would suggest, although when traffic expands there will eventually be investment and upgrades.

A trade nexus typically has a booming commercial market, with cargoes energetically traded in high volumes. This has the effect of forcing down prices, although often only for those who can afford to buy in bulk. Smaller ships can benefit from picking up the odd bits and pieces left over from these trades but cannot compete with big shipping operators for the prime bargains. A trade nexus can therefore actually be a less attractive market for small-ship operators than it might seem, although this is counterbalanced by the greater availability of goods.

EFFECTS OF PORT FEATURES

The typical effects of various features can be found on the Port Feature Effects table.

Port Feature Effects

Feature	Effects
Freeport, Corporate	Personal purchases and starship consumables typically cost 10–20% more than normal.
Freeport, Independent	DM+D3 added to checks to determine buying price and subtracted from rolls to find cargo. Determine the DM anew for every cargo.
Ruins	Effects vary depending upon the nature of the ruins.
Specialist Port, Industrial	DM-4 on checks to find cargo and passengers. Freight (raw materials or industrial goods) will always be available but lot sizes are multiplied by five. For example, a major freight lot normally is 1Dx10 tons; at an industrial port it is 1Dx50 tons.
Specialist Port, Launch Facility	DM-3 on all checks to find passengers, freight and cargo. All cargo sizes and passenger numbers are halved.
Specialist Port, Makeshift	DM-1 on all checks to find passengers, freight and cargo. All cargo sizes are halved.
Specialist Port, Military	Civilian ships may be heavily restricted and subject to additional security checks. Otherwise, the port functions as normal.
Specialist Port, Passenger	Passenger numbers are tripled. Checks to find freight or cargo are subject to DM-3.
Specialist Port, Private	Outsiders may not be permitted to use the port at all. Fees may be payable, or prices higher, for those permitted.
Trade Nexus	DM+2 on all checks to find cargo and passengers. Twice the usual number of lots are available. When determining the size of each lot, roll 1D and multiply the normal amount by x1D. DM-2 applies to purchase price for lots over 100 tons.

Port Events

2D	Special Feature
2	The port is under embargo or boycott by a major shipping corporation or other influential body. Personnel and vessels may be harassed but there will be no attempts at violence.
3	The port has been neglected for a long time or suffered recent serious damage. Most ships bypass it, which has greatly reduced the volume of traffic. Quantities of Common Goods available are down to 25% of normal, while Trade Goods originating at the mainworld are up 100%. DM+/-3 applies when determining buying prices – Trade Goods prices are worse for the Travellers, Common Goods are better.
4	The port is flooded with naval personnel, military troops, or law enforcement officers. They may be responding to a problem at the port or staging for some other trouble spot. In any case, security checks will be much tighter than usual.
5	The port is obviously run-down and short of investment. Many businesses have closed. Quantities of all goods are halved.
6	The port is experiencing a slowdown in traffic. The quantity of available Trade Goods is unaffected but Common Goods are halved. Prices for minor items in stores are 10% lower due to reduced demand.
7	Advantageous economic conditions (rumoured or real) have resulted in large numbers of entrepreneurs and small-ship operators converging on the port. Markets are unusually vibrant, with double the usual number of passengers, cargoes and freight available. Encounters with Rivals or old friends are likely.
8	The port is experiencing a surge in traffic. Prices in the stores are 20% worse than usual – higher when the Travellers buy and lower when they sell. DM-2 applies on the Modified Price table, reflecting the way greater volume of trade is forcing the price down.
9	The port is currently receiving a great deal of investment. Areas are being expanded and refurbished, and shipping traffic is up. Quantities of available goods are doubled.
10	A group of entrepreneurs have opened up a new market – or convinced investors that one exists. The amount of freight bound for one or more nearby worlds is tripled and investors are desperate to get it there. They are willing to pay 2Dx5% above normal freighting rates.
11	Piracy, smuggling and conflict have increased in the region, pushing up the cost of repairs and starship components as well as refits and maintenance by 20–60%. (2D3x10%).
12	The port is undergoing significant expansion or reconstruction. This might be going well or slowly, depending on local conditions. In the meantime, sections are out of order, and workarounds may create opportunities to bypass normal channels.

PORT EVENTS

Events can be quite long-term but are more subject to change than features. If an event is taking place, the Referee should roll 2D on the Port Events table or choose an appropriate event.

INSTALLATIONS

The starport code gives an indication of the services available but in some circumstances more extensive or additional facilities are available.

Army Bases serve the armed forces of a world or interstellar power. Most are separate from the main starport and served by their own military port but upon occasion the main port will be co-located with an army base. This may not be the 'home' army of the world but could be an occupying force or the military of an interstellar power.

Defence Bases are home to assets defending the world or system. This might be as basic as a few ground-based missile launchers or control facility for orbital defence platforms, or might house a flotilla of fighters and patrol craft. Sometimes a system will have several defence bases, especially if it houses a major naval base. In this case, craft for the defence of the system tend to be located at defence bases – close to their patrol areas or zones of interest (such as a gas giant or asteroid mining facility) whilst jump-capable naval assets will be housed at a naval base, which will have its own defensive craft.

Maintenance Facilities are specialist installations designed to support large numbers of vessels or small craft. Such a facility will be present in a naval base and private installations are not uncommon on major trade routes. Some maintenance facilities are built at a system's main starport; others have their own small spaceport and receive traffic directly. Since crews often take a vacation whilst their ship undergoes its annual inspections and maintenance, some facilities have extensive recreation amenities, or may be built around tourist attractions. While not really set up for it, a maintenance facility could manage to put a spacecraft or even a small starship together from parts if available, although only on a cottage-industry basis.

Naval Base house naval assets and can vary considerably in size or role. The most basic naval installation may be nothing more than a logistics storage point or refuelling station supporting patrol vessels. Other bases are specialist facilities, for example conducting training or intelligence operations. Larger bases house fleet assets ranging from a handful of patrol ships to the dreadnoughts of a major fleet. Naval bases are usually separate from the starport and surrounded by a region of restricted space but smaller installations may be co-located or even serve as a system's starport.

Naval Depots are particularly large naval bases, usually the home of a major fleet and occupying or at least dominating an entire star system. There may or may not be a mainworld in a depot system – in some cases the entire population of the star system consists of naval personnel and their dependents, plus civilian contractors and workers supporting the depot. Most depots have shipbuilding facilities, vast repair yards and a 'mothball fleet' of obsolete vessels that could be reactivated at need. In systems with a large civilian population, the depot will be separate from the main civil port but in a 'navy system' the depot might be the only port in-system, often with a civil section to support passing traffic.

Research Installations are large and important facilities dedicated to scientific research. Some are secret, some less so, but most tend to be secure and located in a remote area. Some installations conduct a range of research while others specialise. Research installations are usually indicated by a Greek letter, e.g. Research Station Gamma or Research Station Omicron. These names give away nothing about the nature of the research conducted there. Some are more open about their affiliation or nature, with designations such as the Windon Institute or Imperial Long-Range Communications Research Centre. A modest-sized research station may be co-located with the starport, or the installation might be the only port in the system.

Scout Bases, or **Exploration Bases**, are variable in size and importance. Some are little more than outposts used for refuelling exploration ships or monitoring an unusual world. Exploration bases exist to support operations in a particular area and may have specialist vessels such as rescue tugs or mobile laboratories. Other scout bases are quite large and general or specific in purpose, including training installations and regional command centres. Scout bases are often co-located with small starports; in some cases the port is run by scout personnel as part of their duties.

Shipyards or spacecraft construction facilities are normally present at high-end starports but major shipbuilding yards tend to be large installations in their own right. They may be co-located with a starport (not necessarily a Class A port) or have their own spaceport. Most construction facilities are relatively small, with big freighters, liners and battleships being built in a number of specialist yards.

Way Stations are the equivalent of naval depots but geared to exploration or the activities of the Scout Service. They have extensive facilities and large amounts of shipping present. Most major Scout Service missions begin at a way station and specialist or very long-range (or just plain large) scout vessels are located there. Way stations may also serve as concentration points for survey and courier vessels, and are always administrative hubs.

STARPORT LAW AND DEFENCES

Starports are an obvious target for raiders and criminals, since they typically represent the most intensive economic activity in an entire solar system.

Most ports have some form of law enforcement and at least rudimentary defences against attack. In a small port, especially an independent freeport, this might be on an ad-hoc basis, with business owners maintaining guards and everyone fighting to defend whatever parts of the port they consider important in the event of an attack. Larger installations have more organised defences.

A starport operated by the host government will likely have the same Law Level as the planet it is on, or perhaps one or two Law Levels lower if a strict government wants a more permissive, welcoming environment to encourage trade. Where a port is independent of the host government, such as most ports in the Third Imperium universe, its operators will set their own laws.

Commonly, the highport component will have a set of laws geared to the 'interstellar norm' and the downport will correspond to local Law Level. Sometimes the downport will have an 'interstellar' Law Level as well, with local law applying once the extrality line is crossed.

To randomly determine the Law Level of a port, roll 2D and subtract the result from the Law Level of the host government, applying the following DMs:

Class A port	+7
Class B or F port	+5
Class C or G port	+3
Class D or H port	+1
Class E port	0

A result lower than 0 indicates no law beyond personal defence of property. Set Law Level to 0.

LAW ENFORCEMENT AND SECURITY

To determine the level of law enforcement and security available at a port, roll 2D on the Port Enforcement table, with the following DMs:

Class A port	+6
Class B or F port	+3
Class C or G port	0
Class D or H port	-3
Class E port	-6

Port Enforcement

Result	Law Enforcement	Notes
0 or less	Lawless and violent	Essentially a violent anarchy, with gangs, private guards, or security selfishly protecting influential individuals' property.
1–2	Lawless and harmonious	No formal law enforcement but armed individuals cooperate against threats on a common-interest basis.
3–4	Minimal security force	A sheriff and deputies, armed with civilian firearms, possibly part-time.
5–6	Small security force	Small professional security force with civilian weapons.
7–8	Average security force	Adequate security force with paramilitary equipment including automatic weapons.
9–10	Well-equipped security force	Adequate security force with paramilitary equipment including support weapons.
11–12	Paramilitary security service	Large professional security force. Some personnel have access to heavy military weapons.
13–14	Military security service	Large professional security service organised along military lines, with heavy weapons. Possibly a mercenary formation.
15 or more	Private army	Excessive military-style security service with armed vehicles and support platforms.

STARPORT DEFENCES

Most ports have defences to prevent an armed ship holding the port to ransom or just blasting bits off it. This level of defence depends on the port's budget and what is available. Note that these defences are what is directly controlled by the port; the host world may have its own defensive forces which will usually protect the port as well as the rest of the system.

To determine the level of defence available to a port, roll 2D and add the following modifiers, then consult the Port Defence table:

Class A port	+4
Class B or F port	+2
Class C or G port	0
Class D or H port	-3
Class E port	-6
Naval base or military base present	**+4**
Naval Depot present	**+8**

The defences of a port are often dictated by local Tech Level or what can be bought on the open market. Class D and E ports can normally only mount defensive weapons planetside, so will typically have missile launchers or laser turrets in bunkers close to the landing area. Ports with an orbital component will usually mount most of their defensive weaponry there, with a few weapons planetside.

Normally, port operators obtain the best weaponry they can afford from offworld but sometimes this is not possible. Ports on mid-tech worlds are thus sometimes defended by conventional artillery or anti-aircraft missile systems, which are of marginal effectiveness at best.

Port Defence

Result	Defences	Notes
2 or less	None	The port has no defences of its own, relying on personal weaponry and armament of visiting starships.
3–5	Minimal armament	The port has a handful of basic anti-starship weapons such as missiles or a laser turret.
6–8	Light armament	The port has a light armament of civilian starship weaponry such as laser and missile turrets.
9–11	Standard armament	The port has an extensive armament of civilian weaponry, plus a handful of defensive craft such as fighters.
12–15	Heavy armament	The port mounts a few large military systems such as small bay weapons and has a flotilla of fighters.
16–19	Very heavy armament	The port has some armour and a scattering of bay weapons, as well as a small force of system defence boats.
20 or more	Fortress	The port is heavily armoured and equipped with many starship-grade bay weapons, plus a flotilla of fighters and system defence boats.

LEGALITIES AND LAWBREAKING

Sometimes Travellers have to break local laws to get something done or will fall foul of the authorities for some reason. The threat of punishment for engaging in illegal activity can be used as an adventure motivator – perhaps the Travellers are offered dismissal of trumped-up charges in return for their assistance with a problem the colony director has.

Legal complications can be used to keep the Travellers' behaviour in check. This is easiest when there is an interstellar polity with effective inter-world law enforcement but there are still options out on the wild frontiers. So long as any form of interstellar communication exists, world governments have the option to pursue those who break their laws. This is unusual in the case of minor offences but those who commit serious crimes may be subject to extradition or pursuit by agents of the offended government.

If Travellers leave a world without answering for their crimes, or their crimes are discovered after they leave, the authorities will decide what to do about them. Their response depends on the local Law Level and severity of the crime. The Crimes table indicates the type of crime and its severity, along with the associated DM applied to sentencing. This table is an expansion of the one on page 225 of the *Traveller Core Rulebook*.

The level of severity of a crime can be moved one (or in extreme cases, two) categories either way by aggravating or mitigating circumstances. For example, a petty theft offence committed by someone who was starving might be downgraded to Trivial or even Insignificant. The same theft from a charity or high-profile individual might be considered more serious. Likewise, an armed robbery carried out with a fusion gun would also be viewed as more serious.

As a general rule, crimes that disrupt economic activity or damage the financial well-being of a large number of people tend to be considered very serious. It is also possible that a crime's severity might be increased or decreased due to a PR exercise, perception of the perpetrator or victim, or other factors.

The DM given in this table can be used on the Sentencing table (page 225 of the *Traveller Core Rulebook*) but is also used to determine the world government's response if the Travellers skip town with unpaid parking tickets or a warrant for arrest after their murder spree, as shown on the Government Response table.

Bounties are set at Cr1000 x 2D + the severity DM of the crime. A Large Bounty is five times as great and a Huge Bounty is 25 times as great. Bounties are usually offered for the return of the criminal in a state fit to stand trial, although if they are killed resisting arrest the bounty is usually payable. If the criminal has already been sentenced to death or is likely to be, a dead or alive bounty may be offered.

Crimes

Severity	Example	DM
Insignificant	Technically illegal behaviour that causes no real harm	Law Level -10
Trivial	Littering, minor driving offences	Law Level -8
Very Minor	Assault, petty theft	Law Level -5
Minor	Destruction of property, significant theft	Law Level -3
Moderate	False identity, armed robbery	Law Level -2
Serious	Manslaughter, major fraud or financial/economic crime	Law Level -1
Very Serious	Murder, extremely serious fraud, significantly impairing starport operations	Law Level +0
Appalling	Mass murder, serial killing	Law Level +2
Horrific	Once-in-a-generation atrocity	Law Level +5

Government Response

2D+ DM	Response
6 or less	No response. Warrants will remain outstanding if the Travellers return, but no pursuit undertaken
7–9	Extradition request forwarded to worlds within 2D parsecs
10–12	Bounty Set
13–15	Large Bounty Set, Agents Despatched
16–18	Huge Bounty Set, Agents Despatched
19 or more	Huge Bounty Set, Special Task Force Established

An extradition request indicates that other worlds are notified that the criminal is wanted. If there is an extradition treaty in place, other worlds will attempt to detain the criminal and ship them back for trial.

If Agents are despatched, this indicates that D3 law enforcement agents or contracted bounty hunters (or assassins) are sent to look for the criminal. Contracts and assignments are usually for a year, although in some cases are extended repeatedly.

A Special Task Force consists of 2D agents whose sole job is finding the criminal and bringing them in or eliminating them, backed up by whatever intelligence and support services are available. Such a task force will usually have warrants requesting assistance from other world governments, which may or may not be honoured.

EXTRADITION TREATIES

Extradition treaties may exist between worlds and a government will typically attempt to establish treaties with nearby worlds. Local politics may mean treaties automatically exist or cannot exist, depending on relations between the world governments. Unless such a factor exists, an extradition treaty is in place on a 2D roll of 8+, with the average of the two worlds' Law Level as a positive DM and their distance apart in parsecs as a negative DM.

For example, Marduk (Law Level 6) is 2 parsecs from Thebus (Law Level 0). The average of these Law Levels is 3. Subtracting 2 for their distance apart gives DM+1, applied to a 2D roll. On 8+ an extradition treaty exists between the two. Oghma is just 1 parsec from Marduk and has Law Level 4, which would suggest DM+4. However, Oghma is a cess-pit of slavers with no regard for anyone else's laws, so the Referee decides that no treaty would be in place.

Within a multiworld polity such as the Third Imperium, DM+4 applies when determining whether treaties exist. Note that this increases the distance over which an extradition treaty is likely to exist, as well as the chance of one existing at all.

WEAPON-RELATED CRIME

The Law Level of a world indicates how much formal law exists within the jurisdiction of its government. A very low Law Level generally means there is no formal ban on certain weapons but this does not mean 'anything goes'. Even if there is no law against it, someone wandering down the street with a plasma gun will attract attention and suspicion. Business owners will have their own rules about who can bring what onto their property and as a rule anyone with something worth stealing will be opposed to strangers bringing heavy firepower into their shop or onto their land.

This means it is possible to be told 'you can't bring that in here' even if the planet has no law against that weapon. Those who ignore such a warning may well find themselves under fire. A low Law Level often translates to high levels of personal armament and the willingness to establish a security force either to protect a single business or the community as a whole. Those that think 'no laws' means they can do as they please may find a whole town united against them.

Weaponry and combat-related equipment can be grouped into five categories, determined by its ability to win fights and cause large numbers of casualties. These categories do not supersede Law Level prohibitions but can be used by the Referee to determine how seriously weapons infractions are viewed. A Traveller might be able to buy a particular weapon on a low-law world but could later run into trouble if caught with it. Penalties increase depending upon the category of the weapon.

Many interstellar polities operate a licensing system for purchasing weapons, which uses the same categories. This applies when purchasing from reputable shops and dealers, who can be held accountable. Criminals and shady dealers do not much care about such niceties and may charge higher prices for weaponry – or the weapons might have a history the Travellers would prefer not to be associated with.

To buy a weapon legally, a Traveller must have appropriate licensing in place if it is necessary. For an over-the-counter sale, the weapon must also be legal to own in that locality. It is possible to buy weaponry for export – for use by security personnel aboard a starship or a mercenary force, for example – even if it is not legal for use on that world. Legally bought weaponry comes with appropriate documentation and a reasonable certainty that it does not have a crime connected with it.

If weapons are not available legally or the Travellers do not have the right paperwork, they must use other methods to obtain their desired level of firepower.

CATEGORY 1: UNRESTRICTED

Unrestricted weapons can be purchased without any need for a license, so long as they are legal where bought or the buyer can demonstrate that the weapon or equipment is to be transported out of that locality to somewhere it is legal to own and use.

Unrestricted weaponry includes almost all melee weapons (some very powerful or exotic weapons may be subject to licensing), bows and less-lethal weaponry such as tranq guns and stunners. In addition, light personal armour such as mesh is unrestricted.

CATEGORY 2: CIVILIAN SMALLARMS

Most dealers will require the purchaser to demonstrate the capability for safe use, which translates to either presentation of appropriate certification or an accreditation session on a firing range (at the buyer's expense). Travellers who have gained Gun Combat 1 or better through a formal period of training will have such documentation, or it can be obtained by taking a course and gaining a certificate – or forging one. Skill level 0 is quite sufficient to satisfy the needs of this course.

Civilian smallarms include handguns such as semi-automatic pistols and revolvers, shotguns, semi-automatic rifles and carbines. Light personal armour including mesh and cloth are also within this category.

Category 2 is generally considered the 'polite preparation' level in most localities. That is to say, whatever the local Law Level, someone carrying heavier weapons than this will attract attention unless they are obviously a mercenary, security guard or similar armed occupation. Explosives with a civilian application are typically considered Category 2 items, as are light starship weapons such as beam lasers.

CATEGORY 3: PARAMILITARY SMALLARMS

Most localities are not unduly concerned with people owning or carrying a pistol or shotgun but paramilitary weapons can cause large numbers of casualties if used indiscrimitely or to commit a crime. For this reason, the purchaser must demonstrate 'a suitable need' as well as safe use as per Category 2. Bodyguards, security personnel and licensed mercenaries are considered to have a 'suitable need', as are those who employ them. Thus, the captain of a free trader who wants to buy a couple of laser carbines will be considered to have a legitimate need under most circumstances.

Category 3 items include light automatics such as assault rifles and submachineguns, laser weapons and heavier personal armour such as flak. More powerful starship weapons such as pulse lasers and conventional missiles are considered Category 3 items.

CATEGORY 4: MILITARY SMALLARMS

Military weapons are generally restricted as they pose a significant threat to law enforcers and the civilian population. Even where a weapon is legal, the vendor will normally require licensing to be in place as they may be held accountable for misuse of that crate of gauss rifles they sold last week

Category 4 equipment includes heavier or more capable personal weapons such as advanced combat rifles, gauss weapons, grenades and mid-tech support weapons such as general-purpose machineguns, anti-tank rockets and grenades. Combat armour is a Category 4 item, as are most heavy starship weapons such as torpedoes, fusion and plasma guns, and particle accelerators. Obtaining these weapons can be difficult for civilian operators.

CATEGORY 5: RESTRICTED MILITARY SYSTEMS

Category 5 items are normally only sold to accredited mercenary units, government clients or similarly accountable bodies.

Category 5 items include plasma and fusion weapons, heavy support weapons, military combat vehicles and battle dress. Nuclear mining explosives, where they are permitted at all, would be a Category 5 item, as are very heavy starship weapons such as meson guns and weapons designed to attack ground targets.

OBTAINING WEAPONRY

Category 1–3 items can typically be bought over the counter anywhere they are legal and licensing requirements mainly serve to ensure the new user does not accidentally injure himself on the way out of the shop. Category 4 items are not normally available in the typical starport weapons dealer's outlet and those who do sell them generally deal in quantities suitable for the mercenary or military marketplace. However, a few items (often an entirely random selection) may be on sale to those with the proper accreditation. Category 5 weapons typically have to be bought from a specialist dealer (and are subject to stringent checks because the dealer wants to keep his licence) or through back channels.

On very low-law worlds, weapons dealers will sell whatever they can get, although it is highly unlikely that a small starport gun-dealer will have rows of shiny battle dress suits for sale. A dealer who can get such items is a real find and might be the subject of one or more adventures as the Travellers track down a legendary weapons shop or earn the dealer's goodwill to gain access to the 'private stock' reserved for select customers. A dealer who can get top-end military kit should come with a story attached and the Travellers should be made to earn their equipment rather than simply wandering into a Law Level 0 shop and buying a boatload of battle dress.

If the Travellers do not have the appropriate licensing in place, they can get around this problem in a variety of ways. Documentation can be forged or dealers can be bribed. However, military arms are a lucrative item and few dealers will risk their license – or a long prison term – for a few Credits. Again, services rendered might be a way to get around the problem.

Alternatively, the Travellers could find a dealer who does not care about niceties of licensing. Finding someone who will sell weaponry to anyone, either under-the-counter in an otherwise reputable outlet or from a back-alley 'dealership', requires some effort. This can be the subject of an adventure, or can be abstracted using the Arms Dealers table.

The Travellers should make a Streetwise check, subtracting the world's Law Level.

Clean weapons come with plausible documentation (which may actually be real) and no associations with crime or dangerous previous owners. Hot weapons have no documentation and are subject to a number of complications.

Roll 2D on the Hot Weapons table for the item's 'story'.

UNDER THE COUNTER WEAPONS

When the Travellers buy from a less-than reputable source, they can expect to pay extra. Roll 2D and add the world's Law Level. Asking price is increased by 10% times the result of this roll and may be increased further by other considerations such as the Travellers' relationship with the seller.

If the Travellers are caught with a Category 4 or 5 item, even somewhere it is not illegal, they may be required to present documentation to show it is legally owned. This can happen when a free trader is boarded by a customs party, for example. It is sometimes possible to blather through such a situation, for example if there are a lot of security threats in the region and the Travellers have a good reputation for honest trading. If not, items will be confiscated and the Travellers may be arrested.

If weapons are used in a crime, the category of the weapon is applied as a DM on the Sentencing table (see the *Traveller Core Rulebook*, page 225). Note that weaponry carried as part of a properly documented cargo is unlikely to get the Travellers into trouble, provided it is not headed for a destination where it is illegal. Resale as cargo at a starport is entirely legal even if the weapons would be illegal to own on that world – an item that stays in a shipping container is not the authorities' problem.

Arms Dealers

Streetwise Check	Highest 'Clean' Category Available	Highest 'Hot' Category Available
0 or less	Unavailable	Category 1
1–4	Category 1	Category 2
5–8	Category 2	Category 3
9–12	Category 3	Category 4
13–16	Category 4	Category 5
17 or more	Category 5	Almost Anything

Hot Weapons

2D	Complication
2–3	Item is defective or missing parts. This will not be immediately apparent. If multiple items are bought it may be possible to cannibalise some to get others working.
4–5	Item was used in a serious crime. Being caught with it will lead to arrest and possibly prosecution.
6–7	Item is not in great condition but is functional and has no major complications.
8–9	Item was stolen from a notable source such as a large arms firm or mercenary unit, which is quietly seeking its return.
10–11	Item was taken from the bodies of previous users, whose associates are seeking revenge.
12	The item is in good working order but the price is very high. Multiply price by 3.

SLOWER-THAN-LIGHT

Conventional physics states nothing can travel faster than light in normal space. Methods such as the jump drive bypass this limit by moving the vessel into another kind of space and returning it to the normal universe elsewhere. For a vessel attempting to approach the speed of light by simply accelerating for a long time, the amount of energy required to accelerate the craft increases exponentially and trends to infinity. Thus the faster a vessel is going, the more energy is required to accelerate it further, with this energy becoming infinite at the point lightspeed is achieved.

This does not make it impossible to travel between star systems at slower-than-light speeds. A vessel could accelerate to a reasonable proportion of the speed of light and then coast most of the way to its destination before slowing down over a period of months or years. At 10% of the speed of light it is possible to cover a parsec in around 35 years, although with acceleration and deceleration taken into account the transit time is more likely to be about 50–100 years between reasonably close star systems.

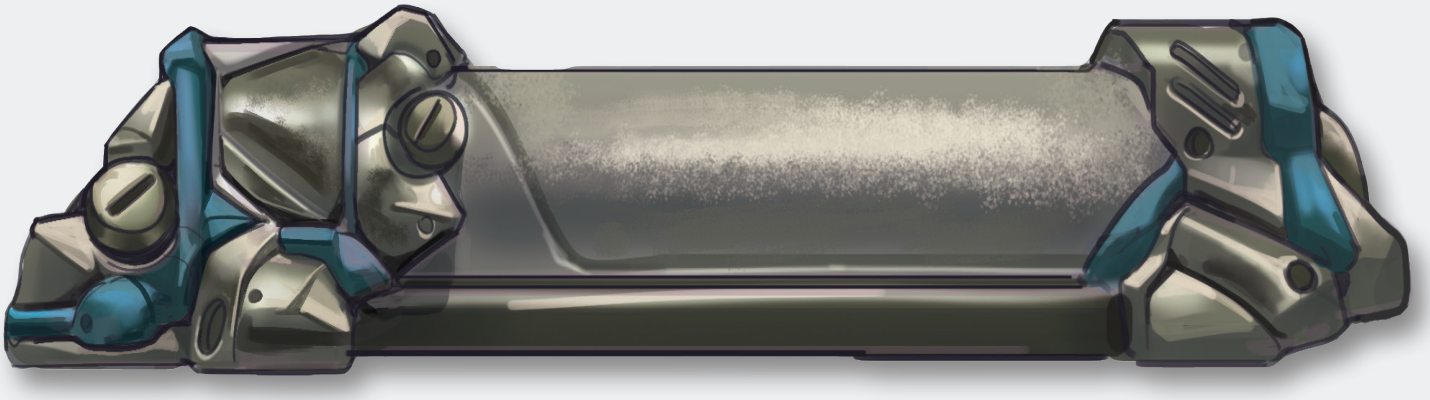
A vessel moving at a significant proportion of the speed of light would experience time dilation effects, making the voyage seem shorter to the crew and passengers than time passing in the outside universe. The effect becomes more pronounced as speed increases, making a long journey at a high fraction of the speed of light essentially a one-way ticket into the future.

It is possible for a long-lived species to undertake such a voyage but for races like humans the obvious solutions are to use generation ships, with one or more generations of passengers born and living aboard, or ‘sleeper’ ships with the passengers in suspended animation. A rotation of crews, working for a couple of years before returning to stasis, would be able to maintain such a vessel and deal with eventualities as they arose.

Within the Third Imperium universe there are several examples of species using slower-than-light travel for expansion or even to maintain an interstellar state. Most use sleeper ships but there are examples of species that carry the means to produce cloned or otherwise artificial people at the far end of the journey.

Robotic ships also offer possibilities. A species might stay on its home world but dispatch robotic vessels to bring back necessary materials over a time frame of centuries. Such long-term planning would have to be accompanied by high technology and it is possible that robot ships might still be building infrastructure on distant worlds long after the parent civilisation became extinct. Native races might be enslaved by robotic invaders to labour in the name of a distant and long-dead empire.

Remnants of this sort, along with forgotten ‘sleeper’ ships or their dead hulks, could be introduced into a Traveller campaign without distorting the setting. They would have to come from somewhere, prompting questions about whether the vessel encountered is the precursor of an invasion or just a lost fragment of an earlier era.



THE JUMP DRIVE

The standard means of interstellar travel in the Third Imperium universe is the jump drive. This translates the vessel into an alternate place or state, a private pocket universe just for that ship. A jump is generally considered to take approximately 150–180 hours (roughly a week) and covers up to one parsec (a parsec is 3.27 light years) per jump number per week – i.e. a jump-3 ship can transit up to three parsecs (9.81 light years) in a week during a normal jump.

A standard jump drive uses fuel equal to 10% of the tonnage of the vessel per parsec. Thus a 500-ton jump-3 ship needs 50 tons of fuel per parsec and can jump one to three parsecs at a time. It is possible to carry fuel for multiple jumps but there are practical limits on how much of a ship can be given over to fuel tankage.

Jump travel is not without its hazards. Even a well-maintained vessel on a known route can suffer a misjump. A minor misjump might shorten or lengthen the duration of the jump and/or change its direction and distance by a huge amount. More serious misjumps can damage or destroy a ship as well as altering the exit point. There are also tales of very strange things happening in jumpspace, including unintelligible radio signals and strange phenomena that can drive crewmembers insane.

In the Third Imperium universe the jump drive obeys certain well-understood rules:

- A jump takes approximately seven days, typically plus or minus a day, and a jump capable vessel can cover any distance up to the ship's jump number in parsecs in that time.
- A jump requires fuel equal to 10% of the ship's mass per parsec.
- The ship is completely cut off from the outside universe whilst in jumpspace.
- Jumping within a gravity well is dangerous.

Using the jump drive is never without at least some risk but hazards can be minimised by following certain guidelines. Most spacers will not even consider engaging a jump drive when within 100 diameters of a planet, star, or other massive object. Even something as small as another ship can cause a serious misjump incident.

The 100-diameter limit is more a useful rule of thumb than physical law. A very dense but small object has sufficient gravity to make jumps hazardous beyond 100 diameters. However, for an average rocky planet the 100-diameter rule is a good guideline. Most spacers calculate a safe jump as '100 plus a bit'. Jumping within 10 diameters of a massive object is extremely dangerous and would only be attempted in the most desperate of circumstances.

JUMP MASKING

A jump whose emergence point is too close to an object with strong gravity can have serious consequences. Whilst it is possible (but very risky) to jump from within 100 diameters of an object, it is not usually possible to jump directly into an area 'masked' by the 100-diameter limit of an object. Occasionally a ship does emerge within this limit but this causes damage to the jump drive and can sometimes cause a ship to disintegrate on emergence.

It is not possible to hit a precise emergence point within the 100-diameter limit. Most commonly, attempting to do so will cause the ship to precipitate out of jump (with damage to the drive) at the 100 diameter limit. Sometimes the ship will misjump instead and end up somewhere entirely different. The duration of the jump is not affected by any shortening of the distance covered due to jump masking – it is not possible to make a jump in a couple of days by aiming for a distant point and being precipitated out of jump by an intervening object.

Jump masking has some important implications for interstellar travel. A star like our sun has a 100-diameter limit of about 140,000,000 kilometres, or a little less than one Astronomical Unit. This means that virtually every location in the solar system inside Earth's orbit is masked by the sun. In other words it is not possible to jump directly to Mercury or Venus; the only way to get there is by sublight travel.

Very large stars mask huge volumes of space. A giant star might have a diameter of 100,000,000 to 1,000,000,000 kilometres, and would mask an area 100 times greater. Even the outer planets might be masked, requiring a long transit to and from a safe jump point. Systems with multiple stars may also experience significant jump masking, with some worlds having periods when they are masked and others when they are not as a result of relative orbital positions.

Calculating the masked radius for a gas giant requires a definition of its radius, which is usually taken as the point at which atmospheric pressure reaches 1 atmosphere. For a large gas giant (e.g. Jupiter) this is around 60-70,000 kilometres. For a small gas giant (e.g. Uranus or Neptune), a figure of around 25,000 kilometres is common. This means that a small gas giant has a 100-diameter limit of some 2,500,000 kilometres; for a large gas giant it will be around 6,500,000 kilometres.

This has implications for shipping to a port located on a gas giant moon. The moons of Jupiter have orbital radii ranging from 128,000 kilometres to 24,000,000 kilometres, with the larger moons being closer in. It is possible that a mainworld that is also a gas giant moon would be masked, requiring ships to make a long transit in and out from the jump point. This might have strategic advantages but it adds time to a merchant ship's trip which will harm trade, stunting economic growth of a world located there, unless it was sufficiently rich in resources to be a must-go trade destination.

Jumping within 100 diameters of an object imposes DM-4 on Engineer (j-drive) checks, and jumping within 10 diameters imposes DM-8. It is still possible to make such a jump and survive… possible, but not likely.

Lagrange points, where the gravity of two objects create a net zero force, are actually subject to greater gravitational forces than normal – the fact that two forces cancel one another out does not mean there is no force on a ship jumping at that point. It is extremely dangerous to jump from a Lagrange point; an additional DM-2 is applied to Engineer checks on top of the normal DM for jumping within a gravity well.

The main implication of jump masking is to create areas where starships must proceed at sublight speeds, making them vulnerable to piracy and other hazards. Worlds within a jump-masked area are likely to be less economically developed than those with quicker access to interstellar trade, although this does not mean all jump-masked worlds are backward.

Jump-masked worlds and gas giant moons are an ideal location for sensitive outposts, prisons and bases. Traffic volume will be lower due to the difficulty of getting to and from the location, and if there is an attempt to attack or escape from the installation the warning time will be greater. Jump-masked areas of a star system are often largely forgotten about – many spacers have a blind spot towards places they cannot easily go – and so make ideal hiding places for pirates or secret caches.

JUMP PRECIPITATION

Jump precipitation can occur if a plot is too tight and the ship hits the 100-diameter limit before emergence, or if the jump shadow of an unpredicted object lies across the vessel's path. This usually happens due to very poor astrogation, creating a path which takes the ship through the 100-diameter shadow of a star or planet. It can also occur if there is an uncharted object such as a rogue planet on the ship's course. A vessel would have to be very unlucky to be precipitated out of jump by a comet or other relatively small object, but it does happen from time-to-time.

A ship that is precipitated out of jump in this manner still takes the normal time for a jump; it just does not go as far. Thus a vessel attempting a six-parsec jump but is precipitated out of jumpspace by an object encountered 1.5 parsecs from the starting point still takes the normal time for the jump. The crew may have no warning that this has occurred until they re-enter normal space.

JUMP VARIANCE

When a jump is plotted, the astrogator attempts to refine all of the vastly complex calculations and variables involved into a 'jump plot' that will bring the vessel out as close to the 100-diameter limit of the destination as possible. The ship's engineer then attempts to implement the plot in such a way as to get as close as possible to the astrogator's theoretical model. Jump navigation is not a 100% precise science however and there will always be some variance.

Assuming the plot from the astrogator and entry into jumpspace set up by the engineer are both good (both skill checks are made) then the vessel will arrive a safe margin short of the 100-diameter emergence limit after approximately 160 hours +/- 20 hours.

Distance Variance

2D + Astrogator's Effect	Distance Variance
2 or less	110-3D diameters. Bad Jump
3	110-2D diameters. Bad Jump
4	105-1D diameters. Bad Jump
5	100+2Dx10 diameters. Bad Jump
6	100+2Dx5 diameters
7	100+4D diameters
8	100+3D diameters
9	100+2D diameters
10	100+1D diameters
11	100+D3 diameters
12 or more	100 Diameters exactly

Time Variance

2D + Engineer's Effect	Time Variance
2 or less	16D Hours. Bad Jump
3	10D Hours. Bad Jump
4	8D Hours. Bad Jump
5	6D Hours. Bad Jump
6	5D Hours
7	4D Hours
8	3D Hours
9	2D Hours
10	1D Hours
11	1D3 Hours
12 or more	160 Hours exactly

The Distance and Time Variance tables give typical jump characteristics. The Effect of the astrogator's skill check to set up the jump plot is used as a DM on the Distance Variance table. The Effect of the engineer's skill check is used as a DM on the Time Variance table. In general, the better the plot and jump entry, the closer the jump will be to baseline parameters. A model jump of exactly normal duration and emergence is at 105 diameters to create a margin of safety, although a very good plot can bring the ship out at exactly the 100 diameter limit and shave some time off the journey.

If a Bad Jump is indicated, see page 151-152.

If the variance indicates the emergence point is closer to the target than the 100 diameter limit, the vessel is precipitated out of jumpspace at the 100 diameter limit, suffering the effects of jump precipitation on page 150.

Variance can be long or short. Roll 1D: Odd indicates that the jump is long in duration, even indicates it is short.

BAD JUMPS

Bad jumps are not confined to Misjumps – some systems are notorious for unpleasant jump effects, for no known reason. In other cases, a hurried insertion or decayed jump plot may also merit a bad jump. A decayed plot is a set of jump parameters generated for use under slightly different circumstances (for example, the ship might have significantly changed its speed and heading since the plot was generated) or a plot that is more than 3D hours old. Jump plots are sufficiently complex that they decay quickly. At first this will cause a bad jump; severe decay in the plot will cause a misjump.

If the jump variance rules are in use, ill-effects will be felt by the crew and passengers if either Variance table indicates a Bad Jump. If both tables indicate a Bad Jump, the effects will be magnified as per Very Bad Jumps on page 152.

A Bad Jump typically produces a feeling of dislocation and confusion, often accompanied by nausea and headaches, at the moment of entry and some time before emergence. Everyone aboard the vessel must make an END and INT check. One of these checks is at Routine (6+) difficulty and the other at Difficult (10+) difficulty level. A Traveller can choose which check is taken at each difficulty level.

The END check determines if physical effects are present. These include nausea and possibly vomiting, plus often a blinding headache. If the END check is failed, all checks the Traveller attempts are subject to a DM equal to the Effect of the failure for 2D hours after entry into jump and again after emergence.

An Effect of -6 or worse indicates the Traveller is incapacitated; unconscious or wishing he was, for 2Dx30 minutes after which a DM-6 applies on all checks for the following 4D hours.

The INT check determines if psychological effects are present. These typically include unease, irritability and paranoia, but in some cases can lead to a complete breakdown. Anyone who fails the INT check will be irritable, nervous and generally out of sorts for the whole duration of the jump. This manifests as difficulty in concentrating as well as a tendency to be on edge which often makes interactions with other Travellers unpleasant. DM-2 applies to all checks associated with mental or interpersonal activities. The Traveller will be visibly on edge and may appear to be behaving suspiciously or in a paranoid fashion. Memory lapses, covering a few minutes to an hour or two, are also possible.

An Effect of -6 or worse indicates the Traveller is suffering from serious mental effects. These manifest as acute paranoia, blackouts and hallucinations. A Traveller in this state might harm themselves or someone else, or take a potentially dangerous action such as locking a hatch that the rest of the crew need to access a critical area.

Psychological effects last throughout the jump and for 1D days afterward.

VERY BAD JUMPS

If both variance tables indicate a Bad Jump, or the ship misjumps, the effects are magnified. Both checks (INT and END) must be made as above, but DM-2 applies to both. In addition, there may be other effects on the ship and its passengers.

On the Very Bad Jump table, DM-4 applies if Bad Jump was indicated by both variances tables. DM-2 applies if the Very Bad Jump was caused by precipitation due to hitting the 100-diameter limit. Normal misjumps are rolled without DM. DM+2 applies if the ship jumped whilst under significant gravitational effects (typically this means jumping within the 100-diameter limit of an object). DM+4 applies if the ship jumped whilst under serious gravitational effects (typically this means jumping from within the 10-diamerter limit of a planet or other body). Only one modifier is used – the Referee should use the highest applicable to the ship.

Very Bad Jump

2D	Effect
2 or less	No additional effects
3–5	Jump drive requires lengthy recalibration (taking 2D days) after emergence
6–8	Jump drive requires minor repairs after emergence
7–9	Jump drive requires major repairs after emergence
10–12	Jumpspace intrusions occur, jump drive destroyed upon emergence
13 or more	Severe jumpspace intrusions occur, jump drive destroyed upon emergence

Jumpspace intrusions are extremely serious. The ship's jump field becomes unstable, allowing pockets of jump space to enter the ship. This will destroy any matter it encounters, such as bulkheads, wiring and Travellers. The intrusions are usually stable, so will be limited to a particular location for the whole of the voyage. However, additional intrusions can occur at any time or existing ones may spread. A ship may be slowly consumed by the intrusions, with Travellers forced to retreat to unbreached compartments and hope the ship emerges into normal space before it is lost entirely.

A ship suffering jumpspace intrusions suffers damage equal to 2D-2 as a percentage of its Hull per day. This matter is completely destroyed, requiring a major rebuild if the ship survives. A severe intrusion consumes 2D+10% of the ship's Hull per day.

MISJUMPS

A Misjump occurs if the sum of the Effect achieved by the astrogator and engineer is 0 or less. This means that if one fails their check but the other makes theirs by a greater margin, the Misjump is averted, although in this case the effects of a Bad Jump should be imposed.

If the sum of the Effects is 0 or less, a Misjump has indeed occurred and if both checks are failed a Serious Misjump has happened. All Misjumps are accompanied by the effects of a Bad Jump and Serious Misjumps are accompanied by the effects of a Very Bad Jump. This is in addition to the effects noted on the Misjumps table.

Misjumps

2D	Outcome
2 or less	The ship is lost in jumpspace or emerges as fragments and subatomic particles.
3–4	The ship misjumps 1D x 1D parsecs in a random direction. Its jump drive is completely wrecked upon emergence and the passengers and crew risk lasting psychological effects.
5–6	The ship misjumps 2D parsecs in a random direction. Its jump drive is severely damaged upon emergence.
7–8	The ship misjumps 1D parsecs in a random direction.
9–10	Duration increased or decreased by 1D days. Jump drive requires extensive recalibration (D3 days of work) but no repairs.
11–12	Very rough jump, emergence is at 100 x 2D diameters from the target world.

If a Misjump occurs, roll 2D on the Misjumps table below using the combined Effect of the Engineer and Astrogation checks as a DM.

JUMP DRIVE CONCEPTS

Introducing a totally different interstellar drive system to a *Traveller* campaign might impose unexpected changes on the universe, or might make using existing starship designs impossible. This might well be desirable if a campaign is being built from the ground up but it is not always possible to foresee the implications of large-scale changes. Rather than doing away with the concept of the jump drive and replacing it with something else, it may be desirable to impose some slightly different characteristics on the universe or the performance of the drive, opening new options without having to redesign every starship.

The following concepts require no changes to existing ship designs and could be implemented on a local scale within a setting that otherwise closely resembled the Third Imperium universe. A one-off phenomenon could be used to move Travellers to a new location, or investigating it might be the focus of their mission.

JUMPSPACE CURRENTS

A current is a jumpspace phenomenon which typically links two specific points in normal space. A jumpspace current allows a ship to rapidly transit between its entry and exit points using a normal jump, so a one-week jump made at the entry point to a current can allow a ship to travel hundreds or even thousands of parsecs. However, this can damage the ship's drive or even destroy it if it is not properly calibrated for that particular current. Some currents are one-way; others can be transited in both directions, and the capability of the jump drive required to make the transit can vary depending on direction. Some currents have multiple entry and exit points, and some exit points may require a higher jump number to access than others.

Some currents can be entered by any ship capable of making a jump. Others require a more powerful drive to enter. So, a current rated as jump-3 would require a ship capable of making a three parsec jump. Lesser drives would not be able to enter the current and might be damaged in the attempt. Alternatively, a lesser jump drive might not be able to navigate the current properly and might be deposited back into normal space anywhere along its length rather than safely reaching its destination.

A current might be rated more highly in one direction than another, perhaps being accessible at one end by any jump capable ship but requiring a jump-3 capable ship to return. This might have interesting applications for the settlement of the region at the far end.

WEIRDER JUMPSPACE

In the Third Imperium universe, jumpspace is a mysterious and somewhat scary place but there are few jumpspace phenomena. Some do exist, such as regions where misjumps are more common than usual, but in general jumpspace is a reliable mechanism for getting from one place to another. It is possible to add in additional 'jumpspace weirdness' without harming the universe too much.

One option is to assume that there is only one jumpspace 'place' and that everything that has ever entered jumpspace is there, all at the same time. A properly working jump drive keeps 'everything else' out of a ship but one that is poorly maintained or has suffered damage might not perform so well. This might account for reports of mysterious signals received whilst in jump, or wild tales of ships emerging with what appeared to be collision damage.

More extreme examples of this phenomenon might allow access to some 'other place' by way of jumpspace. This might be a whole other universe, either a pocket universe or a different version of our own. It might be a realm of madness, or a misjump might bring the Travellers out of jump in a subtly different version of their own universe. What has happened might not be apparent until the Travellers see news reports from a war they have never heard of, from a capital that is not the one they know.

A misjump might also cause the ship to emerge in the distant past or far future, or in a distant region. Getting home might be the focus of the campaign thereafter, or preventing some event the Travellers know about from their history books. This concept might also be used as a one-off to move a campaign to a different setting.

An alternative might be to have objects and even people transferring between ships in jump if their jump fields have exactly the right resonance. This might be a one-off scenario dealing with an entity or person trapped in jumpspace for centuries and finally able to board a ship by walking out of a wall, or it might be commonplace enough that crews have to defend their ship from intrusions by the Things That Live In Jumpspace. This can be overdone, of course, but it does lend a different flavour to the universe.

VARIABLE JUMP DURATION

Most spacers in the Third Imperium universe work to a rule of thumb that a jump takes about one week, with a variation of up to 20 or so hours being fairly common. Many will quote 'more than a day and it's not okay', meaning that a variation of more than 24 hours long or short generally indicates a misjump.

Under this rule, the time for a jump and its possible variation can actually vary somewhat depending on conditions in the local region of space. This creates areas which are less accessible due to longer transit times and others where jump is much faster. These tend to have greater economic activity and thus more developed worlds due to the rapidity of interstellar commerce.

The baseline is still an average of 160 hours with a variance of plus or minus 20 hours.

In a High Variance region, the length of a jump can be plus or minus up to 60 hours, with variance of up to 120 hours possible in an Extreme Variance region.

In a Slow Jump region the base time for a jump may be 200–300 hours (9–12 days) with Very Slow Jump regions in the 400–600 hour (16–25 day) range.

A Fast Jump region typically has a baseline jump time of 100–120 hours (4–5 days), with Very Fast Jump regions requiring as little as 40–80 hours (1.6–3.3 days) per jump.

Combinations are possible, such as fast jump/high variance regions.

Jump variance is not well understood. Some scientists believe that sparsity of stars (and therefore lesser gravitational influence) can somehow affect the time taken to make a jump. This does not explain variation in areas with dense stellar clusters however. Some areas of dense star systems have shorter average jump duration than is typical and some sparse regions require longer.

ALTERNATE JUMP OPERATIONS

Changing how the jump drive works can alter the setting for a *Traveller* universe without requiring new starships to be designed with different technology. The classic *Traveller* starship designs can be used unchanged in a universe where their performance is altered but the size and fuel consumption of their components is not.

Some or all of these options could be applied to the entire setting, or perhaps the technology might be restricted to one alien race or a single prototype built by a crazed genius. If so, obtaining one of these capabilities might be the goal of an entire campaign – or it may enable the Travellers to do things others cannot and therefore be a driving force in the universe.

INSTANT JUMP

Instant jump technology is a universe-changer and should be implemented with caution. In the Third Imperium universe the speed of communication is limited by the rate at which ships could jump from one star system to another with information. Reducing jump time to zero, or to a short interval, allows messages to be sent as fast as ships can refuel and re-provision – faster if a 'pony express' of ready couriers is maintained. This technology also has strategic implications. Transferring a fleet from one region to another could take months using the standard jump drive. If it can be done in days instead, the strategic picture will be altered.

An instant jump follows all the rules for normal jump drives in terms of fuel requirements and distance that can be covered. This does impose some limits on travel, since ships still need to refuel, but explorers will be able to push much farther out before fatigue and a need for repairs to the ship require a return to base. Thus an instant-jump universe will tend to feature societies spread over a greater area – why settle a hellhole of a world when there are garden planets within a few days' travel – with underdeveloped backwaters in between the major worlds.

REAL-SPACE TRANSIT

Under this variant, the jump drive does not take a ship entirely out of the 'real' universe. Instead, a ship can proceed at a rate of one parsec per week per jump number (so a jump-2 ship can cover two parsecs in a week, or one parsec in 3.5 days) and can receive communications or even change course during its interstellar voyage. If fuel requirements are kept the same then standard designs can be used unchanged.

High-jump ships offer faster travel, which has political and economic implications. Bulk goods will be moved aboard slow jump-1 freighters whilst faster ships carry messages and priority cargo. It is possible to build a low-jump ship with a great deal of fuel, making gaps between mains and clusters less of a barrier. A ship still needs fuel equal to 10% of its tonnage per parsec but a jump-1 ship with 50% of its hull devoted to fuel tanks can make five-parsec voyages – albeit slowly.

This allows an interstellar society to spread out more evenly, rather than being heavily constrained by astrography. Absolute distance becomes more important than the presence of easily navigated mains and clusters. For a band of Travellers with such a ship in an otherwise standard universe, the implications are considerable. They will be able to go places others cannot reach without extensive prepositioning of fuel or tankers and bypass choke points where enemies are expecting to encounter them. The Travellers will have a freedom of movement denied to others, making them the only ones able to carry out some missions or giving them a chance to avoid a response after some nefarious deed.

TRAVELLING IN NORMAL SPACE

Getting from place-to-place is an integral part of *Traveller* – as its very name suggests. Sometimes the journey is a means to get to an adventure or interesting incident; on other occasions the journey is an adventure in its own right.

Traveller assumes that spacecraft use a reactionless drive which does not directly require fuel. If the ship has a working manoeuvre drive and its power plant is functional (which does require fuel) then the ship has thrust and can manoeuvre. Drives that require reaction mass would require vastly more fuel than standard manoeuvre drives. This would greatly limit their range unless the ship spent most of its voyage between planets coasting. It also makes navigation a much more complex task.

The transit times given in the *Traveller Core Rulebook*, and the formulae they are derived from (which also appear in earlier versions of the game) assume a vessel accelerating to the midway point of a journey and then decelerating the rest of the way. This requires constant thrust.

It is not, however, possible to exceed the speed of light by these means. Lightspeed is bypassed by using jumpspace to transit between points but this does not require actually reaching the velocity of light either. In fact, a ship can jump at any speed or on any heading – it is not necessary to be aimed at the target in the physical universe, only to set up the jump correctly.

A ship trying to reach lightspeed using the standard manoeuvre drive will encounter time dilation effects and an exponential increase in the amount of energy required to increase speed. Once speed reaches a significant fraction of the speed of light, it will take much longer (i.e. the same thrust over a much greater period of time) to increase speed further. Even with a reactionless drive, it would take infinite time to reach lightspeed. Indeed, accelerating beyond a certain speed would be a death sentence for the crew; if insufficient fuel remained to slow down again they would be trapped aboard their hurtling starship, unable to leave since any lifeboats launched would be travelling at the same speed as the parent vessel.

WHERE DO WE WANT TO GO?

Spacecraft, starships, satellites and stations tend to be in predictable places within a star system. It is possible to run into a research ship out in the distant moons of a gas giant, or a pirate vessel hiding somewhere unexpected, but for the most part political, economic and military factors all conspire to keep ships close to inhabited worlds or transit corridors between them.

Orbital space around an inhabited world is the most crowded region of a star system. If a world has no atmosphere, it is theoretically possible to orbit at very low altitude so long as the craft is going fast enough. A stable orbit balances forces against a craft or object; gravity pulls it towards the body but its velocity keeps it in orbit. This can be thought of as a fast-moving object falling in a curve that ends over the horizon.

An orbit can be circular or highly elliptical, so long as the dynamic balance of forces is such that the object neither crashes into the planet or escapes into deep space. A craft with functioning drives can apply course corrections at need and can force itself to remain in a powered orbit that would not be stable once the engines were cut off. More commonly, craft will set up an orbit that will remain stable for a reasonable period. This is partially for safety in case of a drive malfunction and partly because orbital traffic controllers do not like ships whizzing about all over the place in their crowded area of operations.

Objects in low orbit will experience drag from the upper layers of the atmosphere if the world has one, but this is not large. Unpowered satellites can remain in low Earth orbit for many years providing they are above an altitude of about 400 kilometres. Low orbit for Earth is considered to extend out to about 2,000 kilometres; in the *Traveller* universe low orbit is typically defined as within around 1,000–2,500 kilometres of the planetary surface. Most highports and other space installations are located around the upper limit of low orbit and a common spacer's rule of thumb is 'anything lower than the highport is in low orbit'.

Objects in low orbit cannot retain direct line-of-sight contact to any fixed point on the ground. This is not generally a problem if there are satellites or other installations to bounce signals off. Most world governments consider their low orbit zone to be strategically important and those that can will usually maintain some form of low-orbit defence capability. This might be ground-based missiles or perhaps a few fighters based at the highport in the case of a minor world; major worlds tend to have much stronger defences. Low-orbit traffic is also closely regulated in most cases.

An object whose orbital period matches the rotation of the planet below can maintain a geosynchronous orbit, i.e. it is constantly over the same spot on the ground, providing it follow's the world's equator. This is useful for communications satellites but also serves as a delineation point between medium and high orbit. In systems where traffic is highly regulated it is common for ships to request permission before transiting between the High Orbit Zone (HOZ), Medium Orbit Zone (MOZ) and Low Orbit Zone (LOZ). These designations are arbitrary but useful.

Altitude for a geosynchronous orbit depends on the planet's speed of rotation and may be a theoretical point for worlds with very slow or no rotation. For Earth this point is an altitude of about 35,000 kilometres. Beyond this, the HOZ is generally considered to extend out to 10 times the equatorial diameter of the world. This '10 diameters' rule is another arbitrary but useful distinction; most worlds consider anything within 10 diameters as being in their sovereign territory.

Almost all local activity takes place within 10 diameters. Stations and satellites are typically located in low orbit, so most traffic is in that region with a few vessels having business further out. Any craft that goes beyond the 10 diameter limit is considered to have left orbital space and is probably on its way somewhere else. That might be another body in the same system or the vessel might be making an interstellar voyage. Ships enter and emerge from jump beyond the 100-diameter limit, unless something has gone wrong, so most vessels must transit in or out of orbital space in order to make a jump.

For Earth, the safe 100-diameter jump limit is roughly 1,275,000 kilometres, a bit over three times the distance from the surface to the Moon. Transit in and out from a safe jump distance can be quite lengthy and in a busy system there might be numerous ships headed in and out at once. However, there is no single 'jump point' in a system so these ships will be spread out over a huge volume of space. Other vessels are just distant transponder dots on a navigational plot and space can be quite lonely even this close to a planet. Vessels making a long transit out to other worlds in the same system may be very far from any assistance if something goes wrong.

MOVEMENT AND NAVIGATION

Movement in normal space (i.e. not in jumpspace) is governed by a set of well-understood physical laws. An object that is moving will continue to move with the same velocity (speed and direction) unless something makes it change. Likewise, an object not moving stays at rest unless something makes it start moving. However, the object is acted upon by the gravitational attraction of other objects. A small asteroid a long way away exerts so little force that it can be discounted but planets – especially gas giants – and the system's stars exert a more noticeable force.

Trying to go from one place to another in a straight line is impossible in such an environment, as well as being undesirable. Every object in a star system is in motion; even the stars. It is normal when navigating to take one of the system's stars as a frame of reference and ignore its motion – the movement of the system as a whole relative to the rest of the galaxy is not significant when delivering a cargo of supplies to a mining outpost on one of the outer planets.

However, the orbital paths of various bodies in the system cause their positions to change relative to one another. Moving between any two of them requires calculating where the target is going to be at time of arrival and determining a path to get there efficiently. It is possible to save some time by using the gravity and motion of objects in the system to create a highly efficient trajectory. Likewise, course changes for a new destination are usually very inefficient – a ship close to the new destination may actually take longer to turn around and get there than one starting farther away but calculating an efficient course from the outset.

When a spacecraft applies thrust, its existing vector (the direction and speed it is going) changes gradually according to how much thrust is available and the direction it is applied. Massive objects require a lot more thrust to change speed or direction but even a small amount will have an effect. This can be useful, for example it is possible to launch a probe in the direction of a distant planet and shut off its drive; it will coast until it gets there. This can also be dangerous – a vessel that is tumbling as a result of an accident will keep tumbling forever unless something stops it, and a ship without power close to a star will fall into it unless somehow stopped.

Gravity has an effect on vessels and objects, pulling them towards the source of the gravitational field. If the correct speed and distance from a planet or star can be determined, a vessel or other object can be put into orbit; gravitational pull draws it into a curved path around the gravity source but is not enough to drag it down.

Note that most orbits are not circular. An ellipse is more common and many orbits are imperfect, requiring occasional corrections. An object in an imperfect orbit may eventually escape and head off into deep space or fall to the planet below, but this does not happen quickly. A ship that has lost power may remain in orbit for weeks, months… even centuries. Only the most unstable orbits, or those that brush the upper atmosphere, will decay quickly. For a ship with plenty of fuel little of this matters; corrections can be made as needed.

In deep space, away from gravitational fields, things are simpler but still not easy. In an atmosphere, an aircraft can bank and turn quickly, while ground vehicles use friction with the ground to effect a similar fast turn. For a space vessel, changing direction is a slower process.

Most space vessels have a main drive which applies thrust in one direction, and smaller manoeuvring units to point the ship. Changing direction is a matter of realigning the ship and then using the main drive to thrust in the chosen direction. However, the ship retains momentum in whatever direction it was going and must cancel this or include it in the new course calculations.

The former solution is fine for ships with fuel and time to waste. When a direction change is wanted the vessel flips 180° and thrusts until it has come to a stop, then accelerates in the new direction. This is crazily inefficient, so a good navigator calculates a course well ahead of time to get the ship going where needed with a minimum of thrust. This usually means changing direction early and using local gravity fields. A well-planned course saves a lot of fuel and time compared to a seat-of-the pants approach, and combat manoeuvres are even more fuel-intensive.

Note that it is possible for two objects or ships to be ‘at rest relative to one another’ despite both moving. This simply means they have the same course and speed. Even if they are screaming towards a third object at enormous speed, each would appear stationary to the other – this makes docking much simpler!

ORBITAL MECHANICS AND INTERPLANETARY TRAVEL MADE SIMPLE

Transit times between bodies in a planetary system can be important to an adventure. There are two ways of dealing with this. One involves a great deal of mathematics to model the relative motion of bodies and the trajectory of a ship travelling between them. The other is to use ballpark figures and adjust them as necessary to fit the needs of the adventure.

For example, the average distance between Earth and the Sun is 1 Astronomical unit (AU), or about 150,000,000 kilometres. Mars orbits an average of 1.52 AU, or about 228,000,000 kilometres, from the Sun. This does not mean that Earth and Mars are 78,000,000 kilometres apart. Since both orbit at different speeds, there are times when they are relatively close together (in astronomical terms) and others when they are on opposite sides of the sun. The actual distance can thus vary between around 47,000,000 kilometres and 401,000,000 kilometres, averaging about 225,000,000 kilometres.

Getting from Earth to Mars is not a simple matter of crossing the distance between the two in a straight line. In fact a space vessel needs to transit from where Earth is now to where Mars is going to be when it arrives. This can be further than the distance between the start and end point, especially if the vessel needs to make a course change along the way. Even ignoring orbital eccentricity and other factors that could complicate this calculation still further, a hard, number-crunching approach will slow down a game unnecessarily.

A far simpler approach is to take a ballpark figure for distance between two points and randomise it a little. If the resulting distance is more than the average then the bodies are at points in their orbit where they are on opposite sides of their primary. If the figure is low, then the two bodies are in a favourable position.

The Interplanetary Distances table is based on orbital paths of bodies in our own solar system, which orbits a main-sequence star. They use an average of minimum and maximum distances, which in turn depend on the relative positions of the two bodies. This means that distances between two outsystem bodies can vary far more than the distance between two inner-system planets.

Interplanetary Distances

Example	Distance
Surface to low orbit of small (Size 4) planet	100–1,000km
Surface to geostationary orbit of small (Size 4) planet	20,000km
Surface to low orbit of average (Size 8) planet	200–2,000km
Surface to geostationary orbit of average (Size 8) planet	35,000km
Surface to 100 diameters of small (Size 4) planet	640,000km
Surface to 100 diameters of average (Size 8) planet	1,280,000km
Close inner system bodies (e.g. Venus and Mercury)	100,000,000km
Distant inner system bodies (e.g. Earth to Asteroid Belt)	400,0000,000km
Inner system body to close outsystem body (e.g. Earth to Jupiter)	800,000,000km
Inner system body to distant outsystem body (e.g. Earth to Uranus)	3,000,000,000km
Close outsystem body to distant outsystem body (e.g. Jupiter to Pluto)	6,000,000,000km
One gas giant moon to another	up to 2,000,000km

Once a baseline value for distance is established, the Referee should randomise the actual value. The simplest way to do this is to roll 2D-2, creating a value between 0 and 10 and multiply that by 5% and 1D to determine positive or negative (1–3 positive, 4–6 negative). Add or subtract the percentage rolled to the baseline distance to find the current value and apply the transit times or the travel calculations from pages 152–3 of the *Travellers Core Rulebook*. This assumes a constant acceleration/deceleration of course; a ship that coasts much of the way will be far slower. The Referee may allow the transit time to be decreased (or increased, if the players are so inclined) by 1D percent per point of Effect on an Astrogation check.

NOTE ON USING THE TRAVEL FORMULAE

The travel calculations in the *Traveller Core Rulebook* use SI units. Using them is simply a matter of putting numbers into a calculator but care must be taken to use the right units.

In the formulae:

Distance is in metres. Multiply kilometres by 1,000 to get the value in metres.
Time is in seconds. Divide Time by 3,600 to get the value in hours and divide by 24 after that for days.
Acceleration is in metres per second. Multiply the ship's Thrust to get acceleration in metres per second. Thrust 1 (1G) is actually about 9.81 metres per second but 10 is close enough for our purposes.

For example, the Travellers want to know how long a resupply ship will take to make the long haul out from the mainworld to a mining outpost on a distant gas giant moon. The Referee decides this is about equivalent to going from Earth to Uranus, so takes 3,000,000,000 kilometres as the baseline distance. His 2D-2 roll produces a result of 3 and the 1D roll indicates this is a positive value. He thus adds 15% on to the distance, for a value of 3,450,000,00 kilometres.

According to the travel formulae on page 152 of the *Traveller Core Rulebook*, a Thrust 1 ship will take 326 hours, or about 13 days, to make the transit. A jump-capable ship can do it in seven days, but a non-starship is cheaper and can carry more cargo per trip. More importantly, the Travellers now know they can take some time off and still get to the outpost in time to ambush the supply ship.

MINE WARFARE

Laying contact-detonated mines in open space is more or less pointless. The chances of a ship encountering one is infinitesimally small unless the minefield is so incredibly dense that it would be detected a long way off and would in any case be prohibitively expensive.

However, the idea of laying passive booby-traps to deter ships from using an area of space remains an attractive one. A minefield can act as a deterrent or tripwire, indicating that a vessel is present without the need to keep a patrol ship on station. Minefields are useful in defending orbital space, where there is more chance of a ship encountering one, although contact-detonated mines are still of questionable value.

TYPES OF MINE

The typical space mine is of a CAPTOR (CAPtive TORpedo) type and consists of a container-launcher with basic sensors, which carries one or more missiles or torpedoes. Mines can be set to automatically launch weapons at any vessel in proximity which does not transmit the correct codes, or to make a challenge and/or warning before firing. They can also, in many cases, be directly commanded from a station or mine warfare vessel.

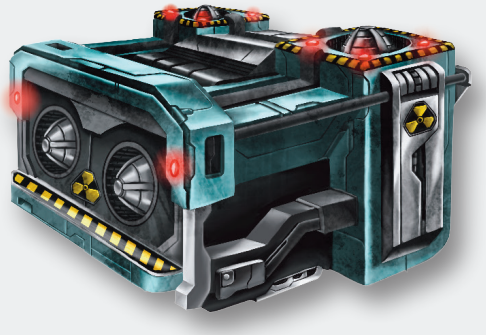
CAPTOR mines typically carry torpedoes rather than missiles, as they are intended for local area defence and denial rather than long-range combat. Standard designs typically carry two or four torpedoes. Mines are generally considered disposable and likely to be destroyed once detected, so reloads are a waste of resources. Once its munitions are expended, a container-launcher can be recovered and re-armed if it survives but since the main expense is its weapons, the loss of the launcher is not significant.

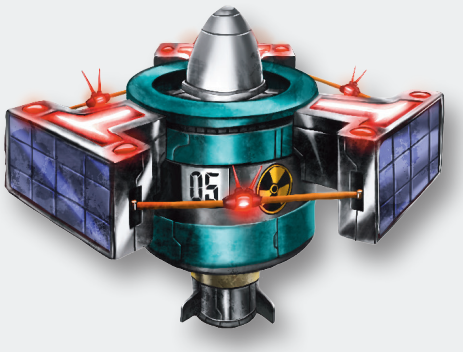
Explosive mines are of little use in orbital or free space but can be effective in an atmosphere. It is not feasible to mine the atmosphere of terrestrial planets because of the extreme low orbital mechanics required but gas giants can be cheaply mined in this manner. A suitably large detonation – often a small nuclear device – can cause a shock wave that will endanger nearby ships or cause a control loss. However, the liberal seeding of nuclear munitions across nearby space is generally frowned upon, not least because there are those who are willing to disarm and steal the mines for sale and use elsewhere.

CAPTOR mines have an attack range of Medium (out to 10,000 kilometres) but are typically set to launch at ranges of under 1,000 kilometres. This gives the target virtually no chance to evade or respond other than by point-defence fire against the salvo.

‘Breaking the kill chain’ is a common tactic for dealing with minefields, destroying the mines before they can fire. However, mines are a very small target if engaged with starship weaponry, imposing DM-6 on attacks. Typically, the mine will expend all its torpedoes in one attack, making it pointless to fire at it after launch.

A salvo of torpedoes uses the usual missile rules. Mine-launched torpedoes are Smart weapons and deal 6D of damage.





Mine	Cost (MCr)	Tonnage	TL	Hull Points
CAPTOR Mine, Small (2 torpedoes)	0.5	1	10	2
CAPTOR Mine, Medium (4 torpedoes)	0.8	2	10	3
CAPTOR Mine, Large (6 torpedoes)	1.1	2.5	10	5
Nuclear Proximity Mine*	0.25	1	7	4
Nuclear Laser Mine*	0.75	1.5	8	4

* Although nuclear mines are relatively cheap, they are difficult to obtain and highly illegal for civilians, and subject to many treaties for military use.

CAPTOR MINES

A CAPTOR mine is armed with two, four or six torpedoes in disposable container-launchers, plus a basic electronics pack that allows it to detect, track and launch at targets within 10,000 kilometres (Medium range). Mine-launched torpedoes are subject to the usual DM-2 to attack ships under 2,000 tons, except when launching from within 1,000 kilometres. At this short range the torpedo can be fired directly at the target's projected position, and with a short transit time to target there is little chance for manoeuvres to throw off the mine's aim. The tonnage of the mine is determined by its missile capacity. If a mine is to be reloaded, the cost is Cr50000 per torpedo plus the cost of the weapons themselves (Cr150000 each a standard torpedo).

NUCLEAR PROXIMITY MINES

A nuclear proximity mine is a one-shot weapon armed with a small nuclear warhead and a very basic electronics package. Such weapons are prohibited in most areas, other than for military use. They are useful mainly where there is an atmosphere to create a blast effect. A nuclear detonation will create an electromagnetic pulse (EMP) which will disrupt sensor and electronic systems; the round after a nuclear detonation occurs, all checks involving electronic systems are made with DM-6 by the target ship unless it has hardened computer systems. The DM increases (goes up) by +2 each round thereafter. A nuclear detonation can white out sensors and cause a temporary control loss which can be lethal in a dangerous environment such as a gas giant's atmosphere.

Within an atmosphere such as that of a gas giant, a nuclear detonation will also produce a pressure wave which can damage a starship. Damage is 6D within 100 kilometres, dropping by 1D per 100 kilometres thereafter. Weapons of this sort are extremely crude and of limited use but the threat of their presence can be enough to make vessels avoid a gas giant for refuelling.

NUCLEAR LASER MINES

Nuclear laser mines use a small nuclear warhead to 'pump' a one-shot x-ray laser. Effective range is short but the weapon is powerful compared to standard lasers and has greater reach than a simple proximity bomb. The laser suffers DM-2 to hit a moving target beyond 10,000 kilometres and has a maximum range of 25,000 kilometres. These ranges are reduced by ¾ if deployed in an atmosphere. Radiation effects (and blast effect if used in a gas giant atmosphere) are the same as nuclear proximity mines. Damage from a nuclear-powered laser is 5D.

MINEFIELD DENSITY

Torpedo-armed mines have a large danger radius but at orbital distances there is still a great deal of space to cover. The density of a minefield determines the chance of encountering a mine. A vessel that spends an extended time in the minefield much check every 1D hours to see if a mine is encountered.

The Minefield Density table indicates the number of mines required per planetary Size digit to create a field of a given density. Small gas giants are treated as being Size 50; large gas giants are Size 150 for the purposes of minelaying operations.

The Pilot check to avoid encountering a mine is subject to DM+2 if the Travellers' vessel is under 100 tons displacement. There is no modifier for a ship above this but below 1,000 tons in displacement. The check is made at DM-2 if the Travellers' ship is 1,000–10,000 tons in displacement and DM-4 for ships above 10,000 tons.

Minefield Density

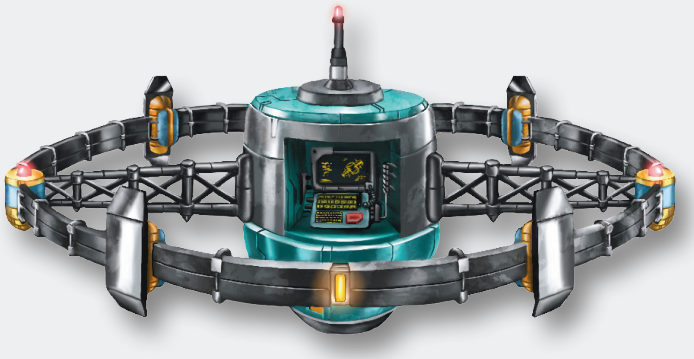
Field Density	Difficulty	Mines Per Size Digit Required
Minimal	Simple (2+)	1
Thin	Easy (4+)	2
Light	Routine (6+)	3
Standard	Average (8+)	5
Dense	Difficult (10+)	10
Extremely Dense	Very Difficult (12+)	15

This check assumes the Travellers are unaware of the minefield. Once the field is detected or a mine has been encountered, the Travellers may attempt to evade the minefield. If they simply go about their business, new checks to encounter mines are made every 1D hours.

For example, a 20,000 ton naval tanker enters the atmosphere of a large gas giant, intending to skim fuel. There are 2,000 mines in the upper atmosphere. Taking the gas giant's Size as 150, this means that 1,500 would be needed for a dense field and 2,250 for an extremely dense one. Thus the field is dense, requiring a Difficult check to avoid accidentally encountering a mine. The check is made at DM-4 for the size of the ship. Once the first attack has taken place, the Travellers can begin trying to find a way through the field.

MINES AND MINELAYING EQUIPMENT

Mines can be manually laid by pushing them out of an open cargo bay into the area where they are wanted, then remotely controlling the mine to orient itself. This is a slow process, requiring 2Dx10 minutes per mine to be laid. However, specialist minelaying equipment is available.



MINELAYER BAY

A minelayer bay can be fitted as a small bay weapon, requiring one hardpoint, one crewmember and 50 tons. A minelayer bay can deploy mines of any size at the rate of one every 2D minutes. A minelayer bay costs MCr1.5 but does not contain any mines. Additional tonnage must be allocated to carry mines, at a cost of Cr10000 per ton. Thus a ship with 20 tons of mine stowage can carry 20 small CAPTOR mines or eight large ones, at a cost of Cr200000.

DETECTING AND EVADING MINEFIELDS

Some minefields are surrounded by warning beacons, in which case Travellers will be made aware of the mines before they approach. Of course, the warning may be false or the beacons disabled for some reason. If there is no warning, a vessel can try to detect the minefield early enough to avoid attack.

Detecting a minefield requires an Average (8+) Electronics (sensors) check, increasing to Difficult (10+) if the field is located within a gas giant's upper atmosphere. This check indicates the presence of something that looks like a minefield but does not pinpoint the position of any given mine. To map a minefield or find a way through without coming within range of a mine requires a Difficult (10+) Electronics (sensors) check, increasing to Very Difficult (12+) within a gas giant's atmosphere. Alternatively, a ship can try to inch through the field attempting to detect individual mines as it goes and move around them. This is a very slow process, with each mine requiring 2Dx5 minutes to detect and bypass. 1D mines will typically be encountered in the course of slipping through a minefield. Detecting each one early enough to avoid attack requires an Average (8+) Electronics (sensors) check, increased to Difficult (10+) within a gas giant's atmosphere.

If any mine detects the Travellers' ship, it will attack with one or more torpedoes or detonate if it is a nuclear proximity mine. The whole minefield will then go to high alert, imposing DM-2 on all attempts to detect and avoid mines. In some cases, the mines of a field may communicate with one another and set up a massed salvo sufficient to overwhelm the defences of a target vessel and annihilate it. This will be coordinated by a burst transmission which may be detected.

Gas Giant Operations

Skimming fuel from a gas giant is a common practice, requiring a rapid transit through the upper atmosphere to force gases into a scoop. These are then processed to extract hydrogen which is compressed until sufficient liquid hydrogen is available for use as fuel. Skimming is a common means of refuelling a fleet before advancing to attack a target world – going into action with dry tanks means the fleet cannot escape by jumping away from a bad situation.

Not surprisingly, many powers seek to deny the enemy this capability, and on a smaller scale patrol vessels are often stationed at a gas giant to catch pirates or other criminals trying to avoid the starports. This can result in a dangerous game of cat-and-mouse in a gas giant's atmosphere.

A gas giant's atmosphere can be considered to consist of layers of increasing density. These are usually separated by temperature inversions which can interfere with the operation of a ship's sensors. The deeper layers of a gas giant's atmosphere are inaccessible to starships as the pressure and turbulence encountered there would destroy any known ship. However, the upper layers can be used for skimming or to conceal a ship.

As a general rule, the deeper in the atmosphere a ship goes, the harder it is to detect and the faster it can fill its tanks with liquid hydrogen. However, turbulence is greater at these depths, imposing difficulties in controlling the ship.

1 – Wisp: The outer layer of a gas giant's atmosphere is too thin to skim for fuel or fully conceal a ship but does impose some drag on a vessel or object in orbit. Powered course corrections from time-to-time will be necessary to prevent an orbit from decaying, although this is likely to take days or even weeks to become a serious problem. A ship that loses power in the Wisp zone has plenty of time to repair its systems.

2 – Extreme Shallow: The upper layers of the atmosphere are not subject to much turbulence. It is possible to skim fuel in the extreme shallows but it will take 10 times as long as in the Deep zone. Power loss will result in orbital decay in 8D hours. There are no serious turbulence effects at this level and no penalty to Pilot checks.

3 – Shallow: The Shallows are reasonably safe to operate in and allow skimming for fuel at half the normal rate. Orbital decay will occur in 2D hours if power is lost. All Pilot checks are made with DM-1 in the Shallows.

4 – Deep: Fuel skimming and commercial exploitation such as petrochemical harvesting is normally done in the Deep zone. Skimming is at the normal rate and conditions tend to be sufficiently turbulent that Pilot checks are made with at DM-2. A vessel that loses power in the Deeps will start to fall immediately, hitting the top of the Extreme Deep layer in 2D minutes.

5 – Extreme Deep: Few vessels venture into the Extreme Deeps other than specially built research craft and warships optimised for hiding in a gas giant's atmosphere. Turbulent conditions impose DM-3 on all Pilot checks. A vessel without power in the Extreme Deeps will be tossed about by incredible winds, suffering 2D damage every round. It will fall to the top of the Depths in 2D minutes.

6 – Depths: Very few vessels have returned from the Depths of any gas giant world. Any ship at this depth, other than those specially constructed to survive there, suffers 2D damage each round, increasing to 6D if the ship is unstable due to power loss. A vessel will enter the Abyssal Depths in 2D minutes if falling without power. All Pilot checks are made at DM-4 in the Depths.

7 – Abyssal Depths: The technology required to build a ship capable of operating in the Abyssal Depths is beyond most starfaring species. The incredible pressures and turbulence inflict 4D damage per round on any vessel venturing there. The pressure is so great at this depth that pools of liquid hydrogen can be encountered near the bottom. Some gas giants have a rocky or metallic core; others simply a high-pressure world-ocean of hydrogen. A ship that hits the bottom of a gas giant's atmosphere will be destroyed quickly. All Pilot checks are made at DM-5 in the Abyssal depths and sensor systems will not function.

ADDITIONAL FACTORS

All gas giants have a turbulent atmosphere. One that is unusually active will impose an additional DM-2 on all Pilot checks made in the atmosphere. Particularly violent giants impose DM-4. These worlds are rarely skimmed for fuel, except by the most desperate of crews.

CROSSING THE LAYERS

The layers of a gas giant's atmosphere may expand and contract depending on local temperature conditions, causing the boundaries to move considerably. It is possible for a layer boundary to move rapidly up or down, causing it to impinge upon a starship maintaining a constant altitude. However, more commonly a ship will deliberately cross from one layer to another to avoid detection or reach a suitable altitude for fuel skimming.

Crossing from one layer to another, up or down, requires an Average (8+) Pilot check with the largest negative DM for depth applied. Success indicates the ship has successfully crossed to the new layer without much more than some buffeting. In the event of failure, the ship fails to cross the layer and is bounced back with considerable violence. A second Pilot check, this one at Difficult (10+) difficulty and subject to the DM for the layer the ship is currently in, is required to avoid damage. If this check is failed, the ship suffers a number of dice in damage equal to the number of the layer it is trying to enter. So, a ship trying to enter the Deep layer and failing, suffers 4D Hull damage unless the pilot can succeed the second check.

FUEL SKIMMING

Fuel skimming takes a number of 'passes', during which the ship opens its scoops and forces gas into them by moving fast through the atmosphere – or by simply pointing into the wind. A ship can skim fuel equal to 1% of its hull tonnage per pass, with a pass typically requiring 2D minutes. Thus, a vessel wanting to obtain 20% of its hull tonnage in fuel in the Deep layer will need 20 passes averaging about seven minutes each, for a total of 140 minutes. Skimming would take twice as long in the Shallow layer but would also be safer.

SENSORS AND COMBAT

Sensors and beam weapons are attenuated in the thick atmosphere of a gas giant. All checks to detect another vessel are subject to DM-2 for each layer the ships are apart. Thus, a system defence boat patrolling the Wisp layer suffers DM-4 to spot a pirate ship hiding from it in the Shallow layer. It is common to seed sensor drones in gas giant atmospheres to offset this problem. Drones are very short-lived in the Deep zone, so tend to be positioned in the higher areas. Ships with access to drones can be considered to be sensing from the Wisp, Extreme Shallows or Shallow areas; whichever is most beneficial. A ship outside the Wisp zone, with no access to sensor drones, would suffer DM-2 for each layer down the target was hiding.

Energy-based weapon ranges are halved for every layer the firing ship is down and each dice of damage is reduced by one point per layer the ship is down. Thus, a vessel firing a pulse laser in the Deep zone does only 2D-8 damage if it hits.

Missiles and torpedoes do full damage in a gas giant atmosphere but may be destroyed if they cross between layers. Weapons designed for use in these conditions (e.g. torpedoes used in mines seeded in an atmosphere) can safely cross between layers on a straight Routine (6+) check. For standard missiles and torpedoes, this is an Average (8+) check. However, this does not apply when shooting into the Wisp, Extreme Shallows, or Shallow layers; ships in these areas can be attacked normally by missiles fired from outside the atmosphere, making the positioning of other vessels in a high guard position extremely important.

TRANSPONDERS, REGISTRY AND MORTGAGES

The device known as a transponder aboard a starship is more than an automatic identification-and-communication system. It is a complex security system which contains (supposedly) tamper-proof information on the ship's status, registry and ownership.

The transponder itself is intended to automatically identify the ship whenever it is 'pinged' or communications are made. The transponder automatically appends the ship's name, port of registry and class to every communication, recorded along with the communication itself by the receiving vessel.

Transponders can operate in one of four modes, although not all are available to some users.

Active: The transponder sends out a 'ping' every few seconds, containing the ship's basic data. This mode is used in safe areas where there is no need for a vessel to avoid detection. An active transponder advertises the ship's presence to other vessels, enabling early course changes to avoid the risk of collision.

Passive: The transponder does not 'ping' but will respond if pinged by another transponder. This mode is used where shipowners would prefer to remain inconspicuous as much as possible, such as in frontier systems where piracy is common. Starports typically maintain an active ping, which reveals vessels as they approach.

IFF: Identification-Friend-or-Foe mode is used only by naval and paramilitary vessels. The transponder will not respond unless it receives a ping from a transponder with the correct challenge codes. Responses are low-power and directional, reducing the chance of detection. Although IFF does serve to tell friendly craft from potential hostiles, it is primarily used for squadron station-keeping and small craft operations, allowing members of the same force to track one another and maintain station without alerting all ships in the area to their presence. An IFF-mode transponder will not respond automatically to a challenge from another system that does not have the right codes but will alert the operator and give the opportunity to authorise a response.

Covert: It is not generally possible to turn off a transponder, at least not without modifying it somehow. However, it is possible to activate 'covert' mode. This prevents the transponder from responding when pinged and is used in an emergency to hide from hostiles. Any activation of covert mode is automatically entered into the ship's logs and will have to be explained if the log is examined. Most civilian ships have an override code built into their transponder which will respond to an interrogative pulse from a suitably equipped vessel even in covert mode. Naval vessels have this capability, although its effectiveness depends on which codes have been supplied. When the override codes for shipping in the region fall into the wrong hands, they have to be changed as no merchant vessel can hide from a pirate who can simply ask their ship where it is.

The transponder will also respond to an interrogative pulse from a suitably equipped vessel with a short version of the ship's logs. This is simply a set of validation codes indicating when a ship docked at a starport and when it left, and an indication of when it jumped and re-entered normal space (but not where). The 'short log' as it is known is automatically updated with port codes at Class A and B ports. Most Class C and some Class D ports also supply a code. A ship with a few gaps in its port entry and exit code log will not be seen as suspicious but the short log can be used by patrol vessels to identify ships that might reward a boarding and search.

One other piece of data carried by a ship's transponder is its mortgage status. It can be difficult for a ship working the backwaters to make mortgage payments on time, so this function is handled by the transponder's dedicated computer system. Payments can be made electronically to an internal escrow account, a one-way transaction; the mortgage payment fund cannot normally be accessed by the crew. When the ship enters a port tied into the interstellar banking system, its transponder system delivers the payment which is then forwarded to the recipient. Most Class A and B ports have this capability.

If no payment is received for a long time, the mortgage holder might declare the ship suspect and put out an alert. However, it may simply be that the mortgage payment is sitting in the internal escrow account waiting for suitable planetfall. If this is the case, the ship's transponder will indicate that payments are available and patrol vessels will not flag the vessel as 'skipped'.

A skip alert will attract the attention of skip tracers and other official or freelance investigators, who can be a nuisance for the crew. The alert can be cancelled at a suitably equipped starport, even if the payment will take time to reach the mortgage holder. Delays of this sort can be exploited at both ends but for the most part the system works well enough.

TRANSPONDER MODIFICATIONS

The transponder can be modified, although this is illegal. The most common modifications are to remove a mortgage default flag from the code or disable the automatic response system. The latter allows the ship to run completely 'dark' and prevents any ship from overriding the transponder. It is normally used by smugglers and pirates, and being caught with a dead transponder will require a lot of explaining.

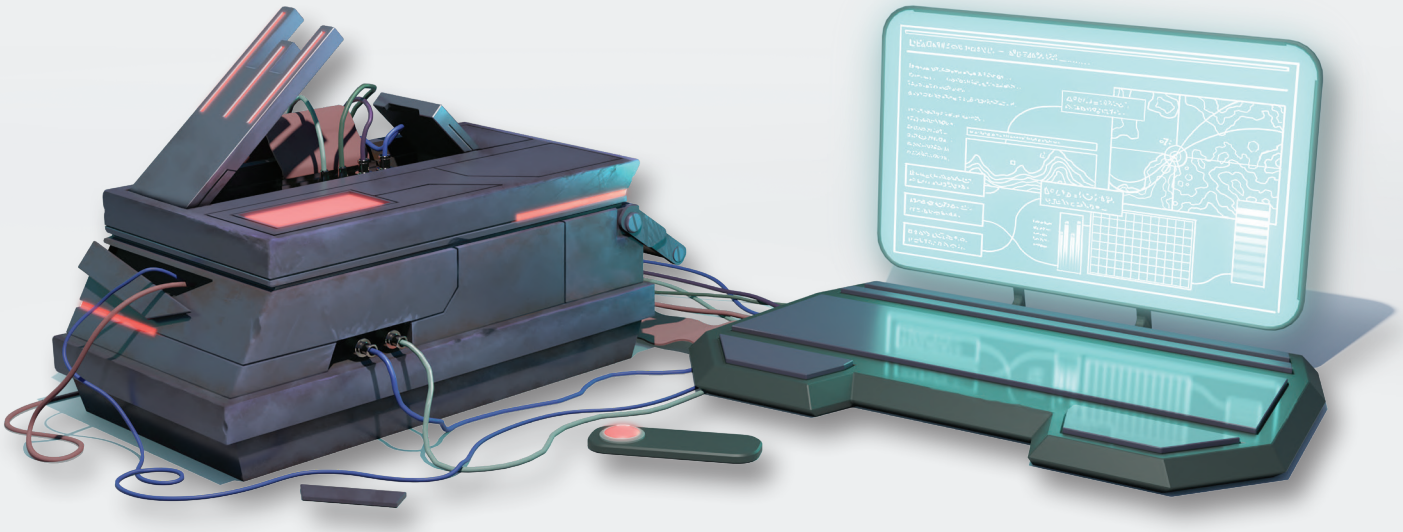
Disabling the transponder can be done without reprogramming it, although removing all the tie-ins and connections to the communications system is a lengthy business. A physical disconnect, usually with an on/off switch in a concealed location, will take 2D days of work to accomplish and requires a Difficult (10+) Electronics (comms) check. Failure indicates the system is still partially active and will respond to pings in a garbled fashion guaranteed to attract attention.

Reprogramming the transponder is a tricky business but once completed the Travellers will have control over the device. They can remove a default flag or alter the short logs without difficulty once the security is cracked. Other changes, such as setting up a fake transponder identity, are lengthy tasks in their own right.

Cracking the security is a Formidable (14+) Electronics (computers) check requiring 2D3 days of work. Highly illegal toolkits containing ready-prepared software patches are said to be available but these are hard to come by and tend to be tailored to one specific type of vessel. Once security is breached, changes can be made but each change requires a Difficult (10+) Electronics (computers) check to accomplish without leaving traces. If this check is failed, any interrogation of the transponder beyond a standard passing vessel ping will indicate the logs or transponder response have been doctored.

A ship can have more than one false identity programmed into its transponder. Setting this up requires a Very Difficult (12+) Electronics (computers) check and takes D3 days. This must be accompanied by a successful Average (8+) Admin check to invent a plausible identity. If the Admin check is failed, the ship's identity will seem implausible or 'thin', although this may well be enough to get by in the backwaters. Failing the Electronics check results in a garbled mess of code which will have to be restarted.

Transponder packages are sometimes sold on the black market, usually for upwards of MCr1 each. Some are copied from real ships, others custom-prepared. A few are stolen from Naval Intelligence, having been created for covert-operations vessels, which can lead to complications when someone tries to use one.



MISSILES AND TORPEDOES

In regions where missiles and torpedoes are popular weapons, vessels are often designed with both heavy anti-missile defences and the capability to saturate the defences of another ship using a huge salvo. The key to a saturation attack is simply number of weapons arriving at once – the same number spread over a few rounds might be defeated by point defences. Likewise, the best defence against a saturation attack is to thin it out early with antimissile fire from escorting craft, then stop the last few 'leakers' with point-defence fire.

Defence against a large missile salvo might therefore take place in several stages – interception by area-defence missiles, interception by dogfight missiles and finally point-defence fire. An escorting ship can provide point-defence fire for its charge with beam weapons and can, of course, engage incoming missiles with dogfight or area-defence missiles.

DOGFIGHT MISSILES (POINT-DEFENCE)

A dogfight missile is a smaller version of the standard anti-shipping missile, optimised for fast response at close range. Dogfight missiles can be carried on a rail aboard a fighter or small craft rather than in standard missile launchers, with two missiles carried per firmpoint. Dogfight missiles have a maximum range of Close but gain an additional DM+4 to attack within this range (this includes when they are used with the Point Defence reaction, as detailed on page 160 of the *Traveller Core Rulebook*). Damage is 1D, making the missile ineffective against anything larger than a fighter or missile. This is not a drawback; dogfight missiles are often used to intercept incoming missiles and torpedoes or deal with small craft.

If carried as anti-missile or anti-small craft weapons by a vessel with conventional hardpoints, four dogfight missiles take up the same amount of space as one standard missile. They can only be launched at the same rate as normal, however, so a double missile rack turret can still only fire two missiles at once whether they are ship-killers or dogfight missiles. Dogfight missiles used in this manner are sometimes termed point-defence missiles but are essentially the same weapons as carried by fighters, just on a larger mount.

The use of dogfight missiles allows an incoming salvo or flight of fighters to be engaged and thinned out before point defence fire.

Weapon	TL	Thrust	Damage	Cost	Traits
Dogfight Missile	10	14	1D	Cr75000	Smart
Interceptor Missile	10	12	2D	Cr125000	Smart

INTERCEPTOR MISSILES (AREA DEFENCE)

Interceptor missiles, sometimes referred to as area defence missiles, are designed to intercept incoming weapons before they get close to the target. Two interceptor missiles take up the same amount of space as one standard missile, although they can only be launched at the same rate. Damage is 2D and the weapon gains a DM+2 to attack in addition to other factors. If carried on a small craft's firmpoint, one interceptor missile can be carried on a rail, or a standard missile rack can be used.

Interceptor missiles have a maximum range of Short.

CONTAINER-LAUNCHERS

A conventional missile rack mounted in a turret contains 12 missiles (four on a small craft firmpoint). These are loaded one at a time into the launcher. Container-launchers offer a greater 'surge' missile capacity, although once expended they cannot be reloaded in time to fire again in a typical combat.

A container-launcher can be fitted on a hardpoint (not a firmpoint) and contains four missiles or one torpedo in a ready-to-launch configuration. These can be fired individually or all at once, enabling a craft to make a single overwhelming missile attack.

The container-launcher system costs Cr50000 plus the cost of weapons (for standard missiles this is Cr250000 each) and can be used aboard any ship that has other missile weapons such as a turret-mounted missile rack. Ships that do not have such weaponry lack the requisite electronics for arming and guidance, which must be fitted at a cost of Cr150000.

Container-launchers are used on some military ships to create a surge capacity for missile combat, or to carry additional interceptor or dogfight missiles. As usual, one standard missile can be replaced with two interceptors or four dogfight missiles and can be launched all at once if desired. These systems are also used by civilian ships as a deterrent or to facilitate an escape as an attacker deals with a swarm of missiles.

CONDUCTING MISSILE COMBAT

When a ship is under missile attack, defence is conducted in stages. Area defence can be conducted by any ship within range or along the 'threat axis' between the target and launching platforms. This is typically the target and any escorts or screening fighters. Area defence is conducted using interceptor missiles.

Each interceptor missile can target one incoming missile or torpedo. Each hit destroys one missile. Torpedoes are tougher – each successful hit will destroy a torpedo on a 1D roll of 4+.

Point defence can then be conducted by the target ship and any close escorts it may have. Each dogfight missile launched can target one missile or torpedo. A dogfight missile will destroy a missile on a 1D roll of a 3+ and a torpedo on a 5+.

Close-in defence is the last chance to stop missiles and is conducted with beam weapons, point defence clusters and the like. The surviving missiles in a salvo are targeted as per the point defence rules on page 162 of the *Traveller Core Rulebook*. Any that survive these layers of defence and any attempts at electronic warfare may attack the target ship.

ESCORTS

A vessel may also be protected from missile or small craft attack by close escorts. A close escort acts as a 'goalkeeper' for the target ship, firing at missiles and small craft as they fly past. If the attacker attempts a 'rollback' strategy whereby the escorts are targeted first, this leaves the big ships unengaged in which case the escorts are still doing their job. Close escorts can only engage threats to their charge, otherwise they cease to be acting in the close escort role. Returning to this role from another operation requires 1D combat rounds to move back into position.

A vessel cannot have more than 10% of its tonnage as close escorts. This tonnage can be made up of small craft or starships, or any mix of both.

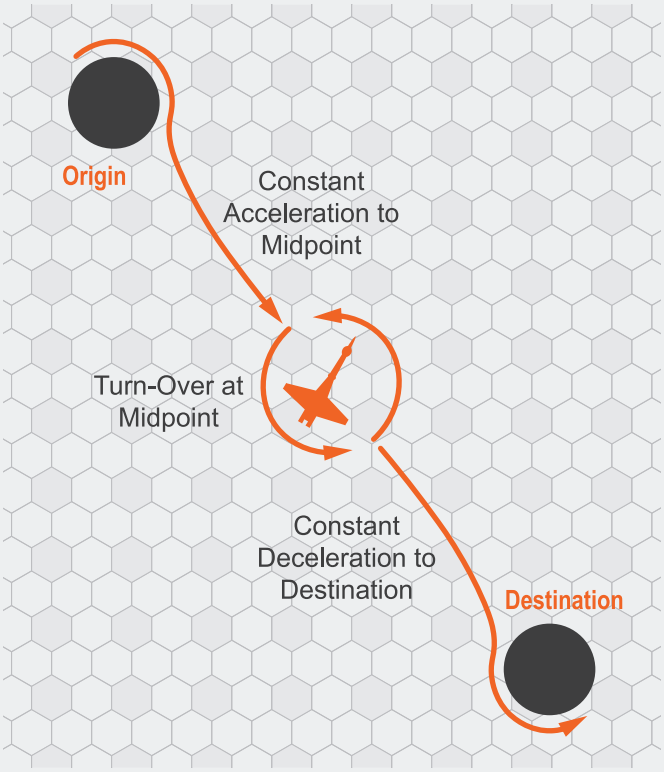
Close escorts can target incoming small craft, missiles or torpedoes with their weapons, or with dogfight missiles. Each close escort, fighter, or small craft can target one missile per dogfight missile launched, plus at least one with its guns. Small craft with multiple weapons gain DM+1 to attack per additional weapon but can still only target one missile each. Larger vessels may target one threat (missile, torpedo or small craft) per turret and gain DM+1 per additional weapon in the turret to their attack rolls. Hits destroy missiles and torpedoes are tougher – each successful hit will destroy a torpedo on a 1D roll of 4+. Attacks with weapons other than guided missiles suffer DM-2 to attack when targeting threats directed against another vessel.

It is a common tactic for some ships in a task force to act as 'force escorts', positioned between high-value vessels and likely threats. Force escorts carry out area defence with interceptor missiles, after which an incoming salvo is engaged by close escorts and then the target itself using point defence weapons (dogfight missiles and the guns of close escorts) before the target itself finally engages in close-in defence with its short-range weapons.

VECTOR-BASED SPACE COMBAT

The Space Combat chapter of the *Traveller Core Rulebook* provides a relatively simple and exciting way to resolve deadly fights between spacecraft. However, there are certain limitations to the rules presented there.

The rules do not allow spacecraft to retain momentum from one space combat round to the next. Thrust is instead abstracted as a maximum speed per combat round. In a game where ships may accelerate continuously for many hours when travelling to or from the 100-diameter jump limit or another planet in the same system – before turning around and decelerating continuously, starting at the halfway point until they reach their destination – many battles could involve ships moving at very high speeds.



When several ships are involved in a fight, they may wish to travel in directions other than straight towards or directly away from their adversaries, or multiple ships may start a battle from widely-separated areas. Thus, a system that only tracks range along a one-dimensional axis prevents realistic ranges from being calculated among the various participants.

The purpose of these supplementary rules are to add the ability to calculate range between any number of ships in a space combat scenario by using a map, and to allow the accumulation of velocity over time. Suggestions for using a physical map and virtual tabletops (VTTs) are included. That said, some elements of realism are ignored for the purposes of simplicity:

- Combat (like interstellar maps in *Traveller*) is treated as two-dimensional — all ships and interstellar bodies are treated as being on the same flat plane.
- Spacecraft facing is ignored. It is assumed that ships may pivot to any needed direction over the course of each six-minute space combat round, even when expending their full Thrust during a round.
- A map using either hexagons or squares is used and spacecraft are generally treated as being in the centre of the space they occupy.
- Simplifications have been made to the movement of missiles to avoid adding unmanageable levels of complexity during combat scenarios that may have many salvoes seeking targets simultaneously.
- The gravitational effects of large bodies are ignored, since *Traveller* assumes that spacecraft capable of only Thrust 1 are able to move freely in the gravity wells of planets.

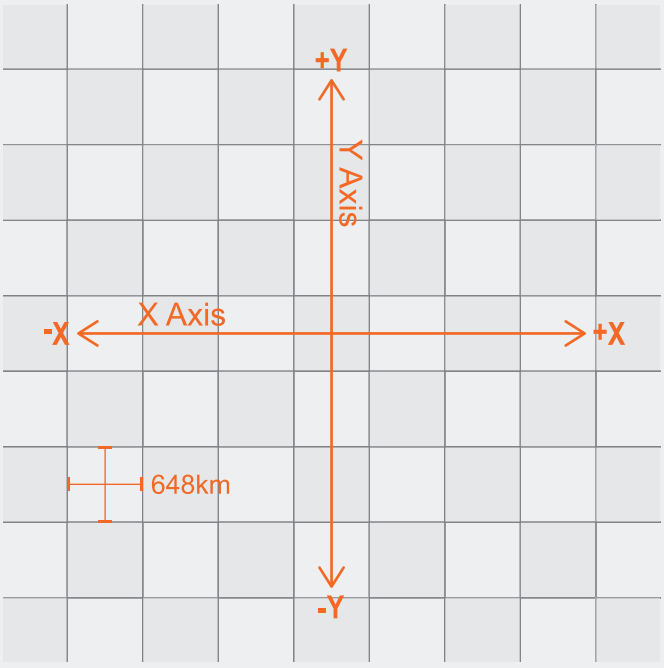
These rules may be viewed as an add-on to the Space Combat chapter, with each round divided into steps: Manoeuvre, Attack and Actions. Steps are further divided into phases.

The primary methods employed to achieve vector-based space combat are:

- Instead of using Range Bands, the position of each ship and object is tracked on a map. Hexagonal maps are preferred but a square grid can be used, and the term 'space' is used to denote a single hex or square. The map scale is such that each point of Thrust applied modifies a spacecraft's speed by one space per round in a given direction. The current vector (speed and direction of movement) is tracked for each ship.
- During each Manoeuvre step, an Acceleration phase is added immediately before the Movement phase, in which each ship declares the changes to its current vector.
- Because of the scale of the map, specific rules are added for entering into dogfighting range and for determining the firing range of spacecraft passing close to one another during a round.

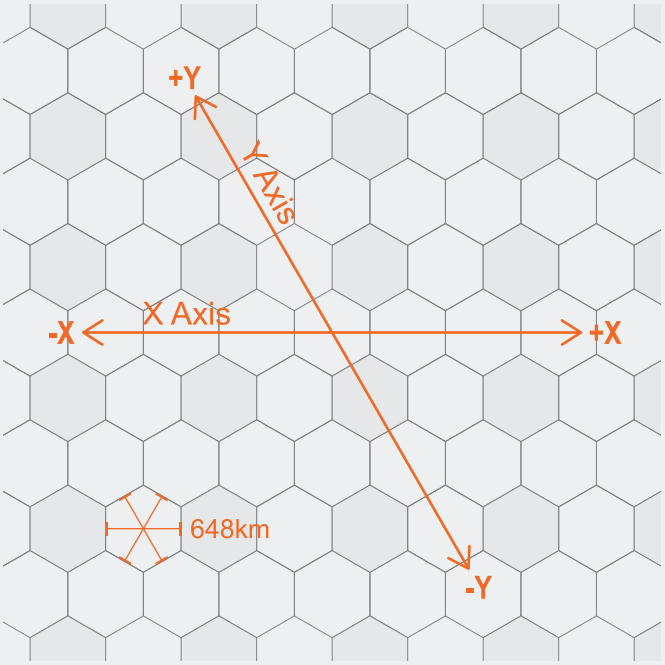
MAP SETUP

There are two initial decisions to be made when setting up a map for vector-based space combat: whether a physical or virtual map is to be used and whether to use squares or hexagons as the spaces on the map. Each have advantages and disadvantages.



A physical map can be ideal for playing in-person but the size may become challenging when a battle involves ships with high acceleration or when the battle takes place over a wide area. VTT software such as Roll20 can allow you to make maps of any size, although VTTs can struggle when a map is overly large. VTT maps also provide a way to easily measure distances and track speed and direction numbers on virtual tokens so they can be seen by all Travellers.

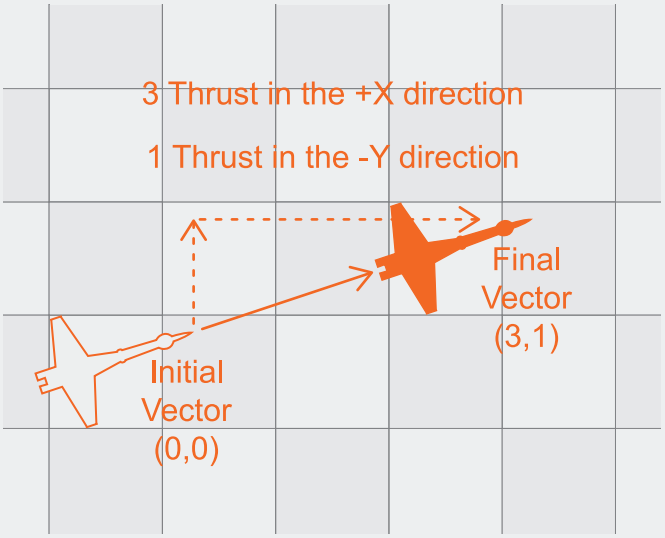
A map using squares allows speed to be tracked in two perpendicular directions, the traditional Cartesian X and Y axes, with positive numbers indicating movement in the 'north' and 'east' directions and negative numbers for 'south' and 'west'. Hexagonal axes effectively have three 'axes'. We recommend orienting the hexes such that one axis provides a straight line between the major opposing sides and treating that as the X axis, and using the 'northwest/southeast' line as your Y axis. In this way, movement in the third axis can be treated as a positive or negative combination of the X and Y axes. Whether using hexagons or squares, speeds can be recorded in the format (X, Y), where X and Y are replaced with the positive or negative speed along those axes.

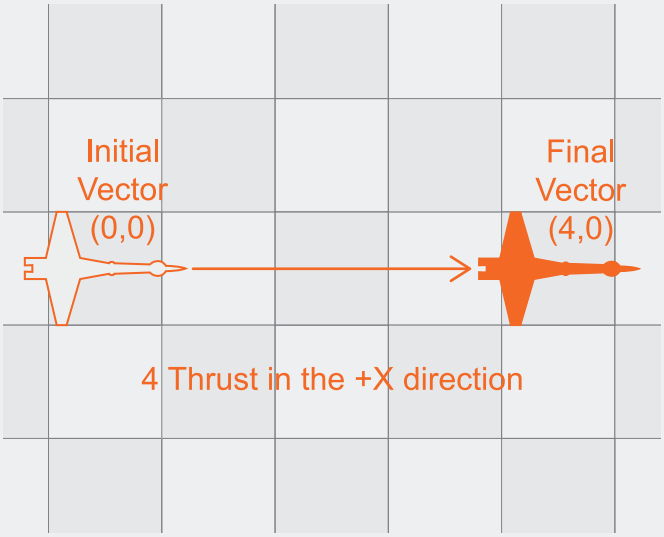


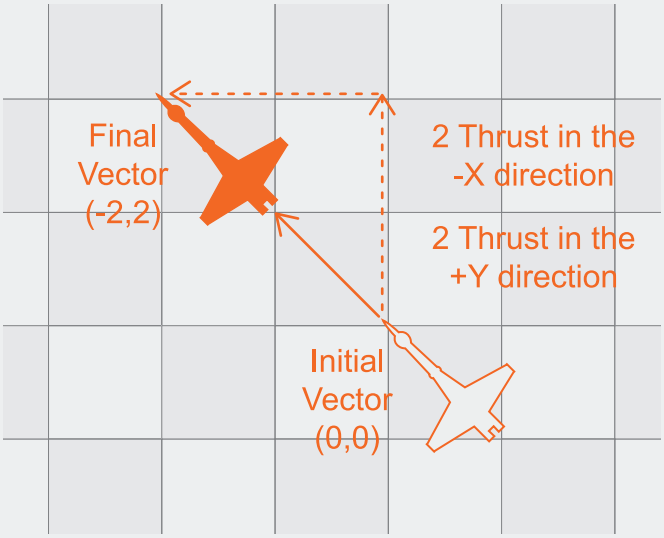
USING A SQUARE GRID

For example, on a square map, a ship starting at rest and expending Thrust 4 could set their speed as follows:

- To move as fast as possible towards the 'east', it would apply Thrust 4 in the positive-X direction, resulting in a speed of (4, 0).
- To move as fast as possible in the 'northwest' direction, it would apply Thrust 2 in the negative-X direction, and Thrust 2 in the positive-Y direction, resulting in a speed of (-2, 2).
- To move in a somewhat 'east-by-northeast' direction, it could apply Thrust 3 in the positive-X direction and Thrust 1 in the positive-Y direction, resulting in a speed of (3, 1).



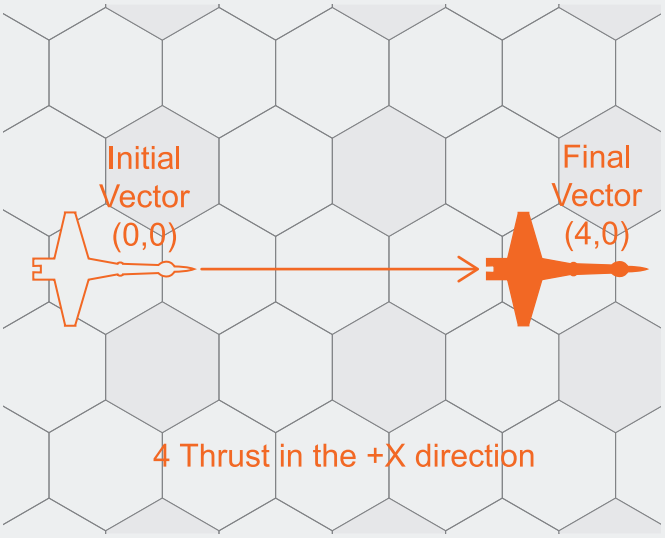


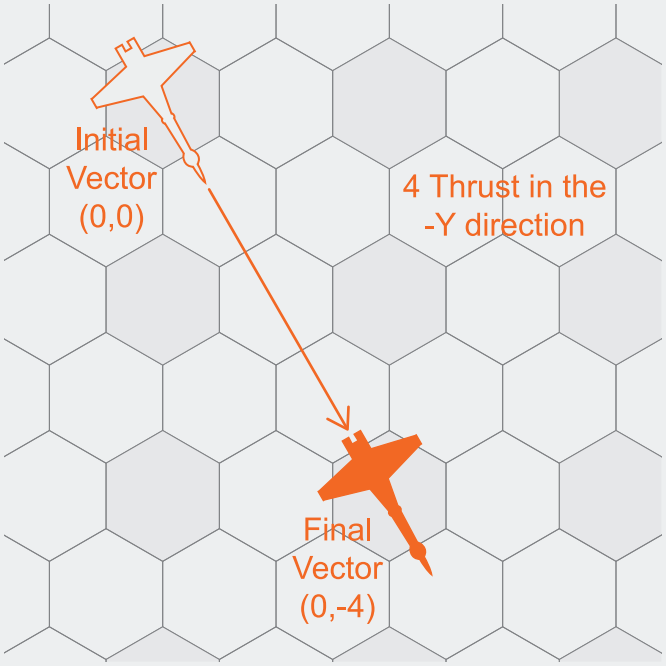


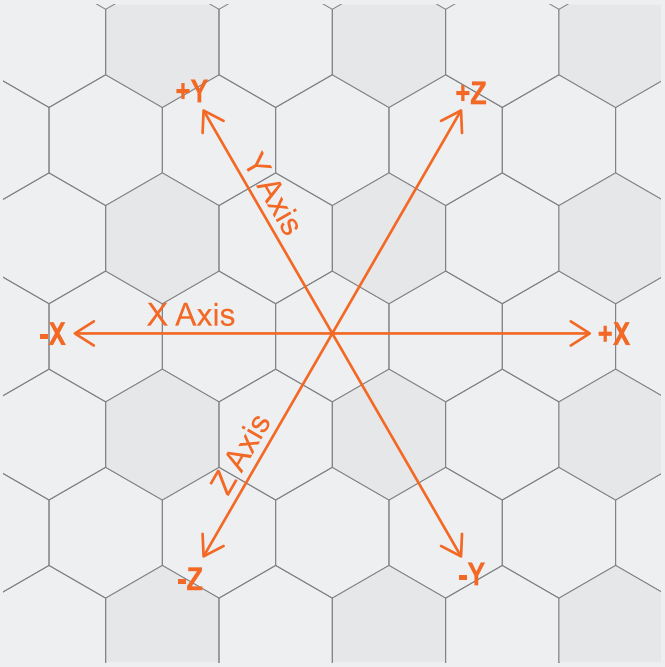
USING A HEX GRID

On a hexagonal map using a horizontally oriented X axis and northwest-southeast direction as the Y axis, a similar (but not identical) set of movements is possible:

- Moving as fast as possible in the eastward direction is the same: apply Thrust 4 in the positive-X direction, resulting in a speed of (4, 0).
- Moving as fast as possible in a roughly 'southeast' direction would simply mean applying Thrust 4 in the negative-Y direction and none in the X direction, resulting in a speed of (0, -4).



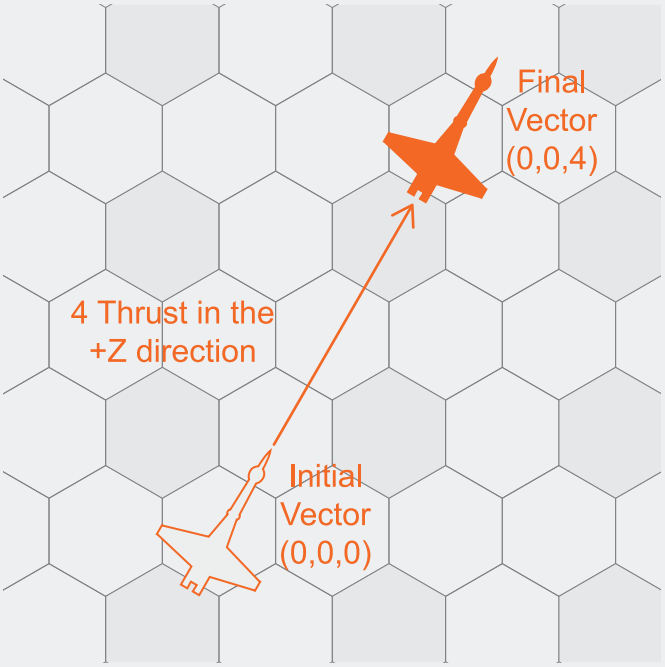


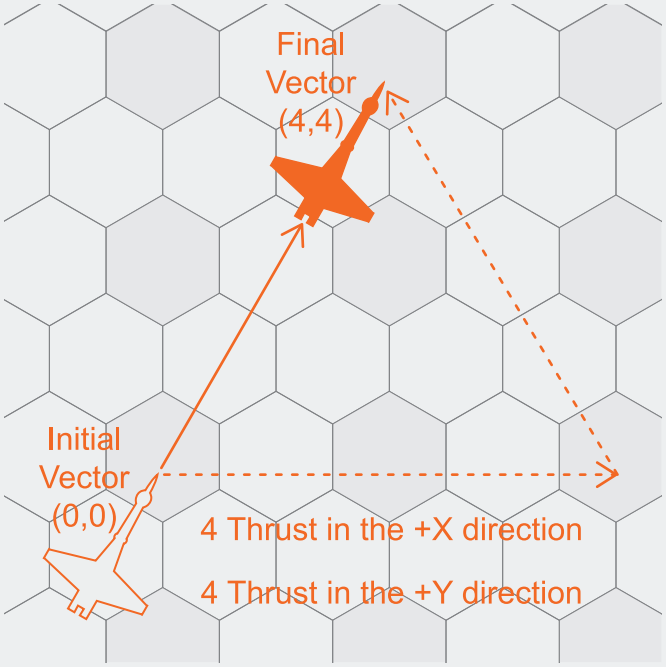


USING THE Z AXIS

Movement on a hexagonal map along the third axis can be thought of in two ways: either treat this as a 'Z' axis (ignoring the fact that in Cartesian coordinates, the Z axis denotes the 'up-down' vertical axis with respect to the X and Y axes), with 'northeast' as the positive direction and 'southwest' as the negative direction, or treat Thrust applied along this axis as a combination of Thrust applied in the X and Y directions simultaneously. For example:

- If using a third 'Z' axis, speed is recorded as three numbers instead of two, and thus our ship applying Thrust 4 in the 'northeast' direction records its speed as (0, 0, 4)
- If treating 'Z-axis' movement as a combination of Thrust in the X and Y directions, it records the same speed as (4, 4) – this makes it seem like it has expended a total of Thrust 8 but it is understood that this is just how to denote movement in that direction. If the same ship wanted to apply Thrust 4 such that it ended up three hexes to the 'northeast' and one additional hex to the 'east', it would apply Thrust 3 in the positive-X/Y direction for a speed of (3, 3), and then apply one additional Thrust in the positive-X direction, resulting in a total speed of (4, 3).





In subsequent rounds, Thrust may be applied to add to or subtract from a ship's current vector, in any combination. For example, a ship with Thrust 4, currently moving at a vector of (4, -2), might apply Thrust 4 to its X-axis movement, changing its vector to (8, -2). Alternatively, it might maintain its movement along the X axis and reverse Thrust along the Y-axis, changing its vector to (4, 2) if all four of its Thrust is used to do so. Or it could split the Thrust 4 between the X and Y axes, resulting in vectors such as (6, -4), (3, -5), or (1, -1). In later rounds, vectors can be increased further and further until ships are moving at very high speed. This adds a level of complexity and strategy that should make battles very engaging.

MAP SCALES

The default scale for a space combat map, whether using squares or hexagons, is 648 kilometres per space, as this is the distance travelled by a spacecraft acceleration at 1G continuously for the duration of a six-minute space combat round. This allows speeds to be calculated easily when applying Thrust: each point of Thrust increases or decreases speed by one space per round in a given direction, whether X, Y, or either Z or X/Y when using a hex map.

When using a VTT, set the map scale to 648 kilometres per square or hex and if possible, set the measuring tool to use Euclidean measurement, rather than counting squares or hexes. If this is not an option, then counting hexes is acceptable for a hex map and for a map of squares, the next most accurate results will result by setting diagonal distances to 1.5 squares.

This means that in order to be at Adjacent or Close range, ships must occupy the same space, and other ranges are as follows for either squares or hexes:

Range Band	Range in spaces
Adjacent or Close	0 (same space)
Short	1 (or 2, see below)
Medium	15
Long	38
Very Long	77
Distant	78 or more

A map size of 100 spaces or more in the 'long' direction (assuming a rectangular map) is helpful to provide enough room for ships to close from (or flee to) Distant range. However, if all ships in the combat are relatively slow (Thrust 1 or 2 maximum) and it makes more narrative sense to start them closer together, a smaller map can be practical. Fast ships need room to move!

Because the centre-to-centre distance between two spaces at this scale is only a little farther than the limit of Short range (1,296 kilometres instead of 1,250 kilometres), at the Referee's discretion it can be helpful for gameplay purposes to rule that the maximum limit of Short range is two spaces distance instead of only one.

Whether using a VTT or physical map, it can be helpful to add a table on the side of your map with the above range table, or to create a cheat sheet to make it easy to see the range limits at a glance. For a physical map, the distances can be translated into inches or centimetres according to the square/hex scale of the map, such that ranges can be determined with tape measures (measure centre-to-centre of each space, with the Referee settling any disputes).

Each ship should receive its own token, counter, or miniature on the map. For a VTT, online tools such as Token Stamp 2 can be used to create virtual tokens with ship names or art, which can be imported into the VTT. For a physical map, miniatures, counters or cardboard cut-outs sized to fit the map can be used. In either case, each token should be easily identifiable, including the name of the ship and its current vectors. Remember that in this system, facing does not have a mechanical effect but turning the token to its approximate direction of movement can be a useful visual aid. For a physical map, a small sticky note next to each token can be used to record the ship's name and vector, ideally in pencil since the vectors will change from round to round. VTTs usually allow tokens to be named, and some include visual counters for gameplay elements such as 'Armour Class' and 'Hit Points' that could be used to record the current speeds in the X and Y directions. It can also be useful to see at a glance what a ship's maximum Thrust is (for ships with Reaction drives, a good practice is to record maximum Thrust as M+R, where M is the maximum manoeuvre drive Thrust, and R is the maximum reaction drive Thrust – thus, a ship with an M-drive 5 and R-drive 3 would be denoted as (5+3). If using a VTT that does not provide visual token counters, modify the name of the VTT token with its current vectors, for example, 'Beowulf (3, -2)'.

When multiple ships of the same type are moving together, a single token can be used to track the group – either use the name to denote the number of craft (for example, 'Light Fighters x5' or note the number on the sticky note being used to track their movement vectors.

OBJECTS IN SPACE

Planets, asteroids, derelict ships, space stations and so on may also be represented as tokens. Be sure to scale objects appropriately – a large planet may be several spaces wide! It is generally simplest to treat these objects as stationary on the map, even for space stations that have a maximum Thrust of 0.1G but in some cases the Referee may choose to give them a speed.

ROUND SEQUENCE

ACCELERATION PHASE

After the Initiative phase but before the Movement phase, a new Acceleration phase is added. In this phase, each ship *in reverse initiative order* determines how much Thrust they will apply to movement this round, adds that to their current recorded vectors and records their new vector values. Using reverse initiative order in this phase allows higher-initiative ships to react to the anticipated movement of 'slower' ships. Just as in the space combat rules, any Thrust intended to be used for evasive action or helping gunners cannot be applied as movement Thrust during this phase. Do not move ships or missiles on the map during this phase. That occurs during the Movement phase.

For example, a ship with recorded vectors of (-12, 7) and a maximum Thrust 6 applies Thrust 4 in the positive-X direction (slowing its speed along the X axis) and Thrust 2 in the positive-Y direction (increasing its speed along that axis). Its resulting speed vectors will therefore become (-8, 9), so the Traveller records that as their new speed.

It can be helpful for Travellers to use temporary tokens to visualise where their ships would move if they do not apply any Thrust at all this round – this can help them determine how much Thrust they want to apply this round, and in which direction. A simple coin could be used on a physical map, leaving the ship's miniature or counter in place and counting out the movement to place the coin in the space where the ship will end up this round if it simply coasts along; a supply of temporary tokens can be useful to have at the edge of a VTT map for this purpose as well.

If missiles are in flight, then after all ships have applied Thrust, add the missiles' maximum Thrust (10 or 15, per the *Traveller Core Rulebook* or *High Guard*) to their current speed (see 'Missiles in Vector-Based Combat').

Once all ships and missiles have applied Thrust and recorded their new vectors, proceed to the Movement phase.

MOVEMENT PHASE

Because all movement is treated as simultaneous, and all vectors for this round were recorded in the Acceleration phase, ships and missiles can be moved in any order. Spacecraft move a number of spaces according to their vectors. For example, a ship with X and Y vectors of (3, -5) moves three spaces in the positive-X direction, and five spaces in the negative-Y direction. It does not matter if you execute the X or Y portion of the ship's movement first, as it will end up in the same space either way.

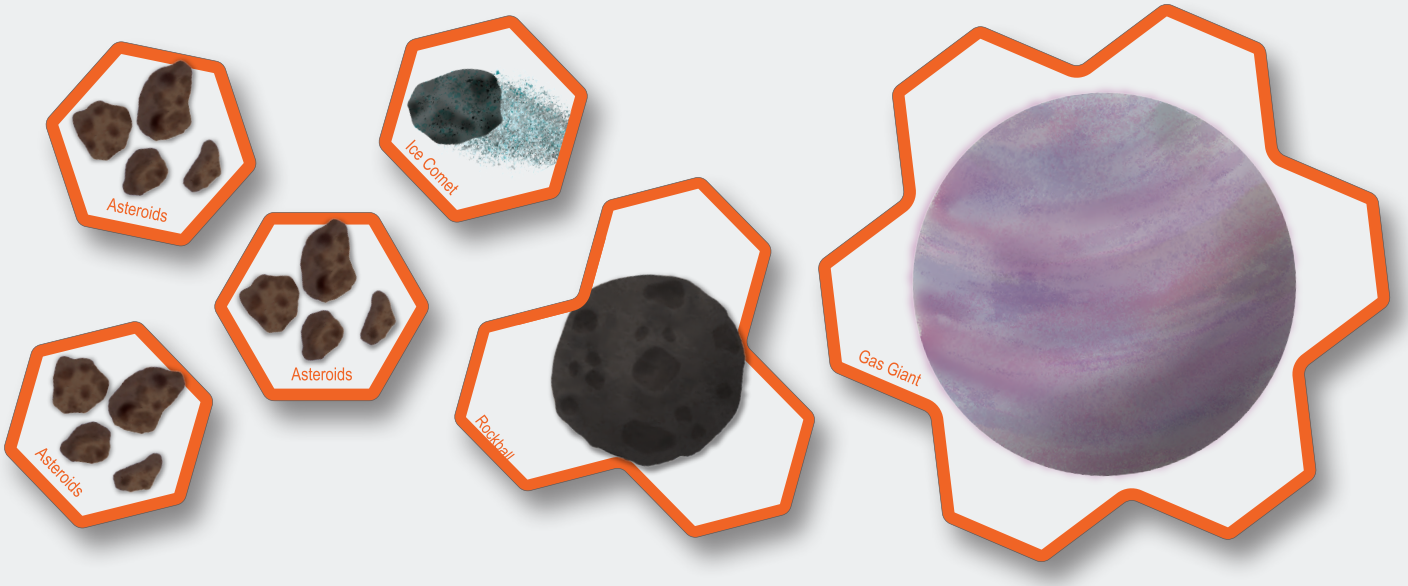
MISSILES IN VECTOR-BASED SPACE COMBAT

Missile-firing ships can potentially fire multiple salvoes of missiles at different targets, round after round. When using vector-based space combat rules, ignore the Missile Flight table in the *Traveller Core Rulebook*, and use these rules instead.

Missiles can take several rounds to arrive at their targets and if several ships are all firing missiles, that might result in many additional and necessary tokens on the map. Tracking and plotting vectors for all these missiles could slow the game to a crawl, so instead of tracking vectors for each salvo of missiles, only its speed is tracked, increasing each round according to its Thrust, and the firing ship simply moves the missiles that far in the direction of its target during the Movement phase.

Create a new token for each new salvo. The token name or associated sticky note should include:

- The name of the firing ship and the salvo's target
- The number of missiles in the salvo
- If using non-Standard missiles from *High Guard*, the type of missiles in the salvo
- The current speed derived from the firing ship (missiles start with their firing ship's vector)
- The number of rounds of Thrust left for the missile to find its target (starts at 10)



The easiest way to determine the starting speed of missiles is to place a token on the space where the firing ship would end up if it does not expend any Thrust next round and measure the distance in spaces from the firing ship to that space, rounding to the nearest whole number. For example, on a square map, if the firing ship has vectors of (2, -2), the range on a VTT map if using the recommended measurement method would be three squares, so the speed would be 3. Measuring the same distance on a physical map with a scale of one inch per square would show 2.8 inches, rounded up to 3. Thus, the starting speed of these missiles would be 3. Similar methods could be used on a hex map, or if using a different measurement system.

Once the token is created and the firing ship, target, number of missiles, missile type and starting speed are recorded, it is placed on the same space as the firing ship (if this is not convenient, place the token in the space adjacent to that of the firing ship). The missiles do not accelerate or move any further on the round in which they are fired. In the Acceleration phase of the following round, the missiles' maximum Thrust is added to their current speed and the number of rounds of remaining Thrust is decreased by one. In the Movement phase, the firing ship moves the missiles up to that many spaces towards their target. If the missiles reach their target, place them on the same space as the target (or adjacent to the target, if that is more convenient). Missile detection, countermeasures and missile impacts are handled as stated in the Space Combat chapter of the *Traveller Core Rulebook*.

As missiles are destroyed via electronic warfare or point defence fire, decrease the number of missiles on the token, and remove the token if and when the last missile is destroyed. Damage from missiles that reach their target is handled per the Space Combat rules, as normal.

LARGER-SCALE MAPS

Often, adversaries in space combat may start from a great distance apart (for example, from 100 diameters, or even from the distance to a gas giant) and it would be very impractical to attempt to run a combat scenario on a map thousands of spaces across. Even so, the Referee might want to track the approach of opposing ships or fleets from great distances for immersion and dramatic effect. Fortunately, the math is such that it is easy to create maps of greater scale: for each multiple of 10 in the width of each space, increasing the duration of each round by a multiple of four maintains the Thrust 1 = 1 space scale. For example, if the size of each space on the map is increased from 648 kilometres to 6,480 kilometres and the rounds are increased from six minutes in length to 24, acceleration and movement can be treated exactly as it is during normal space combat rounds using the vector rules above. Of course, at any scale beyond 648 kilometres per space, range will be Distant and combat will be impossible until the adversaries have moved closer to each other.

The following table provides suggested map scales for various common starting ranges.

While there may be situations when it makes sense to increase the scale of your map, it is more likely to be useful when opposing sides start at a great distance, move towards each other using a higher-scale map, and then 'zoom in' as the ships get closer, until they are on a x1 scale map using standard six-minute space combat rounds. Either way, the process is similar.

When moving from larger-scale to the next smaller scale, increase the distance between ships in spaces by a factor of 10 and multiply all vectors by 2.5 (rounding up). When moving from a smaller-scale map to the next larger scale, divide the distances between ships by a factor of 10, and divide each vector by 2.5, rounding to the nearest whole number.

Movement Scales

Scale	Space Width	Round Length	Suggested use
x1	648km	6 minutes	World Surface to Orbit
x10	6,480km	24 minutes	Orbiting Satellite or 100 diameters from mainworld for smaller worlds, or larger worlds when ships have low Thrust
x100	64,800km	96 minutes	100 diameters from mainworlds for larger worlds, especially for fast-moving ships
x1,000	648,000km	6.4 hours	Close Neighbour World
x10,000	6,480,000km	25.6 hours	Close or Far Gas Giant

For example: two ships on a x10 scale map have been accelerating towards each other for several rounds. They have reached a range of 9 spaces (58.320 kilometres at this scale); one ship has a vector of (+15, 0) and the other has a vector of (-12, 0). Moving them to a x1 scale map would put them at a distance of 90 spaces. The first ship's vector would be rounded up to (38, 0) and the second ship's vector becomes (-30, 0). This same process would be used if moving from a x1,000 scale map to a x100 scale map. At any map scale beyond x1, the Initiative, Acceleration and Movement phases would happen as defined in the above rules but combat actions will not occur until the scale has been reduced to x1.

DOGFIGHTING IN VECTOR-BASED SPACE COMBAT

Because the scale of even the 1x scale map is still quite large at 648 kilometres per space, and ships may be travelling at vastly different speeds even when they cross paths, additional conditions are needed to allow ships to dogfight.

Both ships must end their movement for a round in the same space, with the same vectors. The ship with the higher initiative will be better able to match positions and speeds in order to achieve this, but Improve Initiative rolls by the ship's captain can potentially make up the difference if it is close.

At that point, if both ships' wish to dogfight, then proceed to the Dogfighting rules presented in the *Traveller Core Rulebook*. If neither wishes to dogfight, then treat the ships as being at Short range.

If only one of the ships wishes to keep out of dogfighting range, have the ships' pilots do an opposed Pilot (Dexterity) check, allowing any unused Thrust to be used in this step as a +DM on a one-for-one basis. If the pursuing pilot fails the opposed check, treat the ships as being in Short range.

As described in the *Traveller Core Rulebook*, resolve the dogfight fully before returning to space combat rounds.

SHIPS THAT PASS IN THE NIGHT

In most cases, firing range should be determined based on the final positions of ships in a combat round, that is, after all ships have performed their movement for the round, and attacks and damage resolution happen in the Attack step, in initiative order. However, in some cases, it might happen that two fast-moving ships could approach each other and pass by at a relatively short range during the middle of their movement. In such cases, it makes sense to allow firing to happen at the closer range, and for the ships to decide when to shoot, which could override the initiative order – they must determine whether it is better to wait until the last possible moment in order to fire at the shortest possible range, or to fire first at a longer distance and risk missing.

When two ships look like they will pass by each other in a given combat round, the Referee may choose to resolve their movement together in order to provide an opportunity for the ships to take advantage of potentially shorter range. A good way to approximate this is to drop a temporary token at the final space the ships will move to this round and then move the ships roughly along their respective paths until they reach the closest point. At any time, each ship can declare it wishes to fire.

At that point, leave the ships where they are on the map, and proceed to the Attack Step phase of the combat round; resolve these attacks at the initiative of the ship that decided to fire, even if this means skipping the initiative of the ship who hesitated. Once the firing ship has resolved its attacks and any damage done, the Referee should continue the movement of the passing ships, which might allow the hesitant ship to fire at an even closer range, should they survive the other vessel's attacks.

If the Referee judges that the passing ships' paths cross in the same map space at the same time, they may allow a single six-second round of Dogfighting as they pass each other. Use an opposed Pilot check described in the Dogfighting section above if one of the ships wants to avoid the dogfight.

STARSHIP AUTOMATION

Increased automation reduces crew requirements, although a smaller crew is not always desirable. Ships with few personnel aboard cannot react as well to a crisis or damage; the loss of a single crewmember can be crippling to a very tightly crewed vessel. However, automation is useful under many circumstances.

Virtually all ships have some degree of automation, from autoloaders on missile systems to automated monitoring systems for the power plant. These are standard labour-saving devices and without them crew requirements increase dramatically. A heavily automated vessel makes greater use of such devices and ties them into an integrated crew-assistance system.

The cost of automating a vessel is based on the total cost of its hull, plus drives and power plant, as shown on the Ship Automation table.

Crew requirements are based on a percentage reduction of the normal number of personnel required. This tends to affect engineering and operations personnel more than flight crew, since there are many jobs that cannot be shared. For example, a vessel that has four small craft aboard needs a pilot for each of them if they are to be used at the same time. It is not possible for one crewmember to somehow be piloting the main vessel and two of its craft at once unless they are fully autonomous robotic devices. By the same token, a ship that needs one astrogator but has a 40% crew requirement reduction still needs an astrogator.

Instead of reducing the number of personnel aboard, automation can be used to make their lives easier and more comfortable. This is not usually done except aboard long-range ships, where crew are likely to be aboard for extended periods and luxury vessels.

Crew-intensive vessels have virtually no automation; everything is done by hand. This is the case aboard some very primitive ships but is inefficient to say the least. Low automation is cheap but again is inefficient unless the crew work hard, in which case fatigue begins to set in after a week in space. DMs for shipboard tasks are applied to all checks – engineering, astrogation, landing; even making lunch in the galley is a trial aboard a ship without a powered can-opener.

Ship Automation

Automation	Cost	Crew Requirement	Effect
Crew-intensive	-40%	+100%	DM-4 on all shipboard tasks.
Low Automation	-20%	+40%	DM-1 on all shipboard tasks after 1 week in space
Standard Automation	Normal	Normal	None
Enhanced Automation	+25%	-10%	None
Advanced Automation	+50%	-25%	DM+1 on all shipboard tasks
High Automation	+100%	-40%	DM+2 on all shipboard tasks

GRAVITIC SHIELDING

Gravitic Shielding becomes available – in a primitive form – at TL16. Initially, it is useful only as a rather crude defensive system but more advanced and controllable systems have other uses.

Gravitic shielding creates a region of twisting gravitational forces close to the ship's hull. This has no effect on energy weapons but may rip apart a small craft or missile closing with the shielded vessel or deflect a kinetic weapon. It is theorised that sufficiently powerful gravitic shielding might be able to deflect particle weapons and even lasers, but the technology to achieve this is unimaginably far in advance of any known civilisation.

If the shielded vessel is struck by a missile, torpedo or small projectiles (i.e. rail-gun bullets) there is a chance that the hit is negated by the shield – bullets are scattered or deflected before impact, while missiles are destroyed or flung away from the ship.

The field cannot affect lasers sufficiently to cause a miss at the ranges over which the field is projected but more advanced versions will stop plasma or fusion weaponry. An active gravitic shield will also damage small craft and vessels nearby – any craft at Close range suffers damage each round.

These shields also provide protection from high gravity fields such as those encountered near a Black Hole. Gravity fields of less than the G Tolerance value on the Gravitic Shield table will not affect a ship with an active shield.

A shielded vessel may still fire its own beam weapons but missiles and small craft cannot be launched or recovered with the shield in operation. The shield can be turned off at any time for an entire round.
Gravitic shielding consumes 1 Power and 0.5 tons per 5 tons of the ship's hull. The cost listed in the Gravitic Shield table is per ton of the shielding system itself.

Gravitic Shielding

Type	TL	Cost	Destroy Missile (1D)	Deflect Plasma or Fusion (1D)	Damage to nearby vessels	G Tolerance
Primitive	16	MCr2.5	6+	None	1D	10
Basic	17	MCr5	4+	None	2D	20
Standard	18	MCr10	2+	6+	4D	50
Enhanced	19	MCr15	Automatic	4+	8D	100
Advanced	20	MCr20	Automatic	2+	16D	250
Superb	21	MCr25	Automatic	Automatic	32D	Possibly Infinite

STARSHIP WEAPONRY

Some of the weapons in this chapter are likely only to be encountered in relic or prototype form, although they may be in use by some advanced civilisations. Others are simpler and might be encountered in the hands of anyone from pirates to naval vessels. Not all need be mounted on ships and may be present as part of a planetary defence network.

ANTIMATTER STREAMER

An antimatter streamer is a crude particle beam weapon which fires a stream of heavy antimatter particles. This causes severe explosive effects on the target, although the beam dissipates (spectacularly) over short distances. An antimatter streamer is a bay-sized weapon, with a maximum range of Medium. Damage is attenuated at this distance; each dice of damage is treated as D3 at Medium range. Closer targets take full damage. Conversely, the dissipating spray of antimatter increases the likelihood of a successful hit at longer rangers; the streamer gains DM+2 to attack rolls at Short range and DM+4 at Medium range.

PLASMA/FUSION CARRONADE

A carronade is a short-ranged plasma weapon firing a stream (more accurately a spray, since the stream tends to spread out quickly) of superheated gas. The weapon is named for an archaic short-barrelled cannon also referred to as a 'smasher'. Carronades are primarily used aboard fast ships intended to close to very short range and deliver a powerful strike. They are most effective against lightly armoured vessels, as the main drawback of carronade weapons is their poor performance against armour.

Other than close-in firepower, carronades also have the advantage of being relatively cheap. A carronade consumes four hardpoints on a ship's hull and cannot be fitted to vessels with less than four. More advanced ships can make use of fusion carronades, which are similar but use more energetic plasma.

HULLCUTTER

A hullcutter is a large and powerful weapon firing a beam of exotic particles designed to simply cut enemy ships into pieces. It is possible that this weapon is a precursor of the disintegrator beam, which can cause an entire ship to dissolve into its constituent atoms. Early hullcutters require a large bay but on extremely advanced ships they can be fitted into smaller mounts.

DISINTEGRATOR

Shipboard disintegrator weapons are a very rare spinal mount and typically associated with the Ancients or other old, powerful civilisations. Their stream of energised exotic particles cause a reaction in the atoms and molecules of the target. As atomic bonds fail, the ship's matter begins to drift apart in fragments varying in size from a turret or bridge down to single atoms. In some cases, atoms recombine and release small high-energy explosions. Maximum range for disintegrator weapons varies according to their Tech Level.

GROUND DEFENCE GUNS

Whilst missiles are the standard mid-tech weapons for defence against spacecraft, supplemented or supplanted by energy weapons at higher Tech Levels, some cultures prefer conventional or hypervelocity guns. These can endanger a ship stationary in orbit and guns can certainly make a landing site very unhealthy. Standard artillery can be used to bombard a landing site to deny it to the enemy or inflict damage but much higher-velocity weapons are needed to hit a moving ship.

The earliest effective ground defence guns appear at TL4. These are essentially a larger version of anti-aircraft guns, firing an explosive shell at relatively high velocity. Early guns of this sort can only fire on targets approaching their defended area; they cannot attack orbital targets. Ground defence weapons are usually mounted in fixed fortifications but can be carried aboard maritime ships or extremely large vehicles.

Weapon	TL	Range	Power	Damage	Cost	Tons	Traits
Small Antimatter Streamer Bay	17	Medium	120	4Dx5	MCr40	50	Radiation
Medium Antimatter Streamer Bay	17	Medium	160	6Dx5	MCr55	100	Radiation
Large Antimatter Streamer Bay	17	Medium	200	8Dx5	MCr70	500	Radiation
Plasma Carronade	10	Medium	35	12D	MCr10	4	Weak
Fusion Carronade	12	Medium	45	16D	MCr12	4	Radiation, Weak
Small Hullcutter Bay	18	Medium	60	12D	MCr125	50	Reductor
Medium Hullcutter Bay	17	Medium	80	12D	MCr120	100	Reductor
Large Hullcutter Bay	16	Medium	100	12D	MCr110	500	Reductor
Ground Defence Gun	4	Close	0	1D	MCr2	—	—
Improved Ground Defence Gun	6	Short	0	2D	MCr5	—	—
Advanced Ground Defence Gun	7	Short	0	4D	MCr7	—	—
Small GP Mass Driver Bay	8	Very Long	10	4D	MCr4	50	—
Torpedo-Interceptor Cluster	10	Adjacent	1	—	MCr1	1	—

Weapon	TL	Range	Base Size	Power	Damage	Cost	Max. Size	Traits
Disintegrator	20	Medium	5,000 tons	+2500	+3DD	MCr110	100,000 tons	Chain Reaction
Improved Disintegrator	22	Long	5,000 tons	+3000	+4DD	MCr200	150,000 tons	Chain Reaction
Advanced Disintegrator	24	Extreme	4,000 tons	+4000	+5DD	MCr300	No maximum	Chain Reaction

At TL6, very high velocity guns firing discarding sabot penetrator rounds can engage targets in low orbit, although the time required to reach the target imposes DM-4 to attack rolls against any orbital target that can manoeuvre under power – this is in addition to any evasion the target may attempt. The usual tactic is to use several guns to fire a box barrage around the target's projected location using fragmentation shells in the hope of doing at least some damage. A direct hit with a penetrator round will do far more harm but is unlikely to hit at all.

At TL7, hypervelocity guns are available which can engage a target in high orbit with at least some chance of a hit. High orbital targets are subject to DM-4 to attack rolls in addition to any evasion performed, providing the target can manoeuvre. Targets in low orbit are subject to DM-2 if they can manoeuvre.

Fragmentation ammunition does half as much damage as a standard penetrator round but gains DM+2 to attack rolls which may offset some targeting difficulties.

GENERAL-PURPOSE MASS DRIVER

A large but fairly low-powered mass driver, this is not a weapon as such but can be pressed into service for bombardment purposes. It is not very useful as a ship-to-ship weapon, suffering DM-4 to attack rolls against any target that can manoeuvre, in addition to any evasion attempts. Launchers of this sort are often carried aboard mining ships to deliver ore to a remote destination and the same system can be used to bombard a planet with asteroidal debris or even the compacted debris of an orbital defence squadron. Launchers are also used to deploy mines and satellites, saving their own drive systems for necessary manoeuvres. A general-purpose mass driver requires a small bay for its mountings and can launch a mass equal to its own. If additional capacity is required, two tons aboard the ship are required per ton of additional launch capacity, at a cost of Cr75000 and 3 Power per ton.

TORPEDO-INTERCEPTOR CLUSTER

Torpedo-interceptors are shipped as clusters of four; a cluster fits on a hardpoint instead of a turret or other mount. Designed to be launched at the last instant before a missile or torpedo impacts the vessel, interceptors are sometimes carried by vessels with no other missile capability and require no additional electronics. Interceptor clusters are one-shot systems which must be removed and replaced – a dockside job – after firing. Torpedo interceptors can be used only against incoming missiles or torpedoes. Any or all of the interceptors in a cluster can be fired at once; each kills one missile on 6+ on a 2D roll and a torpedo on 8+.

WEAPON TRAITS

Several new weapon traits are introduced here for starship weaponry.

Chain Reaction: This weapon continues to deal damage over time as its effects dissipate slowly. A target hit by a Chain Reaction weapon takes normal damage the first round then half as much the following round (rounding down), halving again each round thereafter until damage reaches zero. If another Chain Reaction hit is received during this time, only the highest damage is applied (so only one Chain Reaction effect is taking place at any one time).

Reductor: This weapon ruins armour as it attacks a ship. The Armour score of a ship hit by a Reductor weapon is reduced by -1 for every dice rolled for damage. Damage is applied after this reduction.

Weak: This weapon can devastate an unprotected target but its lethality quickly drops off when met with armour. The Armour score of the target is doubled against the damage this weapon deals.

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TRAVELLER

TRAVELLER COMPANION UPDATE 2024

The Traveller Companion is a compilation of variant and alternate rules. Variant Traveller creation systems allow specific tailoring, whilst alternate combat rules introduce hit locations and wound severity. Rules for hunger, thirst, temperature, atmospheric and water pressure effects make the universe more realistic, not to mention more hazardous. Encounters with animals and vehicles are also covered, along with the consequences of lawbreaking on personal and starship-operations scales.

The game universe is expanded with advice on using tools such as Travellermap and the Traveller Wiki, interpreting UWP data to flesh out a world, and additional spaceport types. The Companion also contains rules for starship operations in gas giant atmospheres, travelling slower than light and in jump space, and making space travel more hazardous with minefields, missile salvoes, and new starship weapons. Also included are rules for entirely different styles of play such as narrative task resolution and the mundane events resolution system.

The Traveller Companion is a complete toolkit allowing referees to pick and choose enhancements to their own campaigns, giving greater depth and weight to their adventures.

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