

X.O Jump Lanes

“Today’s flight marks a critical turning point in the history of aerospace. We have redefined space travel as we know it.”

- Burt Rutan

Star systems are connected to one another by a series of jump lanes. Each star system can have up to six jump lanes connecting to it, and the number of lanes that a system has influences its strategic value. Starships and flights can use jump lanes to travel from one star system to another. This jump lane movement is resolved during the Movement Phase of the campaign turn. Units can use either their own FTL drives to move across jump lanes (FTL Jump Lane Movement) or else move between systems that contain jump gates (Non-FTL Jump Lane Movement).

Jump lanes serve the purpose of creating a network of artificial terrain that constrains movement along specific predefined paths. This produces defensive chokepoints at various point on the map that players can use to their advantage during the game to either entrench themselves at defensible positions or expand to cover weaknesses in their border by capturing strategically-positioned enemy systems.

But what does a jump lane really represent? Because of their abstract nature, jump lanes can be used to simulate everything from fixed hyperspace corridors, well-surveyed flight paths that have been pre-programmed into shipboard flight computers, or the shortest distances connecting two points in space. This approach allows the same set of movement rules to be used in all campaigns regardless of the specific type of FTL travel that is employed in any given setting. This improves rules consistency and makes it so that players don’t have to create special movement rules or exceptions for each form of FTL propulsion system they might expect to encounter. The assumption is that a ship with a warp drive and another with a folding drive might violate physics in different ways to achieve faster-than-light flight, but they should be subject to the same basic movement limitations for the sake of making the game easier to play.

Under the default system generation rules, massive stars tend to have more jump lanes than smaller ones do. These same systems also tend to have fewer system resources, which creates an environment where the systems with the most jump lanes have the least intrinsic

value. Players have the option of divorcing the correlation between stellar luminosity class from jump lane concentration in their campaigns if they believe that this isn’t applicable to their particular setting.

X.I FTL MOVEMENT

Starships and flights that have the FTL special ability can use jump lanes to move from one system to another. The maximum number of jump lanes that a unit can traverse during a single Movement Phase is equal to its FTL value. A FTL 4 unit could therefore cross four jump lanes per turn while a FTL 2 unit could only cross two jump lanes per turn.

Units that are capable of performing multiple jump lane moves per turn receive several marked advantages over those that can’t. From a strategic standpoint they are more versatile and can be quickly redeployed between a player’s systems to react to changing battlefield conditions. They are also very good at performing basic reconnaissance. Units make space *and* ground detection rolls for every system that they visit during their movement (see X.X Detection). This allows them to try to ascertain the size and disposition of opposing forces in these systems.

X.2 Non-FTL MOVEMENT

The majority of starships have FTL values greater than zero, but this isn’t always the case. Building starships that lack FTL drives frees up mass that can be spent to improve their combat capabilities. These units take on the roll of *system monitors* that are optimized for “shore defense” missions and charged with protecting friendly colonies against enemy attack. In contrast, flights are rarely equipped with FTL drives because the systems are mass intensive and FTL-capable flights have diminished combat effectiveness when compared to non-FTL flights.

These non-FTL starships and flights can’t travel across jump lanes on their own and must rely on jump gates to move from one system to another (see X.X Jump Gates). Jump gates allow units to move from one connected system to another as if they had FTL 1. This limits non-FTL units to a maximum of one jump lane movement per turn, but it at least allows them to move from one system to another when they would otherwise be denied access to jump lane movement because of their lack of FTL ability.

X.3 FLEET MOVEMENT

Fleet formations comprised of multiple starships and flights can be issued movement orders and perform movement as a single entity. Fleets always have a strategic speed equal to their lowest FTL value. Units that are being based aboard other craft in the fleet have an effective FTL value equal to their transport's in these instances and don't affect their fleet's strategic speed.

Fleets that contain one or more non-FTL units that aren't being transported aboard other units are also restricted to using jump gates and relays to move between systems until the offending non-FTL are removed from the fleet.

Example: A fleet consists of one battleship (FTL 2), three light carriers (FTL 3) carrying two flights each (FTL 0), five frigates (FTL 3), and two military freighters (FTL 1). The flights based aboard the trio of light carriers have the lowest FTL value in the fleet, however they are being transported by other units and don't impact the fleet's strategic speed. The slowest non-based units in the fleet are the military freighters, which gives the fleet an effective FTL value of 1 when performing jump lane movement.

Should the fleet's owner choose to remove the two freighters from this fleet, its strategic speed would increase to FTL 2 because the battleship is the next slowest unit and it is FTL 2.

X.4 CONTESTED MOVEMENT

Contested movement occurs when units that have been ordered to perform multiple jump lane moves during a single Movement Phase have the potential of crossing paths or encountering unexpected obstacles. Contested movement is resolved by having each affected unit or fleet perform one jump at a time. After each jump the player receives the results of his force's space and ground detection rolls and uses this intel to decide whether or not to continue moving as previously ordered or else cancel the fleet's remaining movement orders and remain in the current system. This sequence of events is repeated until all remaining fleet movements are completed or cancelled.

A fleet can also have its movement contested if it enters a system that contains an opposing, non-friendly space combat force. The fleet can either cancel its remaining movement or else leave behind a force with a total construction cost equal to at least half the total construction cost of enemy space combat units in the system (round up) to cover its retreat as it moves on to

the next system in its movement orders. The player performing contested movement must make the tough decision of what size of fleet to leave behind when they want their main force to continue pushing deeper into enemy territory. Leaving the minimum force behind allows the player to maintain the highest concentration of strength in its main fleet but the token force left behind to engage the defenders probably won't survive its encounter with the enemy this turn. Leaving a larger force to cover the main fleet's movement increases its survival odds at the expense of blunting the primary force's firepower as it moves into the next system.

Defenders can use contested movement to their advantage by making sure to post pickets in their forward border systems that an enemy has to deal with to reach deeper into their territories. Every 2 EP of units in these systems will force an opponent to leave at least 1 EP of units behind if they want to advance deeper into the defender's territories. Starbases are especially useful in this regard as they are cheaper to maintain than starships and an empire can operate more of them for the same maintenance cost, giving them an advantage when it comes to projecting fleet strength during contested movement.

Example: A 32 EP fleet has been ordered to move into three systems this turn (A, B, and C). The fleet first moves into A and makes its space and ground detection rolls. System A contains 5 EP of enemy space combat units. To continue moving the fleet would have to leave behind 3 EP of units. The player decides to leave 8 EP of fleet units behind in system A, and the remaining 24 EP fleet moves on to system B.

The fleet makes another series of detection rolls upon arriving in System B. There are two enemy fleets in this system, one with a construction cost of 12 EP and one with a construction cost of 9 EP. This produces a total of 21 EP of enemy ships in the system. The player must leave at least 12 EP of space combat units behind in System B if it hopes to move on to system C. Doing so would split his fleet into two 12 EP segments, however, and there's a good chance that a larger enemy fleet might be waiting in System C. The player decides to cancel his fleet's remaining movement and keep all 24 EP of his units in System B to participate in an encounter there this turn.

X.5 JUMP LANE CLASSES ▲

Jump lanes can be assigned jump lane classes that vary the amount of FTL value a unit must spend to move across them. This optional rule introduces four different jump lane classes —

restricted, minor, normal, and major — and each of these classes is assigned its own movement cost, as shown on the accompanying chart. The maximum movement cost of jump lanes that a fleet can traverse each campaign turn is equal to its FTL value. However, an FTL-capable unit can always move across at least one jump lane per turn regardless of the jump lane's class.

Jump Lane Movement Cost Chart

Jump Lane Class	FTL Cost
Restricted	4
Minor	2
Normal	1
Major	1/2

A jump lane's class is assigned by rolling on the Jump Lane Class Table during map setup. Jump lanes that are supposed to be unexplored at the start of the game defer their rolls on the Jump Lane Class Table until after they are successfully explored (see X.X Exploration). When using real world star data, players can alternatively choose to use the distances between stars to determine the effective jump lane class of the jump lanes that connect them.

Jump Lane Class Table (D10)

Roll	Jump Lane Class
1-4	Restricted
5-7	Minor
8-9	Normal
10	Major

Restricted Lane

Restricted lanes are tenuous routes that have been only tentatively mapped by previous explorers and are hardly worthy of being called jump lanes. The adventurers that discovered the lane encountered various navigational hazards along its path that prevented them from completing a more comprehensive survey, which is part of the reason it's so difficult to cross a restricted lane.

Minor Lane

Minor lanes are infrequently-traveled jump lanes that suffer from a lack of reliable navigation data. These lanes are often found on the frontier

where no one has deemed it necessary to invest the time and resources to perform more detailed surveys of the lane.

Normal Lane

Normal lanes are dependable jump lanes that support a consistent level of both civilian and military traffic. The quality of maps available for these lanes ensures travelers a safe and uneventful journey. As an empire expands, it is common for it to upgrade most of its internal jump lanes to this class.

Major Lane

Major lanes are heavily-traveled jump lanes that have been thoroughly mapped and provide the quickest, most reliable movement between galactic destinations. It is not uncommon for all of an empire's major colonies to be connected together via a network of major lanes.

Jump Lane Upgrades

Jump lanes can be upgraded by financing a series of costly navigational surveys. These surveys pay for more comprehensive mapping of a jump lane and the placement of additional navigation buoys along its length to help guide spacecraft safely from one system to another.

The cost to upgrade a jump lane depends on its current jump lane class, as shown on the following chart. An empire can't upgrade jump lanes that connect to systems that are owned by other powers unless it has signed a border treaty with them. Jump lane upgrades take effect during the Colony Phase.

Jump Lane Class Upgrade Cost Chart

Current Class	New Class	Upgrade Cost
Restricted	Minor	50
Minor	Normal	100
Normal	Major	200
Major	N/A	N/A

Jump Lane Downgrades

Just as jump lanes can be upgraded through careful mapping and the placement of navigation aids, they can also be downgraded by removing buoys, deleting map data from civilian and military navigation cores, and/or placing obstacles along previously-mapped safe routes. Any of these methods can be used to effectively reduce a jump lane's class.

The cost to downgrade a jump lane is determined by its current jump lane class, as shown on the chart below. An empire can't downgrade jump lanes that connect to systems that are owned by other powers unless it has signed a border treaty with them. Jump lane downgrade take effect during the Colony Phase.

Jump Lane Class Downgrade Cost Chart

Current Class	New Class	Downgrade Cost
Major	Normal	100
Normal	Minor	50
Minor	Restricted	25
Restricted	N/A	N/A

X.6 JUMP LANE ALTERNATIVES Δ

While jump lanes are excellent tools for constraining movement and creating artificial terrain on a campaign map there are some sci-fi settings where they may not be thematically appropriate. Perhaps more importantly, some players also detest the concept of jump lanes *because* they create artificial terrain and would prefer to use alternate movement options that better capture the feeling of FTL travel in their preferred campaign setting. The following are a few alternatives that players can use if they don't want to use jump lanes in their campaigns.

Freeform Hex Maps

An easy option for players that want to do away with jump lanes is to continue using a hex map to track system locations as per the standard campaign system rules but allow units to move between adjacent systems on the map as if they were connected by jump lanes. This constrains movement to a two-dimensional surface, which may not be optimal for the type of campaign environment you're trying to simulate, but it is very effective at increasing the number of movement options that a player has available. Most importantly, it eliminates the natural chokepoints on the map that jump lanes create and makes imperial borders more fluid.

Distance Based Movement

Another option is to use the distance between two systems on a campaign map to determine how long a ship has to be in transit to move from one system to the other. The recommended number of Movement Phases required to travel between two systems is equal to their light year distance divided by 5 (round fractions up). A FTL

1 starship moving from Sol to Alpha Centauri (4.4 ly) would make the journey in 1 turn, but that same ship would need 3 turns to move from Sol to Epsilon Eridani (10.5 ly). Note that a faster starship with FTL 2 could cover that distance twice as fast, and it could make the trip from Sol to Epsilon Eridani in just 2 turns.

An advantage of this jump lane alternative is that players can use online star catalogs or mapping software like *Celestia* to calculate the distance between two stars. Meanwhile, players that are using flat, two-dimension maps can select a scale for their map and then use a grid or ruler to measure between points on the map to determine the distances between systems. Enterprising players can easily add a z-axis to the flat map to give it three-dimensional depth, too, and then use math to calculate the distance between any two systems.

The Strategic Implications of Jump Lanes

Systems that have large numbers of jump lanes provide players with more movement options, but they are also harder to defend because each of these lanes represents another avenue of attack into the system. Empires often find themselves spending resources to fortifying and defend otherwise unimportant systems simply because of their strategic value. These defenses are rarely impregnable, however, and a dedicated opponent can usually push enough military forces into the system to eliminate them -- albeit at a significant cost in men and materials to achieve the victory. On the other hand, the opponent may choose not to attack a fortified system at all because he can't be sure that his forces can break through the defenses without taking unacceptable losses, at which point the defense's mere presence are enough to protect the system against attack.

Systems that have few jump lanes connecting to it -- or even a single jump lane -- offer their own unique set of advantages and disadvantages. These systems are of lesser strategic value because they offer fewer access points into or out of the regions where they're located. The only reason most opponents have for attacking a system that only has one or two jump lanes is if it is located along a path of lanes that does lead to somewhere of greater importance.

Systems that are located in a cul-de-sac gain an additional defensive edge thanks to their out-of-the-way nature. It's unlikely that an enemy will aggressively pursue a military campaign against systems that are located in cul-de-sac unless one or more them are particularly high value when his forces can be better used trying to make

territorial gains in more strategically valuable regions. Cul-de-sacs also tend to have a central point of access that the defender can easily reinforce, making it more difficult for an enemy's forces to achieve a breakthrough.

Unfortunately for the inhabitants of a cul-de-sac, it also harder for a player to reinforce his forces in these systems when they are cut off by an enemy offensive. Still, unless the isolated system exhibits unusual characteristics that make it abnormally valuable, most empires will balk at the prospect of wasting considerable time and resources to secure a section of enemy space that isn't strategically located or of considerable material value.