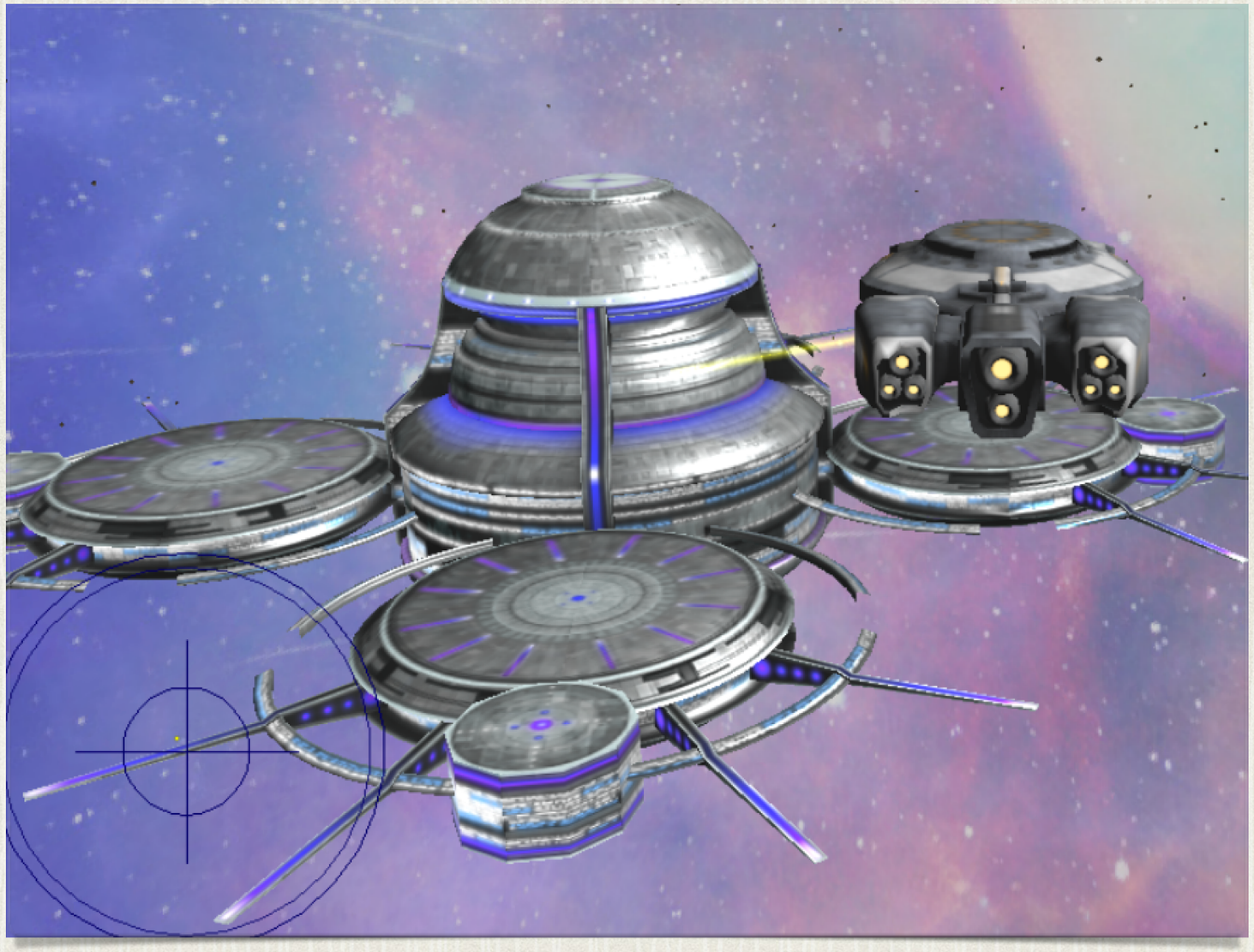
ARTEMIS
JUMP DRIVE

USN Training by Slate

Email Additions & Corrections: T@Cattail.Nu



PART 1

Jump Events

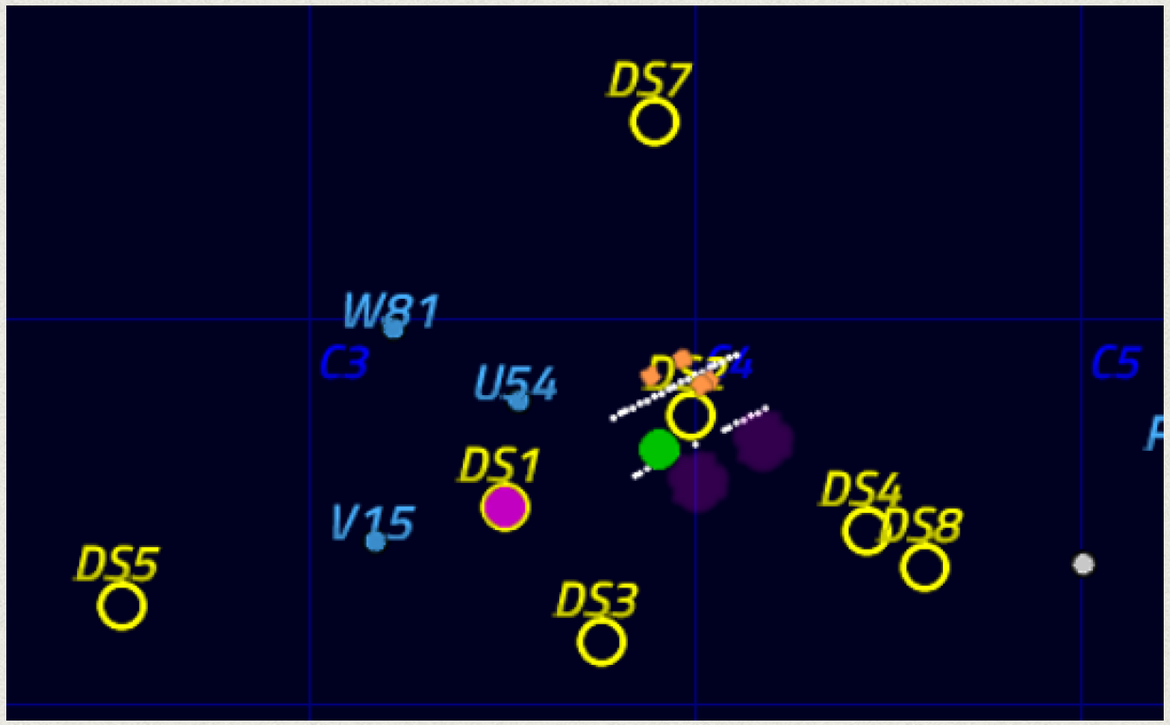
BASIC OPERATION

1. Captain orders jump
2. Science gives bearing and coordinates
3. Helm enters coordinates, and Initiates
4. Engineering boosts Jump drive (based on time requirement/available energy)
5. Helm Confirms
6. [Jump Occurs] (in 5 seconds @300 energy, 10s @100, 30s @0)
7. Engineering drops Jump drive energy back to 0

Captain

"Jump to DS4."

- *Captain*



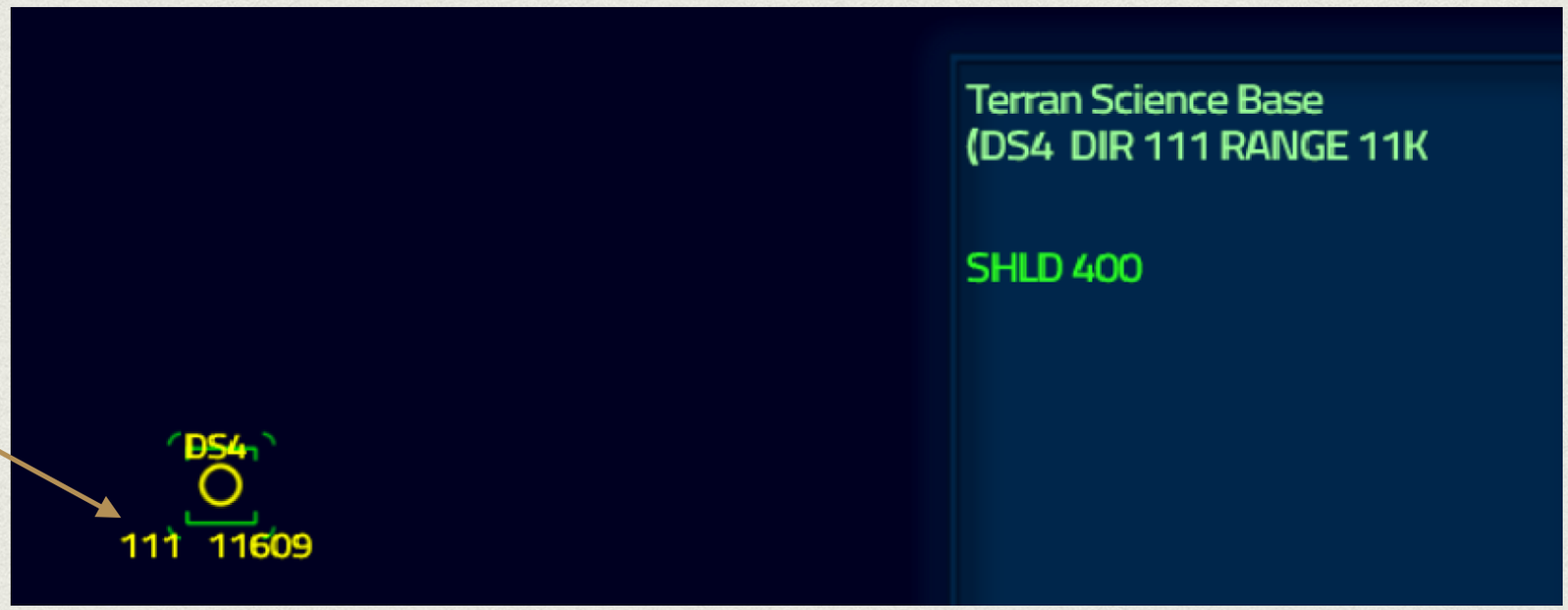
Comms should tell the station to prepare for docking.

Science

"Direction 111. Range 12k."

- Science

Use the precise number to figure out the jump range.



Do not use the general range reported by the selection.

Note: 12k is a better choice than 11k as this puts the ship within 600 of the Station and allows instant docking.
Helm must enter information as a rounded k, not 11609, so round to the nearest k (12 in this case).

Combat jumps add "Facing/Face" (ship's bearing) before distance calculations.
Higher levels may need a separate Navigation Science Officer.

Helm

Enter direction.
Enter distance.

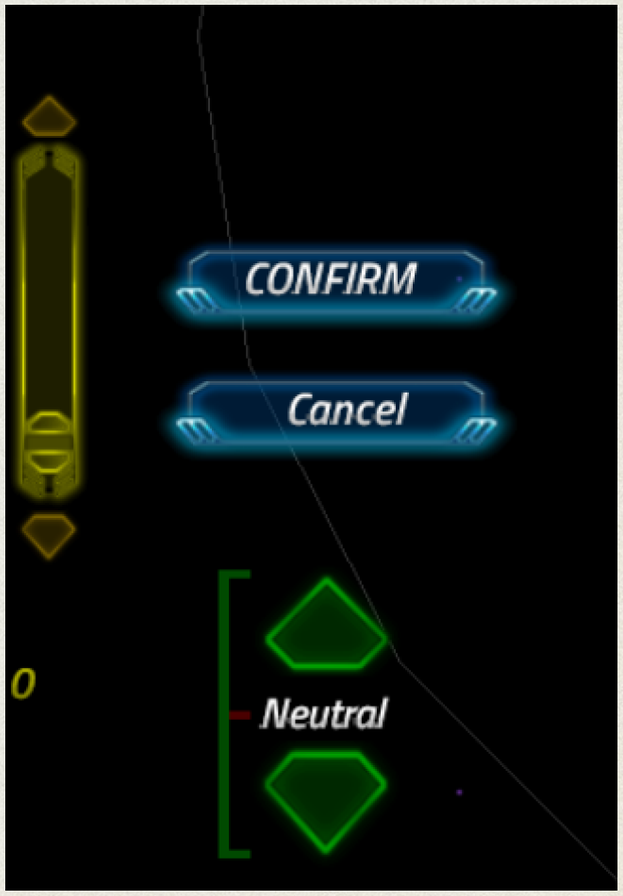
"Direction 111 Range 12k."

- Helm

Click "Initiate".
Inform Engineering.

"Ready to Jump."

- Helm

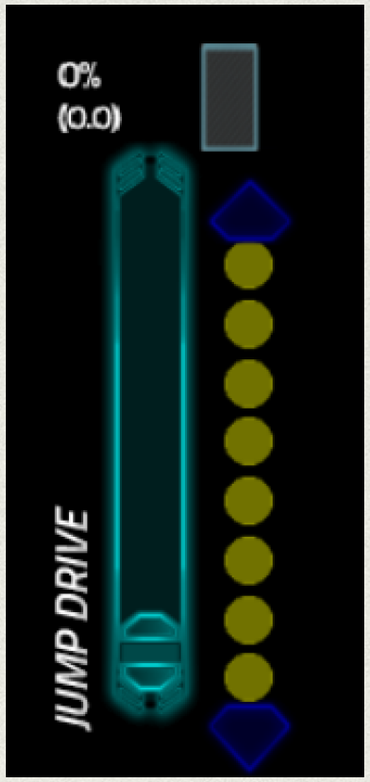


Helm should not adjust the ship's bearing before a jump unless instructed to do so.

Engineering

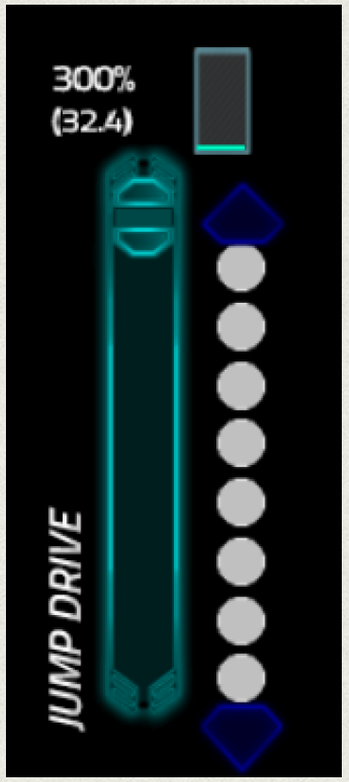
"Jump Engine Ready."

- Engineering



When not in use the Jump drive should be kept at 0% energy. It drains at a 6x rate and would waste energy if kept "ready".

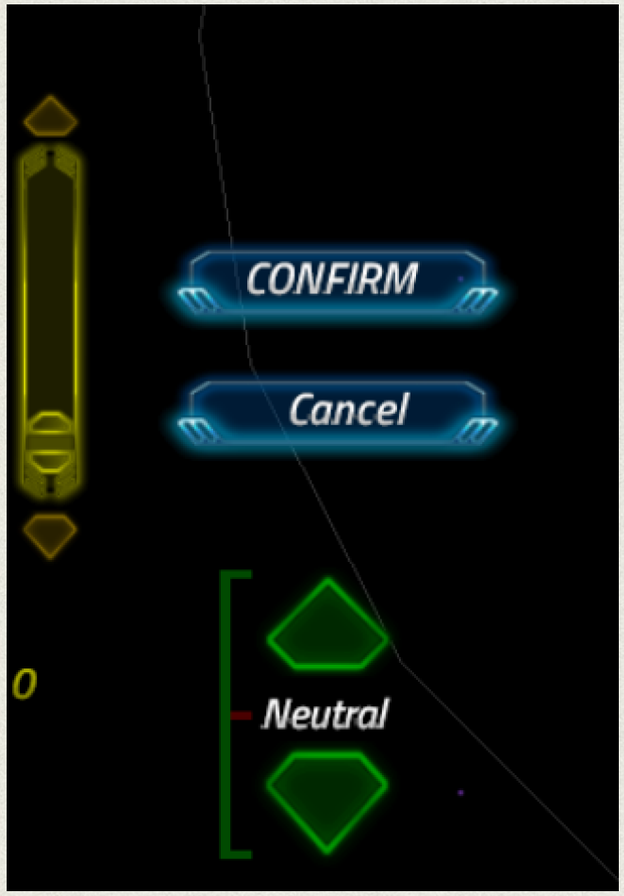
An inexperienced crew might want to keep the jump drive energy at 100% during combat, in case an emergency exit is needed.



If console crash is a possibility, set a maximum energy at 250%, so the ship won't explode if the console bugs and becomes unresponsive.

Talk with your Captain about his/her preference.

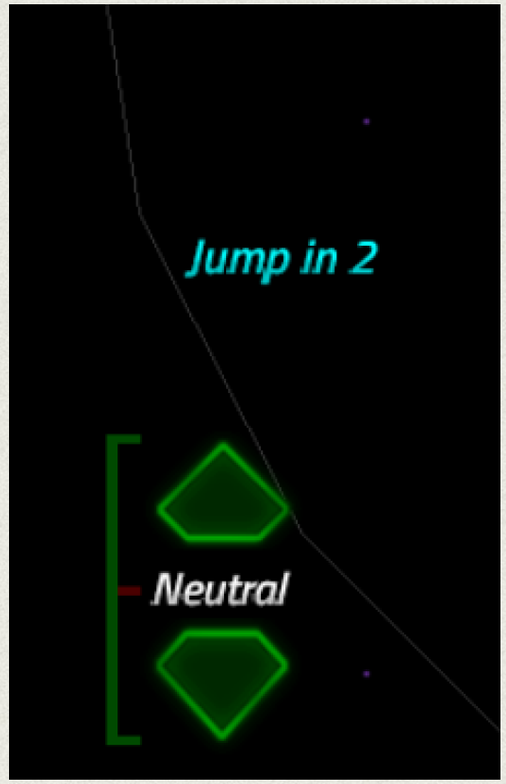
Helm



Click “Confirm” (after Engineering brings jump engine online).

“Jump in 5... 4... 3... 2... 1...”

- Helm



Screen will flicker through black and restore.

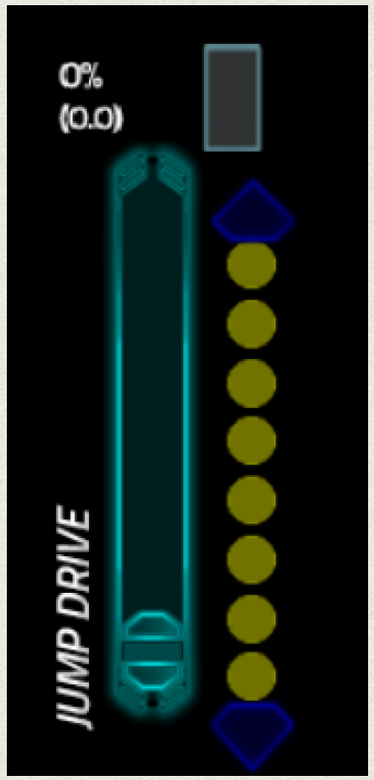
“Jump Complete.”

- Helm

Engineering

"Jump Engine Offline."

- Engineering



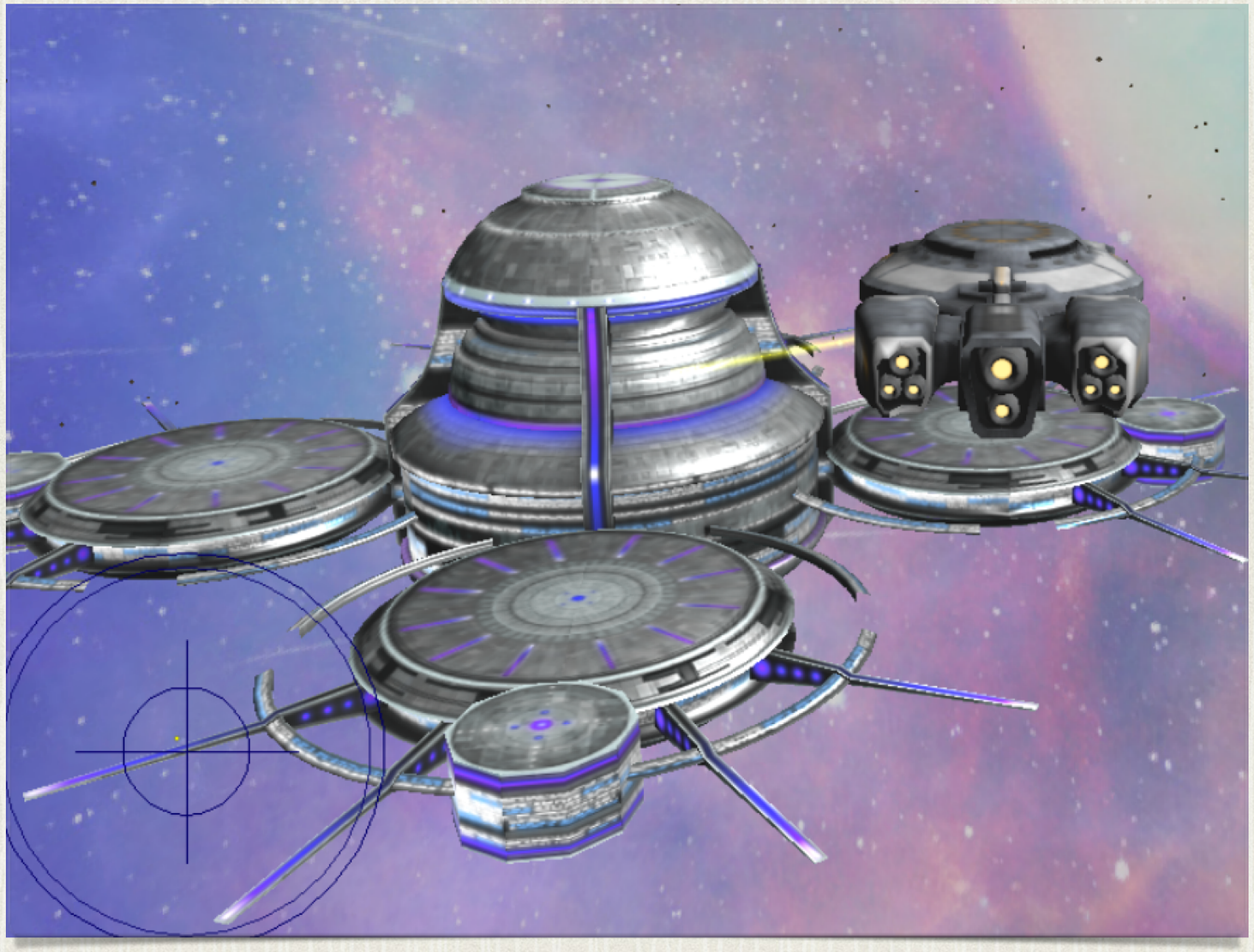
Engineering would do better to report what the new configuration is:

Impulse
Energy-saving
Docked/Scanning
Combat-impulse, rear shields (mine drop), maneuverability
Combat-impulse, front shields (beam attack), maneuverability
HET (high energy turn)
Torp-load

Jump Drive Language

A successful jump should sound something like the following. Captains and their crews are encouraged to tweak the language and steps to best suit their team. The goal is absolute efficiency and speed while still having fun. Decimate incoming enemy fleet as fast as possible and return for refit.

Engineering	Conserving energy.
Captain	Jump to DS1 and dock.
Communications	DS1 is waiting for us to dock.
Science	DS1, Direction 270. Range 32K. *[Your Captain may also want to include a pre-jump bearing in non-combat jumps.]*
Helm	Direction 270. Range 32K. Initiated. *[Helm does not need to change the ship's bearing for a non-combat jump unless the Captain directs it.]*
Engineering	Jump drive activated.
Helm	Confirmed. Jumping in 10. 9. 8. 7. 6. 5. 4. 3. 2. 1.
	[Jump]
Helm	Jump completed.
Engineering	Impulse energy activated.
Helm	Docking. Docked.
Engineering	Energy to scanning.



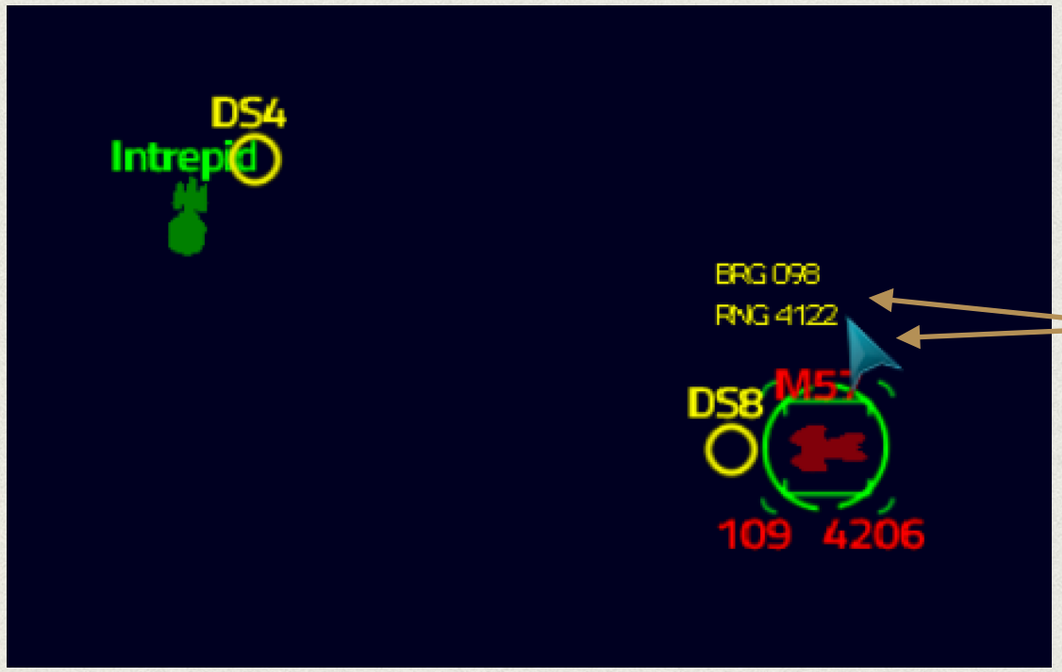
PART 2

Analysis

Combat

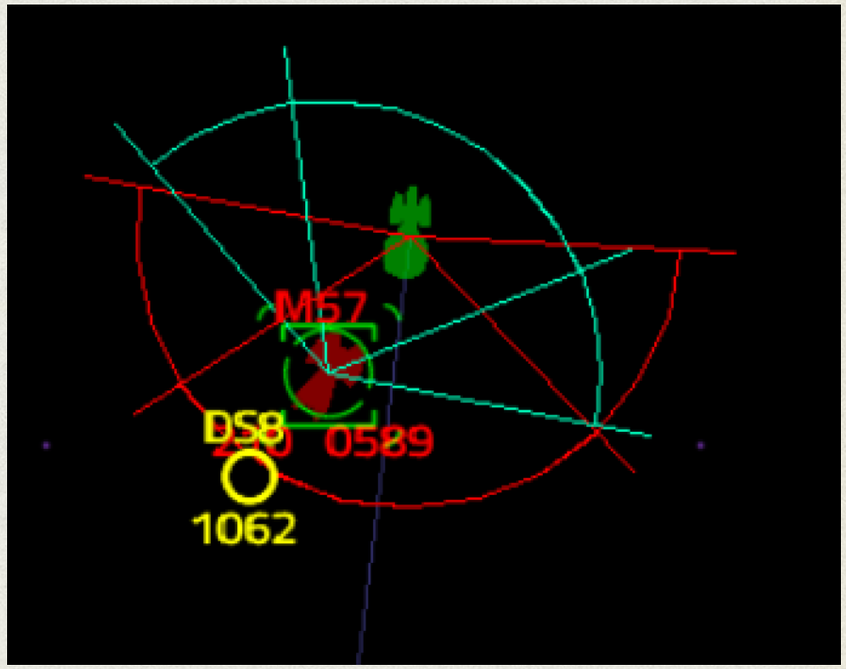
"Facing/Face" (the ship's bearing) should be changed before distances are calculated.
Science must choose the distance based on the correct placement for the next activity using the ship's current bearing.
Below shows a direction 98, range 4k to be ready for a Beam attack.

Before Jump.



Yellow pointer text has the exact coords of the pointer.

After Jump.



The Captain may want a larger distance for EMPs, Homings, Nukes, PShocks. (**Safe distance 1k. Tactical visibility 2-5k.**)
The Captain may want the tail of the ship pointed at the enemy for launching a mine. (**Mines deploy 630-640 aft**)
The worst spot to jump is probably right on top of or in the middle of the enemy fleet although ship elevation can help.

In a Combat, Science should pick a *good* Emergency exit coordinate, about 8k out, and have Helm enter that information just in case it's needed.

Ximni ships have a 5K forward or backward emergency jump.

Fun Facts

The ship will have the same bearing and elevation it had when the Jump begins.
Jump is calculated from the center of the ship. (**Ship length ~10**)
The ship will jump "over" asteroids, mines, ships, bases (teleportation, not super-speed).
Mines trigger at 500 so care must be taken when jumping to a base that is surrounded by mines.
Docking distance is 600, with refit at 100.
The ship cannot jump while docked (jump will initiate/confirm, but ship will not go anywhere).
If the ship runs out of energy mid-jump, the ship will appear a proportionate distance to the destination as the energy spent/total cost.
If the ship's jump engine is damaged, the ship will appear a proportionate distance to the destination as the undamaged percentage.
The jump-slider control allows a maximum distance of 50k, but Helm can enter values to 99k.

Memorize this:

100	Refit Commences
500	Trigger Mine
600	Request Dock
630-640	Mine Deployment
1000	Safe from EMP/Nuke/Mine Detonation
1200	Zoom 1 (visibility 2000)
2400	Zoom 2 (visibility 4000)
3600	Zoom 3 (visibility 5000)
5000	Zoom 4 (visibility 5000)
5000-5400	Torpedo Max Range
7500	Visible on Main
20000^2	Sector Grid Block

Helm Efficiency

Helm Hotkeys:

W or UP	Impulse Up
S or DOWN	Impulse Down
SPACE	All Stop
ESCAPE	Toggle Reverse
RETURN	Initiate / Confirm Jump
TAB / SHIFT + TAB	Change focus between jump distance/ range

Helm can be super-efficient using hotkeys:
Captain: Jump to that fleet in A2.
Science: Direction 250. Range 28k.
Helm [up arrow / space] to break dock.
Helm [tab] to move to data entry block. 250 [tab] 28 [tab]
Helm: Ready to Jump.
Eng: Jump engines online.
Helm [return] [return]
Helm: Jumping in 5 4 3 2 1...
(Note: helm may have to click cancel as the Return key may fire off the Initiate twice)

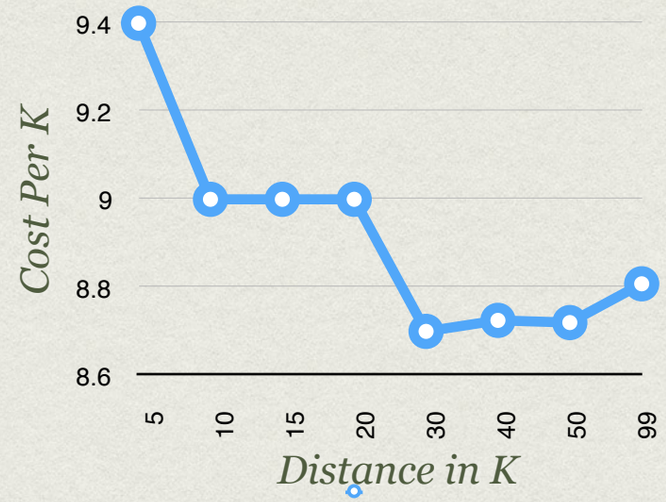
Jump Energy Cost

TSN Light Cruiser:

Engineering Energy Allocation	Countdown	Black Screen	Cost / K
0	30s	15s	6 - 8.6
100	10s	5s	8.2 - 8.6
300	5s	1s	9.4 - 8.7

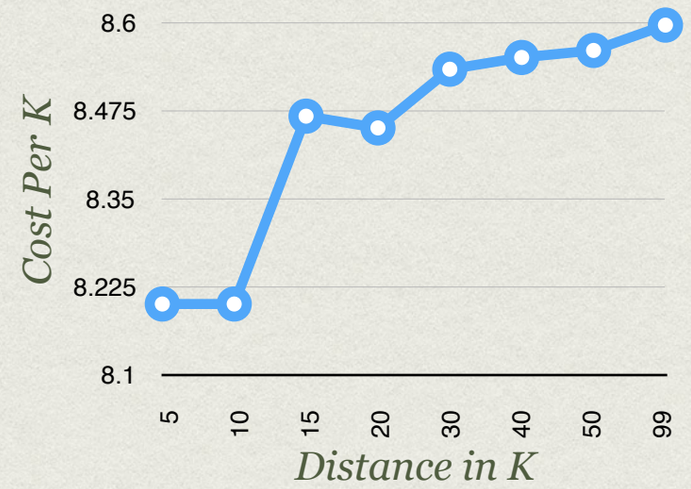
Engineering: 300 Energy
5s + 1s = 6s to Jump

Best > 20k
or
in a hurry



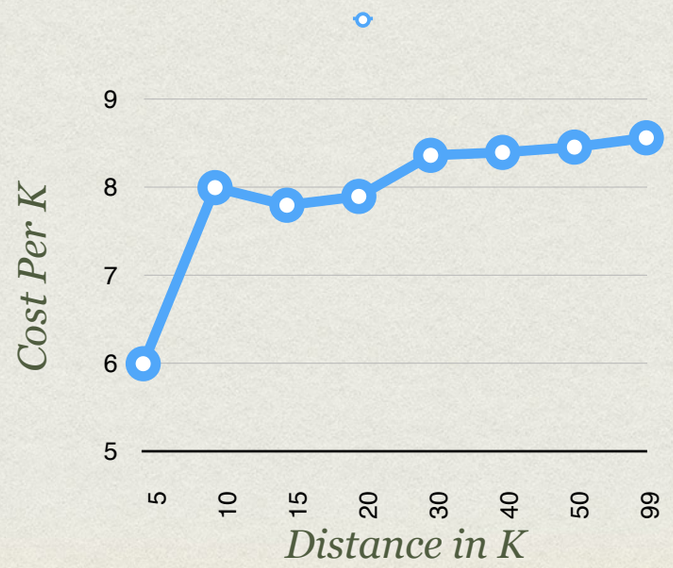
Engineering: 100 Energy
10s + 5s = 15s to Jump

Best < 15k



The latest time/cost analysis can be found at:
http://www.Cattail.Nu/artemis/artemis_jump_efficiency.pdf

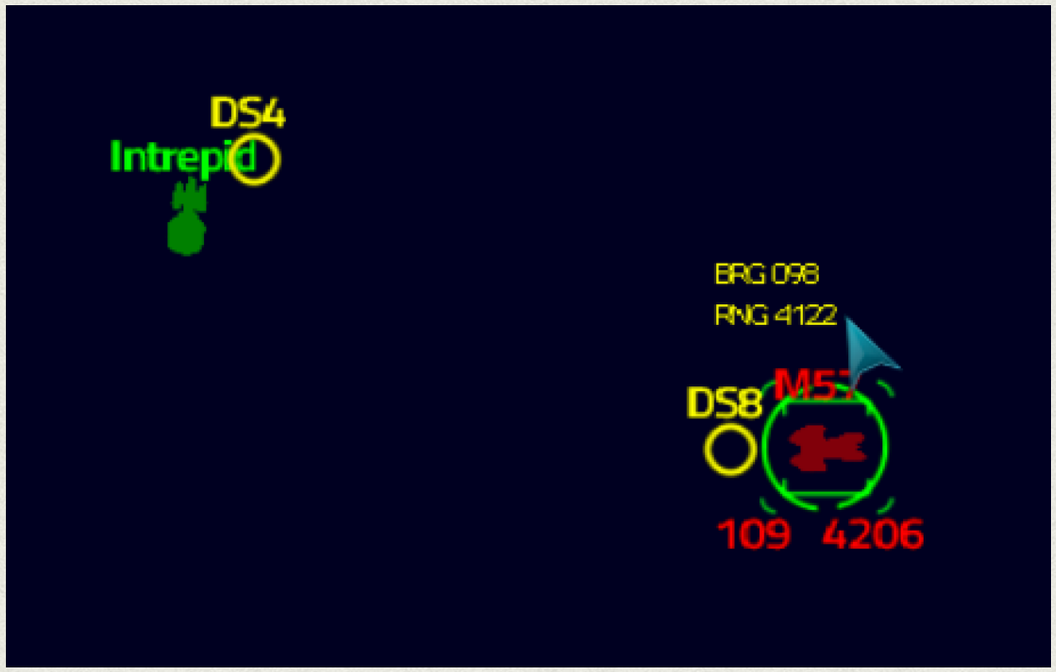
Engineering: 0 Energy
30s + 15s = 45s to Jump
Best < 10k and
if ship has no Energy



Ximni ships are significantly more efficient.

Distance to Target

How to calculate the new distance to target before a jump.



Law of Cosines

$a^2 = b^2 + c^2 - 2bc\ cosA$

Angle A = 109-98 = 11
b = 4122
c = 4206

$a^2 = 4122^2 + 4206^2 - (2 * 4122 * 4206 * cos(11°))$

$a^2 = 16990884 + 17690436 - (34674264 * cos(11°))$

$a^2 = 34681320 - (34674264 * 0.982)$

$a^2 = 34681320 - (34037200.1)$

$a^2 = 644119.9$

$a = \sqrt{644119.9}$

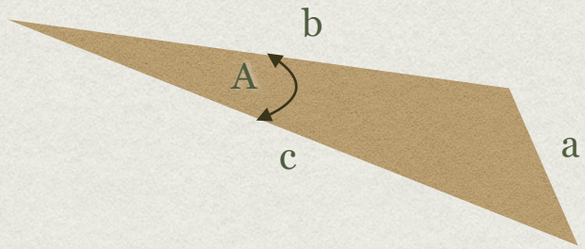
a = 802.57

Distance to target after jump: 803

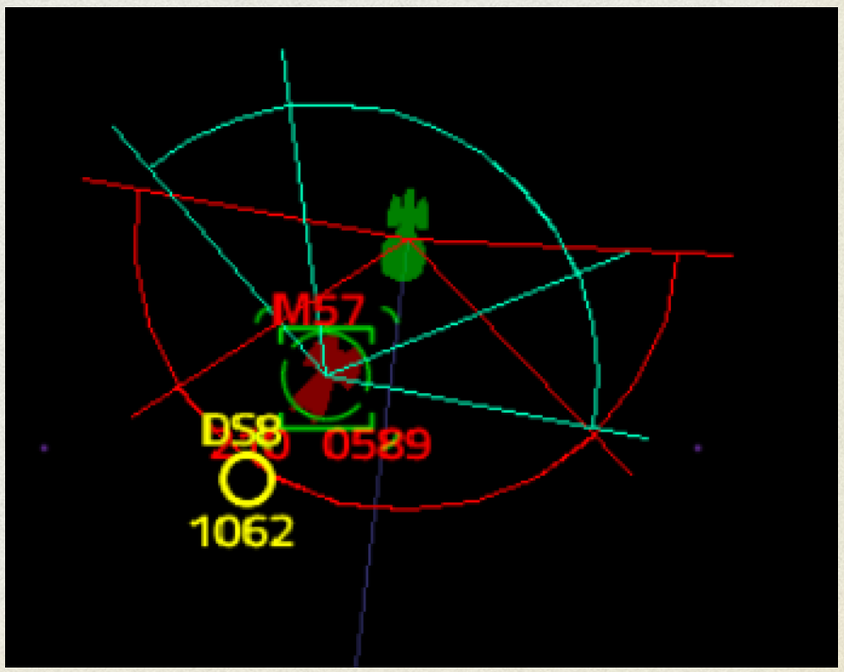
Note: The target immediately turned to engage, shortening the distance. Science should always account for enemy ship/fleet movement when choosing coordinates.

Law of Cosines

$a^2 = b^2 + c^2 - 2bc\ cosA$



https://www.mathsisfun.com/algebra/trig-solving-sas-triangles.html



Cosine Reference Chart

Law of Cosines

$$a^2 = b^2 + c^2 - 2bc \cos A$$

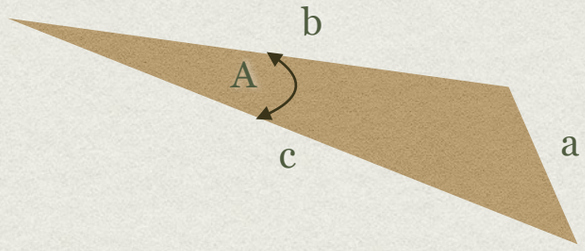


Table of cos(angle)

Angle	cos(a)	Angle	cos(a)	Angle	cos(a)	Angle	cos(a)
0.0	1.00	25.0	.9063	46.0	.6947	71.0	.3256
1.0	.9998	26.0	.8988	47.0	.6820	72.0	.3090
2.0	.9994	27.0	.8910	48.0	.6691	73.0	.2924
3.0	.9986	28.0	.8829	49.0	.6561	74.0	.2756
4.0	.9976	29.0	.8746	50.0	.6428	75.0	.2588
5.0	.9962	30.0	.8660	51.0	.6293	76.0	.2419
6.0	.9945	31.0	.8571	52.0	.6157	77.0	.2249
7.0	.9926	32.0	.8480	53.0	.6018	78.0	.2079
8.0	.9903	33.0	.8387	54.0	.5878	79.0	.1908
9.0	.9877	34.0	.8290	55.0	.5736	80.0	.1736
10.0	.9848	35.0	.8191	56.0	.5592	81.0	.1564
11.0	.9816	36.0	.8090	57.0	.5446	82.0	.1392
12.0	.9781	37.0	.7986	58.0	.5299	83.0	.1219
13.0	.9744	38.0	.7880	59.0	.5150	84.0	.1045
14.0	.9703	39.0	.7772	60.0	.5000	85.0	.0872
15.0	.9659	40.0	.7660	61.0	.4848	86.0	.0698
16.0	.9613	41.0	.7547	62.0	.4695	87.0	.0523
17.0	.9563	42.0	.7431	63.0	.4540	88.0	.0349
18.0	.9511	43.0	.7314	64.0	.4384	89.0	.0174
19.0	.9455	44.0	.7193	65.0	.4226	90.0	0.0
20.0	.9397	45.0	.7071	66.0	.4067		
21.0	.9336			67.0	.3907		
22.0	.9272			68.0	.3746		
23.0	.9205			69.0	.3584		
24.0	.9135			70.0	.3420		

Use your browser "Print" command to make copies of this form.

http://www.grc.nasa.gov/WWW/K-12/airplane/tablcos.html

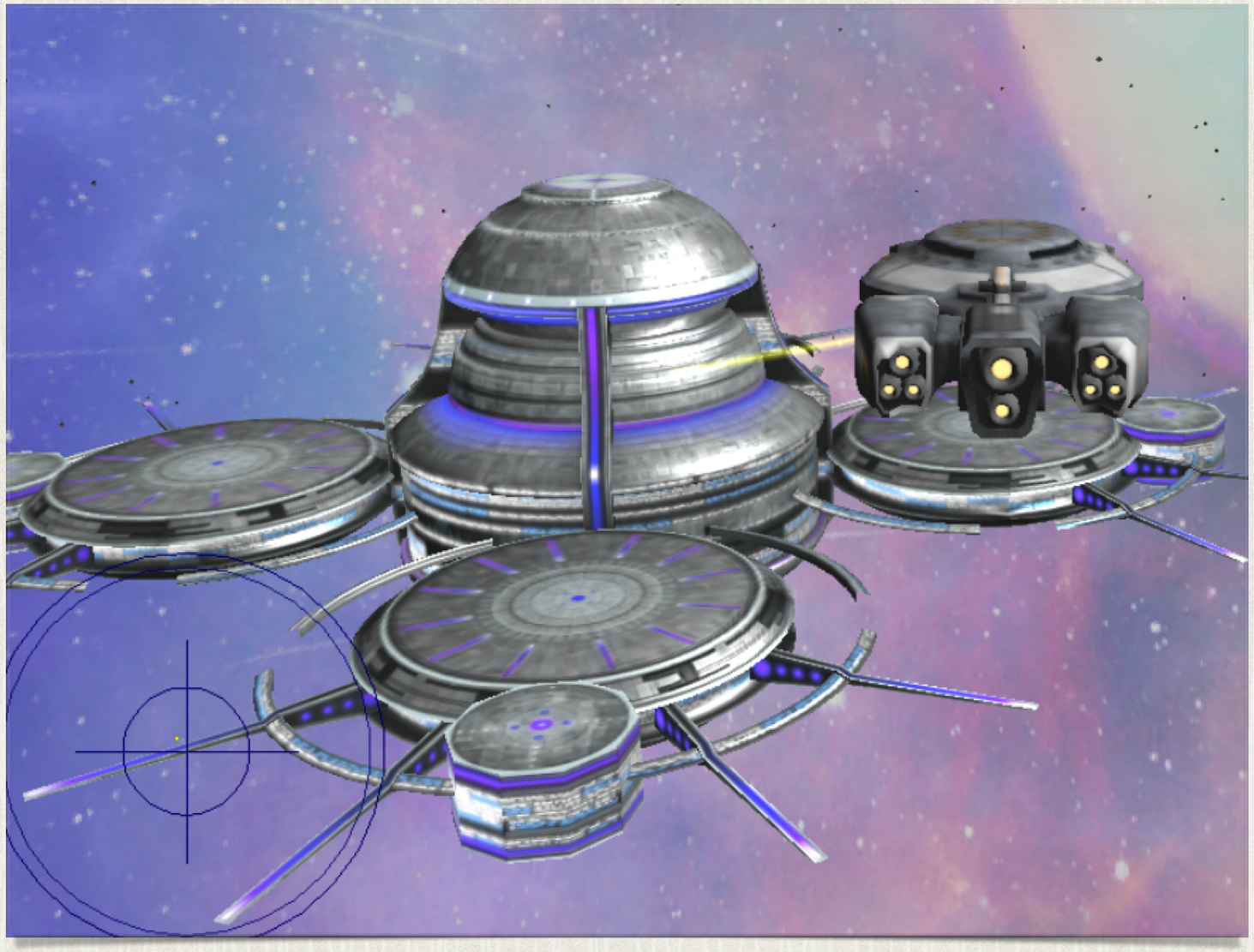
Anomaly Reference

Jump drive ships can scavenge anomalies efficiently. A collection of secret code cases, combined with jumping to each enemy fleet, could neutralize the strongest enemy ships.

+ 500 **Energy** (Anomaly)
+ Damcon (Vigoranium Nodule)
Comms: Instant surrender. Double Agent. 5 min (**Secret Code Case**)
Eng: Heat loss reduction. 5 min (Cetrocite Crystal)
Helm: Warp/impulse boost. 5 min (Infusion P-Coils)
Sci: Instant scanning. 5 min (Lateral Array)
Weap: Recharge/damage rate (Tauron Focusers)
Weap: Shield boost (Carapaction Coils)

ADDITIONAL INFORMATION

- http://artemiswiki.pbworks.com/w/page/99913705/Jump%20Drive
- http://z13.invisionfree.com/Negativezone/index.php?showtopic=192
- http://artemiswiki.pbworks.com/w/page/39352367/Engineering



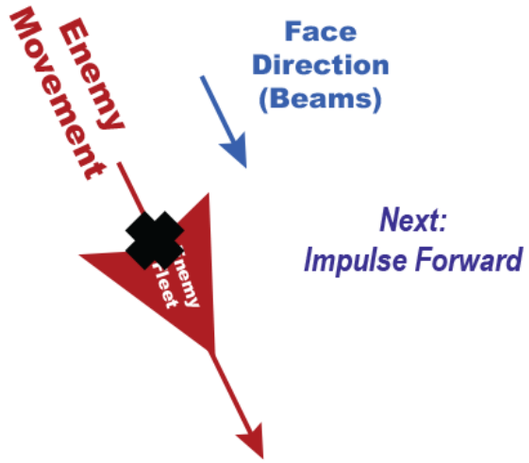
PART 3

Tactics

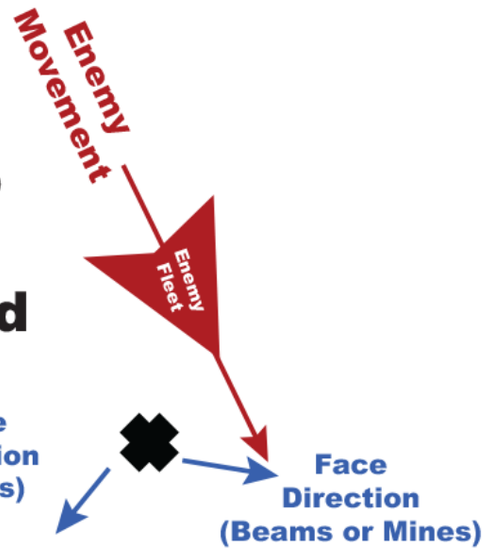
5 Simple Combat Jumps

Distances Depend on
Speed of Jump Execution and Speed of Enemy
AFTER Turning for Face direction.

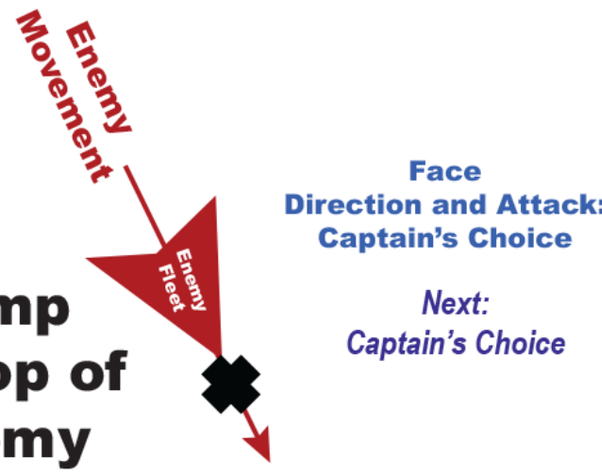
Jump Behind Enemy



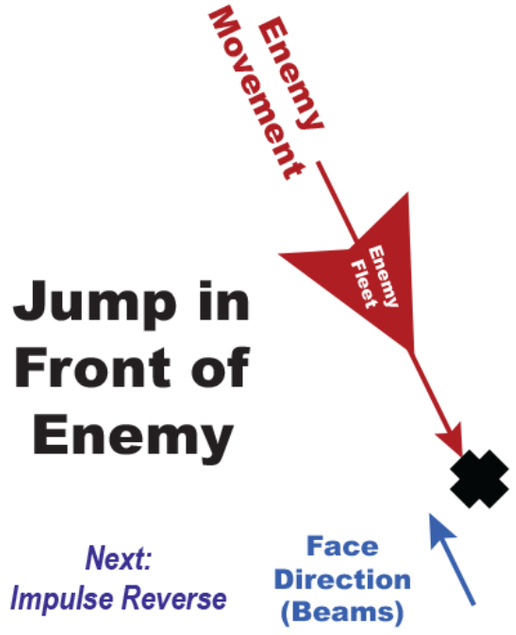
Jump to Enemy Starboard



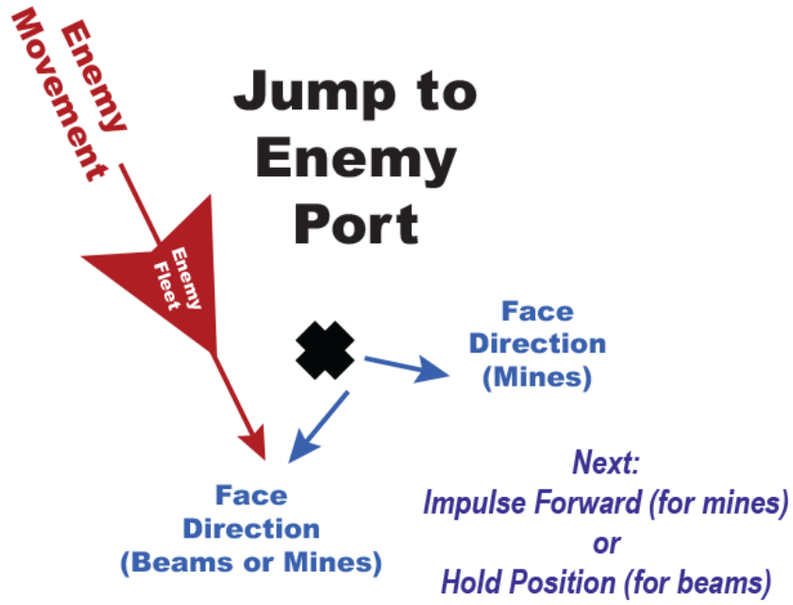
Jump on Top of Enemy



Jump in Front of Enemy



Jump to Enemy Port

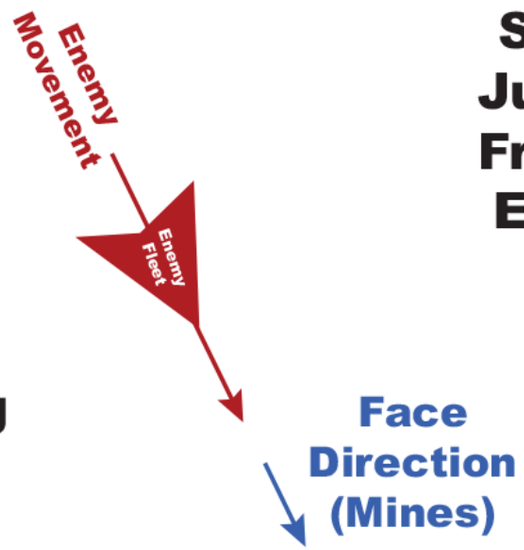


Slate's Logical Attack Tornado Echo (SLATE) Maneuver

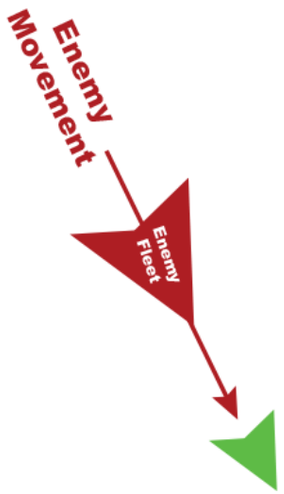
Distances Depend on
Speed of Jump Execution and Speed of Enemy
AFTER Turning for Face direction.

Step 1
Load
EMP
Mine(s)

Face
Same Bearing
as
Enemy Fleet

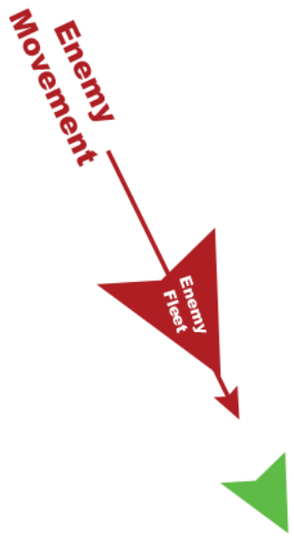


Step 2
Jump in
Front of
Enemy



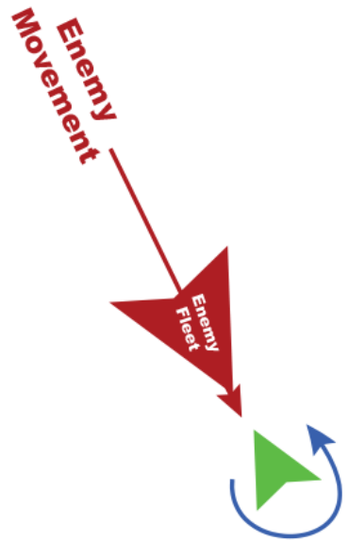
Step 3
Deploy
EMP
Mine(s)

Impulse
Forward



Step 4
All Stop
HET
Reverse

Beams



Some ships are not suitable for HET and will be too slow for this to be effective.

Supplement with
Taunts and Surrender Requests

SLATE Maneuver Broken Down

	Jump Team	Helm	Science	Engineering	Comms	Weapons
PreJump		Adjust ship bearing to the same bearing as the enemy fleet's.	Tell Comms which ship they should taunt on arrival. Tell Weapons best/largest/ center target.	Energy conservation mode (9)	Know which stations have ordnance stock. Make sure stations are building ordnance as directed by the Captain.	Load EMP, Mine(s), Ordnance
Jump	7-step jump! Jump next to Enemy Fleet, so that back of ship is 1000-1500 from enemies.					Raise shields on jump
Mine Drop		Increase impulse to move just out of enemy arcs. Do NOT get hit by our own mines/EMP.		Energy to Mine Drop Impulse (5)		Immediately deploy EMP, followed by Mine(s). Announce "[ordnance] away" (for helm) *and* when ordnance detonates (for comms).
Reposition for Long Range Attack		Load escape bearing/ distance.	Provide "escape bearing/distance"	Energy to Torpedo (2)	Taunt enemy. Request surrenders.	
Long Range Attack		As soon as you hear loaded, come about to allow torpedo defense, and continue in reverse to stay out of enemy arcs, but within firing range.		HET (4), then back to Torpedos (2)		Fire / Load / Fire / Load - Use it all (or until enemy is destroyed), but 3 Homings for energy. Announce when on last load.
PreJump			Provide bearing/ distance for best restock point as directed by Captain.		As soon as you hear the last load, provide information on best restock station. Send 'prepare for dock' as soon as the Captain picks.	
Jump	7-step jump! Jump to refit station.					

SLATE Maneuver Language

Captain	We are going to attack the enemy fleet in Sector C3. Use a SLATE maneuver.
Science	*Face* 0-6-0. *[Ship needs to turn for the best post-jump attack direction.]* Primary target F03.
Engineering	High Energy Turn.
Helm	Facing 0-6-0.
Engineering	Energy to Torpedoes.
Weapons	Ordnance Loaded.
Captain	Execute Jump.
Science	Enemy fleet. Direction 270. Range 15K. *[Direction and range should be acquired at the last possible second for the best accuracy.]*
Helm	Direction 270. Range 15K. Initiated.
Engineering	Jump drive activated. *[Combat jumps should be max-energy (300) for best accuracy.]*
Helm	Confirmed. Jumping in 5. 4. 3. 2. 1.
Weapons	Shields up.
	[Jump]
Helm	Jump completed. *[Helm should immediately use impulse engines to move forward away from mine deployment.]*
Engineering	Energy to impulse and rear shields.
Weapons	EMP Away. Mine Away. Mine Away.
Communications	F03 taunted.
Helm	Coming about. *[Helm should keep the ship out of the enemy ship firing arcs, but within combat range (3-5K).]*
Engineering	High Energy Turn. Energy to torpedoes.
Science	Escape direction 90. Distance 8K. *[Your Captain may prefer settings for a Flip maneuver where you jump the ship immediately behind the enemies.]*
Helm	Escape direction 90. Distance 8K. Ready to Initiate. *[Do not initiate until the Captain issues a 'get us out of here' command.]*
Weapons	Nuke away. Nuke away. Homing away. Homing away. Homing away. Last volley loading.
Communications	Best refit is DS1. Secondary: DS2.
Science	DS2 is closer.
Weapons	Homing away. Homing away.
Captain	Jump to DS2.
	See docking jump above.

Flea Hop Maneuver

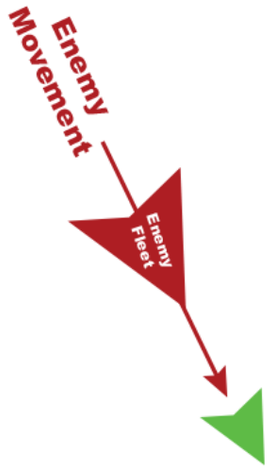
Distances Depend on
Speed of Jump Execution and Speed of Enemy
AFTER Turning for Face direction.

Step 1
Load
EMP
Mine(s)

Face
Same Bearing
as
Enemy Fleet

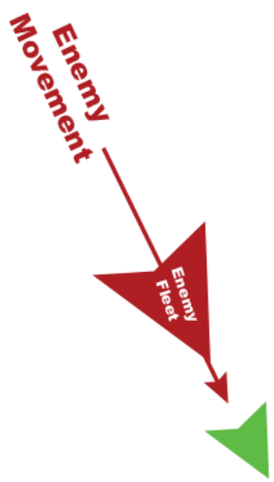
Face
Direction
(Mines)

Step 2
Jump in
Front of
Enemy



Step 3
Deploy
EMP
Mine(s)

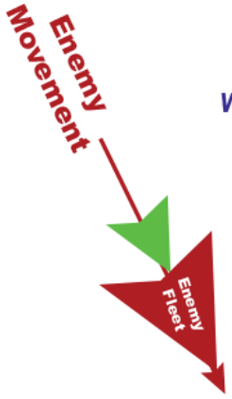
Impulse
only to
safe distance



Supplement with
Taunts and Surrender Requests

Step 4
Short
Jump
Behind
Enemy

Beams



Note:
Jump Bearing
will be the same.
Distance is
really short.

Reverse Flea Hop Maneuver

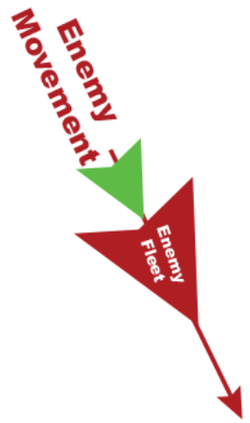
Distances Depend on
Speed of Jump Execution and Speed of Enemy
AFTER Turning for Mark direction.

Step 1
Load
EMP
Nuke(s)

Face
Same Bearing
as
Enemy Fleet

Face
Direction
(Beams)

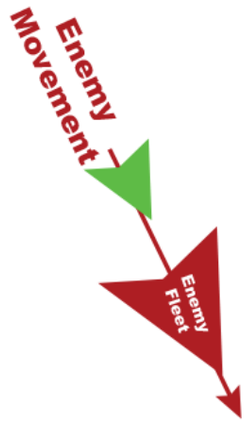
Step 2
Jump
Behind
Enemy



Step 3
Deploy
EMP
Nuke(s)

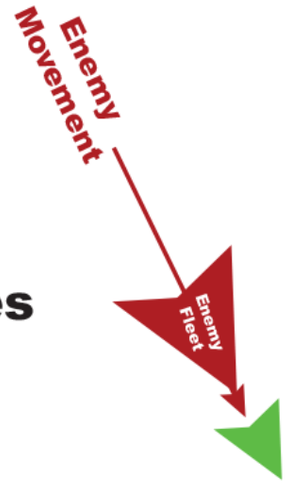
Beams
If Possible

Load Mine(s)



Step 4
Short
Jump
in Front of
Enemy

Deploy Mines



Note:
Jump Bearing
will be
Toward
Starting Location.
(Base?)

Do Not Linger.
Follow up with
Jump Out
HET / Beams
Flea Hop

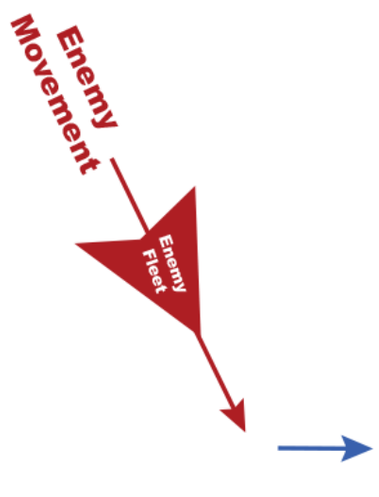
Supplement with
Taunts and Surrender Requests

Tango Maneuver

Distances Depend on
Speed of Jump Execution and Speed of Enemy
AFTER Turning for Face direction.

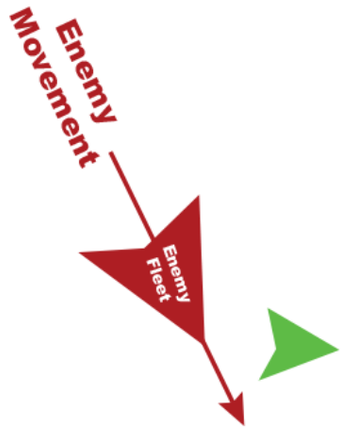
Step 1
Load
EMP
Mine(s)

Face
Away From
Enemy Fleet



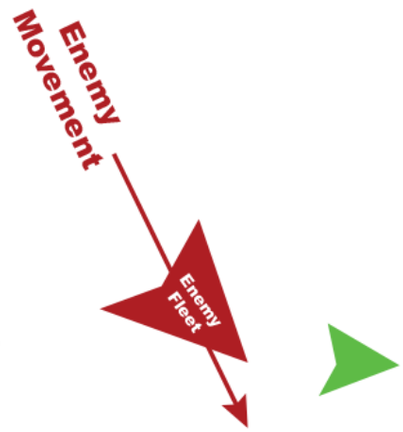
Face
Direction
(Mines)

Step 2
Jump to
Side of
Enemy



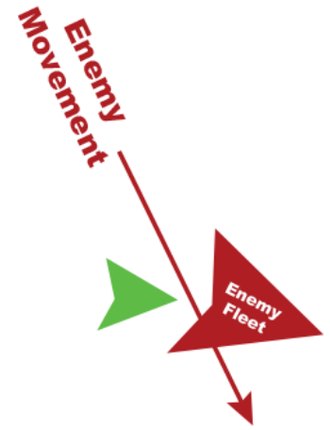
Step 3
Deploy
EMP
Mine(s)

Impulse
only to
safe distance



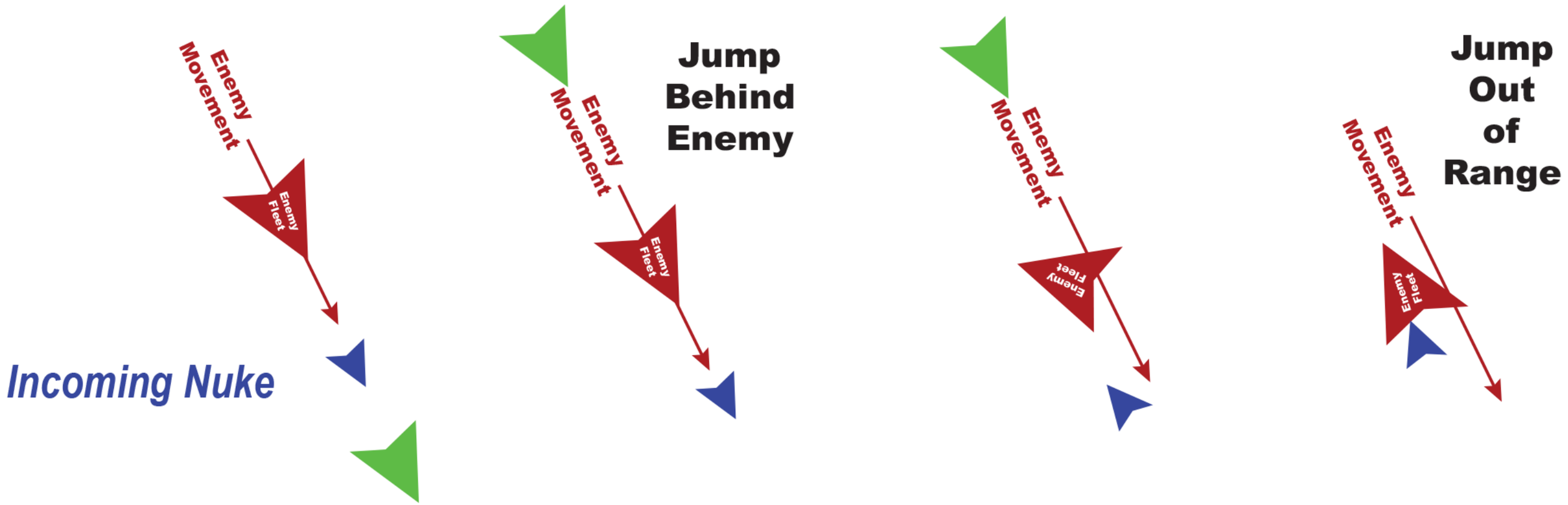
Step 4
Short
Jump
Behind
Enemy

Beams



Supplement with
Taunts and Surrender Requests

Stolen Nuke Maneuver



EFFICIENT & FUN

- Pit your ship's strength against your enemies' weakness. Jump ships may not have the speed to chase or the maneuverability to turn, but they can resupply and return to combat faster.
- Maneuvers require high team precision and coordination and can be devastating to the enemy. Practice will significantly help.
- Design your own attack tactics.
- Remember to have fun! Too much seriousness can lead to trigonometry in game related training presentations…

Be efficient. Be effective. Be elite.