

Boarding Hints

To capture larger ships (TM/TL/M6/M7/M2/M1) requires them to be boarded. Boarding allows the player to obtain free ships worth several million credits, obtain ships and stations of enemy Races and obtain ships and stations that are not available for purchase.

Boarding is performed either by a Spacewalk or by using Boarding Pods. Both methods have their own advantages and pitfalls.

Preparation

Supplies For Boarding

- The player will need to buy and train Marine/Mercenary personnel to perform the boarding operation. How high the skills of the personnel need to be is dependent on the class and type of ship being boarded as well as the presence of anti-boarding equipment and the numbers and skill of enemy personnel. The player will need a minimal of 6 Marines/Mercenaries with at least 2 stars in the Engineering and Fighting skills while at least two marines need 3 stars in the Mechanical and Hacking skills. In general try to board with as many marines as the target ship can be boarded with as that reduces losses.
- Missiles are needed to reduce the majority of the shields of the target ship and swat any non-target enemy ships. The number of missiles needed depend on the type of ship targeted and how many enemy ships are in the same sector as the target.
- Fighter Drones (MK1/MK2/Keris) are used to suppress enemy shield regeneration (number depends on the type of drone and ship being boarded), draw fire from the target (if not softened by ion weaponry) and distract other enemy ships once the target is captured. 30 is usually enough.
- A fast M5 or TM with spare Jumpdrives and Energy Cells. Freshly captured ships lack most of their equipment and may already be at a low percentage of their hull so are in no state to fight enemy fleets meaning an evacuation plan is needed. This means jumping in a fast and probably sacrificial M5 to transfer a Jumpdrive onto the captured ship while the player ship provides the Energy Cells, allowing the captured target ship to jump to the nearest safe sector, leaving the M5 alone to try and find a safe route home. Alternatively getting a TM ship to follow the boarding ship allows for a Jumpdrive to be transferred to the captured ship and then shuffling a second Jumpdrive from a docked fighter back onto the TM allowing all ships to escape.
- Once off purchases of Freight Scanner, Special Command Software, Fight Command Software MK1, Fight Command Software MK2, Bioscanner, Transporter Device and Jumpdrive. Turbo Boosters are optional but can help.

Footwork

First the player needs to find a good target. With friendly Races the player can order a cheap M5 ship to follow a target ship until it is alone and preferably in a sector owned by a different race (player gets a larger reputation loss if boarding in sectors owned by the race whose ship is being boarded). With hostile Races where the player does not have an Advanced Satellite network it is advised that the player saves and then scouts ahead with a fast and durable ship (like a Springblossom or Hyperion Vanguard) to find a suitable and preferably undefended target. With friendly Races, the more ships that need to be killed to board and evacuate a ship, the greater the reputation loss. A poorly planned boarding can easily bring players down from +10 Race Reputation to -2 or lower (Valhalla, Colossus Hauler, Galleon and Shuri are bad for this). It is advisable to attack enemy ships to gain their attention before luring the targets past the map bounds (30% past the normal system radius) so it no longer has any nearby friendly ships to help it. Also if possible try to scan the target ship beforehand to avoid any anti-boarding equipment beyond the skills of available player personnel (Internal Security Lasers are the worst as they act as 2 permanent 100 Fighting Skill marines).

Softening the target (Optional)

The Ion Disrupter weapons of the Boron not only do high shield damage but also have a high chance to destroy weapons and equipment allowing the player to strip a target ship down to a defenceless hull. This is recommended if trying to board Rapid Response ships as destroying the Jumpdrive prevents the ships from fleeing when their shields run low and destruction of the Cargo Lifesupport System removes any enemy personnel (which tend to have high skills). Skilled players can even perform the softening of targets using some support TM ships (Angel, Pleco and Magnetar), otherwise use Argon Eclipse/Centaur or Boron Mako/Skate/Thresher ships.

Spacewalk Boarding

The advantage of Spacewalk boarding is the low cost of equipment needed to board and how quickly it is possible to perform from starting a new game however, the chances of losing personnel are a lot higher.

With this kind of boarding the player uses Wildfire and Silkworm missiles (Wasp and Dragonfly missiles also work) at a long range to lower the shields of the target if no softening is performed before launching the drones. Drones are launched at a distance of 6-8Km from the target and ordered to Attack Shields of the target. Once the target shields are <10% the player can either start flying away from the target and uses the Launch Marines command to allow the target ship to fly into the cloud of Marines while being far enough away from the player ship that it is not actively firing towards the player and oncoming Marines (this is where you will pointlessly lose your personnel) or the player can try and fly underneath the target ship and launch the marines just as the ship flies overhead that all marines instantly contact the target hull (player is more likely to take damage with bigger targets but more synchronised boarding and lower losses however, fatal collisions with the target ship are more likely). Ships recommended for spacewalk boarding are the TP class ships, Geochen (Teladi) (high shielding for a TP), Ocelot (Split) (has

enough speed to dodge incoming fire) and Angel (Boron) (has Ion Disrupters to help reduce target shields and soften them up) and the Argon TM class ship Zephyrus (high shielding, has Ion Disrupters to help reduce target shields and soften them up and Thunderbolt Missile compatibility for depleting the shields and can carry all ships and equipment needed for clean boarding and escape tactics). It typically takes up to 50 missiles for a boarding operation of an M6 using a TP. The Mechanical Skill of the personnel used limits what ship classes can be boarded with this method

Boarding Pod Boarding

The safest way to do a boarding operation but requires capital intensive M7M ships and the compatible missiles. This tactic is recommended for tougher target ships as Boarding Pods are less likely to be shot down and give better synchronisation of boarding personnel. Boarding pods also give an equivalent of double to the Mechanical Skill of personnel allowing bigger ships to be captured with less well trained personnel. The speed of the Boarding Pods projectile also gains a boost based on the combined Mechanical Skill of personnel carried in the form of Mechanical Skill/4 +5 Engine Tunings added (!flight.board.pck). The number of pods launched is based on the formula (number of launched personnel+1)/5+1.

At a distance of 6km from the target launch enough drones to be able to suppress the shield regeneration of the target (3-8 for M6, 5-10 for M7 and 8-15 for M1/M2) and use the Autopilot>Command Console>Broadcast To My Ships In The Sector>Broadcast: Sector: Fighter Drones to order all drones to attack the target. Launch enough Hammer Heavy Torpedoes/Shadow Missiles (use 1-3 Missile Barrage commands for larger targets)(takes about 2-3 missiles per GJ of shielding) to reduce the target shields to minimal values and destroy any heavy escorts. Immediately switch to Flail/Ghoul Missiles and launch one every second at the target while also launching some at any nearby hostile fighters (this distracts the target turrets so the high damage missiles have a higher chance to hit). Once the target shields are at <5% order the boarding M7M to use the Launch Marines command and keep launching a Flail/Ghoul Missile every second until the Boarding Pods make contact with the target. Order any supporting boarding ship to jump to a nearby safe sector and turn away from the target and move away from it at the same speed the target moves (drones should keep the target shields fully suppressed). Once the player owned personnel reach the final deck turn around and use the Turbo Booster MK2 to get close to the target as it should belong to the player by the time the distance is closed. Also order the fighter drones to Attack All Enemies in the sector to provide a distraction while the new ship is evacuated. Exchange the Jumpdrive and Energy Cells to allow the target ship to get to safety and then either shoot a safe passage or get a spare Jumpdrive from a following ship and jump to a safer sector. The ship best suited for this kind of boarding operation is the Split Cobra as it can out speed any targets that could threaten it. Typical boarding operations of this kind can take up to 120 Flail Barrage Missiles, 80 Hammer Heavy Torpedoes (more Hammer Heavy Torpedoes in Xenon sectors) and 2-8 Boarding Pods.

Boarding Xenon Ships

Xenon (and to a lesser extent Terran and ATF ships) have a high innate boarding resistance making them mince boarding personnel. This means only use personnel with a Fighting skill of 100 and even then casualties can be expected. Always board with one more marine than the capacity for the ship class (9 for M6/M6+ and 21 for M7/M1/M2) as this greatly reduces casualties. For the Xenon P/PX do as stated in the Boarding Pod Boarding section but just use 9 personnel to board with and expect up to 1 loss of personnel.

For Xenon capital ships use an Argon Sirokos to follow the player ship and launch the first wave of personnel as it can launch a full 21. Once the first wave is launched order Sirokos to jump to safety and use the Player ship (probably a Cobra) to do the rest. The player can then luck manipulate by saving in the middle of each deck and loading until the next deck goes well or the player can send additional marines at fixed intervals. For the lowest predictable casualty number launch +1 personnel every 17-29 seconds for each deck so that the new +1 personnel cuts through the hull to replace the 1 personnel that is almost always lost from the full 21 at each deck. Alternatively at deck 3-4 (depends on how far the player ship is from the target) launch 5-6 personnel so 15-16 make it to the core. Typically expect to lose 4-9 fully trained personnel to capture a Xenon capital ship.

Recommended Save points

For players not doing the Suicidal Squid starting scenario it is advised to have at least 5-9 Salvage Insurance to be able to save at key moments of a boarding operation on the off chance something goes wrong and a reload is needed. For most ships saves 3-8 can be skipped but for Xenon ships it is recommended.

1. The Approach: Save once the player has gotten within range of the target but before opening fire (in case it becomes a good idea to abandon the plan)
2. Ready to Board: Save once the target shields are down and before the personnel are launched for the boarding operation
3. Hull Contact Established: Save if all personnel make it to the hull. This allows reloading until all personnel synchronise fighting on Deck 1 for lowest casualties (a must for Xenon ships). In X3: AP this is the only save that affects casualties on all decks
4. Middle of Deck 1 (X3:TC Only): Too late to change the fate of those fighting on Deck 1 but the outcome of Deck 2 has not yet been determined
5. Middle of Deck 2 (X3:TC Only): Too late to change the fate of those fighting on Deck 2 but the outcome of Deck 3 has not yet been determined
6. Middle of Deck 3 (X3:TC Only): Too late to change the fate of those fighting on Deck 3 but the outcome of Deck 4 has not yet been determined
7. Middle of Deck 4 (X3:TC Only): Too late to change the fate of those fighting on Deck 4 but the outcome of Deck 5 has not yet been determined
8. We Are At The Computer Core: Save to be able to reroll what the new ship has ware wise once ownership is transferred (good for getting

Jump Beacons)

9. Victory: Save once both the captured ship and player ship are evacuated to a safe location

Boarding Operation Mechanics

Source: http://x3tc.net/abordazh-mehanika-igrovogo-processa_110.html

Personnel Training

Marines/Mercenaries have Fighting, Engineering, Mechanical and Hacking skills that range from 0 to 100 affecting their performance during boarding operations. The Fighting Skill can only be trained by performing successful boarding operations, increasing by 5-9 points with each successful operation. All other skills can be trained at NPC Trading Stations, Equipment Docks, Military Outposts, Military Bases, Marine Training Barracks, Rehabilitation Facilities, Pirate Bases, Stock Exchanges, Orbital Defence Stations, Orbital Patrol Bases, Research Stations and Unique Facilities for a price. The number of stars personnel have are based on the number of Skill points divided by 17 and rounded down. The Overall stars is based on the average of all Skills.

The cost and duration of training is dependent on the current Skill level of the personnel being trained and the type of course chosen. Training all skills has a 20% cost and time penalty over three individual skill training courses of the same level. The costs and gains of training courses are listed in the table below:

Course type	Skill point gain	Duration (mins)	Cost (Cr.)
Basic	5-9	$5+(\text{current skill points}/5+1)^2$	$5,000+2,000\times(\text{current skill points}/5+1)$
Normal	15-27	$15+(\text{current skill points}/5+1)^2+(\text{current skill points}/5+3)^2+(\text{current skill points}/5+5)^2$	$33,000+6,000\times(\text{current skill points}/5+1)$
Advanced	25-45	$25+(\text{current skill points}/5+1)^2+(\text{current skill points}/5+3)^2+(\text{current skill points}/5+5)^2+(\text{current skill points}/5+7)^2+(\text{current skill points}/5+9)^2$	$75,000+10,000\times(\text{current skill points}/5+1)$

This means it is fastest to do quick individual courses to train personnel potentially taking 5,520-8,910 minutes (92-148.5 hours) and costing 936,000-1,560,000 credits each minus time and credits saved from the skill level on purchase to max a group of personnel.

Ship Innate Boarding Resistance Table

Parameter	TM	TL	M6	M7	M2	M1
Number of decks	2	5	3	4	5	5
Hull resistance	10	130	20	90	160	180
Base boarding resistance	20	30	10	30	45	50
Base hacking resistance	10	20	5	20	25	30
Random hacking factor	20	40	20	30	50	50
Maximum shield percentage	10	6	10	8	4	4
Marine capacity	8	20	8	20	20	20

Boarding Resolution Algorithms

Cutting The Hull

First contact of the personnel to the hull of the target ship causes a 90% Race Rank point loss followed by an additional 900 points (5%-50 in TC). Hull cutting is performed in groups using the same formula as used for determining the number of boarding pods launched.

- $(\text{number of launched personnel}+1)/5+1$

The Mechanical skills of the personnel in each group is sorted in descending order and the two highest values are combined. There are then five rounds (6 if a Hull Polarising Device is present) of hull cutting during which if the target shield reaches over the maximum shield percentage all

boarding personnel are instantly eliminated. Should the effective Mechanical Skill be below the effective hull resistance the group of marines will be ejected back into space. If the effective mechanical skill is higher than the effective hull resistance then the group of personnel enter the target ship and begin fighting.

- Effective mechanical skill = (Best + Second Best Mechanical Skill*Boarding Pod Bonus)±10%
 - Boarding Pod Bonus = 2x if Boarding Pods were used
- Effective hull resistance = ((Hull resistance*Terran/ATF Bonus)+Hull Polarising Device Bonus)±10%
 - Terran/ATF Bonus = 2x
 - Hull Polarising Device Bonus = 150

This means that if an Atmospheric Lifter, Valhalla or any other Terran/ATF TL/M2/M2+/M1 has a Hull Polarising Device there is a chance that even personnel with maxed Mechanical Skill and Boarding Pods will fail to cut through the hull. Hull cutting takes 22-40 seconds with a Hull Polarising Device adding an extra 6-9 seconds through the extra round of shield percentage checking. Although more personnel can be launched than the target ship Marine Capacity+1 and begin cutting the hull, only enough personnel to make up the Marine Capacity+1 will enter the target with extra personnel being ejected back into space. It is possible to have personnel cutting the hull when other groups are already fighting on the decks.

Fighting On The Decks

The target ship will be set to Foe if not hostile already. During this stage of boarding the target ship takes hull damage four times on each deck with a total based on the formula $0.6 * (100 - \text{Average Engineering Skill})\%$ and boarding will fail if the hull drops below 5% at any stage during the boarding operation. This means personnel with low Engineering skill should not be used to board ships with under 65% hull and personnel with over 59 points in Engineering are required to board an Aran. There is then a 10-15 second delay of Fighting to allow other groups to finish cutting through the hull to try and maximise the number of personnel fighting on each deck. Once Fighting (Deck x) begins any personnel that cut through the hull will have to wait in Fighting until the end of the current deck to join. Each deck fought on causes a 10% Race Rank point loss followed by an additional -100 points (2%-20 in TC). This means 5 deck ships will cost at least 9,556 Race Rank points which is enough to bring the Race Rank of the boarded ship owner race from 6% of +6 down to 0. The Boarding Strength of the player personnel is then pitted against the Boarding Resistance of the target ship.

- Boarding Strength = Fighting Skill of all Fighting personnel aboard the target (including those not on a deck)±10%
- Boarding Resistance (Commonwealth) = (Base Boarding Resistance+Fighting Skill of all NPC personnel aboard+Internal Security Lasers Bonus)±10%
- Boarding Resistance (Terran/ATF) = (Base Boarding Resistance*4+Fighting Skill of all NPC personnel aboard+Internal Security Lasers Bonus)±10%
- Boarding Resistance (Xenon) = (Base Boarding Resistance*2+85*Marine Capacity-80*Number of Decks Passed)±10%
 - Internal Security Lasers Bonus = 200

Possible casualties on both sides are then calculated between the first and second audio played for the deck (means save before this point). The number of possible casualties are then scaled according to how big the difference between Boarding Strength and Boarding Resistance is before playing roulette as to who dies from the player personnel. If Boarding Resistance - Boarding Strength is 40, then there is an additional 2% chance to adjust Attacker possible Casualties by +1 and Defender Possible Casualties by -1.

Attacker Possible Casualties = (((Marine Capacity+1)/Number of Decks)+Random Number(0 to 2))-1

Defender Possible Casualties = ((Marine Capacity/Number of Decks)+Random Number(0 to 2))-1

Boarding Resistance - Boarding Strength	Possible Casualties Scaling	
	Attacker	Defender
>550	N*3	0
401-550	N*2	N-3
151-400	$N + (N+1)/2$	$N - (N+1)/2$
41-150	N+1	N-1
(-40)-40	N	N
(-150)-(-41)	N-1	N+1
(-400)-(-151)	$N - (N+1)/2$	$N + (N+1)/2$
(-550)-(-401)	N-3	N*2
<(-550)	0	N*3

Attacker actual casualties are determined by going through all living attacker personnel using the formula $10\% - ((\text{Fighting Skill} - 1)/10)$, adding them to a group if chosen and randomly killing the unlucky one of the group. The number of times this process occurs is the number of possible casualties. This means personnel with a high Fighting Skill have a decent chance that none will be picked for the elimination group. Defender actual casualties is the same as the possible casualties.

After the final deck there is a battle for the bridge using slightly modified formulas.

- Boarding Strength = Fighting Skill of all Fighting personnel aboard the target (including those not on a deck) $\pm 6.66\%$
 - Boarding Resistance (Commonwealth) = (Base Boarding Resistance+Fighting Skill of all NPC personnel aboard+Internal Security Lasers Bonus) $\pm 6.66\%$
 - Boarding Resistance (Terran/ATF) = (Base Boarding Resistance*4+Fighting Skill of all NPC personnel aboard+Internal Security Lasers Bonus) $\pm 6.66\%$
 - Boarding Resistance (Xenon) = (Base Boarding Resistance*2+85*Marine Capacity-50*Number of Decks) $\pm 6.66\%$
 - Internal Security Lasers Bonus = 200

If Boarding Strength \leq Boarding Resistance then the personnel "run out of ammo" and are all killed. If Boarding Strength $>$ Boarding Resistance then any remaining target personnel are ejected into space for collection and the boarding personnel begin to hack the computer core. In total this phase of boarding takes 10-15 seconds+(7-14)*Number of Decks seconds.

Hacking The Computer Core

Despite all the audio played during the hacking process there are only three stages that count. If Hacking Strength \geq Hacking Resistance then hacking proceeds to stage two. If Hacking Strength $<$ Hacking Resistance there is a 2% chance of hacking proceeding to stage two, otherwise the boarding fails and all boarding personnel are ejected into space.

- Hacking Strength = Best + Second Best Hacking Skill (from all living attacker personnel)
- Hacking Resistance = (Base Hacking Resistance*Racial Factor)+Random Hacking Factor+Advanced Firewall Software Bonus
 - Racial Factor Commonwealth = 1
 - Racial Factor Terran/ATF = 4
 - Racial Factor Xenon = 5
 - Advanced Firewall Software Bonus = 70

Stage two has an 80% chance of adding a 2-4 second delay to hacking if the target ship has the Advanced Firewall Software equipment. During stage three there is a 5% chance the safety will turn back on causing the boarding operation to fail and ejecting the boarding personnel into space. Ship ownership is then transferred. In total hacking takes 20-37 seconds + 2-4 from Advanced Firewall Software delay. This process means that personnel with no Hacking Skill still have a 1.96% chance to hack a ship and personnel with maxed Hacking Skill only have a 95% chance of success.

Wares Kept

When ownership of the target ship is transferred, 90% of equipped lasers, missiles and shields are destroyed. Kyon Emitter type lasers only have a 50% chance of destruction. Of the remaining equipment and wares in the cargobay the amount kept is determined by two sequential number generators. Stations in the cargobay of TLs are exempted and always kept.

Round 1 = 0 to (Ware Number+1)

Round 2 = 0 to (Round 1 Number+1)

Hints/Tips

- Rapid Response M7M ships will waste their personnel by launching it in Boarding Pods they spawn with at any enemy boardable ship that loses shielding. If these missiles are shot down by the player they have a 50% chance to drop several 4-5 star Marine personnel for the player to collect. This makes the south gate of Circle of Labour a good early source of highly trained personnel (assuming the Argon are not shooting holes in the player ship).
- Cloudbase South East, Montalaar, Heaven's Assertion, Great Reef, Ocean of Fantasy and Senator's Badlands (add more) are good sectors for boarding TLs since there is almost always a TL present and seldom more than 3 fighters to defend the sector.
- Keep the new personnel coming. It takes a long time to fully train marines/mercenaries so hire every individual with a Fighting Skill >40 from the start of the game until there are about 60 in training (enough to obtain at least one of every boardable ship including Xenon which mince personnel).
- Use Return Ship and Return Abandoned Ship missions to train the fighting skill of personnel (can spawn M6/M7 ships if the player has a Race Rank of +8 for the mission giver race).