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- Yoann (Etherion)

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Star Realms > Forums > Strategy.



Star Realms Simulator!!(↔ /thread/1462398/star-realms-simulator)

Star Realms – Amazon.com \$13.97 ✓prime

Scott Heise Designer @HomerJr Mar 14, 2016 (edited).

John @icesphere wrote:

Scott Heise @HomerJr wrote:

You know I'm game! 😊

😊 Challenge me to a game in the format you feel you are best at.

Also be prepared for my turns to be really slow since I have to simulate each turn, especially the second half of the game when there are so many cards to put in each turn.

No problem, I'm going to take a lot of screenshots for visual documentation as a case study for a future strategy article about heuristic tools for knowing whether you're winning or losing. Perhaps if all goes well we can combine our data. 😊

@greylag Mar 14, 2016

Hit me up by PM Scott before you write that, I've got something which might be relevant.

Scott Heise Designer @HomerJr Mar 14, 2016

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Hell yes! 😎

E. N. @Tuen9 Mar 14, 2016 (edited).

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I didn't track data for that first game we played, but I'm capturing screenshots of the winning percentages for the current game we are playing.

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I'm hyped for this article. I actually study the use of engineering modeling and heuristics as a part of my PhD, and am very curious about the use of heuristic tools in this context!

Cool 😊 I'll play you next after HomerJr. Since it takes a long time to play these games, I'll wait until I've finished the games with HomerJr before I challenge you.

John 🇺🇸 @icesphere Mar 22, 2016

Update on experiment to see how well the simulator can do against other players:

While waiting for someone to volunteer to play against the simulator, I decided to try challenging several of the top players to a game. I challenged 5 of the top players. Due to how hard it is to keep putting in the cards into the simulator, and the fact that I had several games going at once, I ended up only using the simulator for 2 of the games, and even then I didn't use it near the end of those games.

Results when using simulator:

MattM – lost
Mazer Rackham – lost

Results without using simulator:

Bug Batteries – won
Dommola – lost
Benjotron – won

I was also recently part of the Star Realms March Madness tournament where I didn't use the simulator at all – I ended up in the final four. I had to beat both Carnie and Dommola to get to the final four.

Obviously this is a very small sample size. Right now my feeling is that I probably do better without the simulator, however at the same time, I do feel like the simulator does pretty well, and I would say that the simulator's choices for buys would usually be better than the average Star Realms player.

Simulator vs HomerJr:

So far we have played 3 games.

Game 1: I Didn't keep track of percentages for this game. Although at one point near the end of the game I accidentally had the trade row with 2 Blob Worlds instead of 1 Blob World and 1 Barter World. I was confused at the time why the simulator was saying not to buy a card. The next turn I realized my mistake and computed the percentages. If I had bought the Barter World it showed my win percentage to be about 30%, without buying a card it was about 19%. Despite my low odds of winning, I got a ridiculously lucky turn and ended up winning the game.

Game 2:
(My authority is always listed first. I always bought cards based on the highest win %)

Turn 2:
Deck 1
Authority: 48 to 50
Hand: 4 Scouts, 1 Viper
Win % for buys:
Machine Base: N/A
Cutter: 67.3%
Blob Destroyer: 37.6%
Battle Station: 26.4%
Fleet HQ: N/A
Explorer: 66.6%
Do Not Buy Card: 19.8%

Turn 4:
Deck 1
Authority: 48 to 49
Hand: 4 Scouts, 1 Viper
Win % for buys:

win % for buys.

Machine Base: N/A
Blob Wheel: 68.7%
Embassy Yacht: 77.6%
Battle Station: 61.7%
Fleet HQ: N/A
Explorer: 66.5%
Do Not Buy Card: 50.6%

Turn 6:
Deck 2
Authority: 47 to 48
Hand: 3 Scouts, 1 Viper, Cutter
Win % for buys:
Machine Base: N/A
Patrol Mech: 74.1%
Defense Bot: 71.2%
Battle Station: 72.3%
Fleet HQ: N/A
Explorer: 73.6%
Do Not Buy Card: 64%

Turn 8:
Deck 2
Authority: 44 to 47
Hand: 3 Scouts, 1 Viper, Explorer
Win % for buys:
Machine Base: N/A
Survey Ship: 66.3%
Battle Mech: 85.4%
Battle Station: 70.9%
Fleet HQ: N/A
Explorer: 72.4%
Do Not Buy Card: 61.1%

Turn 10:
Deck 3
Authority: 42 to 46
Hand: 4 Scouts, Embassy Yacht
Win % for buys:
Machine Base: N/A
Survey Ship: 83.6%
Space Station: 86.4%
Supply Bot: 85.8%
Fleet HQ: N/A
Explorer: 85.7%
Do Not Buy Card: 76.1%

Turn 12:
Deck 3
Authority: 45 to 46
Hand: Patrol Mech, Cutter, 2 Scouts, 1 Viper
For some reason I'm missing the win % for my first buy this turn, but it looks like I ended up buying the Space Station. Here are the win % for the second buy, however I chose combat for Patrol Mech, so I didn't end up getting a second card. (I think I simulated win % based on using combat, and using combat was a higher win %)
Machine Base: N/A
Survey Ship: 75.4%
Supply Bot: 72.6%
Fleet HQ: N/A
Explorer: 70.2%
Do Not Buy Card: 72.5%

Turn 14:
Deck 3
Authority: 40 to 40
Hand: Battle Mech, 1 Scouts, 1 Viper, 1 Explorer (Looks like I had to discard 1 Scout, Also I scrapped 1 Scout from my hand, so I only had 2 trade)
Win % for buys:
Machine Base: N/A
Survey Ship: N/A

Missile Bot: 72%
Supply Bot: N/A
Fleet HQ: N/A
Explorer: 60.8%
Do Not Buy Card: 58.1%

Turn 16:
Deck 4
Authority: 33 to 33
Hand: Battle Mech, Patrol Mech, Embassy Yacht, Survey Ship, Viper
Win % for buys:
Machine Base: 60%
Freighter: 75.43%
Starbase Omega: 83.85%
Supply Bot: 78.7%
Fleet HQ: N/A
Explorer: 78.9%
Do Not Buy Card: 78.6%

I bought the Starbase Omega and then use Patrol Mech for combat.

Turn 18:
Deck 4
Authority: 28 to 24
Hand: Missile Bot, Cutter, Viper, 2 Scouts
Win % for buys:
Machine Base: N/A
Freighter: 83.2%
Royal Redoubt: N/A
Supply Bot: 87.1%
Fleet HQ: N/A
Explorer: 86.7%
Do Not Buy Card: 89%

Turn 20:
Deck 4
Authority: 24 to 24
Hand: Battle Pod, Space Station, Explorer, 2 Scouts
Win % for buys:
Machine Base: 64.94%
Freighter: 67.8%
Royal Redoubt: 74.79%
Supply Bot: 75.4%
Fleet HQ: 71.67%
Explorer: 74.6%
Do Not Buy Card: 75.7%

I don't have any more screenshots after this one for this game, but the final result was that I won 20 to -22.

Game 3 – I'll post this later.

Game 4 & 5(if needed) – Haven't started yet.

John  [@icesphere](#) [Mar 24, 2016](#)

Simulator vs HomerJr

Game 3

This was a really interesting game. There were some interesting turning points, one of which could have been avoided.

Turn 1:
Deck 1
Authority: 50 to 50
Hand: 3 Scouts
Win % for buys:
Royal Redoubt: N/A

Missile Bot: 56.9%
Blob Destroyer: N/A
Survey Ship: 48.2%
Imperial Frigate: 46.7%
Explorer: 45.5%
Do Not Buy Card: 36.8%

Turn 2:
HomerJr bought ImperialFrigate

Turn 3:
Deck 1
Authority: 50 to 50
Hand: 3 Scouts, 2 Vipers
Win % for buys:
Royal Redoubt: N/A
Patrol Mech: N/A
Blob Destroyer: N/A
Survey Ship: 37.9%
Imperial Frigate: 44.1%
Explorer: 34.1%
Do Not Buy Card: 22.1%

Turn 4:
HomerJr bought Survey Ship and Cutter

Turn 5:
Deck 2
Authority: 48 to 48
Hand: 5 Scouts
Win % for buys:
Royal Redoubt: N/A
Patrol Mech: 35.3%
Blob Destroyer: 35%
Trade Bot: 34.9%
Stealth Needle: 51.4%
Explorer: 32.3%
Do Not Buy Card: 11.7%

I think this was the first big turning point – without Stealth Needle things were not looking good for me.

Second Buy:
Royal Redoubt: N/A
Patrol Mech: N/A
Blob Destroyer: N/A
Trade Bot: 57.7%
Imperial Fighter: 54.3%
Explorer: N/A
Do Not Buy Card: 55.3%

Turn 6:
HomerJr bought Blob Destroyer

Turn 7:
Deck 2
Authority: 46 to 48
Hand: 2 Scouts, Viper, Missile Bot, Imperial Frigate
Win % for buys:
Royal Redoubt: N/A
Patrol Mech: N/A
Battle Station: N/A
Blob World: N/A
Imperial Fighter: 67.1%
Explorer: 67.7%
Do Not Buy Card: 66.7%

Turn 8:
HomerJr bought Patrol Mech and Imperial Fighter

Turn 9:
Deck 3
Authority: 46 to 46
Hand: 4 Scouts, Viper
Win % for buys:
Royal Redoubt: N/A
Supply Bot: 64%
Battle Station: 70.5%
Blob World: N/A
Trade Raft: 58.1%
Explorer: 57.4%
Do Not Buy Card: 61.9%

Second Buy:
Hand: 4 Scouts, Viper
Win % for buys:
Royal Redoubt: N/A
Supply Bot: N/A
Blob Fighter: 70.1%
Blob World: N/A
Trade Raft: 50.9%
Explorer: N/A
Do Not Buy Card: 62%

Turn 10:
HomerJr doesn't buy a card

Turn 11:
Deck 3
Authority: 35 to 45
Hand: Missile Bot, Stealth Needle, Explorer (After discarding 2)
Win % for buys:
Royal Redoubt: N/A
Supply Bot: N/A
Federation Shuttle: 75.2%
Blob World: N/A
Trade Raft: 72.3%
Explorer: 93%
Do Not Buy Card: 91%

At this point I simulated if it was better to keep the Explorer or scrap it.
According to the simulator it would be 81.8% if I keep it and 91.1% if I scrap it, so I scrapped it, however I think it would have been better to keep it because then my deck would have been a multiple of 5, which would have prevented the really unlucky bottom-decking that happens later in the game. What happens later was very unlikely, so that probably explains why it showed a higher win % when scrapping it, but since it was showing me with such an advantage at this point, it probably would have been better to keep it to reduce risk.

Turn 12:
HomerJr buys Federation Shuttle and Trade Raft

Turn 13:
Deck 4
Authority: 28 to 35
Hand: 3 Scouts, Imperial Frigate, Trade Bot
Win % for buys:
Royal Redoubt: N/A
Supply Bot: 65.1%
Construction Hauler: N/A
Blob World: N/A
Space Station: N/A
Explorer: 78.4%
Do Not Buy Card: 80.4%

Turn 14:
HomerJr buys Construction Hauler

And now for the biggest turning point of the game – I draw 4 Scouts and a Blob Fighter and bottom-deck Stealth Needle, Missile Bot, Battle Station, and Explorer. My win % takes a drastic fall with this unlucky draw.

Turn 15:
Deck 4
Authority: 28 to 35
Hand: 4 Scouts, Blob Fighter
Win % for buys:
Royal Redoubt: N/A
Supply Bot: 26.1%
Missile Bot: 29.3%
Blob World: N/A
Space Station: 37.5%
Explorer: 21.9%
Do Not Buy Card: 21.9%

Turn 16:
HomerJr buys Missile Bot

Turn 17:
Deck 5
Authority: 21 to 31
Hand: Stealth Needle, Missile Bot, Battle Station, Explorer, Scout
Win % for buys:
Royal Redoubt: N/A
Supply Bot: N/A
Embassy Yacht: N/A
Blob World: N/A
Blob Wheel: N/A
Explorer: 18.4%
Do Not Buy Card: 27.5%

Turn 18:
HomerJr buys Embassy Yacht

Turn 19:
Deck 5
Authority: 10 to 22
Hand: Blob Fighter, Space Station, Imperial Frigate
Win % for buys:
Royal Redoubt: N/A
Supply Bot: N/A
Megahauler: N/A
Blob World: N/A
Blob Wheel: N/A
Explorer: N/A
Do Not Buy Card: 29.8%

Turn 20:
HomerJr buys Royal Redoubt

Turn 21:
Deck 6
Authority: 7 to 20
Hand: Blob Fighter, Trade Bot, Scout (After discarding 2)
Win % for buys:
Fortress Oblivion: N/A
Supply Bot: N/A
Megahauler: N/A
Blob World: N/A
Blob Wheel: N/A
Explorer: 1.2%
Do Not Buy Card: 2.4%

And that's all my screenshots, probably because HomerJr wins his next turn.

That bottom-deck was brutal, but could have been prevented.

It will be interesting to see HomerJr's point of view on this game.

Matt Schoonmaker-Ga... [@railbaron](#) [Mar 25, 2016](#) (edited)

Interesting game. One thing that seems interesting is the large difference in win % early in the game between different cards. For instance, on turn 9 the battle station gives you a 70% chance but an explorer only a 57%, and then for the second buy it likes the blob fighter as a 70% chance to win, but the trade raft at 50%. You can see how a new player making the wrong purchases can really hurt their chances of winning.

On that second buy for turn 9, after buying the battle station you were sitting at 70%. Then the blob fighter got flipped, and if you didn't buy anything, your win % had dropped to 62% just because the blob fighter flipped!? That seems like a big drop! I know you said that the cards that flip have a big impact on the win % though.

I think your ability to choose which bot to use is helping the simulator make mostly reasonable moves. In other words, your simulator is working!

John  [@icesphere](#) [Mar 25, 2016](#)

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Yeah, card flipped usually has a big impact, and it's often a lot bigger than just 8%. You usually can't do much about it, but not buying a card should definitely be something you take into consideration especially when you think you are winning.

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The simulator should take into account the flipping of a card, right? One way I think about the flipping of good cards in Star Realms, is if there are already good cards on the trade row, it is generally less risky to flip another good card.

But yeah, the simulator doesn't try to minimize the variance, it just gives you the average win % and tries to maximize that. I guess a future addition to the simulator would be to look at variance and have that impact the decisions as well :-).

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I suppose when you are looking at a win percentage for a given buy, the simulator indirectly takes flipping a card into account simply by the fact that it shows the average win percentage for buying that card, which includes the flipping of a new card.

I agree with you about it being less risky when there are good cards on the trade row.

That would be an interesting addition.

John  @icesphere Apr 4, 2016

Star Realms BGG League – Season 16

Game 1 vs JayT

I took several screenshots during the game so I could go back after the game and compare some of my choices against what my simulator would have thought was the best choice.

Turn 1:
JayT went first with 3 and bought Embassy Yacht.

Turn 2:
Trade row: Fortress Oblivion, Imperial Frigate, Trading Post, Defense Center, Megahauler

I decided to buy Fortress Oblivion. With JayT having the Embassy Yacht and all the bases on the row I felt like Fortress Oblivion was definitely the best buy since it takes a base away from him and it gives me scrap.

Simulator results:

Fortress Oblivion: 59.2%
Imperial Frigate: 44.4%
Trading Post: 47.8%
Defense Center: N/A
Megahauler: N/A
Explorer: 36.7%
Do not buy card: 30.1%

Fortress Oblivion flips Battle Pod

Turn 3:
JayT buys 2 Explorers – so he is probably chasing the Megahauler.

Turn 4:
I had 5. I decided to buy the Defense Center. My reasoning was that it would pair up with my Fortress Oblivion and also it would be hard for him to destroy with his first deck buys. I thought about buying Battle Pod since that would give me the chance to take out the Megahauler if he didn't get 7. I also thought about getting Explorers to also chase after Megahauler.

Simulator results:

Battle Pod: 52.8%
Imperial Frigate: 49.4%
Trading Post: 56.1%

Trading Post: 55.3%

Defense Center: 55.3%
Megahauler: N/A
Explorer: 52.4%
Do not buy card: 35.4%

I'm somewhat surprised to see Trading Post so high, but I guess it would also pair up well with my Fortress Oblivion, and then I would be able to pick up either Battle Pod or Explorer to go with it.

I think the Defense Center flipped Dreadnaught, which I was not happy to see since that would be an excellent target for the Megahauler – so at this point I'm really hoping JayT doesn't get to 7 trade.

Turn 5:
JayT buys Battle Pod and Trading Post which flips Blob Fighter and Embassy Yacht.

Turn 6:

My hand is Defense Center with 3 Scouts and a Viper.

I decided to get an Imperial Frigate to help with killing JayT's Trading Post, and to take away the combat card from JayT who could use it to take out my bases.

Simulator results:

Blob Fighter: 63.4%
Imperial Frigate: 50.4%
Embassy Yacht: 73.1%
Dreadnaught: N/A
Megahauler: N/A
Explorer: 54.3%
Do not buy card: 45.5%

Looks like the simulator didn't agree with my buy that turn 😊

Imperial Frigate flips another Imperial Frigate.

Turn 7:
JayT buys the Blob Fighter which flips a Ram which he also buys. Ram flips a Patrol Mech.

Turn 8:
My hand is Fortress Oblivion, 3 Scouts and a Viper.
I scrap a Viper in my discard with Fortress Oblivion.
I decide to buy the Embassy Yacht before the flip since it goes well with my bases and it gives me some needed extra trade and healing.

Simulator results:

Patrol Mech: N/A
Imperial Frigate: 73.7%
Embassy Yacht: 79.2%
Dreadnaught: N/A
Megahauler: N/A
Explorer: 72.7%
Do not buy card: 65.1%

Embassy Yacht flips Missile Bot.

...

I didn't take screenshots for a few turns... and my last set of screenshots are for Turn 13:

Me 57 to JayT 47

Trade Row: Trade Escort, Blob Carrier, Blob World, Dreadnaught, Megahauler

Me:
bases in play: Fortress Oblivion
hand: 3 Scouts, Viper, Recycling Station
deck: Cutter, Defense Center, Embassy Yacht, Imperial Frigate, Imperial Frigate, 5 Scouts
discard: none

JayT:
bases in play: Trading Post
deck & hand: Battle Pod, Ram, 4 Scouts, Viper
discard: Patrol Mech, Missile Bot, Explorer, Blob Fighter, Stealth Needle, Embassy Yacht, 4 Scouts, Viper

At this point I realize I didn't have Promos and Bases and Battleships check on my simulator, but it probably wouldn't be that big of difference in the results shown so far. Since it's not my turn I'll just show what the simulator thinks is my win % based on the current game state.

31.8%

Interesting... I would have guessed I was doing better than that at this point in the game.

Since I don't have any more screenshots I'll try to remember what happened for the rest of the game. I'm pretty sure JayT got Battle Pod and Ram that turn and used Battle Pod to take out Dreadnaught and then scrapped Ram to get Blob Carrier. Later in the game he uses Blob Carrier to top-deck Megahauler, but fortunately he doesn't manage to get much with his Megahauler. I had some good turns at the end that let me take him out before I had to find out what else his Megahauler would be able to find. Near the end I used my Defense Center for combat, but based on how things went I'm thinking I should have been using it for combat earlier in the game too, since I had plenty of authority at the end, but I was close to not taking him out.

John  @icesphere [Apr 20, 2016](#)

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E. N. @Tuen9 wrote:

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Also be prepared for my turns to be really slow since I have to simulate each turn, especially the second half of the game when there are so many cards to put in each turn.

No problem, I'm going to take a lot of screenshots for visual documentation as a case study for a future strategy article about heuristic tools for knowing whether you're winning or losing. Perhaps if all goes well we can combine our data. 😊

I'm hyped for this article. I actually study the use of engineering modeling and heuristics as a part of my PhD, and am very curious about the use of heuristic tools in this context!

Cool 😊 I'll play you next after HomerJr. Since it takes a long time to play these games, I'll wait until I've finished the games with HomerJr before I challenge you.

I've been distracted with another programming project, so I put these games on hold, and maybe we can just call the first 3 games with HomerJr good for now instead of finishing the best of 5 series. I just sent you (Tuen) a challenge for the first game, but I'm thinking let's just make this a best of 3 series instead of a best of 5 series.

E. N. @Tuen9 Apr 20, 2016

Sure thing, I look forward to the results!

Good luck... to the robots...? Ha ha

John 🦋 @icesphere Apr 21, 2016

Simulator vs Tuen - Game 1

My authority is always shown first.

I always buy whatever has the highest win %.

For some reason the simulator was getting stuck with both Year 1 Promos selected and Bases and Battleships selected, so most of the results just have Bases and Battleships selected.

I went first.

Turn 1:

Deck 1

Authority: 50 to 50

Hand: 2 Scouts, 1 Viper

Win % for buys:

Federation Shuttle: 48.9%

Breeding Site: N/A

Battle Station: N/A

Starbase Omega: N/A

The Ark: N/A

Explorer: 51.8%

Do Not Buy Card: 40.7%

Turn 2:

(I'm not going to show win % for all of Tuen's turns since that is a lot of work, and it is sometimes hard to see all the cards that are played but I thought it would be interesting to at least show them for the first couple of turns)

Deck 1

Authority: 50 to 49

Hand: 4 Scouts, 1 Viper

Win % for buys:

Federation Shuttle: 57.8%

Breeding Site: 43.4%

Battle Station: 33.6%

Starbase Omega: 38.2%

The Ark: N/A

Explorer: 53.0%

Do Not Buy Card: 26.6%

Tuen buys 2 Explorers

Turn 3:

Deck 1

Authority: 49 to 49

Hand: 4 Scouts, 1 Viper

Win % for buys:

Federation Shuttle: 50.2%

Breeding Site: 50.8%

Battle Station: 35.2%

Starbase Omega: 31.0%

The Ark: N/A

Explorer: 51.8%

Do Not Buy Card: 18.2%

Turn 4:

Deck 1

Authority: 49 to 48

Hand: 4 Scouts, 1 Viper

Win % for buys:

Federation Shuttle: 42.0%

Breeding Site: 46.8%
Battle Station: 39.2%
Starbase Omega: 34.8%
The Ark: N/A
Explorer: 46.4%
Do Not Buy Card: 23.8%

Tuen buys 2 Explorers

Turn 5:
Deck 2
Authority: 48 to 48
Hand: 4 Scouts, 1 Explorer
Win % for buys:
Federation Shuttle: 41.4%
Breeding Site: 50.0%
Battle Station: 27.8%
Starbase Omega: 33.8%
The Ark: N/A
Explorer: 47.4%
Do Not Buy Card: 17.6%

Breeding Site flips Survey Ship

Second Buy:
Win % for buys:
Federation Shuttle: 41.2%
Survey Ship: N/A
Battle Station: N/A
Starbase Omega: N/A
The Ark: N/A
Explorer: 45.2%
Do Not Buy Card: 37.0%

Turn 6:
Tuen buys The Ark

Turn 7:
Deck 2
Authority: 42 to 48
Hand: Viper, Explorer, 3 Scouts

(As expected my win % drops off dramatically after Tuen is able to buy The Ark)

Win % for buys:
Federation Shuttle: 20.2%
Survey Ship: 22.6%
Battle Station: 24.0%
Starbase Omega: 23.8%
Patrol Mech: 22.0%
Explorer: 21.2%
Do Not Buy Card: 9.6%

Battle Station flips Trade Bot

Second Buy:
Win % for buys:
Federation Shuttle: 14.8%
Survey Ship: N/A
Trade Bot: 19.8%
Starbase Omega: N/A
Patrol Mech: N/A
Explorer: 12.4%
Do Not Buy Card: 12.0%

Trade Bot flips another Trade Bot

Third Buy:
Win % for buys:

Federation Shuttle: 12.4%
Survey Ship: N/A
Trade Bot: 27.8%
Starbase Omega: N/A
Patrol Mech: N/A
Explorer: N/A
Do Not Buy Card: 13.0%

Trade Bot flips Battle Barge

Win % if I keep explorer: 18.75%

Win % if I scrap explorer: 19.8%

Turn 8:
Tuen buys Patrol Mech

Turn 9:
Deck 3
Authority: 41 to 45
Hand: Viper, 2 Explorers, 2 Scouts
Win % for buys:
Federation Shuttle: 17.6%
Survey Ship: 20.3%
Battle Barge: 26.5%
Starbase Omega: 21.1%
Imperial Fighter: 24.4%
Explorer: 28.2%
Do Not Buy Card: 14.9%

(This is a strange result – I bought the Explorer first since that had the biggest win %, but I think in this case it would have been better to buy the Battle Barge first to see what flips and then decide if Explorer is still the best buy)

Second Buy:
Win % for buys:
Federation Shuttle: 11.7%
Survey Ship: 15.6%
Battle Barge: 27.6%
Starbase Omega: 22.1%
Imperial Fighter: 17.6%
Explorer: 14.1%
Do Not Buy Card: 16.1%

Battle Barge flips Trade Bot

Win % keeping both Explorers: 17.85%
Win % keeping one Explorer: 22.9%
Win % scrapping both Explorers: 26.05%

Turn 10:
Tuen buys Imperial Fighter, Embassy Yacht and Trade Bot

Turn 11:
Deck 3
Authority: 40 to 38
Hand: 3 Scouts, Battle Station, Trade Bot

Win % if I scrap Viper: 25.05%
Win % if I scrap Scout: 23.55%

Win % for buys:
Federation Shuttle: 19.3%
Survey Ship: 18.5%
Battle Station: 25.2%
Starbase Omega: 27.8%
Merc Cruiser: 21.5%
Explorer: 16.5%
Do Not Buy Card: 12.6%

Starbase Omega flips Flagship

Turn 12:
Tuen buys Flagship and Federation Shuttle

Turn 13:
Deck 3
Authority: 38 to 38
Hand: Trade Bot, Explorer, Breeding Site, Viper, Scout

(You buying Flagship and Federation Shuttle caused another dramatic drop in my win %)

Win % for buys:
Blob Carrier: N/A
Survey Ship: 2.6%
Battle Station: 3.0%
Battlecruiser: N/A
Merc Cruiser: 2.7%
Explorer: 2.5%
Do Not Buy Card: 1.0%

Turn 14:
Tuen buys Embassy Yacht

Turn 15:
Deck 3
Authority: 33 to 30
Bases In Play: Breeding Site
Hand: Trade Bot, Starbase Omega, 3 Scouts

(Tuen had a bad turn and wasn't able to kill Breeding Site, so this time I got a big increase in win %)

Starbase Omega draws Battle Station

Win % for buys:
Blob Carrier: N/A
Survey Ship: 10.4%
Mothership: N/A
Battlecruiser: N/A
Merc Cruiser: 11.3%
Explorer: 8.8%
Do Not Buy Card: 10.5%

Turn 16:
Tuen buys Mothership
Turn 17:
Deck 3
Authority: 28 to 30
Bases In Play: Breeding Site, Starbase Omega
Hand: Trade Bot, Battle Station, 3 Scouts

Starbase Omega draws Battle Barge which I use to replay Breeding Site

Win % for buys: (before lucky draw of Battle Barge)
Blob Carrier: N/A
Survey Ship: 3.2%
Blob Fighter: 3.4%
Battlecruiser: N/A
Imperial Frigate: 2.8% (I think I accidentally had this down as Imperial Fighter)
Explorer: 3.0%
Do Not Buy Card: 1.7%

Win % for buys: (after lucky draw of Battle Barge)
Blob Carrier: N/A
Survey Ship: 11.0%
Blob Fighter: 10.5%
Battlecruiser: N/A

Imperial Frigate: 20.6%
Explorer: 10.4%
Do Not Buy Card: 9.3%

Second Buy:
Blob Carrier: N/A
Survey Ship: N/A
Blob Fighter: 23.0%
Battlecruiser: N/A
Megahauler: N/A
Explorer: N/A
Do Not Buy Card: 21.0%

Blob Fighter flips Merc Cruiser

Win % Keeping up Battle Station: 32.75%

Win % Scrapping Battle Station: 33.35%

Turn 19:
Deck 4
Authority: 28 to 20
Bases In Play: Starbase Omega
Hand: Scout, Viper, Trade Bot, Merc Cruiser, Explorer

Win % for buys:
Blob Carrier: N/A
Survey Ship: 11.75%
Merc Cruiser: 11.5%
Battle Blob: N/A
Megahauler: N/A
Explorer: 12.4%
Do Not Buy Card: 13.35%

At the end of turn 19 I drew a lucky hand of Blob Fighter, Imperial Frigate, Battle Barge, Trade Bot and Scout. It showed I had a 48.82% chance of winning after drawing that hand, but Tuen won on turn 20.

Scott Heise Designer [@HomerJr](#) [Apr 21, 2016](#)

Wow, it was very interesting to see how much your win%s swung up and down. What a difference a single hand can make. Fascinating!

Chris [@LetsGetTrivial](#) [Apr 25, 2016](#)

John [@icesphere](#) wrote:
Simulator is now online!!

You can simulate a game from the beginning, or enter an existing game state and simulate it from there.

<http://smartreaction.duckdns.org/star-realms-simulator/simul...>

Is there a way to quickly import an existing game state into the simulator?

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Is there a way to quickly import an existing game state into the simulator?

Currently everything has to be typed in manually. Do you have the game state in some type of format that you could use as an input to the simulator?

Kal Ixor @Kalix May 3, 2016

Just recently got into Star Realms. This thread is *INCREDIBLE*.

Serious kudos John and his helpers, really interesting stuff 😊

John 🗨️ @icesphere May 3, 2016

Kal Ixor @Kalix wrote:

Just recently got into Star Realms. This thread is *INCREDIBLE*.

Serious kudos John and his helpers, really interesting stuff 😊

Thanks 😊

John 🗨️ @icesphere May 24, 2016 (edited)

I've added a feature to the simulator that shows the win differential based on cards in player's decks at the end of each game.

Here is the win differentials for Velocity Bot vs Velocity Bot simulated 10,000 times with Base Set + Year 1 Promos + Bases & Battleships:

- Cutter: 1109
- Command Ship: 797
- The Ark: 750
- Brain World: 620
- Trade Bot: 568
- Flagship: 556
- Starmarket: 440
- Construction Hauler: 411
- Imperial Trader: 397
- Corvette: 394
- Dreadnaught: 391
- Trade Escort: 388
- Missile Mech: 384
- Stealth Needle: 339
- Missile Bot: 309
- Mothership: 301
- Breeding Site: 291
- War World: 281
- Battle Blob: 280
- Blob Destroyer: 274
- Mega Mech: 271
- Battle Mech: 268
- Blob Carrier: 259
- Blob Fighter: 256
- Royal Redoubt: 232
- Obliterator: 202
- Junkyard: 168
- The Hive: 156
- Starbase Omega: 144
- Defense Center: 142
- Fleet HQ: 141
- Central Office: 134
- Battle Pod: 125
- Blob World: 113
- Supply Bot: 112
- Megahauler: 97
- Trade Pod: 91
- Battlecruiser: 82
- Mech World: 80
- Ram: 47
- Port Of Call: 16
- Trade Wheel: 10
- Patrol Mech: 9

Battle Station: -63
Machine Base: -86
Blob Wheel: -90
Trading Post: -90
Freighter: -98
Embassy Yacht: -100
Barter World: -123
Federation Shuttle: -145
Fortress Oblivion: -153
Imperial Fighter: -174
Battle Barge: -175
Merc Cruiser: -192
Space Station: -200
Battle Screecher: -248
Trade Raft: -281
Recycling Station: -313
Imperial Frigate: -326
Defense Bot: -330
Explorer: -379
Survey Ship: -421

Currently both players decks are counted together, but at some point I'll probably separate them out so you can see the difference when using different bots. Also if a card is in the deck more than once it will get counted for each copy in the deck.

Cards like Imperial Frigate are probably so low because most of the time when you win you will have scrapped that card out of your deck, so it won't get counted.

I'm not really surprised that Cutter is at the top.

I'm most surprised by Recycling Station being so low.

There is currently a bug with how the game handles Megahauler, otherwise that card would probably be significantly higher.

Flying Arrow @FlyingArrow May 24, 2016

One of the big advantages of Recycling Station only is seen when knowing exactly what to do with it. Recycle only one card to get trade for a big card. Recycle before scrapping. Buy then recycle to bury a bunch of starters while getting the purchased card into the new deck. Recycle before buying to fish for a trade card for a big purchase. Use trade to buy a big card because recycling would risk missing it. Recycle AND buy a big card if you know recycling guarantees you still will have enough to make purchase. Don't recycle if it will bury your big card. I doubt a bot does all of these correctly, so it makes sense that it's near the bottom the list compared to its value to a human.

John 🗿 @icesphere May 24, 2016

I just updated it to separate out the results by player.

Here are the results of Attack Bot vs Defense Bot:

Attack Bot


The Ark: 257
Command Ship: 208
Mothership: 148
Obliterator: 112
Trade Bot: 105
Battle Blob: 103
Blob World: 58
Imperial Trader: 57
Blob Carrier: 56
Brain World: 44
Dreadnaught: 34
Central Office: 25
Blob Destroyer: 24
Construction Hauler: 14
The Hive: 5
Flagship: 5
Missile Mech: 2
Stealth Needle: 1
Fleet HQ: -2

Starmarket: -5
Machine Base: -5
Royal Redoubt: -8
Port Of Call: -11
Defense Center: -19
Megahauler: -21
Mech World: -33
Blob Wheel: -36
Battlecruiser: -46
Missile Bot: -47
Starbase Omega: -49
Supply Bot: -49
Fortress Oblivion: -52
Trade Escort: -55
Trading Post: -57
Trade Wheel: -65
Battle Mech: -70
Space Station: -74
Breeding Site: -88
Defense Bot: -90
Mega Mech: -97
War World: -103
Cutter: -132
Ram: -188
Barter World: -211
Battle Station: -217
Patrol Mech: -259
Corvette: -286
Recycling Station: -466
Battle Screecher: -488
Survey Ship: -506
Battle Pod: -579
Blob Fighter: -598
Battle Barge: -600
Fighter Base: -681
Imperial Frigate: -762
Trade Pod: -765
Merc Cruiser: -1304
Imperial Fighter: -1584

Defense Bot

Cutter: 2132
Federation Shuttle: 1743
Starmarket: 1520
Missile Bot: 1470
Embassy Yacht: 1263
Fortress Oblivion: 1067
Defense Bot: 859
Command Ship: 821
Trading Post: 804
Patrol Mech: 789
Flagship: 735
Construction Hauler: 700
Trade Escort: 698
The Ark: 689
Brain World: 641
Defense Center: 566
Trade Bot: 528
Central Office: 501
Starbase Omega: 459
Machine Base: 448
Mega Mech: 441
Mech World: 439
Barter World: 431
Breeding Site: 430
Mothership: 420
Royal Redoubt: 385

Supply Bot: 370
Blob Destroyer: 365
Trade Raft: 363
Junkyard: 360
Battle Mech: 356
Missile Mech: 350
Corvette: 342
Battle Barge: 335
Recycling Station: 334
Battle Blob: 317
Freighter: 309
Port Of Call: 291
Battle Station: 278
Dreadnaught: 273
Megahauler: 266
Fighter Base: 266
Stealth Needle: 266
Blob World: 265
Blob Carrier: 265
Obliterator: 262
War World: 250
The Hive: 246
Battlecruiser: 245
Merc Cruiser: 240
Blob Wheel: 221
Battle Screecher: 180
Imperial Trader: 176
Trade Wheel: 99
Ram: 92
Trade Pod: 89
Imperial Frigate: 82
Survey Ship: 43
Space Station: 40
Fleet HQ: 24
Battle Pod: -1
Explorer: -165

John  [@icesphere](#) [May 24, 2016](#)

I've fixed the bug with Megahauler.

Here are the updated results for Velocity Bot vs Velocity Bot (the numbers are about half as big as the previous results since I'm now separating out by player)

Cutter: 672
The Ark: 429
Command Ship: 343
Missile Bot: 289
Stealth Needle: 287
Brain World: 269
Flagship: 254
Trade Escort: 253
Battle Mech: 244
Trade Bot: 205
Missile Mech: 201
Construction Hauler: 196
Corvette: 190
Starmarket: 187
Imperial Trader: 181
Mega Mech: 153
Blob Destroyer: 150
Dreadnaught: 148
Mothership: 145
Battle Blob: 145
Obliterator: 144
War World: 133
Blob Fighter: 124
Breeding Site: 123

Blob Carrier: 112
Supply Bot: 105
Royal Redoubt: 105
Megahauler: 100
Battlecruiser: 84
Central Office: 84
Blob World: 75
The Hive: 73
Starbase Omega: 57
Defense Center: 51
Port Of Call: 50
Patrol Mech: 48
Junkyard: 47
Fleet HQ: 29
Ram: 12
Mech World: 12
Battle Pod: 10
Trade Pod: 7
Trading Post: -9
Trade Wheel: -9
Space Station: -15
Embassy Yacht: -16
Machine Base: -22
Barter World: -38
Blob Wheel: -38
Freighter: -41
Battle Station: -60
Fortress Oblivion: -75
Battle Screecher: -108
Battle Barge: -124
Federation Shuttle: -125
Merc Cruiser: -129
Defense Bot: -142
Imperial Fighter: -146
Explorer: -162
Recycling Station: -162
Trade Raft: -209
Survey Ship: -250
Imperial Frigate: -315