finals-2022

@vito created this private channel on October 3rd. This is the very beginning of the **finals-2022** channel.

Add description Add people Send emails to channel

Monday, October 3rd



vito 3:38 PM joined finals-2022 along with 19 others.

Friday, October 7th



vito 1:13 PM Welcome to Hack-A-Sat 3 Finals chat!

- 1. These guidelines do not supersede the official rules; they're here to make chatting in Slack useful and productive for all of us.
- 2. The goals of these channels are to address hardware, infrastructure, and other gameplay issues.
- 3. You should have access to both finals-2022 and #finals-2022-TEAMNAME . Please let Mission Control know if you don't! Do that now!
- 4.All finals-2022 and #finals-2022-TEAMNAME conversations will be made public after the game ends. Don't chat anything you wish to keep private. Don't chat personally identifiable information.
- 5. Please be thoughtful with which team members engage in communication with organizers. While we don't want your team to miss important details due to someone taking a break or being busy, we also don't want to spend a bunch of time getting confused or de-conflicting what more people want.
- 6. That said, it's totally okay to have your whole team in both the finals-2022 and #finals-2022-TEAMNAME rooms reading.
- 7. Sending private or direct messages to a game operator will make it more difficult for operators and other members of your team to know what's going on. Please don't.
- 8.Both finals-2022 and #finals-2022-TEAMNAME can be used for official communication through the end of Hack-A-Sat finals. shout@hackasat.com is also still available for official communication.
- 9. Please review the contest rules and keep an eye out for updates at https://www.hackasat.com/





Cydonia 1:16 PM

was added to finals-2022 by vito, along with 3 others. Also, /dev/ur4ndom and 2 others joined. **Thursday, October 13th**



Cydonia 1:54 PM

(a)channel

Hi everyone. Prior to the game we need to select the orbits the satellites that each team is controlling. The orbits are pretty well balanced but there are some tradeoffs between them that cannot be avoided due to physics. The attached document explains exactly how we will select orbits and the balancing of the orbits in detail.

Each team has an action:

- In your team's private slack channel please post the positive integer you would like me to put into the seeding script for your team
- Please complete this action by Friday October 14, 17:00 EDT (5 pm United States Eastern Daylight Time, 9pm UTC). If you have not selected a number by this time the number "1" will be selected for you. After I have all the team's numbers I will
- Put all 8 numbers teams into the script.
- Run the script.
- Post the numbers each team selected into this channel.
- Post the output of the script into this channel.
- Post a screenshot of how I ran the script into this channel. (edited)

orbits.md

Orbital Selection

Selecting orbits for all the teams required some special consideration for game balancing. ## Criteria

The following criteria were considered

- Time with access to the sun over the course of the game

Click to expand inline (102 lines)



Irsyad Hanif 4:50 PM

was added to finals-2022 by j0nam1el, along with 2 others. Also, Bonus and ggajoch joined.



Cydonia 10:33 AM

@channel just a friendly reminder to do the above action for your teams by 17:00 EDT (5pm eastern daylight, 9pm UTC) today.

Friday, October 14th



safemode 10:40 AM

@channel The pre-finals DigitalTwin release has gone live. Please send us any and all questions or issues? Thanks,

HAS3 Organizers (edited)





JR 4:49 PM

was added to finals-2022 by vito, along with 2 others.



Cydonia 10:38 PM

Hey all, here are the orbit seedings.

I've included the results, a screenshot of my terminal when i ran the seeder, a listing of the code, a list of steps to reproduce. **Code** (picker.py)

```
import random
def pickOrder( ):
   teamDict = {
       # Put integers provided by teams here
"orangizers":0x06d1cb37208bf1cb4229d4857376598b96041f89e8f26fb0446a339935cbfd482df90bcde071fd2
2e75a07df4689a47561ef26a2dd670fcb284497f9ac91ac44,
       "perfectblue":1,
       "poland":573,
       "samauri":1,
       "singleeventupset":1553,
       "solarwine": 1,
       "spacebitsrus":4277009102,
       "weltalles":3
   }
   # sum the teams numbers
   summation = 0
   for key in teamDict.keys():
       summation += teamDict[key]
   # use the summation to seed RNG
   teamList = list( teamDict.keys() )
   random.Random(summation).shuffle( teamList )
   slotNumber = 0
   dTA = 2
   print( "-----")
   for item in teamList:
       TA = 14.0 - slotNumber*dTA
       print( f"{slotNumber}, {TA}, {item}")
       slotNumber+=1
if name == " main ":
   pickOrder()
```

Repro Steps

Run these steps to repro
docker pull python:3.10-slim
ls
docker run --entrypoint=/bin/bash -it -v ~/orbitSeeding:/home python:3.10-slim
in container
cd /home
python3 picker.py

Results

Slot Number True Anomaly (deg) Team

0, 14.0, spacebitsrus

1, 12.0, orangizers

2, 10.0, perfectblue

3, 8.0, samauri

4, 6.0, poland

5, 4.0, singleeventupset

6, 2.0, solarwine

7, 0.0, weltalles

image.png

1 reply 13 days agoView thread



vito 10:39 PM Image from iOS



spaceymcspaceface 10:44 PM ready for the space race image.png



pricorde 7:27 AM

was added to finals-2022 by solarwineender.



safemode 1:25 PM

@channel Hey everybody we will be deploying an update to the DigitalTwins. There will be a short outage while things are rebooted and come back up. Sorry for downtime. I will send out another message when the update is complete.



safemode 4:17 PM Everythign is back up



Sunday, October 16th



Seb Khack 3:29 AM

was added to finals-2022 by xm. Also, explo1t and 2 others joined.





safemode 2:20 PM

@channel For all teams information there will no sudo access to the machine running the web terminal. you will however receive ssh keys to connect remotely for finals. (edited)



ST7 3:00 PM

was added to finals-2022 by vito, along with 2 others.



Cydonia 3:56 PM

A quick note about epochs: The time epoch for the digital twin orbits is 2022-01-01 12:00:00.0 UTCDetailed information about the satellites and the orbit epoch for the orbits selected last week will be dropped close to the start of the game. (edited)

Tuesday, October 18th



Bool 7:34 PM

was added to finals-2022 by OB1, along with 2 others. Also, bigred and 2 others joined.

Wednesday, October 19th



Cydonia 7:48 PM

All. In the UPDATE_RADIO_CONFIG message in cosmos the note for the access bytes field says "Access Bytes (last 16 bytes)"

This is a typo the field is 16 BITS long.

We will update the note accordingly in the final game (edited)



Thursday, October 20th



safemode 9:42 AM

Hey all. If you need or want your digitaltwin to be reset. Please explicitly ask for this so we can help you out.





Cydonia 3:29 PM

All there is a bug in the digital twin where the reaction wheels still draw power even after you turn them off. This should be fixed in the final game.





rbtree 8:38 PM

was added to finals-2022 by voidmercy.

Friday, October 21st



Cydonia 11:42 AM

All - in your digital twin the Q_W_LIMIT parameter of your ADCS HK_TLM_PKT isnt being set by the flight software. This should be fixed in the final game.



Cydonia 11:53 AM

Similarly in ADCS - SET_Q_TRACKING_GAIN has the wrong size in COSMOS. It is set to 24 and should be 56. If you want to use this command you can change this size and it should work. This size is fixed in the final game



braindead 12:19 PM

was added to finals-2022 by voidmercy. Also, bdlm t and 10 others joined.



Deadwood 7:25 PM

@channel Here is the first drop of documentation for the Finals competition. A second and final drop will happen tomorrow just prior to the start of the competition. Please review these docs prior to the start of the event. Confirm that you've received this archive in your private team channel. Zip

HAS3-Finals-GameDocs-Drop1.zip

Zip



Nevsor 8:28 PM

was added to finals-2022 by Daniel Kilimnik.



Bool 8:48 PM

Super excited for the game tomorrow! Thanks for putting all of it together.



Saturday, October 22nd



Mateusz Paczyński 8:44 AM

was added to finals-2022 by redford. Also, Nico Gründel and 2 others joined.



meenmachine 10:56 AM

Please confirm that you've received your creds. Good luck! If you have not please let an admin know **immediately** (edited)



@channel



vito 11:00 AM

10:56

@channel ATTENTION TEAMS: https://regatta.2022.hackasat.com uses your quals login, and is how you score points and see scoring information



Th0mas 11:00 AM

was added to finals-2022 by Daniel Kilimnik.



SirGoon 11:01 AM

@channel All, the game is live!



localo 11:02 AM

ALL!



Nico Gründel 11:03 AM

ES



bazumo 11:14 AM

was added to finals-2022 by /dev/ur4ndom, along with fl0w. Also, neptunia joined.



spaceymcspaceface 11:21 AM

The provided test api.py script provided is an examplar and not intended to work out of the box.



EJ 11:22 AM

was added to finals-2022 by ST7. Also, Luca Di Bartolomeo joined.



spaceymcspaceface 11:43 AM



Went for a coffee run and found something sus Binary

intel_drop.tar.xz

Binary



MrQubo 11:49 AM

was added to finals-2022 by redford. Also, Aaron Cannon joined.



spaceymcspaceface 11:59 AM

COSMOS instances are accessible at https://cosmos.{teamShortName}.has3.satellitesabove.me/teamShortName is the same as from the AWS digitaltwin twin early drop, e.g. Poland Can Into Space is just poland



Cydonia 12:01 PM

A11

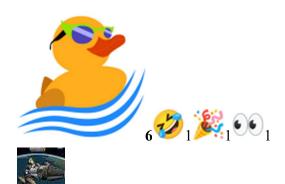
The orbital parameters use an epoch of: 2023-01-01 00:00:00.000 UTC

If you want to check out the current game time make sure to check out GS GAME_TIME in cosmos



Bonus 12:04 PM

image.png



spaceymcspaceface 12:30 PM

MISSION CONTROL HAS IDENTIFIED A NUMBER OF AVAILABLE GROUNDSTATIONS groundstation.md

Groundstations

Ground stations must be used to talk to satellites. All ground stations have an altitude of 0 meters.

Locations

Click to expand inline (61 lines)



vito 12:31 PM

Updated challenge description for wheel speed SLA: "Keep your wheel speed magnitude under 300 radians/sec"



Cydonia 12:48 PM

Clarification:

The science station is not controllable by the teams and can not be utilized for command and control.





sampriti 1:54 PM

was added to finals-2022 by rbtree.



Deadwood 2:04 PM

An interesting web server lives at http://10.23.223.25



meenmachine 3:01 PM

Could teams that solved the coffee java challenge please DM us with their solutions.



Cory Fowler 3:02 PM

was added to finals-2022 by j0nam1el.



safemode 3:54 PM

PowerPoint Presentation

Hack-a-Sat 3 DigitalTwin User Guide.pptx

PowerPoint Presentation



vito 4:12 PM

Round scoring: when you or your teammates do something that earn points, you don't get credit for those points until the round is scored, after the round ends; note the "scored / wall clock" column in https://regatta.2022.hackasat.com/journal



spaceymcspaceface 4:16 PM

The passwords for "rolling_password" groundstations will change to a new password once access is revoked from a team that gained access to that groundstation. Passwords can only be used once across all teams.



Nico Gründel 5:16 PM



We want a static scoreboard pls image.png



meenmachine 5:17 PM

We'll tell @vito to delete the javascript.



meenmachine 5:24 PM

Please don't rely on the Cesium Visualization for any calculations. It is inaccurate at the moment.



vito 5:42 PM

There've been questions about the stoplight SLA status on the website; I think the "wheel speed" and "rx bandits" columns are switched





redford 5:43 PM that explains a lot



vito 5:46 PM https://finals.2022.hackasat.com/stoplight.json is the canonical version (updates every 10 or 15 s, but really only updates each round) bazumo 6:21 PM regatta seems to be down vito 6:22 PM

i'm able to hit https://regatta.2022.hackasat.com

(checking on my phone)

firewall rules got jiggled, gimme a moment



hmmm

it's back

5:46

6:22

6:22

6:23

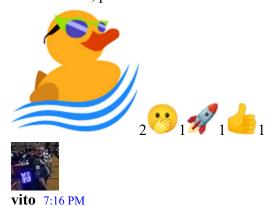


bazumo 6:24 PM works, thanks



Deadwood 6:53 PM

Hey Teams, we have some ACL issues and if you stumble across interfaces that are NOT on 10.23.223.25, please don't mess with them.



the SLA status on the website appears correct to me



safemode 7:20 PM

If it is not already clear. You ARE able to send commands to other teams satellites. This is an intended part of the game.

7:22

If you believe you satellite FSW has been crashed, please let us know in your private channel. We can verify and reset your FSW after a 5 minute penalty.





Cydonia 7:36 PM

Clarification: Science missions require a continuous observation for the duration specified. If you look away you to have to start over.



Deadwood 7:39 PM

The FTP server is running on Ubuntu 20.04.



Deadwood 7:55 PM

As a new feature of our Mission Control Services, we can reset satellite radios to non default settings upon request.





keidii 7:55 PM

was added to finals-2022 by redford.



Deadwood 8:29 PM

Congratulations to Poland for popping the 150 File Status (ftp server) challenge!!!





safemode 10:05 PM

Public viz is back! https://cesium.viz.2022.hackasat.com/



Deadwood 10:48 PM

Just a note about the web server on 10.23.223.25. Besides being a challenge, it also has valuable information about how to execute a science mission.





keidii 11:01 PM

is the "break" now? or +2 h?



meenmachine 11:02 PM

In two hours. Break starts at 5:00 UTC (edited)



SirGoon 11:03 PM 10:00 PM PT

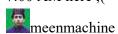


safemode 11:09 PM

This was mentioned on the live stream, but wanted to reiterate. Your SLA may improved by tuning the ADCS control law PID parameters.

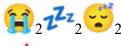


keidii 11:22 PM 7:00 AM here ;(



In two hours. Break starts at 5:00 UTC (edited)

Posted in finals-2022 | Oct 22nd | View message





safemode 11:26 PM

Clarification for the game pause. Incoming in a couple minutes. (edited)



- 1. During pause simulated game time will not advance (satellite orbit will not propagate forward in time)
- 2.Game will be paused from 22:00 PDT (10/23 05:00 UTC) to 6AM PDT (13:00 UTC)
- 3. At the end of the pause, simulated time will start to advance again and your orbit and other spacecraft state will begin to update again as you left it.

11:37

4. Network access to game network via AWS jump boxes will be suspended during break (edited)

See updated time in PDT above.



Sunday, October 23rd



safemode 12:27 AM

The service at 10.23.223.25:13100 is being restarted. Let us know problems persist.



meenmachine 12:51 AM

<10 Minutes until pause! Wrap what you're doing up ASAP!



SirGoon 12:55 AM

5-minute warning until game pause

2 minutes	12:58
	12:59
60 seconds	12:59
30 seconds	12.39
10 seconds	12:59
GAME PALISE	1:00

GAME PAUSE





SebC 1:30 AM

so many samurai typos...





safemode 8:39 AM

Ok here is the private key to access the production-test instance on your web digitaltwin.

The user name is digitaltwin

id_digitaltwin

----BEGIN OPENSSH PRIVATE KEY-----

b3BlbnNzaC1rZXktdjEAAAAABG5vbmUAAAAEbm9uZQAAAAAAAAAAAAAAAAAAAAAtzc2gtZWQyNTUxOQAAACCkxpUO3ffKoMrp9tuG2XKKVbi8VF3hPo2sgLyhEZZKAgAAAJAWkQv+FpEL/gAAAAtzc2gtZWQyNTUxOQAAACCkxpUO3ffKoMrp9tuG2XKKVbi8VF3hPo2sgLyhEZZKAgAAAECOVMzap4Ro6JycMJM9FYXIk9qJxVjDqHKq1+RsmDFc5aTGlQ7d98qgyun224bZcopVClick to expand inline (8 lines)

ssh is open on port 2222 on your <team>-digitaltwin.satellitesabove.me from your landing@<team>.digitaltwin access



SirGoon 9:00 AM

Mission control is preparing for launch, there is a small hold in the countdown



meenmachine 9:05 AM

8:40

8:42

We found this flashdrive at the coffee shop. Here's the binary we found. (edited) IBR_6382.jpg

9:05

Binary

telescope.soBinary



meenmachine 9:14 AM

If you have access to your satellite you should not send commands to your satellite in the meantime until we give the go ahead. It has a slight possibility of breaking your sat.





meenmachine 9:15 AM

To clarify this is because time isn't running yet.



11 days agoView thread



Cydonia 9:22 AM

Time is now running

You can send satellite commands again

9:22

9:23

thanks for your patience



SirGoon 9:23 AM

Mission control has started the GAME, however the scoreboard may not be accessible at this time. Mission control is aware of the situation and troubleshooting.



Cydonia 9:28 AM

The scientists at McMurdo are anxious to look at some science data and are busy broadcasting missions every 60s- The scientists also asked us to clarify that an exposure must be generated during the mission window.

However, after the exposure has been been completed, you can command a downlink to the science station with an EXPOSURE REQUEST at any time until the end of the game for points. (edited)





Cydonia 9:38 AM

Hey everyone, since we had a slight delay in restarting time in the game we'd like to clarify game time:

Game Time UTC 14:19:00 UTC

Approximatly 13:37:00 UTC in real life



vito 9:45 AM

@channel regatta should be back up and running; if it's busted, please @ me in your private channel



safemode 10:05 AM

If you are confused about current game time. Check your GS game time packet



Rodbert 10:08 AM

was added to finals-2022 by redford.



Deadwood 10:45 AM

Teams, we have fixed a bug in the downlinking of science missions. The service will be bounced momentarily to apply the fix. The consequence is that all existing missions will be invalidated. If you think you have successfully completed a science mission, talk to us in private channels.



Bonus 10:55 AM

image.png





keidii 10:55 AM

"Fix"



implr 10:57 AM

was added to finals-2022 by redford. Also, Samuel Bétrisey joined.



spaceymcspaceface 11:52 AM

Mission control is working multiple radio resets, apologies for the delay.



spaceymcspaceface 12:06 PM

If you are still awaiting a request to mission control, please DM me



Cydonia 12:11 PM

Congrats to Poland Can Into Space for getting first blood on "yay science" thank you for the science



if you think youve scored yay science since the bug let us know in your private chats



Rev 12:12 PM

image.png



12:11



SirGoon 12:13 PM

Yay science!



spaceymcspaceface 12:16 PM

image.png





11 days agoView thread



Deadwood 12:32 PM

FYI, all challenges are in play at this time. Nothing new will be released.



vito 12:51 PM

investigating a bug where a single redemption for a scavenger-style service starts and never stops getting scored



2 replies Last reply 11 days agoView thread



Deadwood 1:34 PM

Due to rampant inflation and its affects on the price of fuel, Mission Control is having to reduce space tug services such as radio settings resets to no more than every 30 minutes. We are sorry for any inconvenience this might cause.





Pascal 1:55 PM

was added to finals-2022 by bazumo.



meenmachine 2:12 PM

We made an update to the way flags are deposited. It was depositing the flag for flight software apps incorrectly. It awarded the following:

- puzzlebox solves for actual solves of three-app-monte
- riscv-business solves for actual solves of puzzleboxThis means there were no real scores on riscv-business. Only three-app-montey and puzzlebox have been solved.puzzlebox is a "turnstile" challenge

three-app-montey is a "scavenger" challenge

riscy-business is a "scavenger" challenge The scoring for these challenges will be updated for the incorrect intervals.



11 days agoView thread



meenmachine 3:17 PM



For those wondering, riscv-business is a challenge related to the telescope.so app.



Deadwood 3:34 PM

Just a heads up, teams. After the competition ends, if you have any questions for Mission Control please send them via slack. We will be doing a segment during the final broadcast and will address some of them as we can.





vito 4:58 PM

replied to a thread:@here...

Following on from this, a couple risc-v business redemptions have been re-scored into three-app monte.



Deadwood 5:19 PM

@channel One hour to go! If you need anything from Mission Control ask soon because time is running out!



Deadwood 6:11 PM

Just a little over 10 minutes to go!

6:11

The game will end at exactly 23 hours and 3 minutes of simulated game time.

6:13

Remember, we are looking for any topics you'd like addressed in the discussion with Mission Control during the final broadcast.



Cydonia 6:14 PM

That's 82980 seconds of "played time"



SirGoon 6:16 PM

https://www.youtube.com/watch?v=gR21pW66kIY&t=3s

PYouTube | johnious

Final Countdown Nasa Video - Europe



6:17

T-3 minutes remaining to game end!



wyattearp 6:18 PM

^^^ NGL - I had a side bet this was going to be posted here





SirGoon 6:19 PM

Reminder, mission control will be accepting questions for the livestream later that we may address

T-60 seconds

T-30 seconds...



ALLES CTF 6:20 PM

PXL_20221023_221947979.TS.mp4

0:08 1x





SirGoon 6:20 PM

T-15 seconds

		0:20
5		
,		

4	4				

-	n			
4	4			

	6:20
2	

			6:20
1			

GAME OVER!



RuGo 6:21 PM

σσ



Bool 6:21 PM

Good game all!



6:20

6:20

6:20

6:20

6.20

- - -

SirGoon 6:21 PM

Nice, love the share @ALLES CTF



Daniel Kilimnik 6:21 PM

gg



redford 6:21 PM

winning tweet: https://twitter.com/dsredford/status/1584308986366435330





Nevsor 6:21 PM



Congrats to



1



SirGoon 6:21 PM

We love seeing what the teams came up with for the competition!



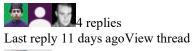
redford 6:21 PM

oops, not this one



Leonardo Galli 6:21 PM

so was spaceflag just a red herring?





wyattearp 6:21 PM AWESOME GAME!!!!





meenmachine 6:21 PM gg guys! (edited)



SirGoon 6:21 PM

Congratulations to all the competitors for an amazing game



RuGo 6:23 PM

gg

image.png







Bonus 6:23 PM







localo 6:24 PM

gg



Rairosu 6:34 PM

gg



spaceymcspaceface 6:41 PM

Congrats teams and nice work!! Hopefully you picked up some spacemath along the way :)



SebC 6:42 PM

I probably did and then my brain melted



aegis 6:44 PM

Every night I close my eyes and try to forget about quaternions





1 reply

11 days agoView thread



Bonus 7:25 PM

One of the teams spun all other satellites [...]

script runner=> destroy.rb







11 days agoView thread



chainsaw10 7:48 PM

was added to finals-2022 by Beached.



Bonus 8:12 PM

https://twitter.com/boryspop/status/1584311820671942657

regarding the access codes pwn (edited)



6 replies

Last reply 10 days agoView thread



atlas 8:48 PM

hey all, great game! this was an epic game full of challenge, exhilaration and exhaustion <zzzzzzzzzzzzzzz





Nevsor 8:48 PM

What was the solution for telescope.so? We found that a message id of 0xdb saves a TelescopeRawExposure and getExposure writes some secret string to the resulting TelescopeExposure. There was also a command to request multiple TelescopeMissionData using the undocumented command id 0x69. We did not find any way to send custom messages to the sat or digital twin though.





3 replies

Last reply 11 days agoView thread



redford 9:07 PM

there was a stack BOF in 0x69 cmd

and it was possible to send it



keidii 9:13 PM

9:07

Send getmission w/ changed func to 0x69 and missionId > 19 to get segfault;)



Last reply 10 days agoView thread



chainsaw10 9:45 PM

gg all!

How did y'all solve has-ftp? I ended up fumbling with house of botcake, I'm curious if there was another way.

(after all, VIEW was provided, which you didn't have to use (although if you actually got RCE it would probably have been useful))



Last reply 10 days agoView thread

Wednesday, October 26th



Bonus 10:43 AM

where's the non-instrumental version?

image.png