SPACE GUARDIANS’ MULTIPLAYER

**DEVELOPMENT LOG**

This is the development log for the Space Guardians multiplayer (client/server) setup using the MP Tanks / CBS (Cross-Platform Backend Solution) as a foundation for the new game.

The MP Tanks project offers a foundation for the multiplayer arena style systems which uses Unity’s Netcode OR **Photon PUN2** (we used Photon) for its matchmaking services combined with Microsoft’s Azure PlayFab dedicated server back-end for user authentication, inventory, user management and databases.

The CBS (Cross-Platform Backend Solution) package provides a selection of easy-to-follow tools to manage inventory, itemisation, events, giveaways, battle passes and so much more that are provided as part of the Azure PlayFab dedicated server hosting.

**-- IMPORTANT–**

**This document is important and discloses important information regarding the development and maintenance of core systems in the project. DO NOT disclose this to ANYONE. If you have access to this document it is intended for your eyes only and should not be replicated or shared with anyone without express consent from its author, Gareth James, DEFVERSE Founder and creator of the Space Guardians game.**

* **PHOTON SETTINGS**  
  Open in UNITY: Window > Photon Unity Networking > PUN Wizard  
  **APP ID:** a71d3a81-aef9-4327-9ba7-08b87f8995ad  
  **Photon PUN2 Services:** <https://www.photonengine.com/pun>
* **PLAYFAB SETTINGS**Use the Playfab Editor Extension package!The window should show in the same panel as the Unity inspector. Open in UNITY > Window > Playfab > Editor Extensions  
  **APP ID:** 5F8EA  
  **Microsoft Azure PlayFab Dedicated Server:** <https://playfab.com/>
* **MP TANKS BASE GAME**  
  Open in UNITY > Window > Tanks Multiplayer > Network Setup. Follow the PUN2 setup if you want to replicate our set up   
    
  **MP Tanks Project Unity Asset Store:** <https://assetstore.unity.com/packages/templates/tutorials/tanks-multiplayer-netcode-photon-69172>
* **CBS (Cross-Platform Backend Solution)**  
  Open in UNITY > CBS > Configurator. There are several steps to follow so please read the documentation and follow it step by step. It’s complicated so don’t skip steps.  
   **CBSS (Cross Platform Backend Solution) Unity Asset Store:** <https://assetstore.unity.com/packages/tools/game-toolkits/cbs-cross-platform-backend-solution-playfab-200638>

**-- TO DO LIST –**

1. Progress: At 4.1 in the documentation. Started editing the movement of the spaceship but it’s not working as intended, need to fix the following:  
   1. Spaceship should NOT accelerate faster while going forward/strafing at the same time. Need to add a multiplier of 0.7f to restrict speed while pressing strafe and accelerate/decelerate.
   2. Right stick needs to cause the ship to rotate gradually. Right now it snaps to the direction indicated by the mouse position / right stick angle, instead of rotating gradually ☹  
        
      **I need to calculate the right stick input somehow and multiply it by the rotationSpeed to get the correct rotation value. Need to ensure the rotation is being ADDED to the current rotation, and not being reset! This is likely what is wrong!**
   3. Look into using rigidbody.velocity again instead o fusing translate because velocity adds a acceleration/deceleration rate which looks really cool for spaceship style movement. May need to tweak the acceleration rates (and/or cap the maximum velocity). Check what affect gravity has on the rigidbody and if we can add our own drag factor.
2. Continue from the TanksMultiplayer.pdf documentation tomorrow. Was working through the documentation one more time just to ensure I understand everything that the tanks demo offers and then I will move on to the CBS setup which will lead me through the setup of the Azure Playfab services so we can test things like our own item store, authentication, and inventory management. TANKS DEMO DOCS FIRST > CBS documentation next.
3. Basic things to do once the documentation have been read:  
   1. Add a new tank (how easy is it, what we gotta change?) - DONE  
      Things to consider:
      1. Tanks change colour when they’re assigned a team, override this.  
         COMPLETED: No need to override, use a different object to represent the team colour, perhaps an ellipse or just a cube indicator or something.
      2. Turret not needed on spaceship, see how to achieve this
      3. Controls for spaceship are different need to move differently to the tank setup so we need to fix this too
         1. Left stick – strafe left right / forward + back movement
         2. Right stick rotate
   2. Change the tanks to spaceships
   3. Disable the turret rotations, they’re not needed.
      1. Weapons auto fire, default auto cannons will fire directly in front of the ship (should not be gimballed). Must always have ONE weapon firing directly ahead of the ship? Perhaps make all auto cannons directional to prevent any issues?
   4. Add a new scene (or duplicate the TDM one) and change the environment. Fiddle around with the navmesh stuff and see if you can extend the AI to roam further than it currently does now.
   5. Implement SG enemies and see if we can have them move around the same way as the tank bots do at present.
   6. Implement CBS and try creating a store and adding the ships to the store.
   7. Use CBS to create a leader board and save high scores from the TDM mode.
      1. Each player gets points based on K/D/A + team score
      2. Each players score gets added to their current leader board score so that the leader boards can update with the most productive players
      3. (Kills / Deaths) gives KD average + (Wins / Losses) gives match average + (MVP earned / Games Played) gives MVP average = TOTAL SCORE

-- v0.1.2 –

* **Code:** Had to roll back the project to the initial setup stage before CBS was implemented as there were issues with some of the MPT sounds. They weren’t linked any more, couldn’t figure out to remedy it so just rolled back for now. All is working again.
* **New Tank:** Successfully added new simple tank to the shop screen.
* **Shop Vertical Scrolling List:** Added a vertically scrolling list that can contain lots of shop entries. Just tested the functionality, this will be removed when we start using the CBS scrolling battle / item store options later.
* **Tank Renderers:** When you want to an object to represent the team colours for the tanks / spaceships, you need to add their primitive shape to the Renderers list which is located on the Player script? 🡨 check this, not sure. Only objects added to the Renderer list will be turned into the corresponding team colours. For SG we’ll need to just have a semi-circle or something similar below the player object so that we don’t mess with the models themselves.  
    
  UPDATE: Added a sprite image below player now that shows a default yellow colour. Replace this later to an ellipse primitive that can be rendered in team colours. Won’t work on the Quad for some reason as it seems to reorientate it too. Perhaps a misconfiguration with the turret rotation I was messing with earlier. Look into this again later.
* **Spaceship Model Added:** Added the first SG spaceship Robocorps Vulcan to the game. Had to add point light to the prefab. Duplicated the tank prefab and changed the model. In the process of editing the movement properties and removing (repurposing) the turret rotation/look method.
* **Arena Design:** Decided that we need to offer different skill types such as AOE, targeted AOE, Conal Attacks, and directed fire for PvP mode. We need to do this to ensure skill plays a part in the success of the player while playing PvP. Cards will be selected via power ups, activated nu skill buttons, and directed by the user where they will begin to fire until their timer elapses.

-- v0.1.1 –

* A backup of the MP Tanks base project has been saved here: **U:\Space Guardians Backups\** **Multiplayer Project - SG - before CBS setup 0.1.1.rar**This is a backup with just basic PlayFab install, account linked, and the CBS (Cross Server Backend Solution) unity package has been added also but has not been configured yet.

-- v0.1.0 –

* Initial setup of the project including the addition of the MP Tanks, Photon PUN2, and CBS packages.
* **GIT - NEW BRANCH:** Created a new BRANCH “CBS-Setup”. This is to contain all modifications to the MP Tanks codebase + the integration of Cross-Server Backend Services package until it’s all up and running and working as intended.
* **NEW SCRIPT:** Added a script called JustTesting.cs which is located in the /TanksMultiplayer/ folder. This is just for my test scripts as I play around with some of the code. This is to be removed from live builds.