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Exosphere Telepresence

How to configure Exosphere for remote telepresence two-way communication & remote control

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Add Exosphere Robot Skill

The exosphere robot skill requires at least 1 movement panel and 1 camera. This allows the robot to move and see. Without either of those, the telepresence feature can't be used. Also, the PC powering the robot should have a microphone and speaker, because that allows two way voice communication.
***Remember**: Your project can have as many other skills as it needs to operate. But it needs a CAMERA and MOVEMENT PANEL at least.

1. Load latest version of ARC (we recommend Early Access edition to experience the latest fixes and features)

2. Load your robot project. Remember, it needs a **CAMERA** and **MOVEMENT PANEL**. The robot project should be working so that you can control the robot by the movement panel. Your project can have as many other skills as it needs to operate. But it needs a CAMERA and MOVEMENT PANEL at least.

3. Select PROJECT -> ADD SKILL

4. In the add skill menu, select MACHINE LEARNING -> EXOSPHERE

5. If Exosphere has not been installed, select INSTALL in the popup. **Additionally, we recommend reading the MANUAL as well. There's information in the manual that will answer many questions you may have that aren't covered in this tutorial**

6. The exosphere skill is now added to your project

Configure Exosphere for Telepresence

We'll now configure the Exosphere robot skill for telepresence operation. We still advise that you visit the Exosphere manual to learn more about the configuration settings and getting Exosphere up and running. This tutorial does not cover all features of the Exosphere skill. All features of the skill are covered in the Exosphere manual. Here is a link to the Exosphere manual: https://synthiam.com/Support/Skills/Machine-Learning/Exosphere?id=18753

1. Press the CONFIG button on the exosphere skill

2. Enter a detailed description of your robot and the title of your robot (what is it's name). Use the *HELP Question marks* for additional information on those inputs and why they matter.

3. Test the speeds by driving your robot. These are the speeds that the remote operator will use. Ensure you select maximum speed that is not difficult to control. Slower the better... Make sure you test the keyboard speed as well, because if a remote operator were to use the keyboard, you need to make sure it works for them.

4. In the ADVANCED tab, enable the TELEPRESENCE option. The rest of the default values should be fine. Consider increasing or decreasing the video bitrate and resolution, etc as you see fit based on your network connectivity. This tutorial does not cover all of the features in the Exosphere skill. Please check the Exosphere manual for details of features AND use the blue question marks for help on features.

5) Configure the User Access so not just anyone can control your robot. We assume since this is telepresence, that you don't want just anyone picking the robot and driving it around. Enter the Synthiam USERNAMES of users that may operate your robot.

Test It

Now we'll create a task description and submit the task to Synthiam. This will make the task appear on the Synthiam website. If you added an access list, only the users added will be able to control the robot.

1. Enter the description of the task. This can be something that you can identify what this robot is going to be doing via telepresence operation and press SUBMIT TASK

2. On a different computer (or mobile device) than the robot, visit synthiam.com

3. Press PRODUCTS -> Exosphere

4. Your task will be listed. Press the **CONTROL THIS ROBOT** option

5) A new browser will will display the remote control options. Depending on how you configured the Exosphere robot skill, different scripts and settings will be available to you.

1. View of the robot camera
2. Analog joystick for driving the robot
3. Any custom scripts that you have defined in the Exosphere robot skill
4. If enabled, you may also type sentences and the robot will speak them

Loop the task

Once you disconnect from controlling the robot, the task will stop. You may wish to keep the task active for as long as your robot is online. To do this, we'll configure Exosphere to launch a countdown timer to relaunch the task every time.
10 Task is created
20 Remote operator controls robot
30 Remote operator disconnects from robot
40 Exosphere executes TASK COMPLETED script which instructs another script to START
50 Script counts down from 10 every second
60 Script instructs Exosphere to start a task
70 goto 10

1. Add a SCRIPT robot skill. *Top menu bar -> Project -> Add Robot Skill -> Scripts -> SCRIPT*

2. Press CONFIG button on the script

3. Give the SCRIPT an appropriate name and add a count down code that launches the Exosphere task. Save this script setting.

```

print("Count down to start Exosphere task");

for (var x = 0; x < 10; x++) {
print(10 - x);
sleep(1000);
}
// Make the robot speak for fun
Audio.say("Launching telepresence");
ControlCommand("Exosphere", "RequestTask", "My exosphere telepresence task");

```

1. Press the CONFIG button on the Exosphere robot skill

2. Press SCRIPTS -> TASK COMPLETED SCRIPT

3. Put a controlcommand in to instruct the Telepresence Start Script to start.

Finished
Now you have an infinite loop of telepresence.