



Phantas

Quick Start Guide



IMPORTANT SAFETY INFORMATION:

For complete safety information, please refer to the Operator's Manual.

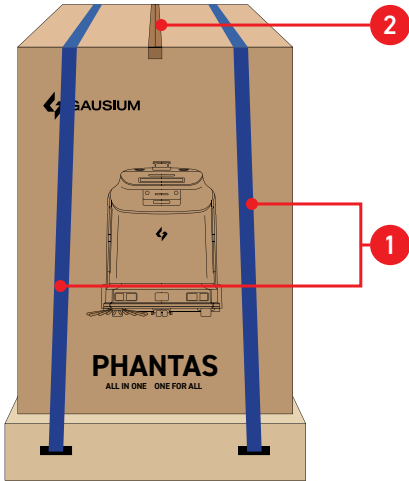
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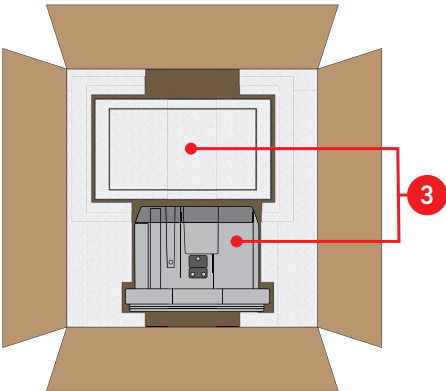
Note: For complete information, please refer to the Operator's Manual.

1. Unboxing: Phantas

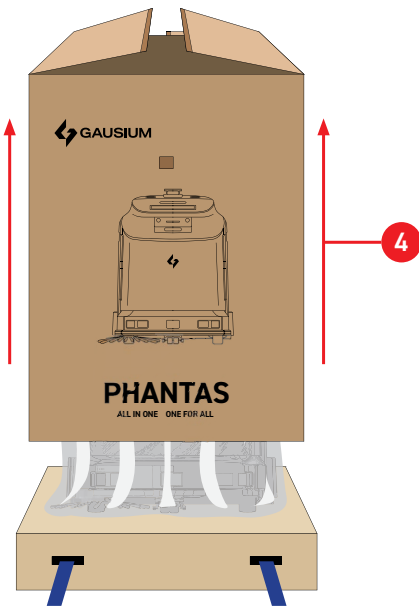
Tools needed: **Box cutter**
Estimated time: **20 minutes**



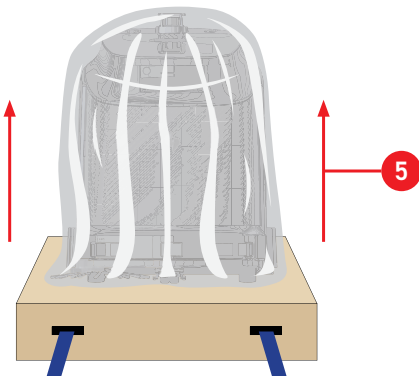
1. Cut straps
2. Cut tape from top of box



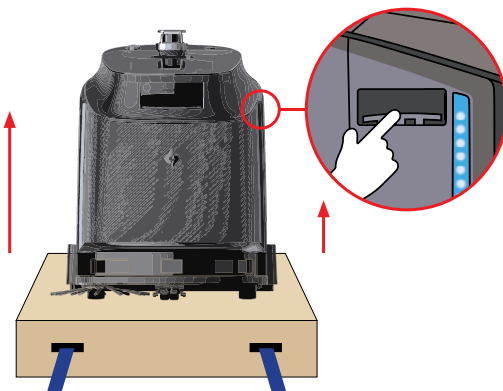
3. Remove tank and accessory box



4. Remove top carton (cardboard)



5. Remove white cover

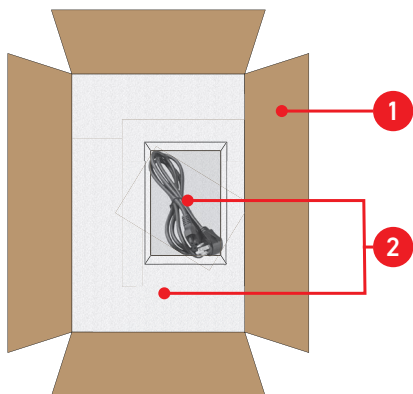


6. With the help of another person, insert hand into handle and lift Phantas

Unboxing: Charging Dock

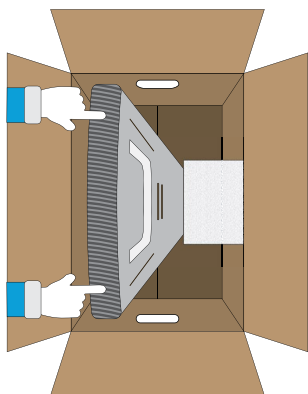
Tools needed: **Box cutter**

Estimated time: **5 minutes**



1. Cut tape from top of box to open

2. Remove cable and foam piece



3. Carefully lift dock from box

2. Machine Overview

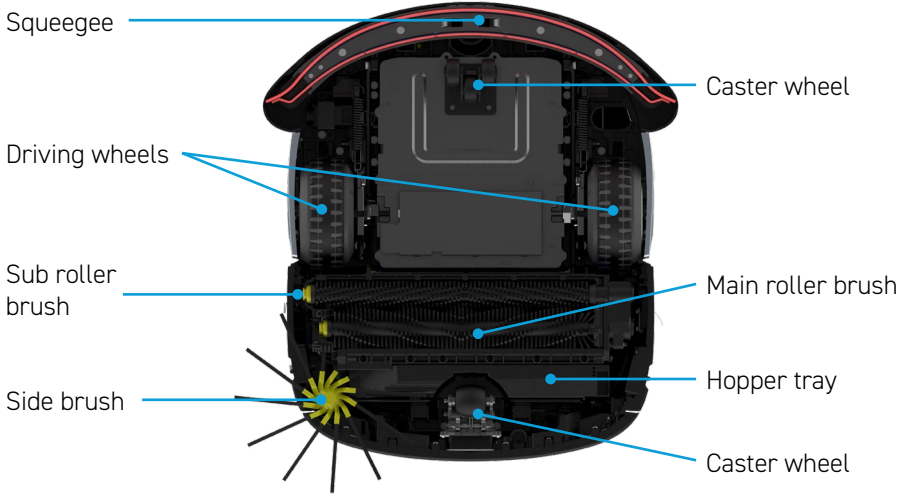
Side View



Rear View



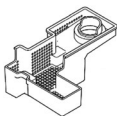
Undercarriage



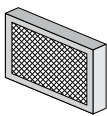
Included Inside Phantas



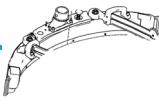
Recovery Tank



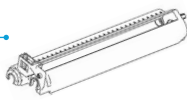
Strainer Basket



HEPA Filter



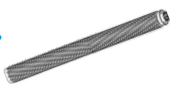
Squeegee Attachment
+ Squeegee Blade x2



Brush Assembly
(Scrub)



Main Roller
Brush (Scrub)

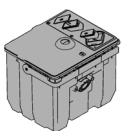


Short-hair Roller
Brush (Scrub)

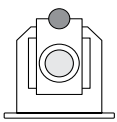


Hopper Tray

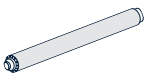
Additional Accessories



Dust Tank



Dust Bag



Cloth Roller Brush



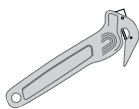
Side Brush



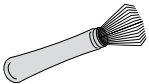
Drain Snake



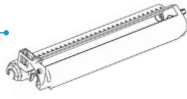
1L Pitcher



Blade



Comb



Brush Assembly
(Vacuum)



Main Roller
Brush (Vacuum)



Short-hair Roller
Brush (Vacuum)

Phantas Specs



Size	21" x 17" x 24" 16" (vacuuming width) 13" (scrubbing width)
Weight	106 lbs
Minimum Operating Width	27.5 in
Minimum U-turn Width	31.4 in
Minimum Height For Under Table Cleaning	25.6 in
Operation Time	~4.5h
Charging Time	1.5h
Dust Bag Capacity	~1.5 gal
Hopper Tray Capacity	~0.2 gal
Max Suction Power	24kpa
Clean Water Tank Capacity	~3.1 gal
Dirty Water Tank Capacity	~2.7 gal
Average Cleaning Efficiency	~5,000 ft ² /hr
Max Speed	0.8 m/s (1.98 mph)
HEPA Filter	H13
Noise Level	<65 dB

3. Charging Dock Overview



4. Charging Phantas

i Ensure Phantas is fully charged before use:

- Phantas has a 4-hour battery life under normal use conditions
- It takes approximately one to two hours to charge the battery

You must only use the designated charger that came with Phantas.

⚠ Do not handle the charging dock with wet or damp hands.

Charging the Phantas should be done in strict accordance with the following instructions to reduce the risk of electrocution.

Utilize dock charging if Phantas is powered on

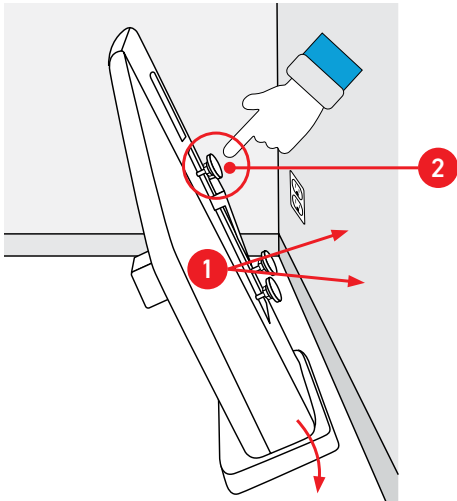


Ideal Location:

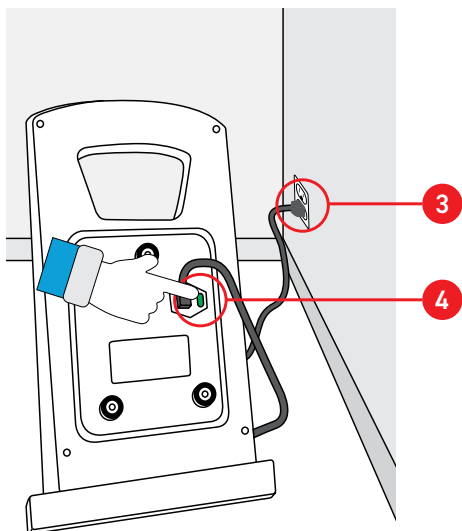
- ✓ Against a wall with nearby power source.
- ✓ No obstacles within 3ft from left or right of dock.
- ✓ No obstacles within 10ft in front of the machine.



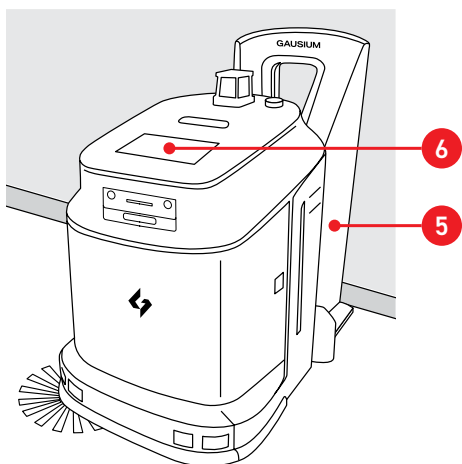
Charging dock must not be moved once its location has been added to a map



1. Place against wall
2. Adjust feet so dock's structure is level with wall



3. Plug into outlet
4. Flip power switch to "On"



5. Push Phantas into dock
6. Exit manual mode on display screen to prevent rolling

Ensure charging electrode plates align with the charging electrode plates on the charging dock.

Note: Phantas cannot be charged using this method if the unit is powered off or if the battery is dead.



Indicator lights will turn **green** on dock + Phantas when charging



Indicator lights will turn **blue** on Phantas when battery is fully charged



Indicator lights will turn **red** on dock + Phantas when there is an error

Or manually plug dock's DC output into Phantas

Note: This is the required charging method if Phantas is powered off or if the battery is dead.

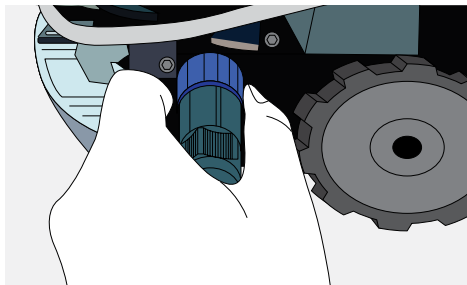
1. Access cord by opening left-side panel



2. Remove bottom right-side cover



3. Plug the DC cord into Phantas



5. Machine Setup

Daily Operation — Vacuum Set-Up

Confirm that the following components are properly installed

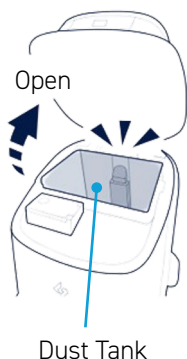
Items needed:

- ✓ Dust tank with dust bag
- ✓ HEPA filter
- ✓ Brush assembly (vacuum)
- ✓ Main Roller Brush (vacuum)
- ✓ Short-hair roller brush (vacuum)
- ✓ Side brush
- ✓ Hopper tray
- ✓ Microfiber cloth

Estimated time: 5 minutes or less

1. Dust Tank

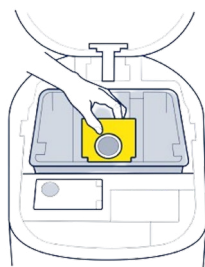
1. Open machine hood



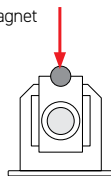
2. Install dust tank



3. Install dust bag



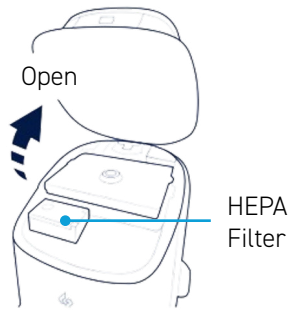
Insert with magnet
at the top



Pro tip: Fill clean water tank during vacuum setup if planning to scrub after vacuuming.

2. HEPA Filter

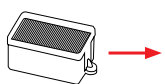
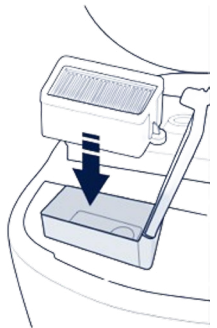
1. Open machine hood



2. Open cover



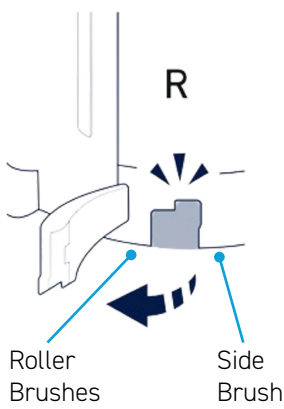
3. Install filter



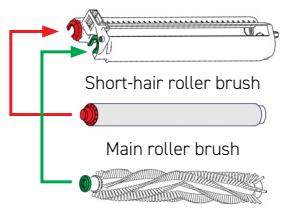
Black sponge on top magnet sensor pointing right

3. Brushes

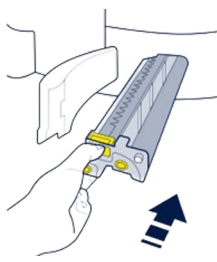
1. Open door



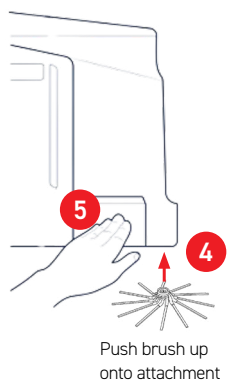
2. Insert vacuum-mode roller brushes into vacuum-mode brush assembly



3. Insert brush assembly, pushing into place until you hear a *click*



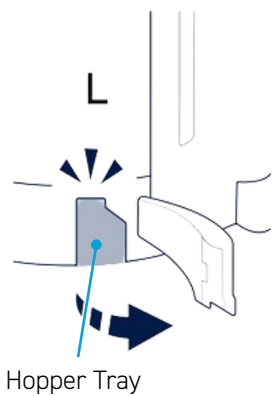
4. Install side brush



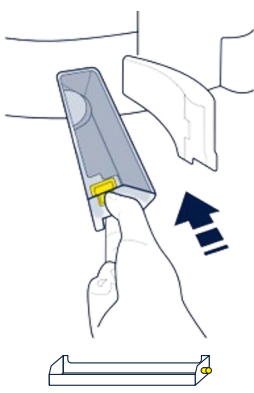
5. Close door

4. Hopper Tray

1. Open door



2. Insert hopper tray, pushing into place until you hear a *click*



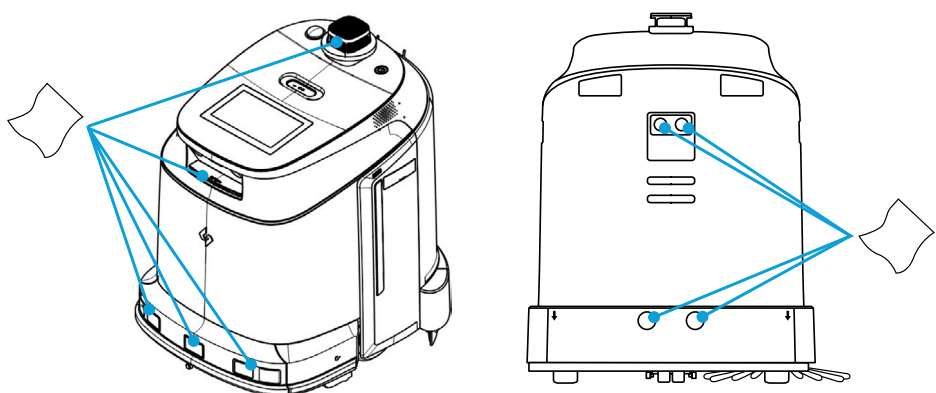
Install with yellow button facing outward

3. Close door



5. Sensors

Use a dry microfiber cloth or lens wipes to clean the sensors



Daily Operation – Scrub Set-Up

Note: Keep HEPA filter and hopper tray installed if switching from vacuum to scrub

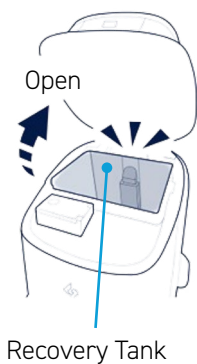
Items needed:

- ✓ 1L pitcher
- ✓ Recovery tank
- ✓ Strainer basket
- ✓ HEPA filter
- ✓ Brush assembly (scrub)
- ✓ Main roller brush (scrub)
- ✓ Short-hair roller brush (scrub)
- ✓ Squeegee attachment + squeegee blades
- ✓ Microfiber cloth

Estimated time: 15 minutes or less

1. Recovery Tank

1. Open machine hood



2. Install recovery tank



3. Install strainer basket

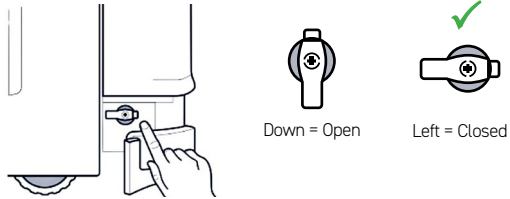


2. Clean Water Tank

1. Open machine hood

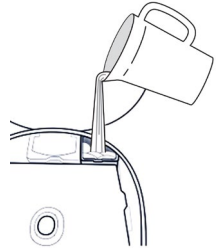


2. Ensure the valve is closed by facing the wheel



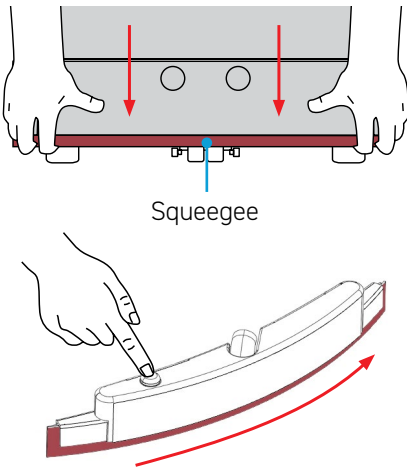
3. The clean tank can hold 12L (2.77 gal) of water. Fill using 4x pitchers of water, or until yellow indicator pops up

Note: Pour floor soap directly into the clean water tank, using any low-foam, neutral pH soap, and follow the manufacturer's dilution instructions!



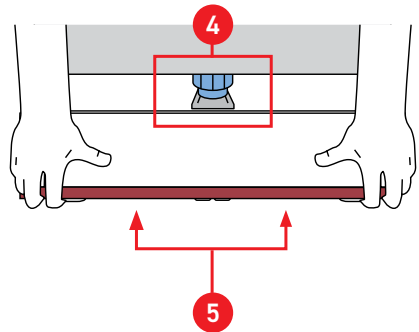
3. Squeegee

1. Remove rear cover



2. Hold down silver button on squeegee attachment

3. Slide squeegee blades into squeegee track

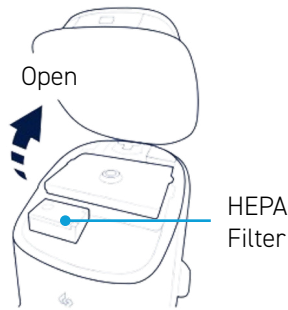


4. Align squeegee attachment with suction pipe

5. Push up to snap yellow clamps in place

4. HEPA Filter

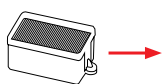
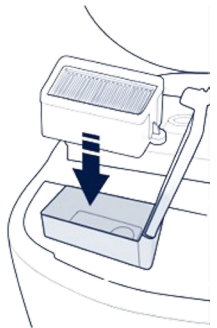
1. Open machine hood



2. Open cover



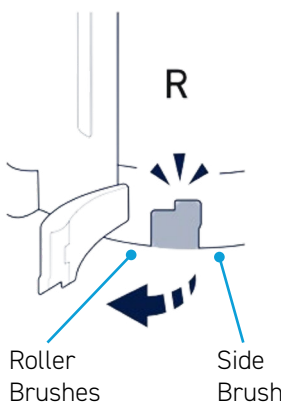
3. Install filter



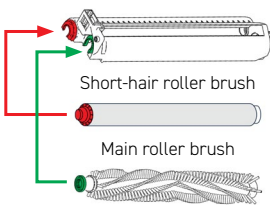
Black sponge on top magnet sensor pointing right

5. Brushes

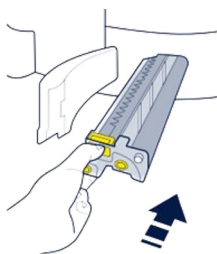
1. Open door



2. Insert vacuum-mode roller brushes into vacuum-mode brush assembly



3. Insert brush assembly, pushing into place until you hear a *click*

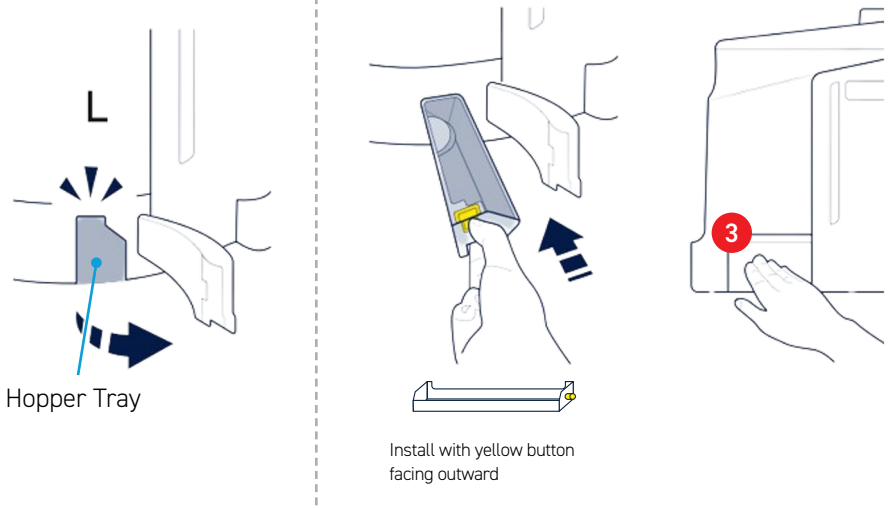


4. Close door



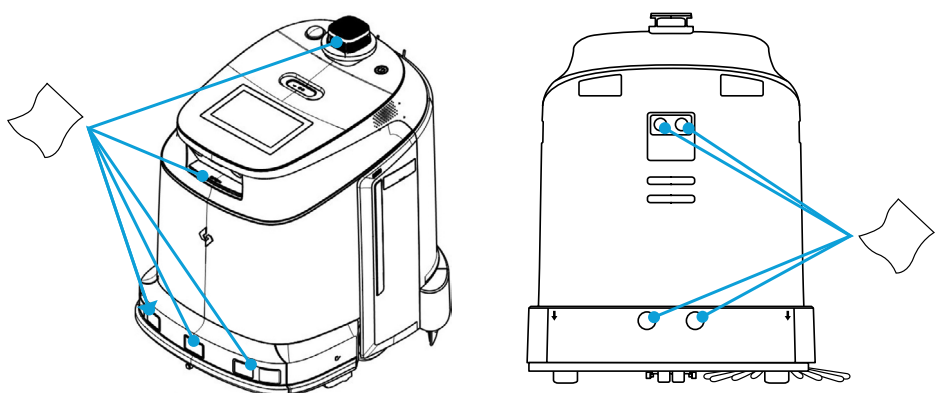
6. Hopper Tray

1. Open door
2. Install hopper tray
3. Close door



7. Sensors

Use a dry microfiber cloth or lens wipes to clean the sensors

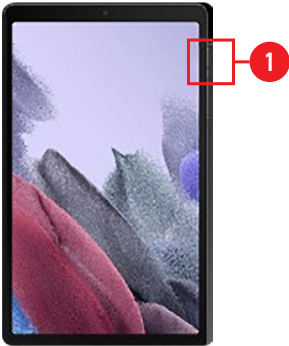


6. Connecting Tablet

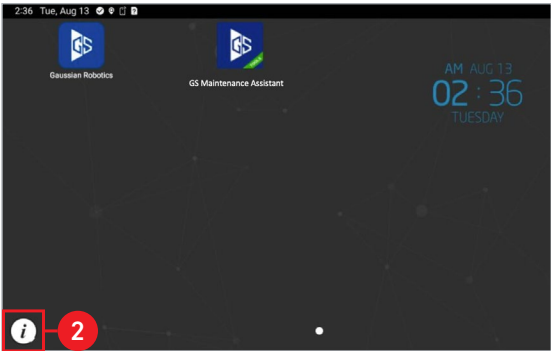


Must Haves:

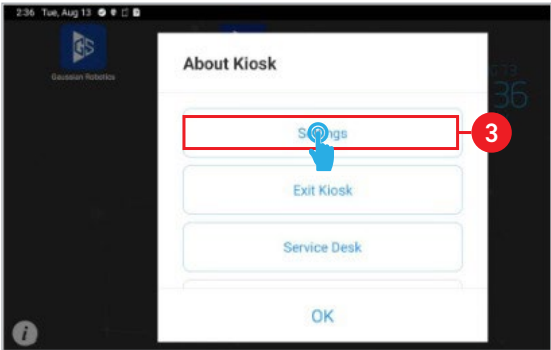
- ✓ Android device to connect to Phantas
- ✓ Gaussian Robotics app to mirror Phantas's UI



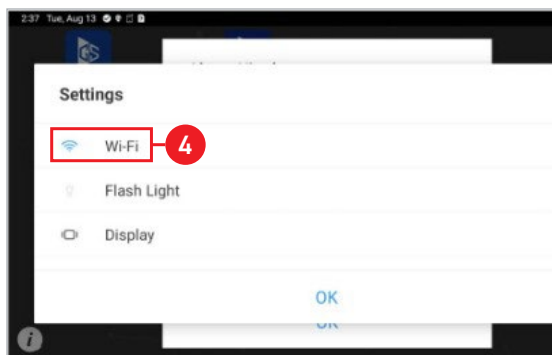
1. Turn on tablet



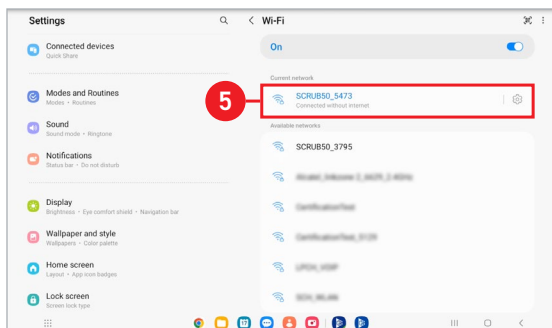
2. Select the Info icon



3. Select "Settings"

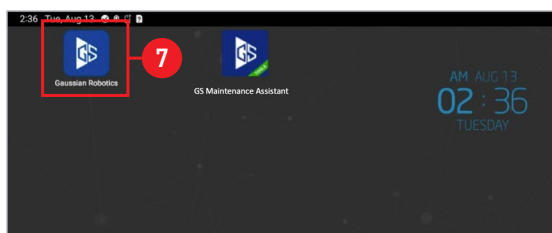


4. Select "Wi-Fi"

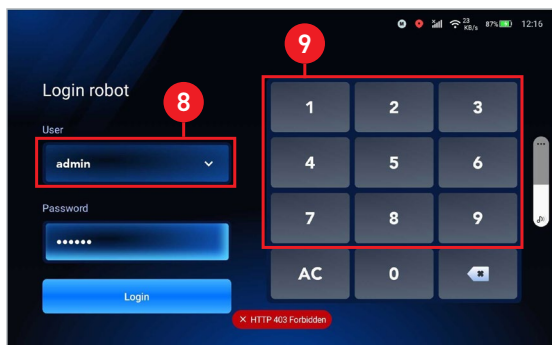


5. Select the network
s_line_xxxx or phantas_
xxxxx to connect to
Phantas's hotspot

6. Enter password:
gaussian705
when prompted



7. Launch "Gaussian
Robotics" app

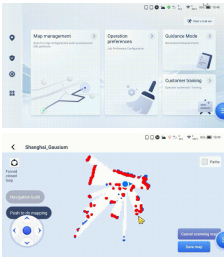


8. Select "admin" using drop
down arrow

9. Enter password 123456
to login" using the Login
Robot image

Programming
Process

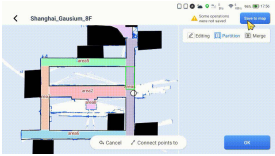
Create base map



Edit base map



Partition map



Add charging dock location



Validate tasks



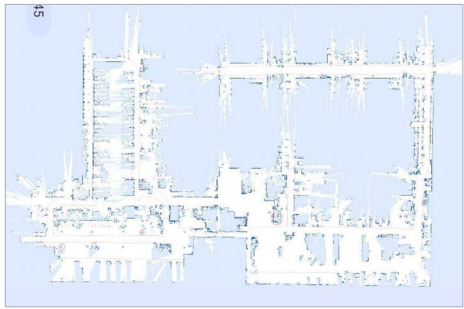
Best Practices For Mapping Phantas

Scanning Speed

Phantas will inform deployer if scanning speed is too fast.

Ideal Map

Has fully scanned interior with obstacles and boundaries captured, and free of warping, ghosting, and folding.



Ideal map

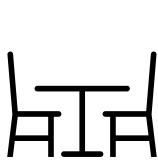


Delete and remake

Do not add map extensions or tasks to bad maps

Unscannable Obstacles

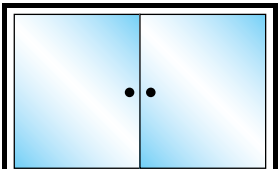
Virtual walls must be placed around objects smaller than 2.5 cm in diameter, less than 6 in off the ground, or transparent.



Tabletops, counters, and over-hanging chair seats



Coat racks



Glass doors or walls

Do not leave unscannable obstacles with no virtual walls

Warping is the bending or twisting of any part of the map

- Happens when Phantas is moved too fast during mapping
- Or when too much is mapped at one time

Avoid warping by:

- Moving at a slow steady pace while mapping
- Map small parts at a time using map extensions



Hallways are straight and parallel



Hallways are warped and leaning

Ghosting is when a single object incorrectly appears in multiple locations on a map

- Happens when Phantas is pushed too quickly during mapping
- Or when an object or person is moving around

Avoid ghosting by:

- Moving at a slow steady pace while mapping
- Map the entire space including behind accent walls, pillars, tables, etc.



Objects in map should be surrounded by a single, solid blue line



"Double vision" effect

7. Mapping



The base map is the floor plan that is stored on the robot, indicating where walls and obstacles are. Tasks will be created on top of the base map.

i Map creation, map editing, and task creation **can only be performed using an android tablet with the Gaussian Robotics mirroring app.**

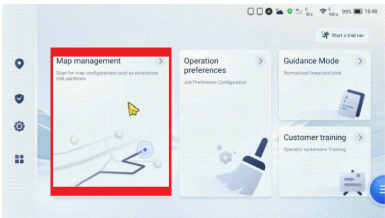
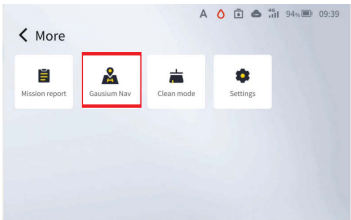
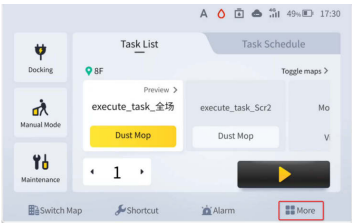


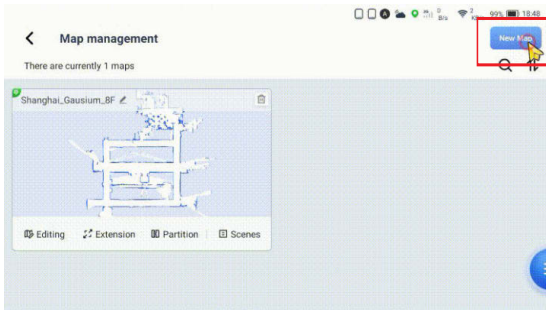
1. Push Phantas to a starting point that has permanent, distinguishable features and will be cleaned during autonomous operation to begin mapping.

i This includes: a pillar, a corner or hallway, and/or fixed furniture

Avoid areas with no distinguishable features, floor-to-ceiling glass walls, frequently rearranged furniture, or large amounts of sunlight.

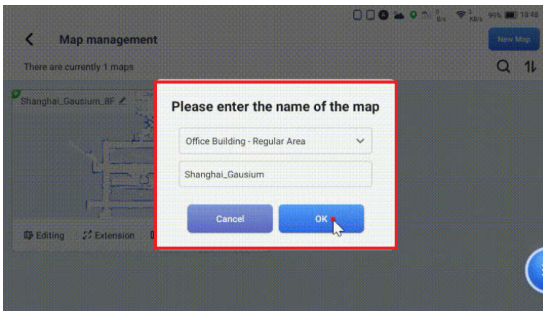
2. **On the tablet** select "More" >>> "Gaussian Nav" >>> Map Management





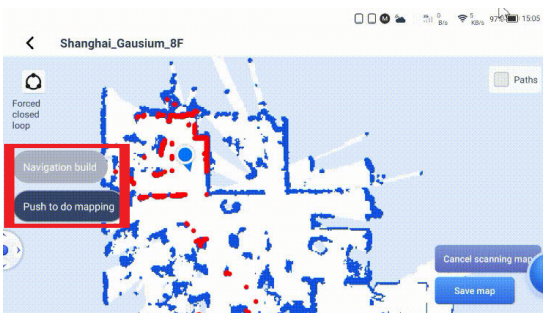
3. Select "New Map"

Note: Max map size is 10,000 m² (107,639 ft²)



4. Create map name, then select "OK". **Do not include spaces in the map name.**

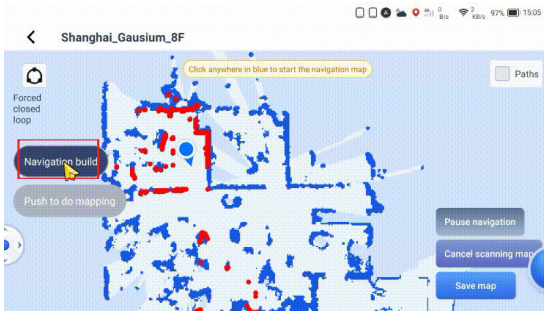
Note: The map name should identify its location in the building i.e., "fourthfloor" or "commonarea"



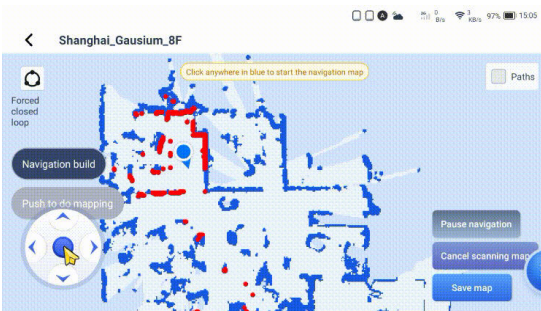
5. You will be given two options:

"Push to do Mapping"
and
"Navigation Build"

"Push to do mapping" allows the user to manually push the robot in order to create the map.

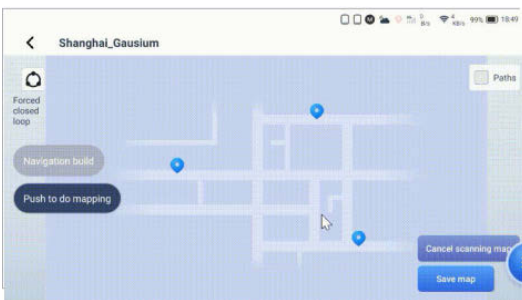


6. To "pilot" the robot using the tablet, select "Navigation Build"



7. A navigation control will pop up on the screen. Use it to remotely pilot the robot.

When in "Navigation Build" mode, the robot will attempt to navigate to any area in the map that you tap on. There is a risk of collision, please use caution.



Sensors (shown in red), are scanning the environment



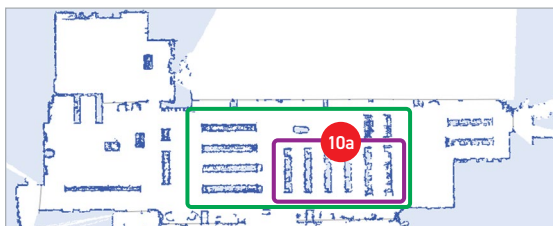
Map will continue to form as the robot moves.

8. Scan the space in small to medium sized loops starting with the perimeter then filling in the interior.



9. Create the first loop shown in green

i Be sure to start and stop in the same spot before starting the next loop



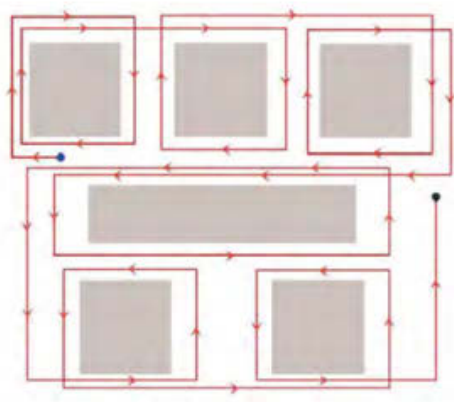
10. Create smaller loops within the larger loop **if warping is detected**

i Be sure to start and stop in the same spot before starting the next loop



11. Fill in the loop shown in pink



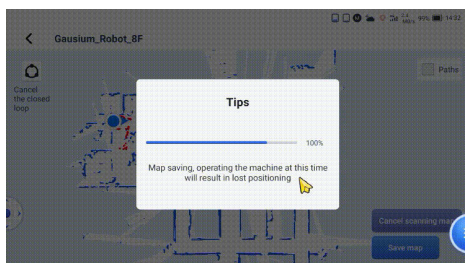
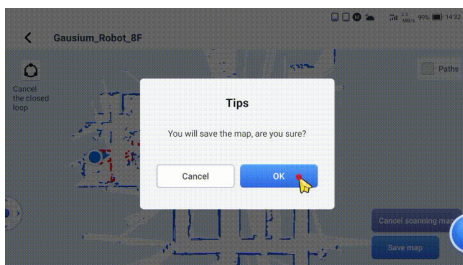


Be sure to walk around permanent obstacles that the LiDAR cannot scan through.



12. Select "Save Map" when completed and click "OK" to confirm.

Do not move the robot while it is saving the map. This could cause it to lose its position.





i If needed, remap the space using the steps above

Map smaller sections at a time if needed

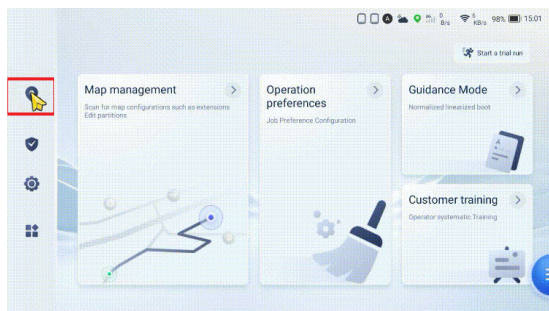
13. Review the map for quality and coverage

- ✓ Boundaries and permanent obstacles are outlined with solid, dark blue lines
- ✓ Map interior is fully scanned (indicated by lack of light blue)
- ✓ No visible skipping or rotating parts of map boundaries

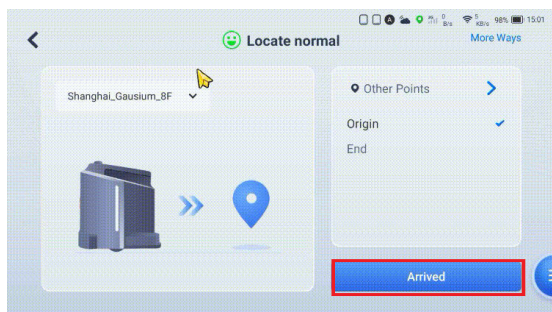
14. Scan the interior using map extension

Map Extension feature allows for additions to be added to maps.

When to use: dynamic environments (decorations, rearranged/furniture removal, remodel, etc.) and for areas that are too big to scan in one map.



15. Localize if needed

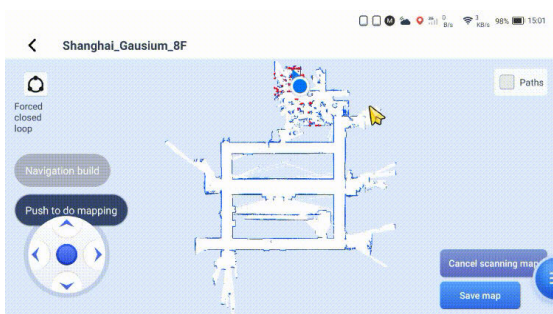


16. Move Robot to the correct localization point.

17. Select "Arrived"

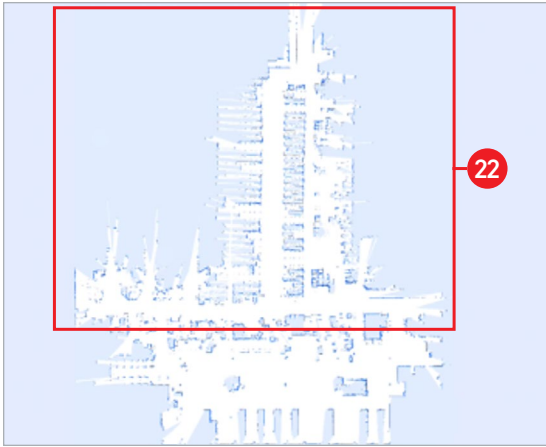


18. Return to the Map management screen. Select "Extension" on the correct map.



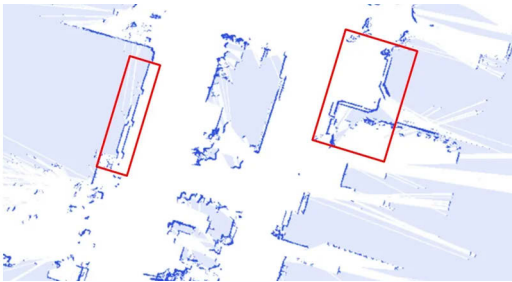
19. Choose your mapping method

20. Starting in a previously mapped area of the location, Begin to move the robot and add to the map.



21. Move slowly through the space, ensuring the LiDAR lines up with the previous map.

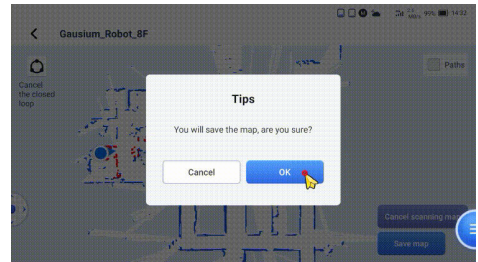
22. Scan around obstacles inside the perimeter



23. Inspect the map for quality and coverage

- ✓ No warping
- ✓ No ghosting
- ✓ No overlapping

24. Save upon completion

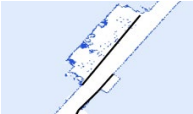

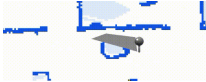


25. When finished, select "Save Map" and confirm. Do not move the robot while saving.

Map Editing (Admin Only)



Note: Map editing can only be done in the admin mode of the robot. The map editor has a total of 7 edit functions but not all are applicable to every location. The functions outlined are the functions that must be used where applicable to ensure the safety and proper functionality of the robot.

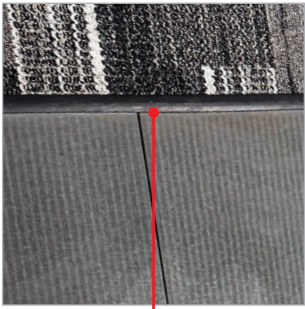
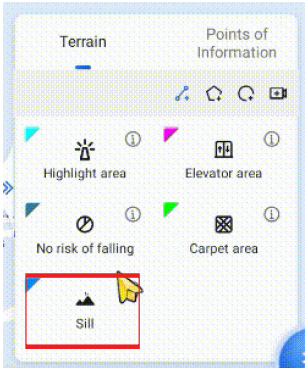
Required In All Maps			
Edit mode	What does this feature do?	Where should it be used?	
Virtual Wall Edit Required in all maps	Prohibits the robot from driving through or closely around undesired area; barriers for where the robot can drive. Virtual walls should be placed at least 3 feet away from fall-risk areas (stairwells, escalators, elevators, etc.)	<ul style="list-style-type: none">• Stairwells• Escalator entrance/exits• Elevator entrances• Doorways that the robot should never enter• Areas exposed to strong sunlight• Glass walls and balconies• Restricted areas• Countertops or seating that overhangs• Permanent obstacles that do not appear in the base map	
Highlighted area Required in all maps	Beacons that the robot uses to confirm where it is located on the map while executing tasks. Highlighted areas must be added to permanent, fixed environmental features that will not change in appearance or shape, and will remain in the exact location they are located when the original map was created.	Pillars, fixed furniture (ex. help desk, bench screwed into floor), unique corner of a room Add highlighted areas every 50 sq ft.	
Original map Recommended in all maps	Clear area: an eraser used to remove unwanted or inaccurate obstacles from the base map.	Should be used when non-permanent obstacles or people are scanned into the site map	

Best Practices For Map Editing



Required map edits

- 1. Sill areas **must** be added to account for all transitions, bumps, or dips

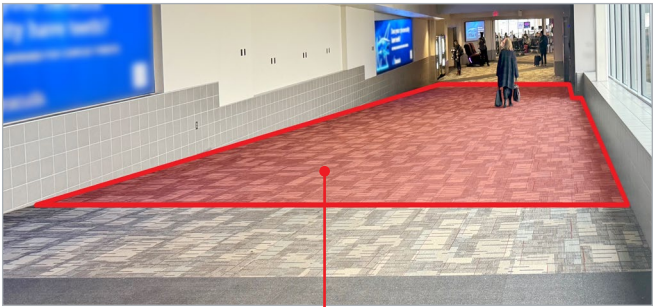
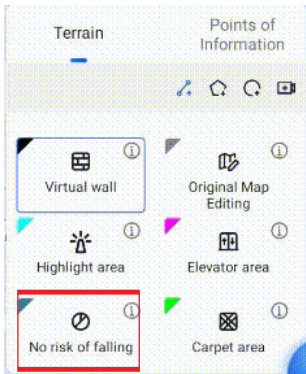


Transition



Large dip

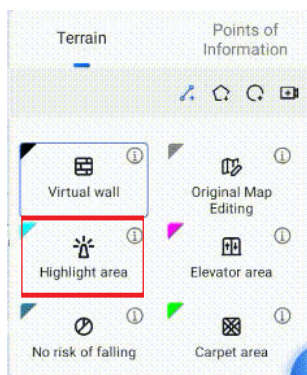
- 2. Non falling risk area **must** be added to account for all ramps or slopes



Slope

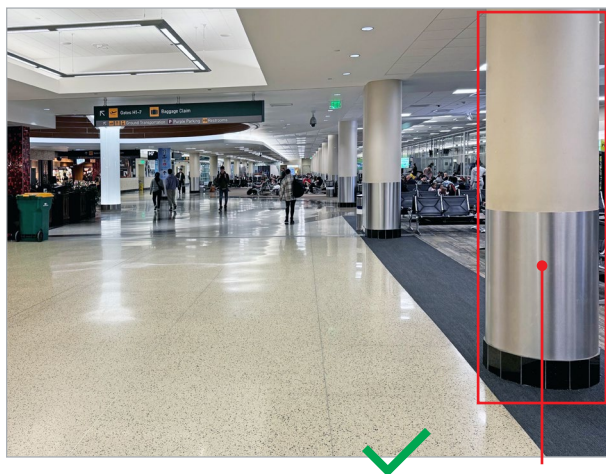
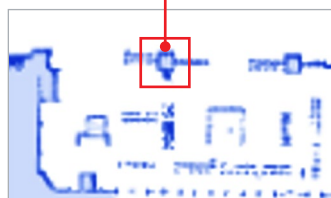
3. Highlighted areas are **required** in all maps and must be added to disguisable permanent obstacles

Recommended: One highlighted area every 50 ft² within a map



Art Installation

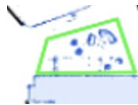


How it looks
on map



Pillar



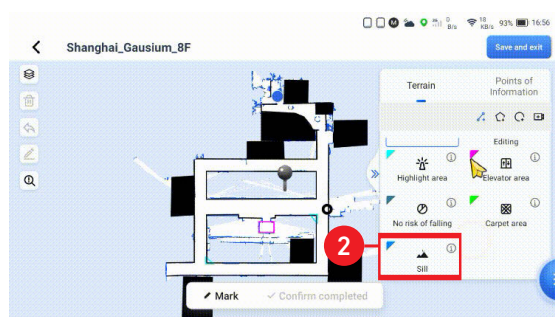
Corner

Edit mode	What does this feature do?	Where should it be used?	
Carpet area	Phantas has the potential to get caught on the edges of area rugs and floor mats. Using this map edit will force Phantas to prioritize driving around these areas, or will raise its cleaning equipment entirely while traveling over unavoidable rugs/mats	Locations on a map where there is an area rug or floor mat; also used to designate areas within a map that you do "not" want Phantas to clean, but "do" want Phantas to be able to travel through autonomously	
Non falling risk	This effectively tells Phantas that it should expect a change in horizontal orientation, and that it's safe to proceed. This will also cause Phantas to reduce its speed while ascending and descending ramps.	Ramps or sloped floors	
Sill Area	Phantas will slow down its speed, raise its cleaning equipment, and intentionally limit the number of times it passes over these areas to avoid unnecessary damage to the machine.	Bumps or floor transitions/strips	

Editing Example: Sills



1. Select "Editing"

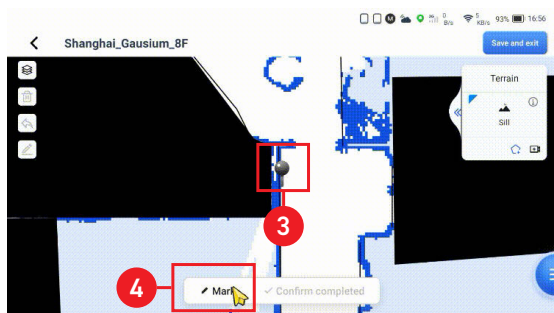


2. Select "Sill"

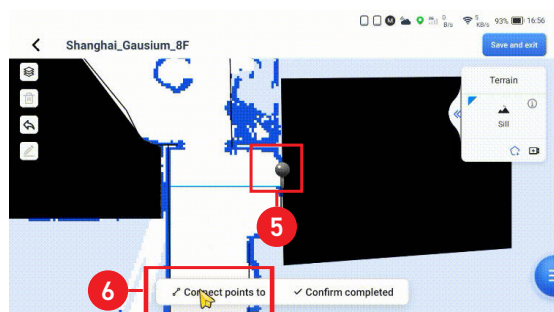


Pro tip:

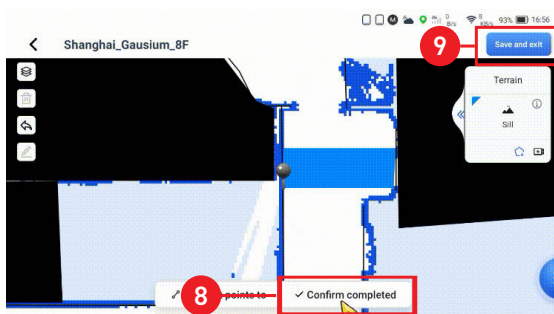
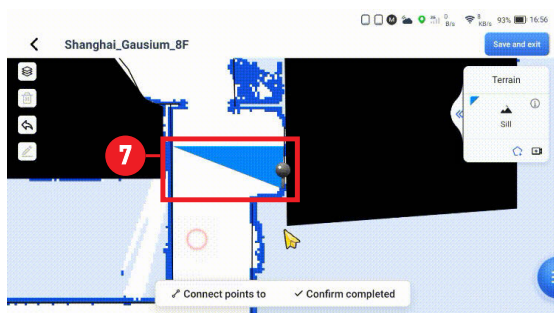
Adding "sill" areas to the map causes Phantas to create partitions in areas that are "silled" off.



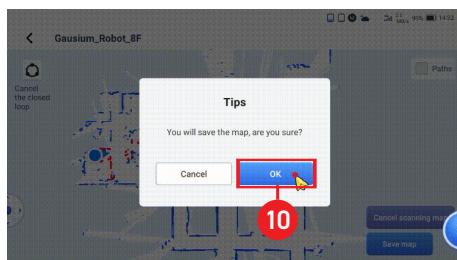
3. Slide the screen to move the marker at the desired starting point.
4. Select "Mark"



5. Drag the pointer to an adjacent part of the screen
6. Select "Connect the point to"
7. Continue until the area is encased



8. Select "Confirm Completed" when finished
9. Select "Save and exit" to save all edits



10. Select "OK" to confirm and save.




Repeat steps 2-10 to implement all required and necessary editing functions

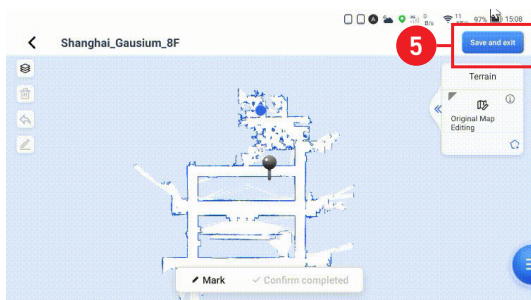
Deleting Map Edits



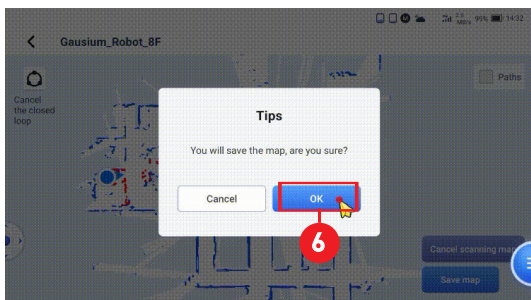
1. Select the map
2. Select "Editing"



3. Select the edit (turns red)
4. Select trash icon 



5. Select "Save and exit" upon completion



6. Select "OK" to confirm save

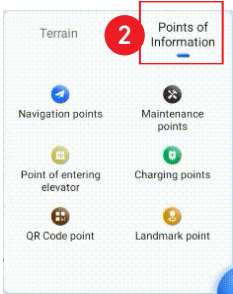
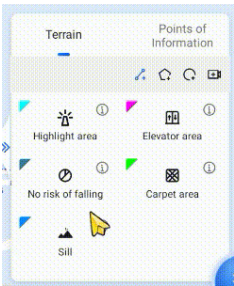
Charging Point Setup Continued

Enable charging dock to be a localization point

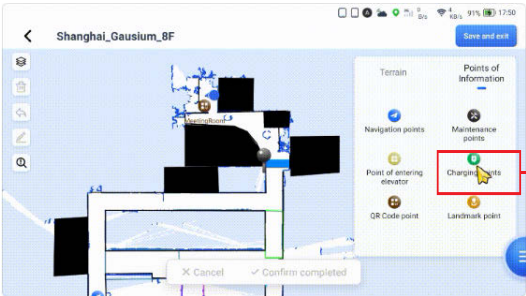


1. Put the charging station in its permanent location and plug it in. Power Phantas on and localize it. Bring it to the charging station. Line it up with the electrodes and then push it onto the dock.

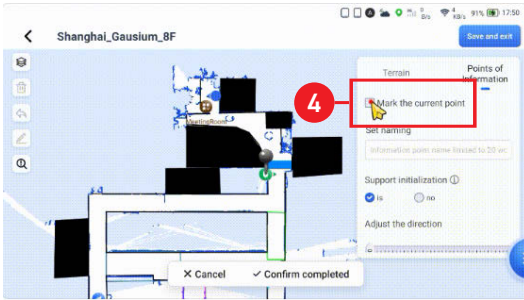
Indicator lights on dock + Phantas will turn green when charging



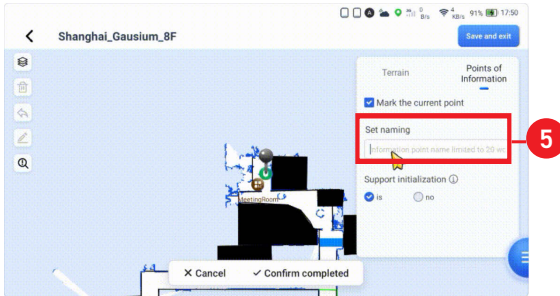
2. Return to the map editing screen. Select "Points Of Information".



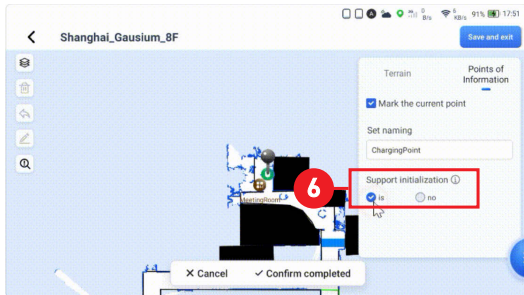
3. Select "Charging Points"



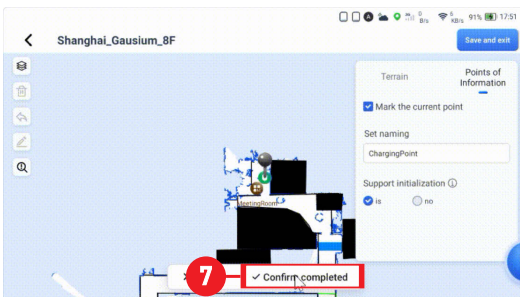
4. Select "Mark the Current Point" to create a charging point where the robot is located.



5. In the "Set Naming" box, enter a descriptive name for the point. i.e. "ChargingPoint"



6. If you would like to be able to localize the robot at the charging station, click "Yes" under the "Support Initialization" prompt

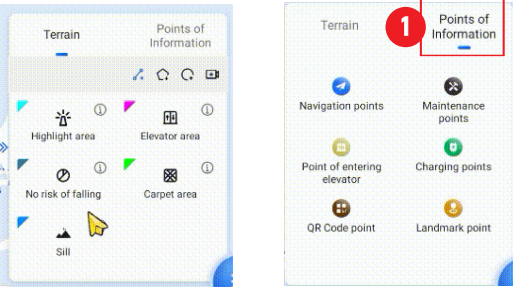


7. When finished, click "Confirm Completed", then "Save and Exit"

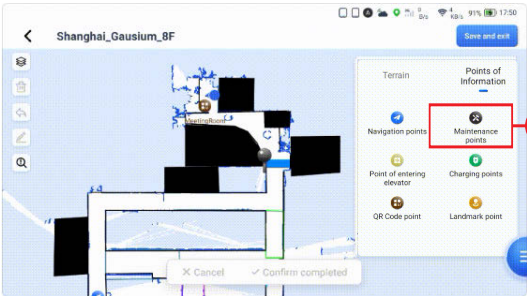
Maintenance Points



Maintenance Points allow Phantas to return to a designated point if the battery is low, tanks are full or empty, or when a task is complete. These points are **required** in place of a charging dock if one is not present.



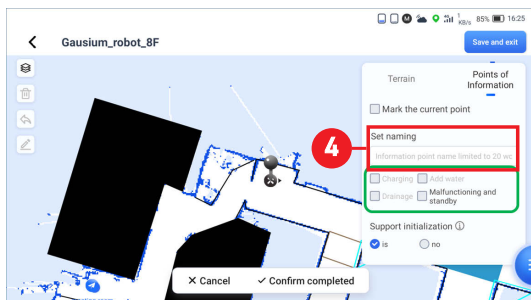
1. Return to the map editing screen. Select "Points Of Information."



2. Select "Maintenance Points"



3. A window will pop up, allowing you to create the new point where the robot is located by selecting "Mark the current point." You can also set the point by tapping on the screen.



3. Choose what "triggers" will tell the robot to return to the maintenance point.

"Charging": When the battery is low

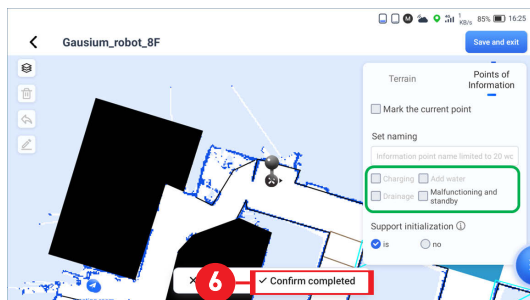
"Add Water": When the clean water tank is low

"Drainage": When the dirty water tank is full

"Malfunction and Standby": All other non-emergency alerts



5. Select "Support Initialization" if you would like the robot to be able to localize at this point.

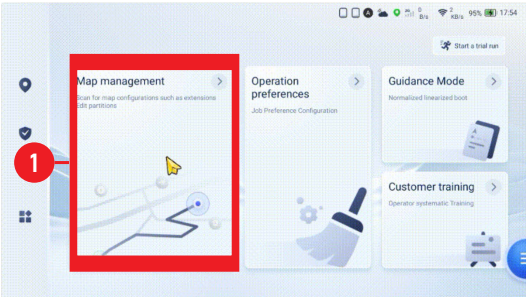


6. When finished, click "Confirm Completed", then "Save and Exit"

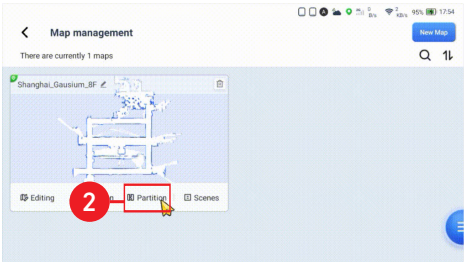
Map Partitioning



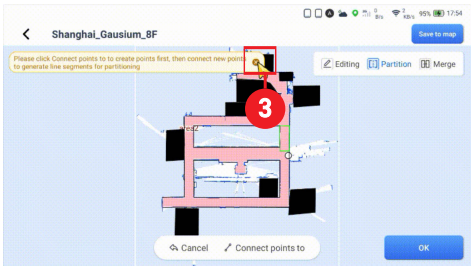
Once a map is saved onto Phantas, tasks are automatically created capturing everything that was scanned. **Map partitioning** allows tasks to be divided to cater to various needs.



1. Select "Map Management"



2. Select "Partition"



3. Click the "x" on the instructional pop-up in order to begin partitioning.



4. Drag the cursor to where you want the partition "cut" to start.

5. Click "Connect Points to", and drag to where you want the "cut" to stop.

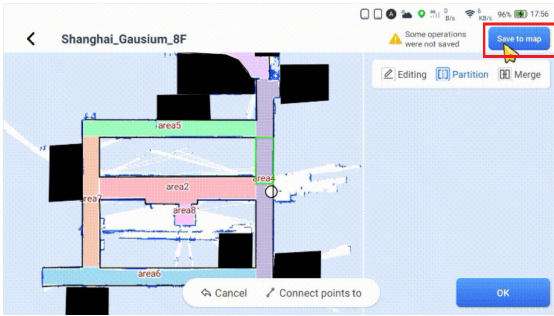
6. Click "OK" when done.



Pro tip: Partition tasks when certain sections have higher priority due to factors such as time constraints, the size of the area, or customer preference

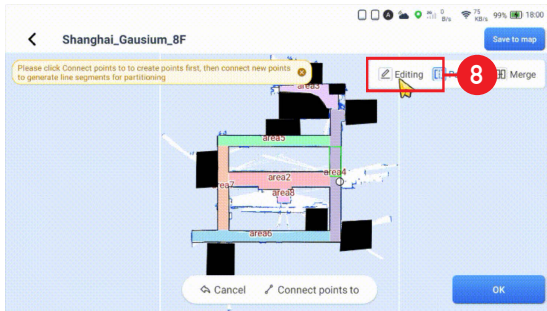
Repeat this process until all desired partitions are created. Note: They are automatically named "area1", "area2", "area3"...

Using
Tablet



7. When finished, click "Save to Map"

You MUST change the names of the partitions from the default names to something descriptive and specific, i.e. "FirstFloorHallway" or "TenForward"

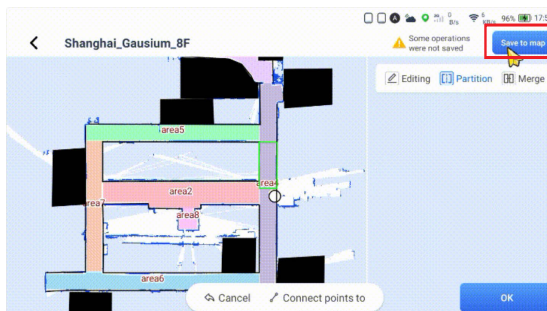


8. To change the names of the partitions, re-enter the map editing screen, tap on the partition you would like to edit and select "editing".



9. Enter a descriptive name for the partition, i.e. "MeetingRoom1"

10. Select "OK" to apply changes



11. When finished, click "Save to Map"

Task Validation

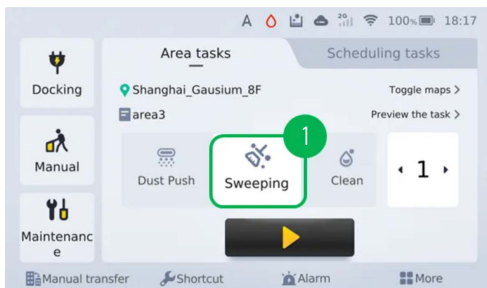


Goals

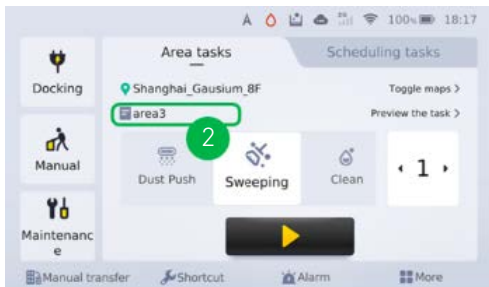
1. Ensure Phantas cleans desired area well
2. Ensure Phantas cleans entire addressable area
3. Ensure Phantas doesn't exhibit unusual behavior

Action items:

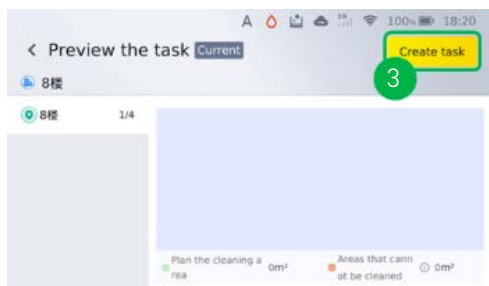
1. Observe Phantas executing all tasks
2. Note any issues
3. Update maps, task, or cleaning settings to correct unwanted behaviors



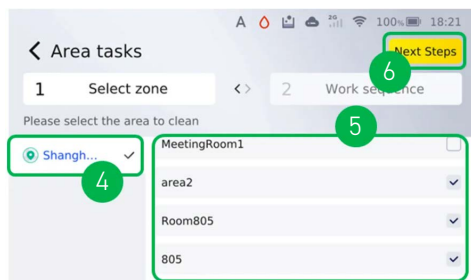
1. Select the type of cleaning you would like to validate



2. Click on the name of the task you would like to preview/run



3. Click on "Create Task" to create a new task.

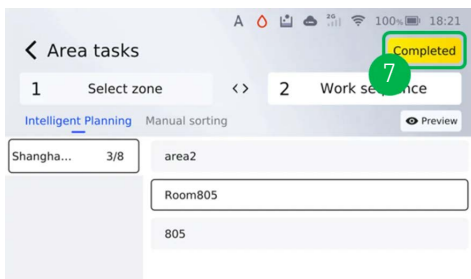


4. Confirm you are in the correct area.

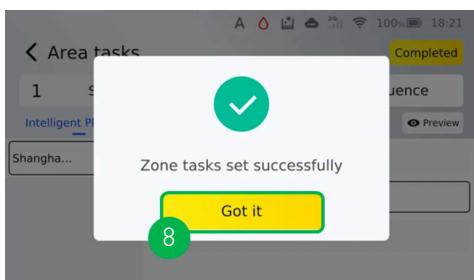


5. Select the Partitions that you would like Phantas to clean.

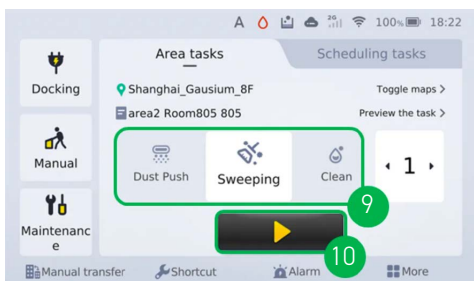
6. Click "Next Steps"



7. Select and drag the order of the cleaning areas. Once the order is correct, click on "Completed."

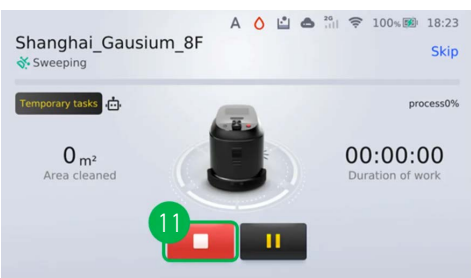


8. A window will pop up confirming that the tasks have been set successfully.



9. Select or confirm the cleaning method, (Sweep, Clean, Vacuum, etc)

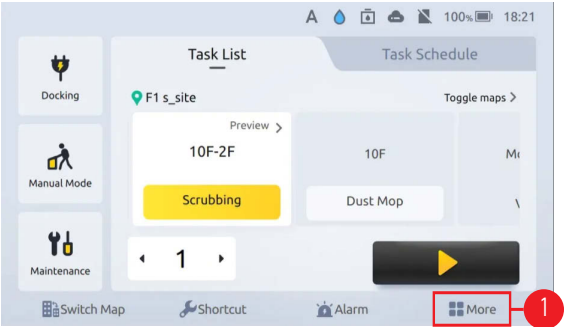
10. Press on the "Play" button to begin cleaning.



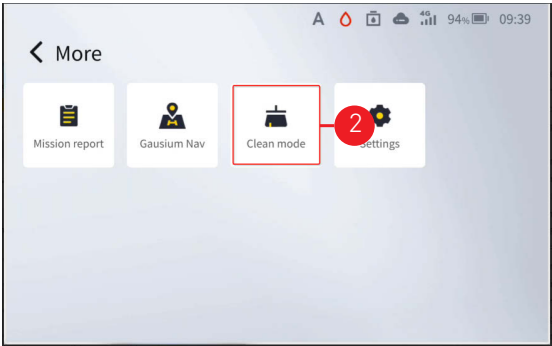
11. To stop the route, press the "Stop" Button.



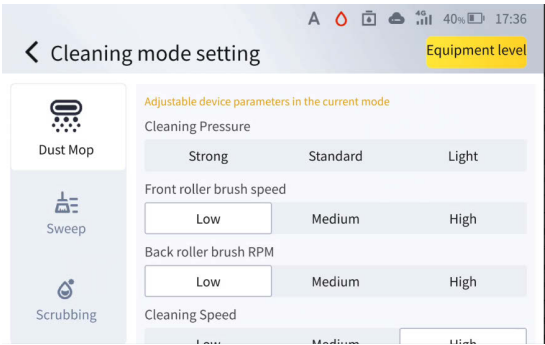
Adjust Cleaning Settings



1. You can adjust the cleaning settings while the robot is operating. From the pause screen, return to the main screen and select "More"



2. Select "Clean Mode"



3. Adjust the cleaning settings as appropriate. Select the back arrow and return to the "pause" screen to resume cleaning.

Cleaning Desired Areas Effectively



Vacuuming:

Phantas Should:

- ✓ Remove small to medium sized debris from floors
- ✓ Larger debris contained inside hopper tray
- ✓ Smaller debris + dust particles inside dust bag

Phantas should not:

- ✗ Leave debris behind when vacuuming
- ✗ Have an empty hopper tray after vacuuming
- ✗ Have an empty dust bag after vacuuming

Remedies:

- ☐ Adjust cleaning settings
- ☐ Dump dust bag and or hopper tray
- ☐ Ensure vacuum hose is not clogged

Scrubbing:

Phantas Should:

- ✓ Remove soil and grime from hard floors
- ✓ Leave minimal to no water behind

Phantas should not:

- ✗ Leave soil and grime after scrubbing
- ✗ Leave large amounts of water behind

Remedies:

- ☐ Adjust cleaning settings
- ☐ Clean squeegee
- ☐ Ensure suction pipe is not clogged

Cleaning Addressable Area



Phantas Should:

- ✓ Complete tasks at a 90% rate or better

Remedies:

- ☐ Edit map to include obstacles that are absent from base map
- ☐ Remove temporary obstacles from environment
- ☐ Restart Phantas (if Phantas stopped mid task with no obstacles and ample space to clean)

Unusual Behavior

Phantas Should:

- ✓ Clean with no interruptions

Phantas should not:

- ✗ Stutter or stop for false obstacles
- ✗ Drive in circles around virtual walls
- ✗ Hit obstacle
- ✗ Complete a task without cleaning (except when programmed to do so)
- ✗ Return to charging dock immediately upon starting a task

Remedies:

- ☐ Edit base map to ensure all noise was erased
- ☐ Clean all sensors with microfiber cloth
- ☐ Restart Phantas

Transferring Maps Between Robots



Transferring maps involves downloading maps from one robot and then uploading those maps to another robot.

Items Required:

1. Tablet
 - i. Internet
 - ii. GS Tools App
 2. Close proximity to the unit
- Time Required:** 20 minutes or less

This can also be used when a site has more than one Phantas unit dedicated to cleaning but only one unit was used to map the space.

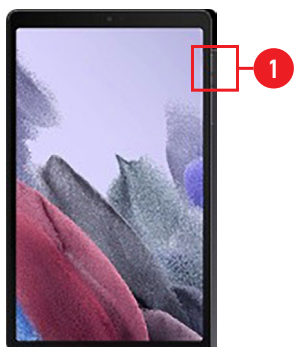
Downloading Map(s)



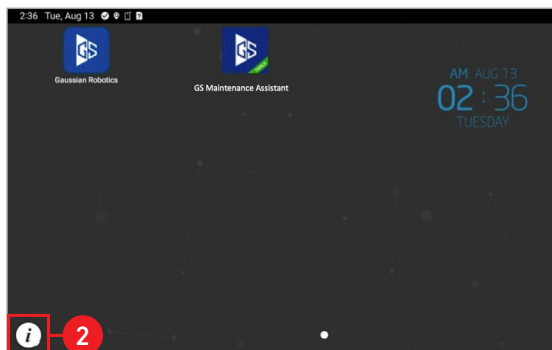
Turn the unit on that has the map(s)

1. Hold the power button for 4 seconds
2. Enter six-digit password once Phantas boots up

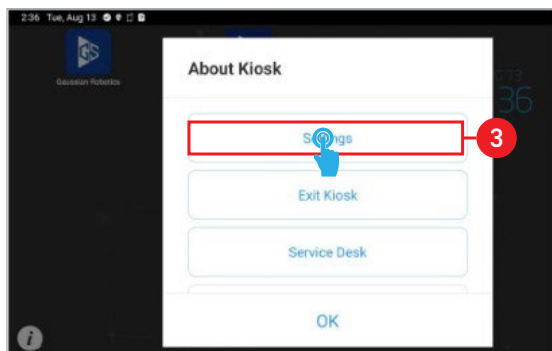
Approximately 2-3 mins boot up time



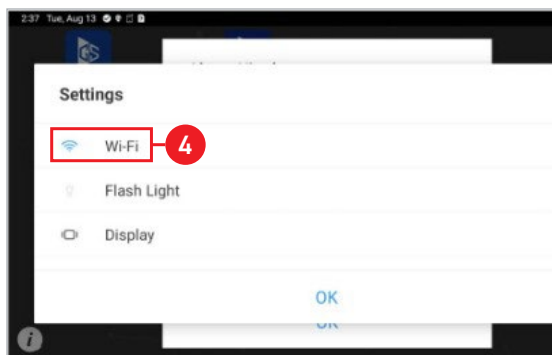
1. Turn on tablet



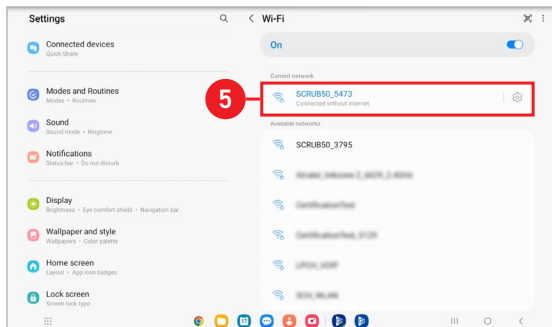
2. Select the Info icon



3. Select "Settings"

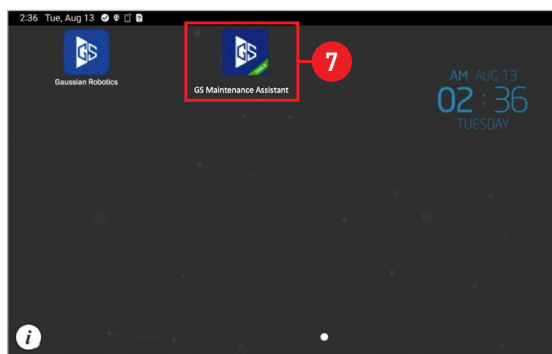


4. Select "Wi-Fi"

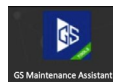


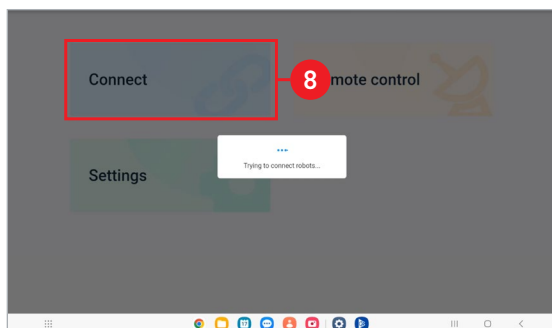
5. Select the network
s_line_xxxx or phantas_
xxxxx to connect to
Phantas's hotspot

6. Enter password:
gaussian705
when prompted



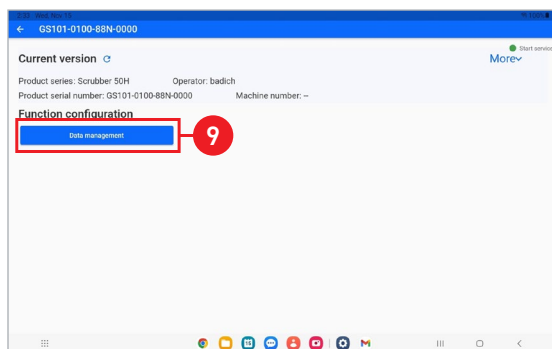
7. Open the "Gaussian
Maintenance Assistant" app



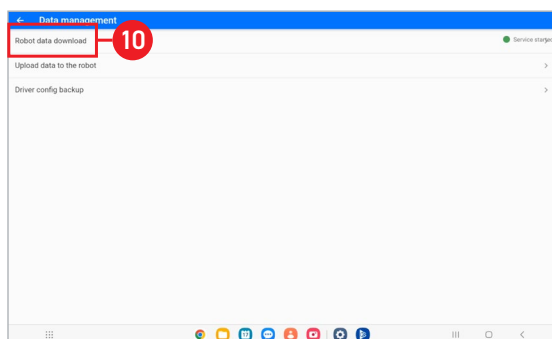


8. Click "Connect" to link the app with the unit.

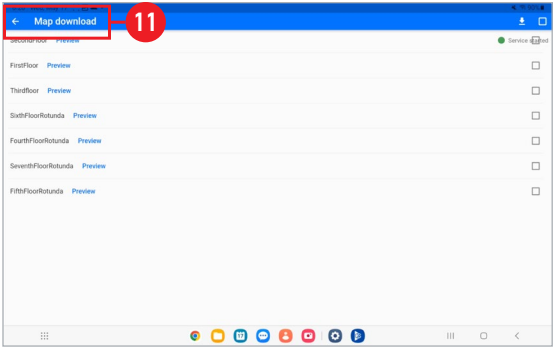
Note: Service Pack Update may take up to 5 min.



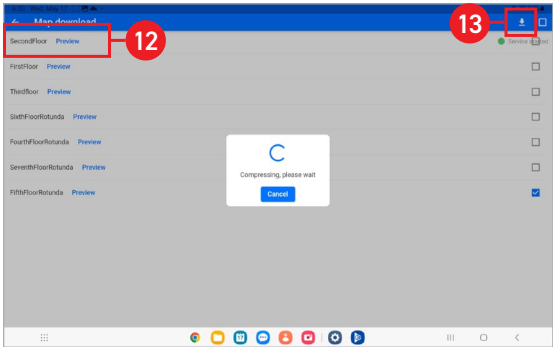
9. Click "Data Management"



10. Click "Robot data download"



11. Click "Map download"



12. Select the map

13. Press the down arrow to download



Note: Maps must be downloaded one at a time.

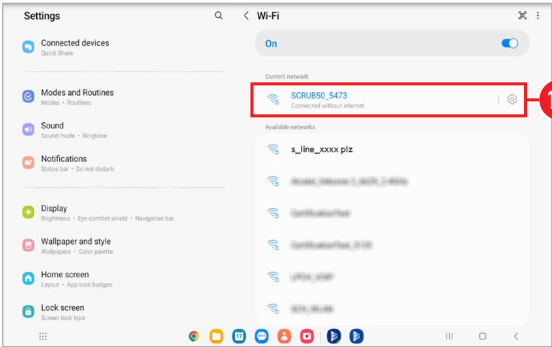
Uploading Map(s)



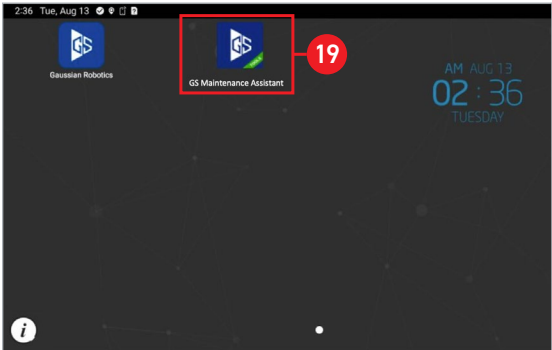
Turn the new unit on that does not have the map(s)

- 16. Hold the power button for 4 seconds
- 17. Enter six-digit password once Phantas boots up

Approximately 2-3 mins boot up time

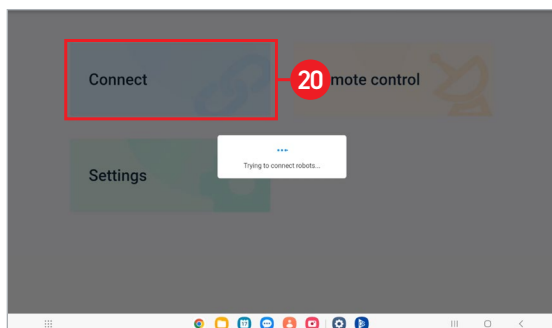


- 18. Connect the tablet to the unit's hotspot, WiFi:
S_Line_#### or
Phantas_####
Password: gaussian705



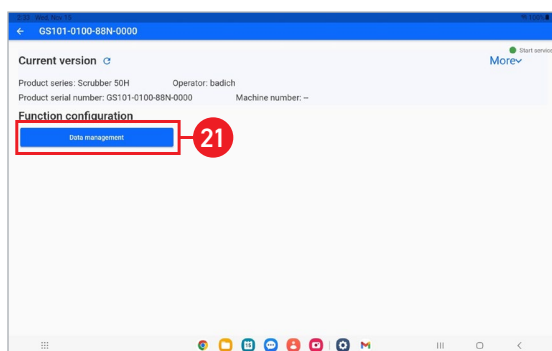
- 19. Open the "Gaussian Maintenance Assistant" app



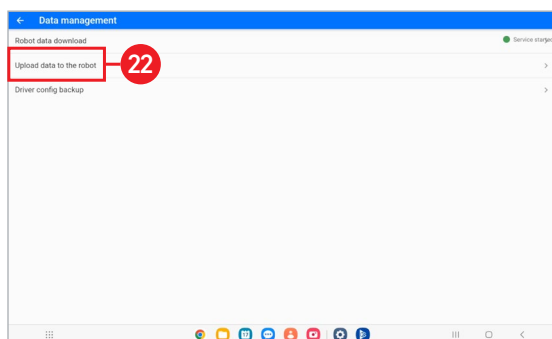


20. Click "Connect" to link the app with the unit.

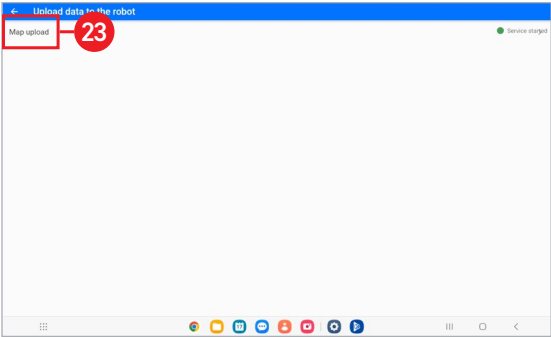
Note: Return to this screen to connect tools app to different robot



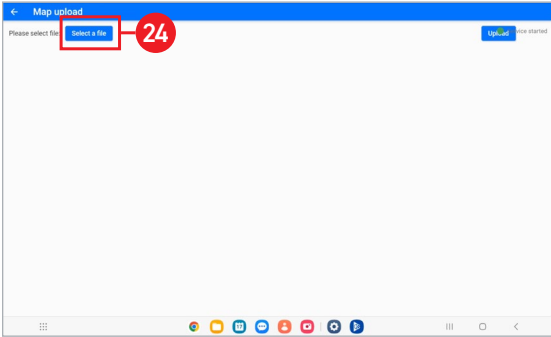
21. Click "Data Management"



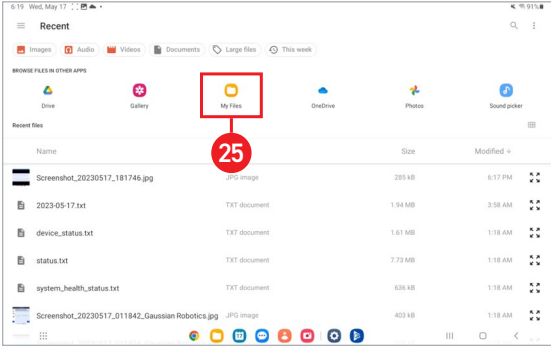
22. Click "Robot data download"



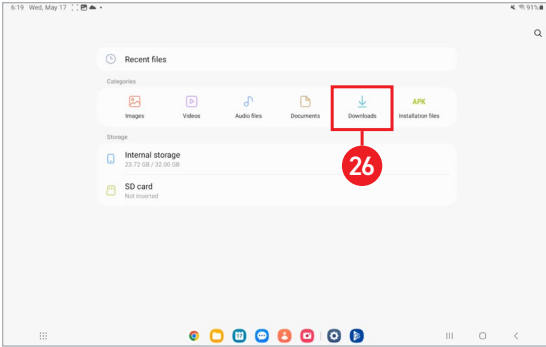
23. Click "Map upload"



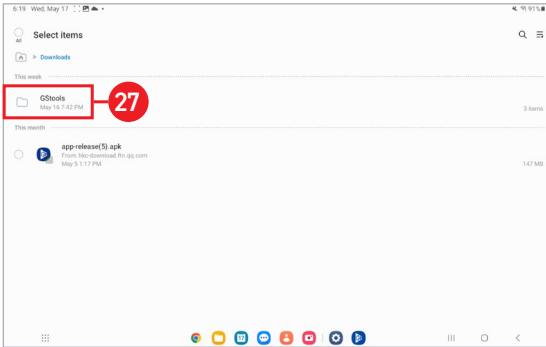
24. Click "Select a file"



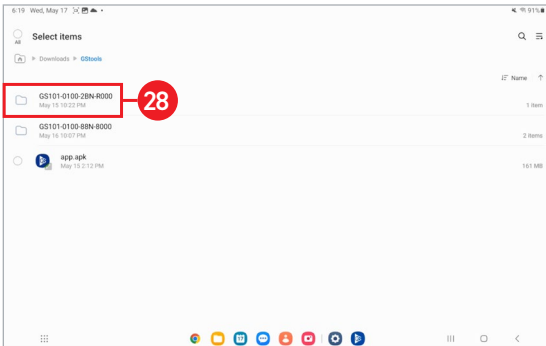
25. Select "My files"



26. Select "Downloads"

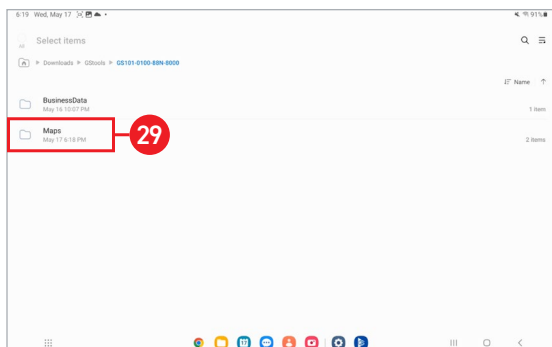


27. Select "GStools"



28. Select the robot's RIN
GS208-####-####-####
(can be found by lifting
the hood)

Be aware: the maps may be saved
under a different RIN folder



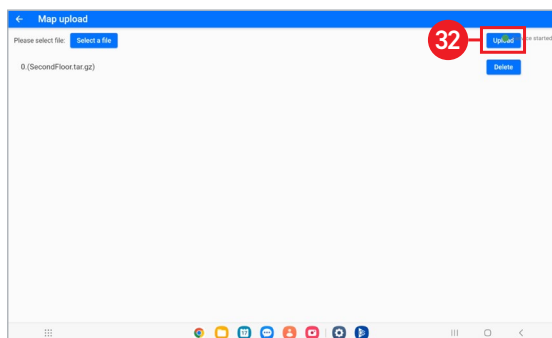
29. Select "Maps"



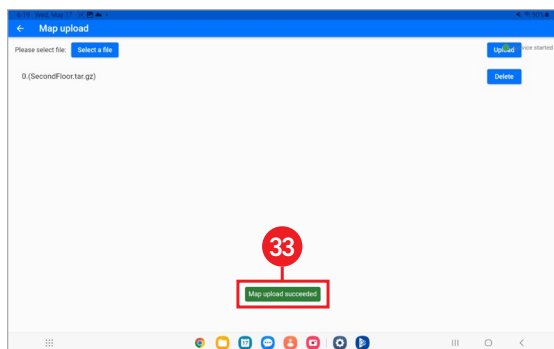
30. Select one map
(Mapname.tar.gz)

31. Select done

Note: One map must be uploaded
at a time



32. Select "Upload"

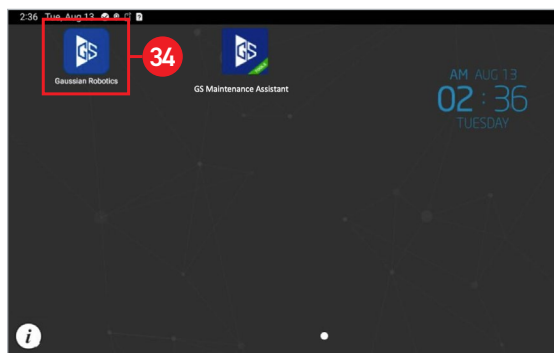


33. Wait a few seconds for map to upload

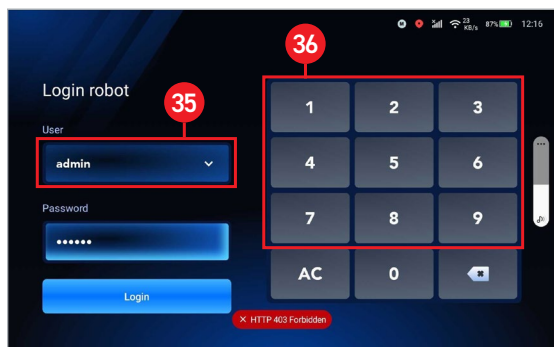
Map upload succeeded

 Repeat steps to upload all maps

Ensure maps were transferred



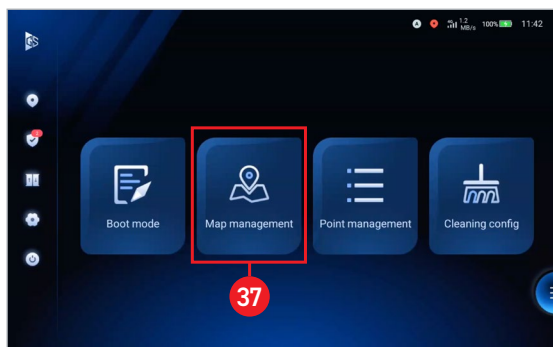
34. Open the "Gaussian Robotics" app



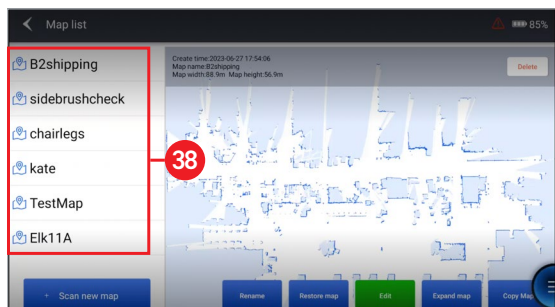
35. Select "admin" using drop down arrow

36. Enter password 123456 to login


Note: Password should be updated to a unique password after first use.



37. Select "Map Management"



38. Maps should appear under "Map list"

 Please repeat the "Downloading Map(s)" steps if maps are not shown

8. Autonomous Operation

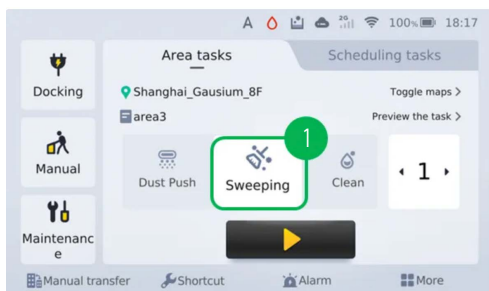


Phantas Password: 123456

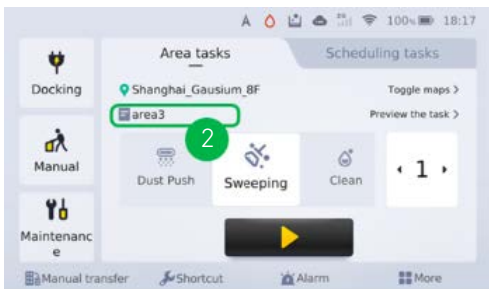
1. Ensure Phantas cleans desired area well
2. Ensure Phantas cleans entire addressable area
3. Ensure Phantas doesn't exhibit unusual behavior

Action items:

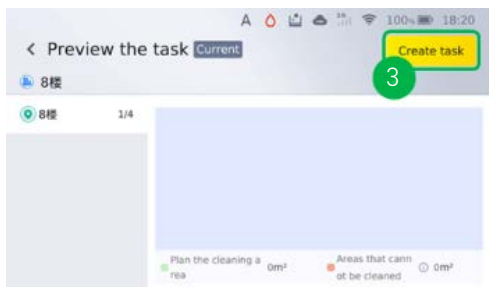
1. Observe Phantas executing all tasks
2. Note any issues
3. Update maps, task, or cleaning settings to correct unwanted behaviors



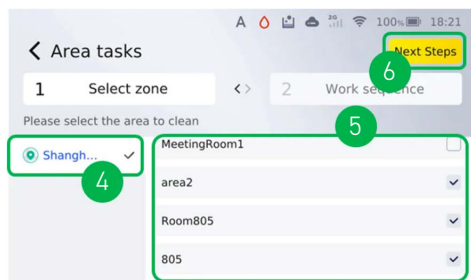
1. Select the type of cleaning you would like to validate



2. Click on the name of the task you would like to preview/run



3. Click on "Create Task" to create a new task.

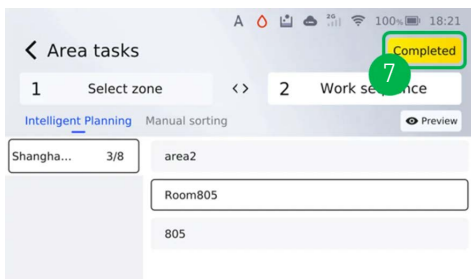


4. Confirm you are in the correct area.

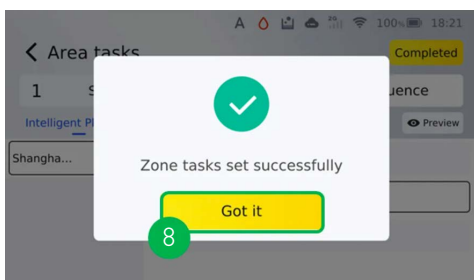


5. Select the Partitions that you would like Phantas to clean.

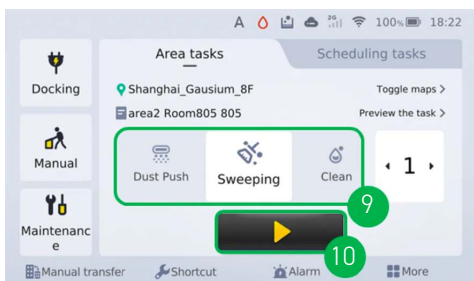
6. Click "Next Steps"



7. Select and drag the order of the cleaning areas. Once the order is correct, click on "Completed".

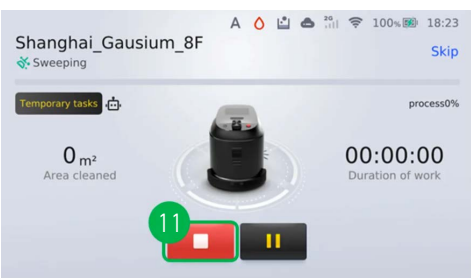


8. A window will pop up confirming that the tasks have been set successfully.



9. Select or confirm the cleaning method, (Sweep, Clean, Vacuum, etc)

10. Press on the "Play" button to begin cleaning.



11. To stop the route, press the "Stop" Button.



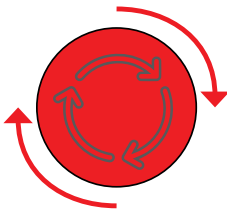
Emergency Stop Button



Emergency Stop Button stops the unit during autonomous cleaning. It should be used in case of emergencies or accident prevention.



1. Press the emergency stop button to immediately stop the unit



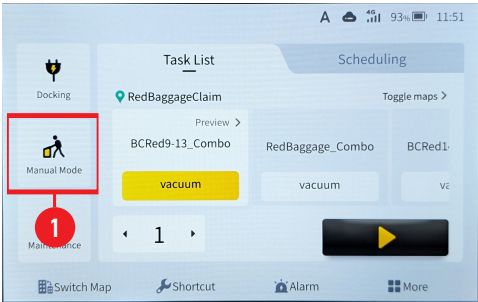
2. Release the e-stop button by twisting it clockwise



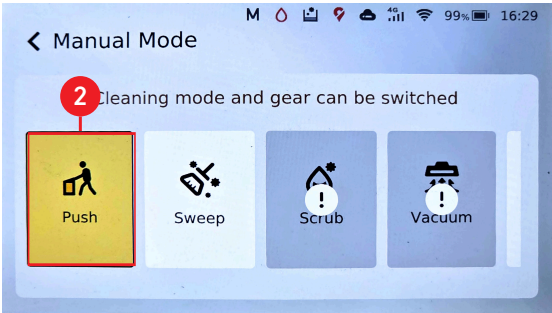
Don't try to move the unit immediately after pressing the e-stop button to prevent harm to oneself or the robot

Note: Owner should take reasonable steps to warn customers of use of the machine on the premises as necessary or required by law.

9. Manual Operation

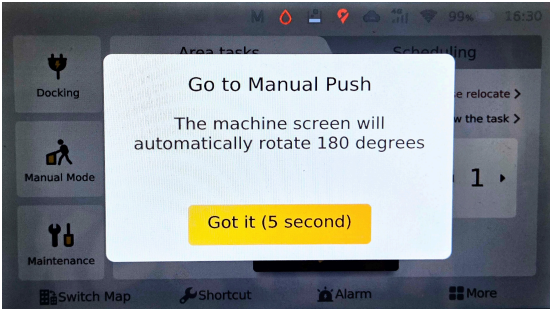


1. Select "Enter manual mode"



2. Select the manual mode you would like to use. If the hardware is not set for that mode, you will see a

In order to use mode with the warning, please ensure the proper hardware is installed.



3. If the robot is set up to perform the cleaning mode you selected, you will see a pop-up that tells you that the screen will rotate in 5 seconds. Click on ""Got it"" to go immediately to manual mode, or wait until the countdown finishes.

10. Maintenance Tasks



Daily Maintenance — Vacuum



Best Practice: To help ensure the proper functionality of Phantas, maintenance tasks must be completed after each use.

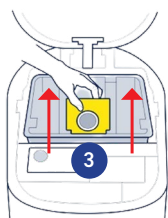
Supplies needed:

- ✓ Garbage can
- ✓ Sink
- ✓ Microfiber cloth
- ✓ Disposable gloves

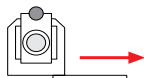
Estimated time: 5 minutes

Time varies based on maintenance frequency

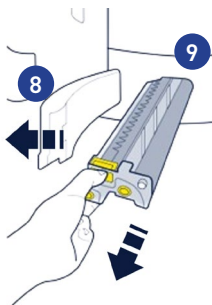
1. Open machine hood
2. Remove cover to trash tank



3. Remove dust bag
4. Remove clamp to dump contents



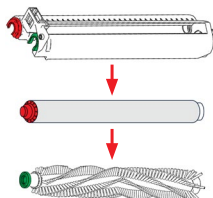
6. Slide clamp back on
7. Reinstall upon completion

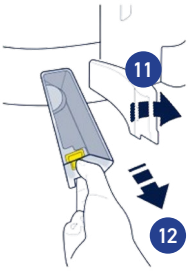


8. Open right-side door
9. Remove brush assembly
10. Remove hair with blade or comb and wipe side brush with damp towel



Use blade to remove hair



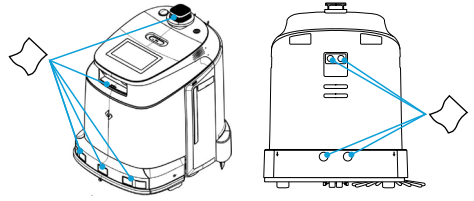


11. Open left-side door
12. Remove and dump hopper tray

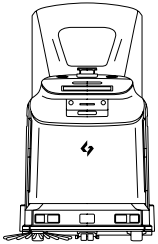


Best practice: Ensure you rinse the hopper tray once a week, but do not reinstall it until it's completely dry.

13. Use a dry microfiber cloth or lens wipe to clean the sensors



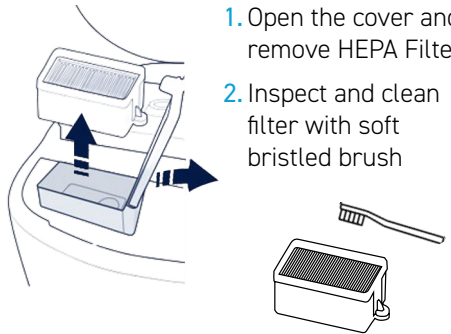
14. Push onto charging dock upon completion



Note: Phantas is not charging if the indicator lights on Phantas + charging dock are not green!

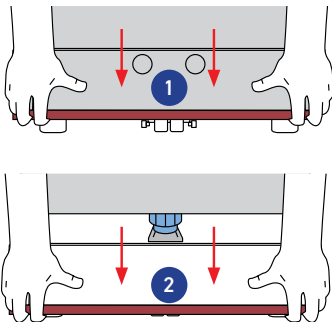
Weekly

1. Open the cover and remove HEPA Filter
2. Inspect and clean filter with soft bristled brush

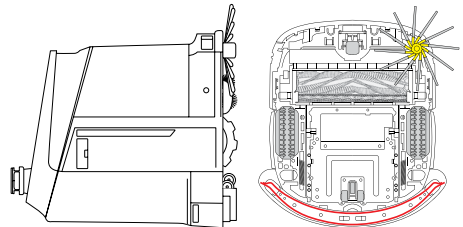


Monthly

1. Remove squeegee cover
2. Remove squeegee



3. Lay Phantas on its back
4. Carefully remove hair and other debris



Daily Maintenance — Scrub



Best Practice: Do not reinstall wet consumables! Leave them aside to dry.

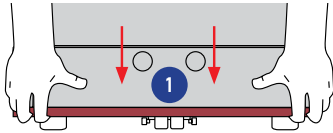
Supplies needed:

- ✓ Floor drain
- ✓ Sink
- ✓ Garbage can
- ✓ Microfiber cloth
- ✓ Disposable gloves

Estimated time: 5–10 minutes

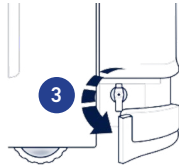
Time varies based on maintenance frequency

1. Remove the squeegee cover

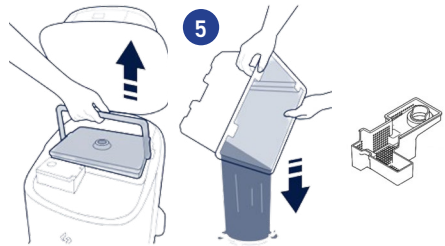


2. Push Phantas over a floor drain or outside

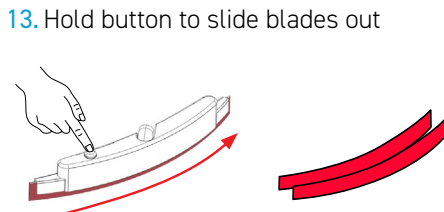
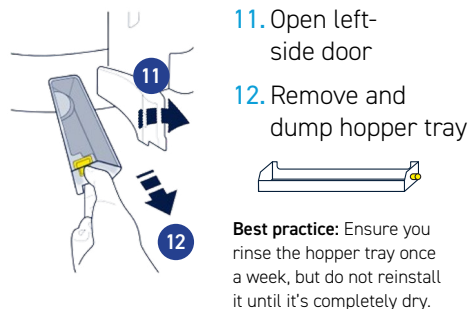
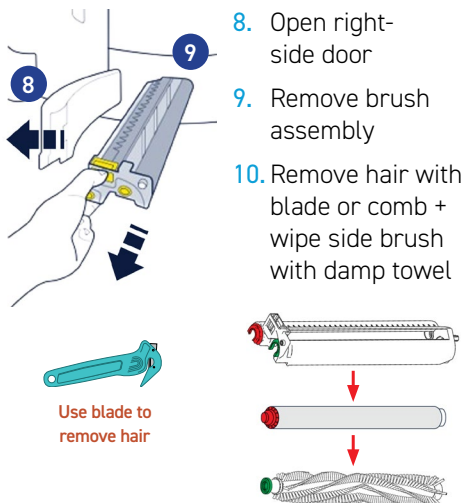
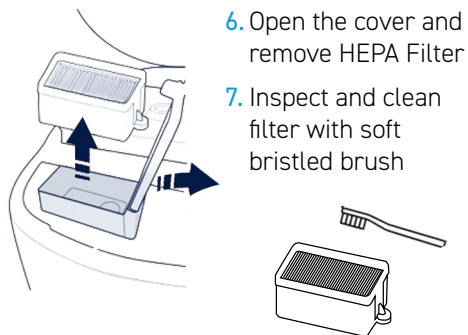
3. Turn valve downward to drain remaining water from clean tank



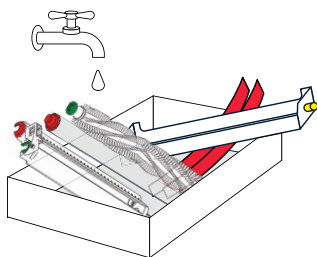
4. Open machine hood



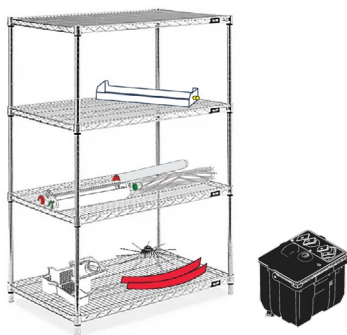
5. Remove and dump recovery tank and strainer basket



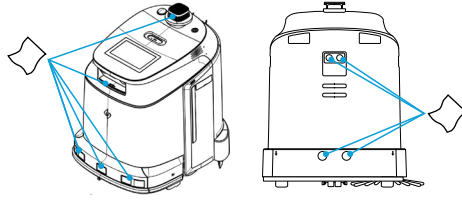
14. Rinse consumables with water until debris is removed



15. Allow filters, tanks, hopper tray, and brushes to dry before reinstalling

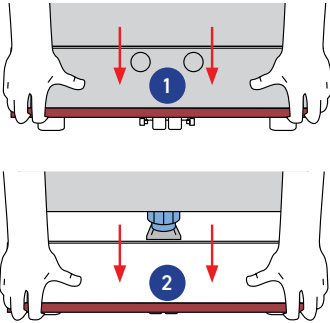


16. Use a dry microfiber cloth or lens wipe to clean the sensors

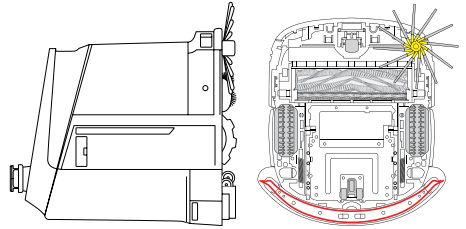


Monthly

1. Remove squeegee cover
2. Remove squeegee



3. Lay Phantas on its back
4. Carefully remove hair and other debris



11. Troubleshooting

Unexpected issues may arise with Phantas, but Customer Care is available to assist with all Phantas related troubleshooting needs. Follow these steps to ensure troubleshooting goes as smooth and quickly as possible.

- 1. Perform basic troubleshooting:
 - a. Do a hard reboot by flipping the air switch, waiting 30 seconds, flipping the air switch back, and then powering the unit on again.
 - b. Review troubleshooting for common issues on pages 83-85.
- 2. Submit a ticket by scanning the QR code if basic troubleshooting isn't successful:



us.softbankrobotics.com/support-form

- a. Fill out all the required fields in the form
- b. Be sure to include photos or videos of the issue

Example report:

Name *

John Smith

Email *

john.smith@mail.com

Phone

123-456-7891

Company name

Select your robot *

Phantas

Where is the robot located? *

Library

How can we help you? *

Robot non-functional


Date of occurrence


04-25-2024


Serial number (RIN) *

GS208-0140-UP4-2000

To find your serial number, please check its location in the image.



 Vacuum mode only

 Scrub mode only

Problem	Possible Cause	Solution
Phantas won't turn on	The air switch is off	Flip the air switch on.
	The battery is dead	Charge the battery.
	The key switch is not turned on	Turn on the key switch and wait ~30 seconds for the unit to power on.
False obstacle detection	The sensors are dirty	Wipe the sensors with a dry microfiber cloth or lens wipes.
	Uneven or porous floors	Contact SBRA support.
Not suctioning	The squeegee mount is not set down	Under Cleaning settings, ensure the Squeegee/dust mop is set to "Down".
	Suction level is "Off"	Increase suction in Cleaning Configuration settings to level other than "Off".
	The water suction hose is not properly connected	Check whether the water suction hose is properly connected to the squeegee mount on the back of the machine, and the recovery tank.
	The water suction hose inhaled an object that is causing a blockage	Detach the water suction hose from the squeegee mount and recovery tank. Rinse out and remove any objects that became stuck in the hose, then reattach to the machine.
	The recovery tank is full or no clean water is in the freshwater tank and Phantas cannot continue cleaning	Drain the recovery tank and fill the clean water tank with clean water or solution.
	There is solid residue adhered to the squeegee blade, or the squeegee blade is severely damaged and worn, affecting the ability to gather water	Clean the squeegee blade, adjust the structural shape, or use a new squeegee blade.
	Bad connection of the suction pipe or blockage due to inhalation of an unknown object.	Ensure the suction pipe is connected to the hopper tray and ensure the suction hose is being unclogged weekly using a drain snake.

Problem	Possible Cause	Solution
Poor cleaning	The brushes have not been cleaned for a long time and are contaminated with a lot of dust and dirt	Remove the brushes and rinse with water until all debris is removed. Then reinstall them on Phantas.
	The brushes are severely worn, and the cleaning performance is poor	Replace the brushes with new ones of the same specification.
	The floors are heavily soiled with large solid waste that Phantas cannot clean	Pick up the solid waste on the floor before cleaning, and then repeat the cleaning several times to ensure the best cleaning effect.
	Brush speed is too slow	Increase brush speed and assess changes to cleaning quality.
	Cleaning speed is too fast	Reduce cleaning speed—using the "Low" cleaning speed is always recommended for optimal cleaning.
	Brush height is incompatible with floor type	Adjust brush height to increase or decrease pad pressure being applied to floors.
	Wrong cleaning solution is being used for scrubbing	Adjust the amount or type of cleaning solution being added to the clean water tank to improve cleaning results.
	Water spray level is off or too low for scrubbing	Turn on or increase the water spray level.
Phantas won't charge	The wall outlet is powered off or unable to supply power	Connect the charger to a different wall outlet to determine if this is the problem.
	The charger is damaged and cannot charge	Please check whether the indicator light on the charger is orange. If it is, charging is normal. If it is off or not blinking, the charger is working abnormally. In this case, please contact SBRA support.
	The battery is damaged and cannot be charged normally	If the charger functions normally, but the percentage of battery level does not increase with the extension of the charging time, it means that the battery is damaged or abnormal. In this case, please contact SBRA support.
	The AC input cord is insufficiently connected to the charging box	Ensure the AC input cord is properly connected to the charging box. Refer to the quick start guide for instructions.

Problem	Possible Cause	Solution
Water not being sprayed	The clean water tank is empty	Fill the clean water tank.
	The water spray level is turned off	Under Cleaning settings, ensure the water spray level is not set to "Off".
	The water spray line is blocked	Fill the clean water tank with warm water and set the water spray level to High under Cleaning settings. Use Phantas in manual mode for 3-5 minutes to allow the water to be sprayed through the lines.
Frozen display screen	A glitch in the software	Turn Phantas off then back on. Report the occurrence to SBRA.
Not executing tasks	Phantas is lost	Ensure Phantas is at the correct location and localize the robot using the respective map.
	The task was saved incorrectly	The task was saved incorrectly causing the robot to not know where it is or causing Phantas to not be able to execute the task. Delete the task and remake it.
	There are obstacles blocking Phantas's path	Remove the obstacles from Phantas's path.
Not localizing	Incorrect map was selected	Select the correct map.
	Not at the correct origin point	Move Phantas to the correct origin point.
	Surroundings around the origin point have changed	Ensure the space is identical to how it was when the space was first mapped with Phantas.
	LiDAR sensor is dirty or blocked	Clean the LiDAR sensor (cylindrical, shiny sensor located just under the machine behind the bumper) with a dry microfiber cloth. Confirm the bumper itself is positioned correctly and not blocking the LiDAR.
Unclear or double created map	Phantas was being moved too quickly during the map creation	Please move Phantas at a slow and steady pace during map creation.
	The sensors are dirty or blocked by obstacles	Clean the sensors with a dry microfiber cloth. Remove any obstacles from the camera's view.
	The environment is complicated, or there are high-transparency materials such as glass walls.	During mapping, if it is found that there are high-transparency materials in the surrounding environment, please draw a virtual wall in time to control the map boundary.

12. Consumables

Ordering New Consumables

Consumables can be ordered through <https://us-store.softbankrobotics.com/>

Annual replacements calculation:

365/ lifespan
365 ÷ 30 = 12 (rounded)

Biannual replacements calculation:

90/ lifespan
90 ÷ 30 = 3

Usage Level	Consumable	Lifespan (Days)	Quarterly Replacements	Annual Replacements
3hrs/day x 5 days/week	Phantas Side Brush	30	3	12
	Phantas Main and Short-hair Roller Brushes	90	1	4
	Phantas Dust Bag	45	2	8
	Phantas HEPA	30	3	12
	Phantas Linear Cylindrical Filter	180	0	2
	Phantas Front and Rear Squeegees	90	1	4

* Lifespans vary based on location

Replacing Consumables – Vacuum + Scrub

If a desired clean isn't being achieved, ensure the consumables are in good condition. Maximize performance by replacing consumables regularly.

Side Brush

Lifespan: 30 days*

Replace when bristles are frayed or missing

New



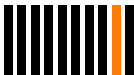
Time to Replace



Roller Brushes

Lifespan: 90 days*

Replace when black or blue bristles are same height as orange bristle



Dust Bag

Lifespan: 45 days*

Replace when the bag is discolored or torn



HEPA Filter

Lifespan: 30 days*

Replace when the filters have darkened in color



Squeegee Blades *(Scrub only)*

Lifespan: 90 days*

Replace when the blades are thin, torn, or darkened



Cylindrical Filter *(Scrub only)*

Lifespan: 180 days*

Replace when the filter has darkened in color



* Lifespans vary by site



SoftBank Robotics Support

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Email us-support@softbankrobotics.com

Live support [7am - 9pm EST, Monday - Friday](#)



us.softbankrobotics.com/support-form



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