Getting started (en)

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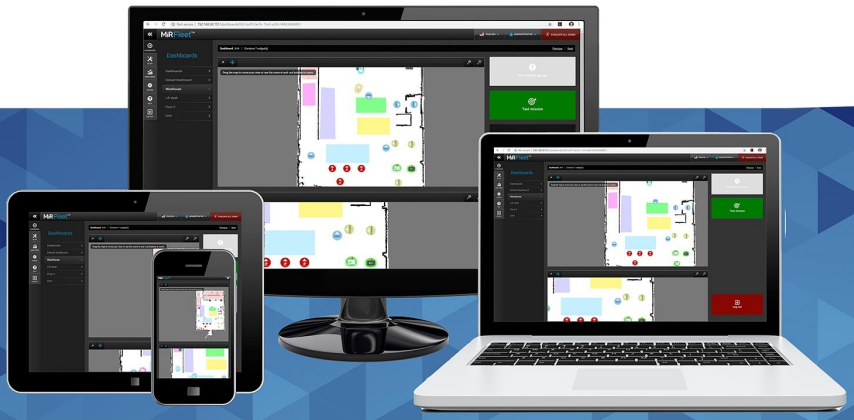

MiR Fleet PC

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1. About this document

This guide describes how to set up MiR Fleet PC and get started with the MiR Fleet interface. MiR Fleet is used to orchestrate the operations of multiple robots, ensuring that they are all executing missions. As a MiR Fleet PC user, you have received the following information to get started:

- License ID and password
- USB pen with MiR Fleet software and this getting started guide.
- An Intel® NUC Kit

1.1 Where to find more information

At www.mobile-industrial-robots.com, several additional resources are available. To access more information, sign in to the Distributor site with your distributor account at http://www.mobile-industrial-robots.com/en/account/. The following resources are available:

- **Distributor site > Manuals**
  http://www.mobile-industrial-robots.com/en/account/manuals/
  This page contains the following resources:
  - **Quick starts** describe how you start operating MiR robots quickly. This document is in print in the box with the robots. Quick starts are available in multiple languages.
  - **User guides** provide all the information you need to operate and maintain MiR robots. User guides are available in multiple languages.
  - **Risk Analysis Guides** include guidelines on how to create a risk assessment of your robot solution.
  - **Commissioning guides** describe how to commission your robot safely and prepare it to operate in the workplace.
  - **Operating guides** describe how to set up and use add-ons, such as charging stations, hooks, shelf lifts, and pallet lifts.
  - **Getting started guides** describe how to set up products that are mainly software based, such as MiR Fleet and MiR AI Camera.
  - **Reference guides** contain descriptions of all the elements of the robot and MiR Fleet interface. Reference guides are available in multiple languages.
  - **REST API references** for robots, MiRHook, and MiR Fleet.
  - **MiR network requirements** specify the performance requirements of your network for and MiR Fleet to operate successfully.
- **Distributor site > Download**
  http://www.mobile-industrial-robots.com/en/account/download/
  This page contains the following resources:
  - **Software** and **Product Release Notes** for your MiR product are displayed by selecting your product in the drop-down menu.
  - **CAD drawings** of MiR products are displayed by selecting **Show CAD-files**.
  - **Certificates** for the MiR products and Declarations of Conformity are displayed by selecting **Show Certificates**.
- **Distributor site > FAQ**
  https://www.mobile-industrial-robots.com/en/account/faq/
  This page contains frequently asked questions regarding MiR products.

- **Distributor site > How to**
  http://www.mobile-industrial-robots.com/en/account/how-to/
  This page contains how-to guides that describe how to perform specific tasks with MiR products.
- **Distributor site > Troubleshooting**
  https://www.mobile-industrial-robots.com/en/account/troubleshooting/
  This page contains troubleshooting guides to solve common issues with MiR products.
- **MiR Fleet PC product page**
  https://www.mobile-industrial-robots.com/en/products/mir-add-ons/mir-fleet/
  This page contains specifications, pictures, and brochures for MiR Fleet PC.

1.2 Version history

This table shows current and previous versions of this document and their interrelations with hardware releases.

Revision	Release Date	Description	SW
1.0	2019-30-07	First edition	2.5.0 and higher
1.1	2019-20-12	Second edition	2.7.9 and higher
1.2	2020-01-12	Small corrections and modifications	2.8.0 and higher
1.3	2020-01-31	New network requirements section and small corrections	2.8.0 and higher

2. Host and network requirements

The specifications and requirements for running MiR Fleet PC are:

- Installation file size: 3 GB
- MiR Fleet update file size: ~300 MB
- Server requirements: Dual core processor with minimum 2.1 GHz clock
- RAM: Minimum 8 GB
- HDD: 80 GB
- Virtualization software: Docker CE/EE 18.09.01

2.1 Network architecture

MiR Fleet is able to communicate with MiR robots and with existing computer devices once connected to the network. Within the network it is also possible for other computer devices to connect directly to the MiR robots through their robot interface. All devices that need to communicate with MiR Fleet must be on the same network and subnet as MiR Fleet.

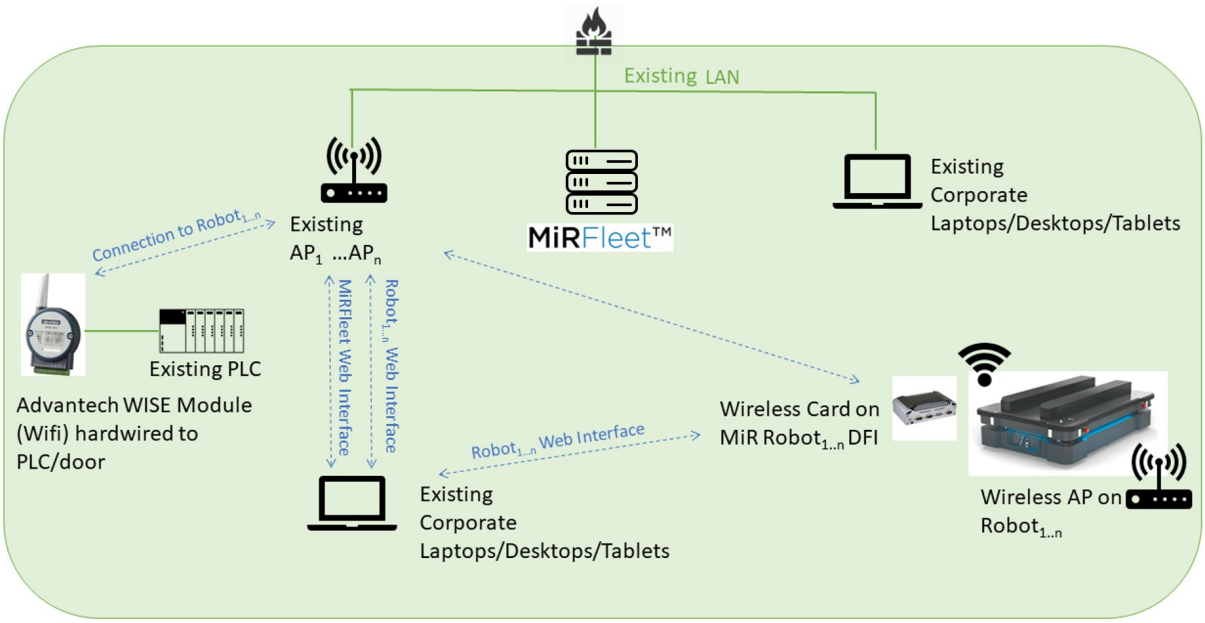


Figure 2.1. MiR Fleet network architecture

NOTICE

We discourage using the robot interface to control robots connected to MiR Fleet. You should only use the robot interface in the following situations:

- The first time you add the robot to MiR Fleet. Use the robot interface to activate the correct site and to position the robot correctly on the map.
- When adding markers or mapping. Use the robot interface to generate new maps or to detect markers.

2.2 Network requirements

This section describes the network requirements for MiR Fleet PC.

MiR robots require a constant, stable network connection for MiRFleet to function. An unstable connection can lead to missions and resources not being assigned to robots, causing deadlocks and idle robots.

MiRFleet must be connected to the network through Ethernet and must be in the same physical location as the robot. Geographical distance will cause delay between the fleet and the robots.

The network should be capable of containing all robots, the fleet, and required devices on the same subnet. If there are enough IP addresses available for all devices, the network can be used.

Wireless LAN

The requirements for the WLAN are:

- Minimum bandwidth of 1 Mbit per robot with a maximum latency of 150 mS. The network should be monitored over time to see how the bandwidth is affected during normal working hours.
- Signal strength not less than -75 dBm. Signal to noise level 20 dB. measured from the robot's perspective. If you experience issues, the signal strength can be measured using specialized instruments. Any network consultant company will be able to help with this.
- Full coverage of WiFi signal throughout the traveling path of the robot.
- Roaming happening at the correct time and without any authentication errors. Make sure that the company network access points are controlled by the same controller.
- Access points set up to communicate and share roaming information.

The robots are able to perform some tasks under worse network conditions than those specified in this manual. However, key features such as collision detection, auto charging and staging, Limit-robots zones, data synchronization between robots, and fleet mission execution will not work fully.

Antenna

The small antenna shipped with the MiR robots is used for connecting the robots to your in-house wireless network. It is designed for 2.4 GHz, and it does not have a powerful gain. If you experience issues, consider replacing it with an antenna that suits your network.

The placement of the antenna is very important. If you put a metal case on top of the robot, you must relocate the antenna.

Which WiFi band?

Both 2.4 GHz and 5 GHz have advantages and disadvantages, but we recommend using 5 GHz if possible.

2.4 GHz: Has longer range and is better at penetrating metal and concrete, but it is limited to three main channels. Fewer channels result in signal noise, and most production environments have a very high noise floor on the 2.4 GHz band. Many technologies can create noise on the 2.4 GHz band, such as USB and Bluetooth.

5.0 GHz: Has shorter range and not as good performance in penetrating metal and concrete as 2.4 GHz, but there are 25 main channels available. 5 GHz is always preferred if the signal can reach the robot.

It is not possible for the robot to select either 2.4 or 5 GHz. This selection is done on the network side by creating a robot specific SSID with the desired frequency.

2. Specifications

The specifications of the MiR Fleet PC are listed below.

- Model: NUC5i3MYHE
- PC: Intel® Maple Canyon NUC
- CPU: Intel® Core i3-5010U (3MB cache, 2.1GHz base clock)
- RAM: 8GB DDR3L-1600
- SSD: 128GB 2.5”
- Operating system: Linux Ubuntu 16.04
- Network capabilities: 1 Gbit Ethernet, no wireless option
- Required connections: 110 V or 230 V power socket and Ethernet network cable
- Installation requirements: Must run on the same physical network as the robots

3. Getting Started

This section describes how to prepare your robots to join the fleet, start up your MiR Fleet PC for the first time, and activate your license.

Before activating MiR Fleet, you must complete the following actions:

1. Update the fleet robots to software version 2.7.9 or newer. All robots in the fleet must run the same software version as MiR Fleet.
2. Select one robot to be a model robot. After updating the robot, use it to create the entire site setup you want MiR Fleet to use. The model robot must contain all the site data you need for MiR Fleet to run the robots as intended, and all procedures you intend to use the robots for should be tested on this robot before adding any robots to MiR Fleet.
3. Once you have used the model robot to create a complete site, export the site, and save it on a PC. This site file acts as a backup in case you lose any data when starting up your MiR Fleet.

The following sections describe in greater detail how to update the robot software and export a site file. For more details on how to create a new site including elements such as maps, missions, and dashboards, see your robot's user guide and the robot interface reference guide.

NOTICE

It is important to test your site and all intended uses on a single robot before integrating it in MiR Fleet. It is significantly easier to determine the cause of any issues before the robot is connected to a fleet.

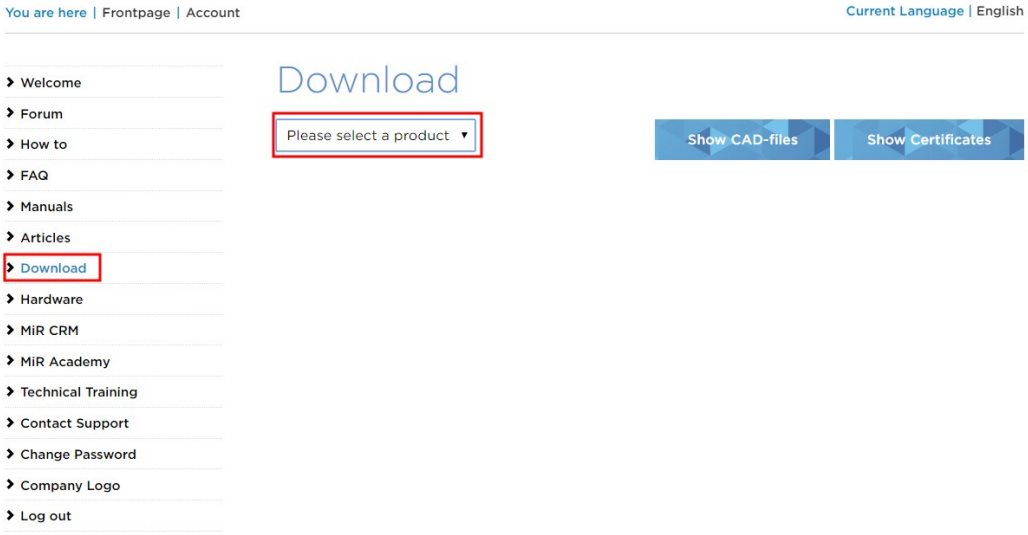
3.1 Updating robot software

This section describes how to update the robot software.

MiR continuously updates the software the robots use, either to fix issues, to improve existing features, or to introduce new features. Each software release is issued with a release note explaining the content of the update and its target audience.

Follow the steps below to update your robot software:

1. Go to the MiR Distributor site and sign in with your credentials.
2. Select **Download** and select your robot in the product drop down menu.



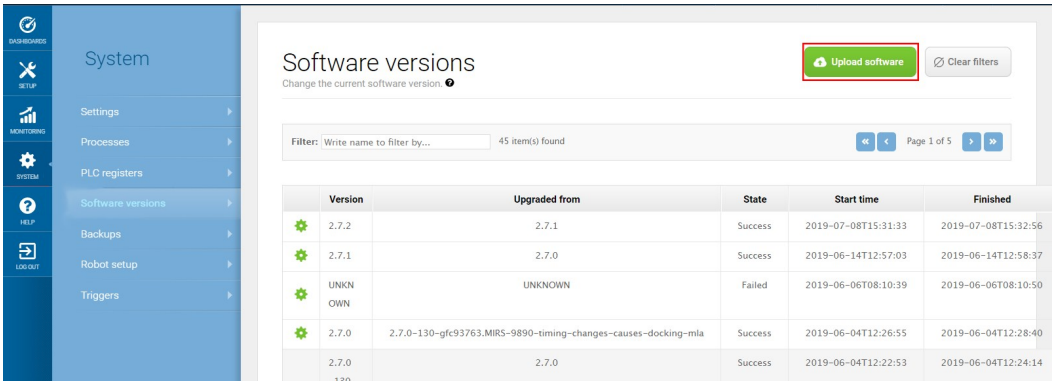
3. Download the desired version of **MiR Software Robot / Hook / Fleet 2 version x.x.x**.

Software

File	Last update	
MiR Software Robot / Hook / Fleet 2 version 2.8.0.3	19 Dec 2019	Download
MiRFleet 1 version 2.8.0	19 Dec 2019	Download
Known Product Issues Note 2.8.0	19 Dec 2019	Download
Product release note 2.8.0.pdf	19 Dec 2019	Download
MiR Fleet Server Solution 2.8.0	20 Dec 2019	Download

4. Connect your computer to the WiFi of the robot you want to update, and sign in to the robot interface.

5. Navigate to **System > Software versions** and select **Upload software**.



6. Locate and select the downloaded software package. It may take a few minutes for the package to successfully upload.
7. Once the software is uploaded, turn the robot off and then on again.

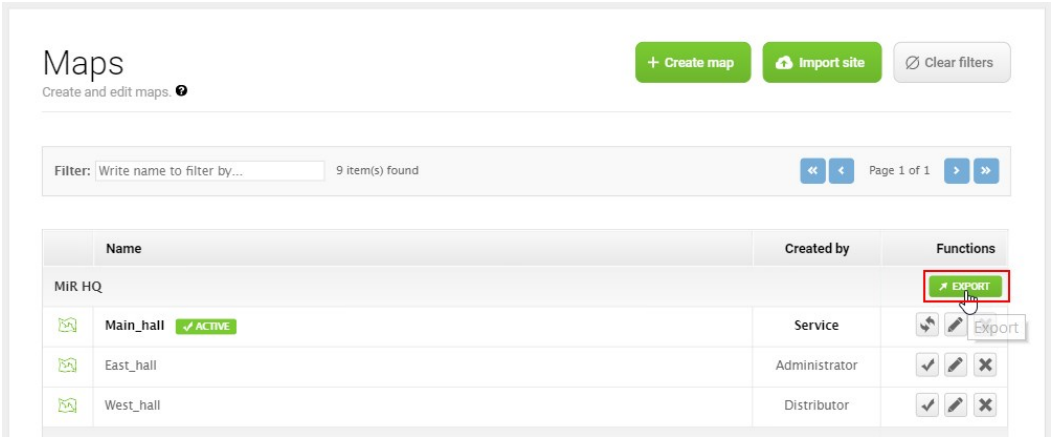
NOTICE

When updating a MiR robot with an attached MiRHook, the Hook software must be updated first to ensure that the robot is compatible with the hook when uploading the software. See the MiR Hook Operating guides on the MiR website.

3.2 Exporting a site file

It is always a good idea to export a site file to keep as a backup. Follow the steps below to export your site file.

1. In a robot interface, go to **Setup** > **Maps**.
2. Select the site you want to use for the fleet and select **Export**.



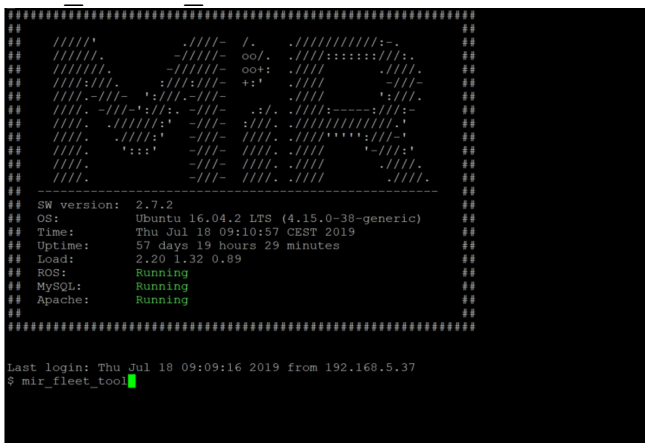
The site file is now downloaded to your device and can be imported to the fleet later.

3.3 Finding your fleet's IP Address

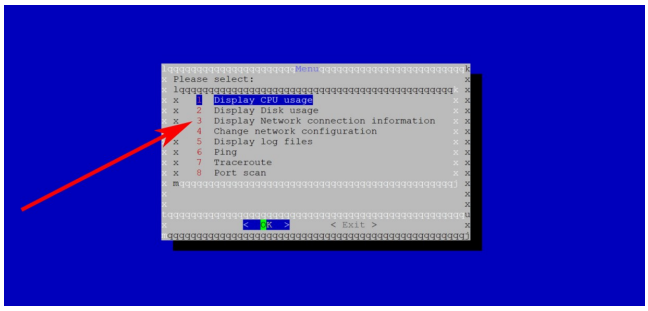
To find the IP address of your MiR Fleet, you must access the fleet's Ubuntu operating system and follow the steps below.

1. Connect the NUC to a power socket, to your network via the Ethernet cable, to a screen, and to a keyboard. You will be greeted by the following image:

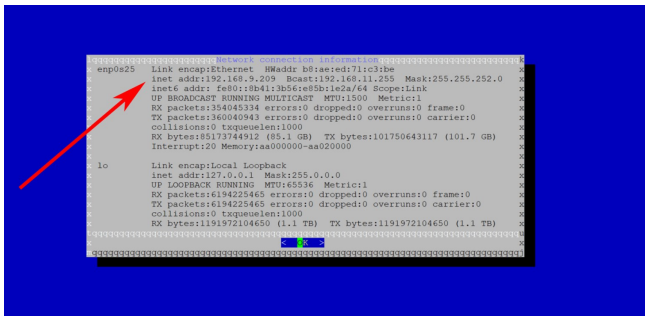
2. Sign in as: remote,
   With the password: mirremote
3. In the following frame, use the command:
   `mir_fleet_tool`



4. A menu is displayed on a blue background. Choose **Display Network connection information** to see your MiR Fleet's IP address.



5. Your MiR Fleet's IP address is written in the **inet addr** field, and are often in the format 192.168.x.xxx.



NOTICE

We recommend that you use static IP addresses for both MiR Fleet and MiR robots. Assign the IP address to the hardware's MAC-address. Ask your distributor for further elaboration.

3.4 Signing in for the first time

You sign in to MiR Fleet by typing the fleet's IP address in a web browser on a computer on the same physical network as the robots and the fleet.

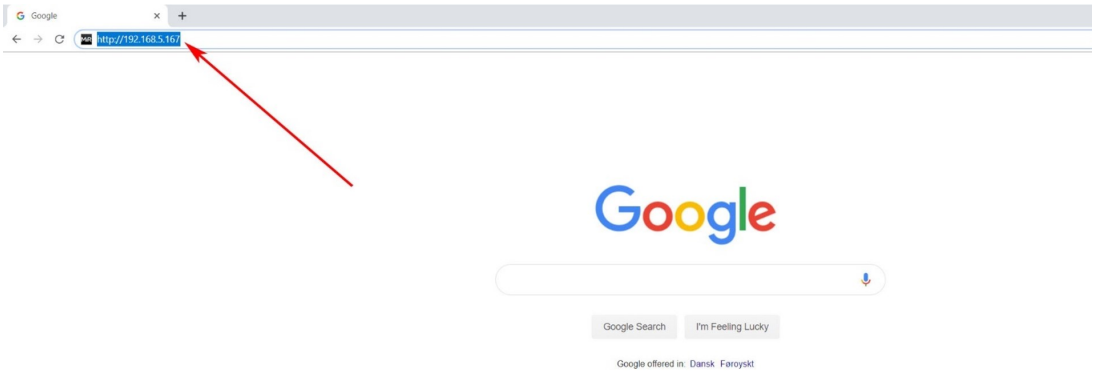


Figure 3.1. The example fleet IP address 192.168.5.167 is written in the browser to access the fleet interface sign in page.

The first time you sign in, you will be asked to provide your License ID and your License key. Both are provided in package you received with your MiR Fleet PC. To activate your license see Installing and activating your fleet below.

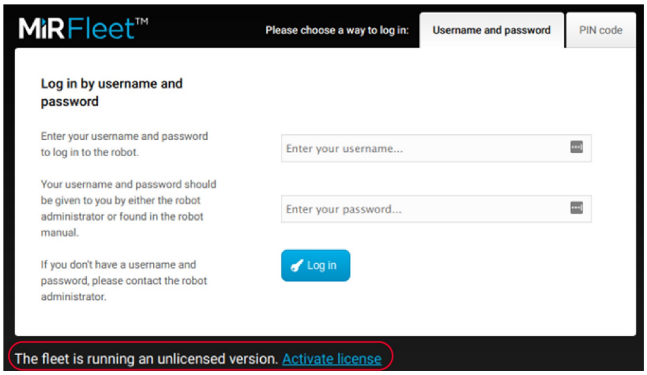
3.5 Installing and activating your fleet

You are now ready to activate the MiR Fleet interface. It is only necessary to activate your license the first time you sign in to MiR Fleet.

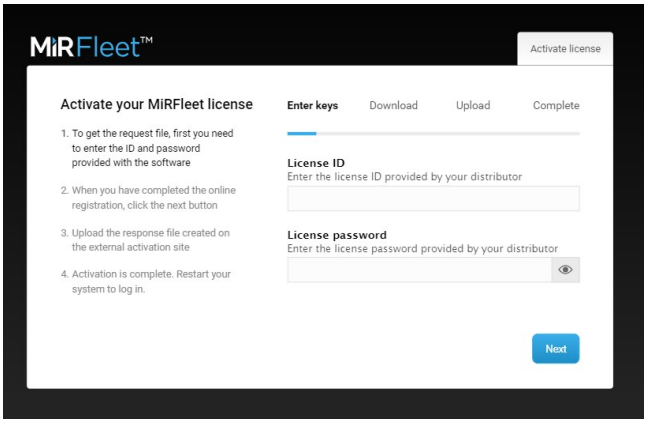
After activation, the license is tied to the hardware of the host and can only run on that host. If you want to change the host, the license can be deactivated from its current host and re-activated on a new one. Please contact MiR Support for assistance.

You can activate the license both online and offline by following these steps:

1. Go to the MiR Fleet sign in page, and select **Activate license**.



2. Enter the License ID and password that you have received from MiR.

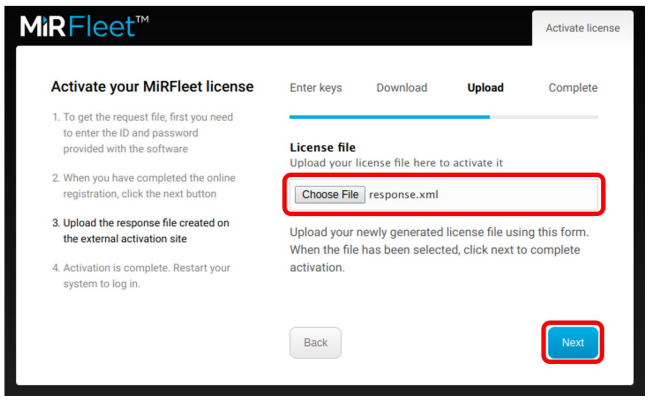


3. Wait while the system attempts to activate the license.
4. If you work online, you are finished activating your license, and can continue to step 8.
   If you work offline, the attempt to activate the license will fail, and you are directed to a page where you can download a request file. If the download does not start automatically, select the link **Download it here**.

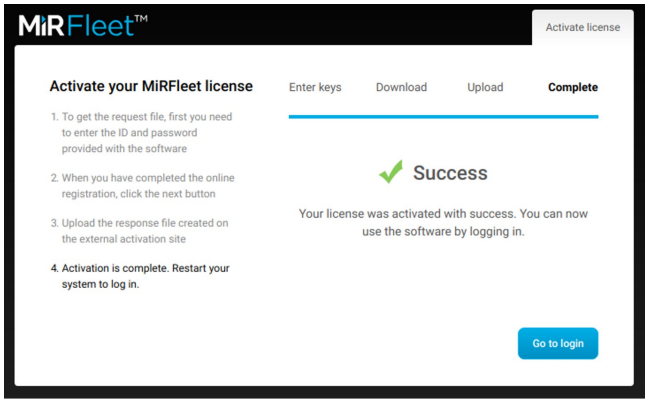
5. Transfer the request file to a computer with internet access, for example via a USB pen. In a browser, go to the License portal at https://secure.softwarekey.com/solo/customers/ManualRequest.aspx and upload the request file. The web page now generates a response file

6. Select **Download** and save the response file on a USB pen. Then bring it back to MiR Fleet.

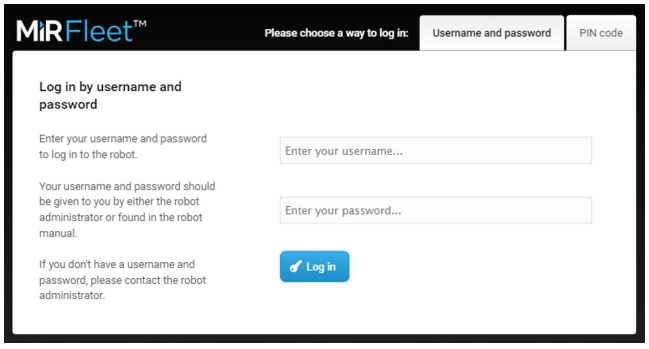
7. If you are still on the Download page, select **Next** to go to the **Upload** page. Upload the response file to MiR Fleet and select **Next**.



8. Once your MiR Fleet license is successfully activated, restart your host device.



9. Once MiR Fleet has started up, open a web browser, and go to the sign in page by inserting the IP address of your MiR Fleet in the address bar.



10. Enter a username and password. The default usernames and passwords are the same as for robots. You can find the default usernames and passwords in the MiR folder you received with the MiR Fleet USB pen.

4. Commissioning

This section describes how you connect robots to MiR Fleet through the MiR Fleet interface and how you set up the parameters that will get your fleet up and running.

4.1 MiR Fleet interface

The MiR Fleet interface is very similar to the robot interface. *Figure 4.1* shows what is synchronized between fleet and robots in the **Setup** menu (green frame) and what is not synchronized (red frame). The items in the red frame are fleet specific and must be set up in the fleet interface.

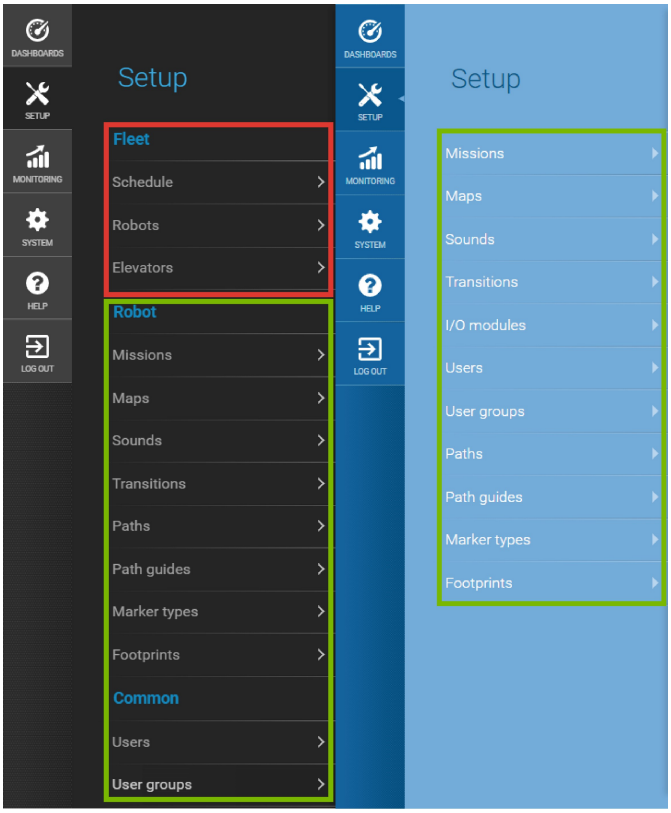


Figure 4.1. The items that are boxed in green are synchronized between the robots through the fleet. The items boxed in red are not synchronized and are specific to the fleet.

4.2 Adding robots to the fleet

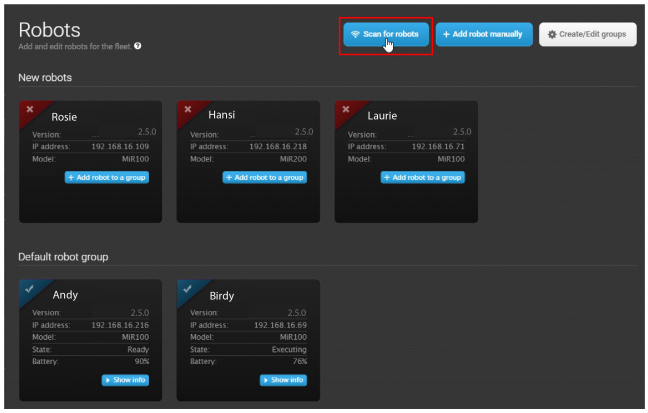
The first robot you should add to your MiR Fleet is the model robot where you have created a complete site. Once you add it, MiR Fleet synchronizes data with the robot and retrieves all the site data. The data that is synchronized includes:

- Maps, including positions, markers, walls, floors and all types of zones
- Missions and Mission groups
- Users and User groups
- User group permissions
- Paths and path guides
- Transitions
- Docking offsets
- User-created sounds
- I/O modules
- Carts, cart types and calibrations
- Marker types
- Footprints
- Dashboards
- Widgets

If you add other robots to MiR Fleet before the model robot, the data will still synchronize from the model robot to MiR Fleet and all other connected robots. But it is recommended to add the model robot first to ensure no data is lost or overwritten.

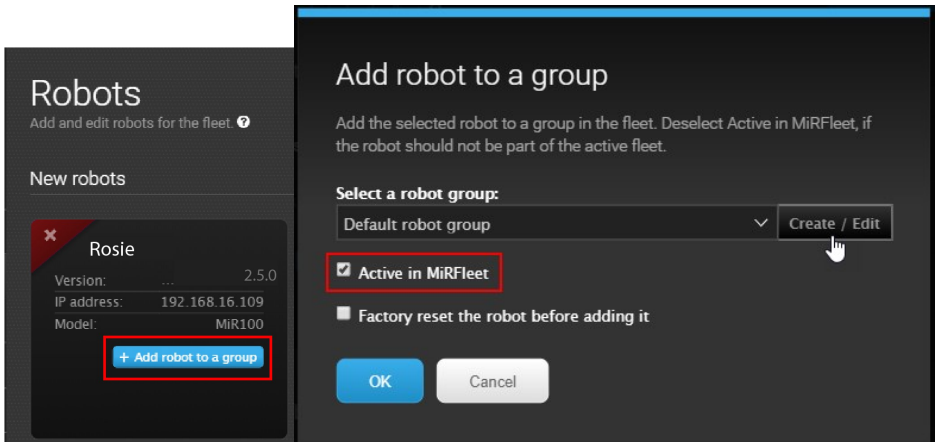
Follow these steps to add a robot to MiR Fleet:

1. Go to **Setup > Fleet > Robots** and select **Scan for robots**.



If one or more robots are not found by scanning, you can add them by selecting **Add robot manually** and entering the IP address of the robot(s).

2. To activate a new robot, select **Add robot to a group** and select **Active in MiRFleet**. You can use the default robot group or create new groups for different types of robots. See more in Groups on page 26.

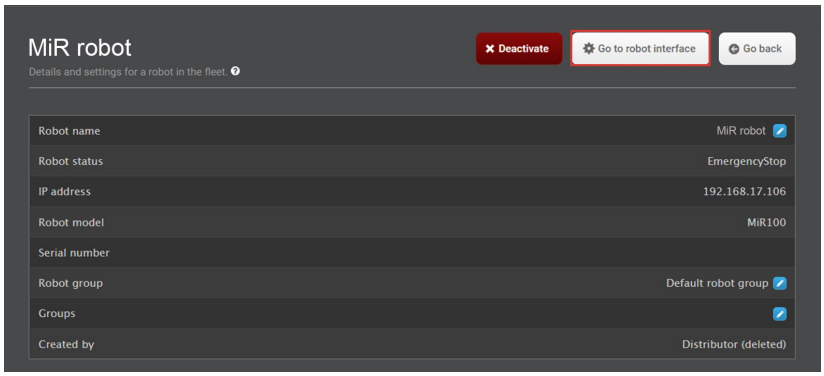


3. Do not select **Factory reset the robot before adding it** when you are adding the model robot. Factory resetting a robot removes all of the created site data from it. For all robots added after the model robot, we recommend selecting to factory reset the robot to minimize the time taken to add the robot and remove unnecessary data.

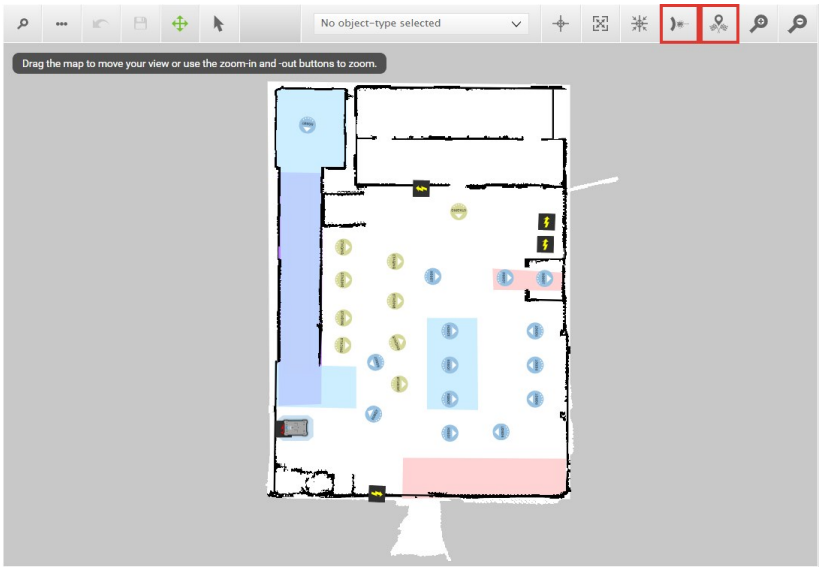
NOTICE

Be aware that all user settings on the robot are erased when you select the **Factory reset option**. This ensures that all robots are running with the same information as the fleet.

4. Once the robot has finished synchronizing with MiR Fleet, select **Show info** for the robot you just added, and then select **Go to robot interface**.



5. Sign in to the robot interface, and go to **Setup > Maps**. Ensure that the active map on the robot is a part of the active site on MiR Fleet (see Activating a site on the next page to activate a specific site on MiR Fleet).
6. If the robot is not correctly positioned on the map, open the map editor, and position the robot correctly using **Set robot's start-position** to approximately place the robot correctly on the map and using **Adjust robot position** to adjust the position until the red lines align with the black wall lines.



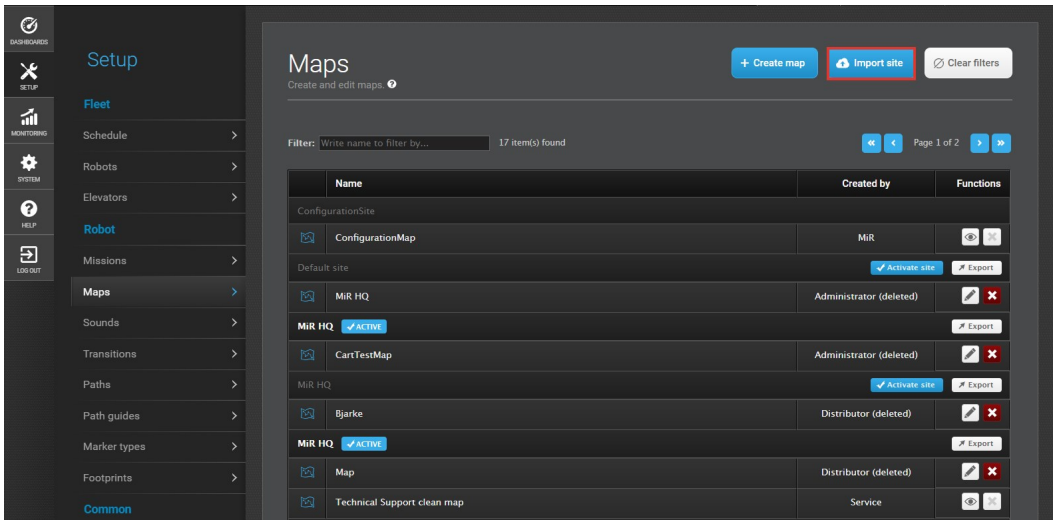
7. Sign out of the robot interface once the robot is correctly positioned on an active fleet map. We discourage further use of the robot interface.

4.3 Importing a site file

If you notice that some of the site data created on your model robot is missing after you added your robots to MiR Fleet, import the backup site file you exported from the robot before adding it. If all of the data appears to have synchronized correctly, you do not have to import the backup site file.

Follow these steps to import a site file:

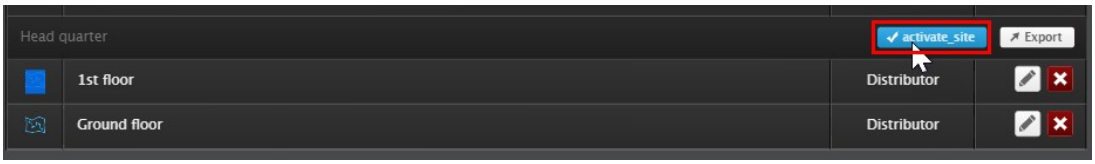
1. Sign in to the MiR Fleet interface, go to **Setup > Maps**, and select **Import site**.



2. Browse through your files to locate the backup site file, and then select it.
3. Wait for the site to upload to MiR Fleet.

4.4 Activating a site

Even though all robot settings are synchronized, you must activate the site you want to use for the fleet. In robot interfaces, you activate individual maps, but in MiR Fleet you must activate a whole site. To do this, navigate to **Setup > Maps**, find the site you want to activate, and select **Activate site**.

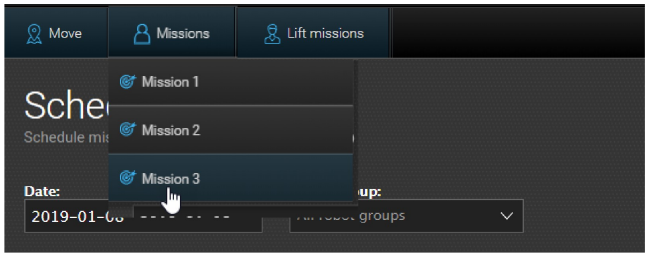


User group permissions apply to this action. You may need to sign in as a higher level user to change this.

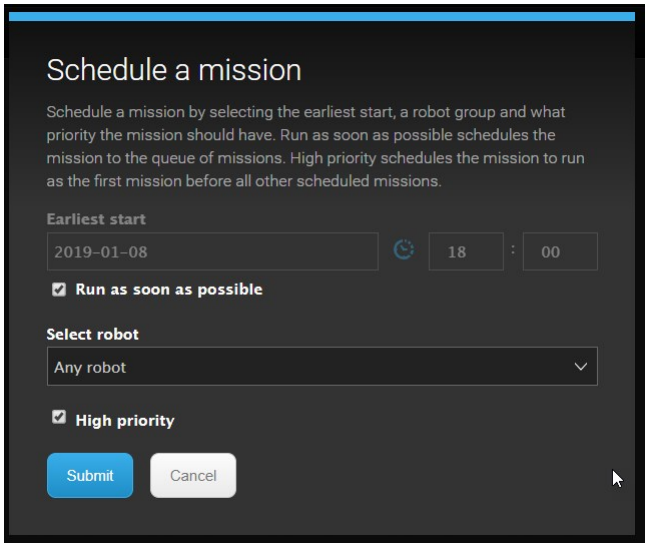
4.5 Setting up mission schedules

Missions are set up and monitored from the **Scheduler** menu. Follow these steps to schedule a mission:

1. Go to **Setup > Fleet > Scheduler**. Available missions are shown in the top bar. Select one of the robot groups and select a mission from the list.



2. Set the mission parameters to specify which robot group should run the mission and at what time the mission should be initiated. High priority puts the mission to the front of the queue.



4.6 Groups

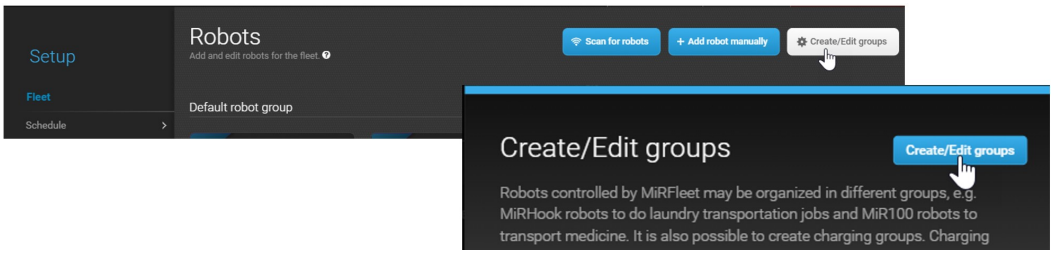
You can create two types of groups in the MiR Fleet interface: robot groups and charging groups. Each robot can only be assigned to one robot group and one charging group.

Robot groups

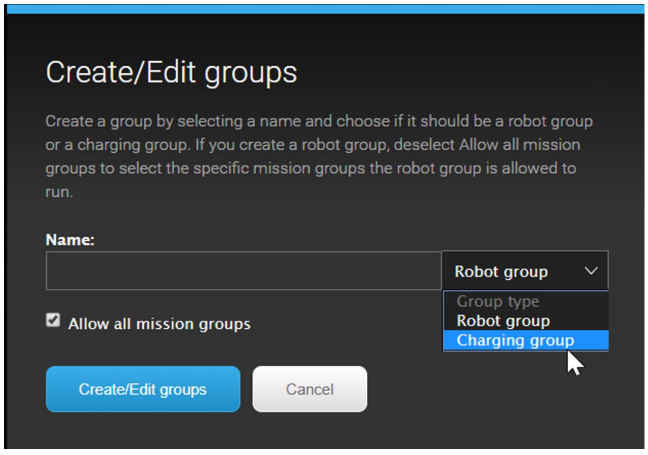
In MiR Fleet, any number of robots can be assigned to a robot group. Each robot group is used to collect a number of mission groups that all robots in the group are able to execute. For example, you can use robot and mission groups to restrict a group of MiR hook robots to only perform missions for transporting carts. The efficiency of the robot groups and mission groups setup depends on how you have set up missions and mission groups. When you create a robot group, you select the mission groups that robots in the robot group can execute. You can view and modify your mission groups under **Setup > Missions**.

Follow these steps to create a robot group:

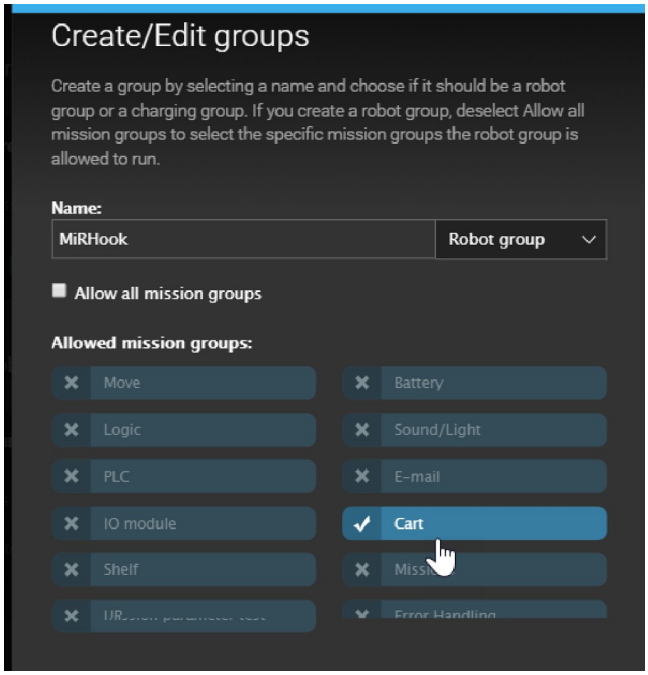
1. Go to **Setup > Robots** and select **Create/Edit groups**. Select **Create/Edit groups** in the next window.



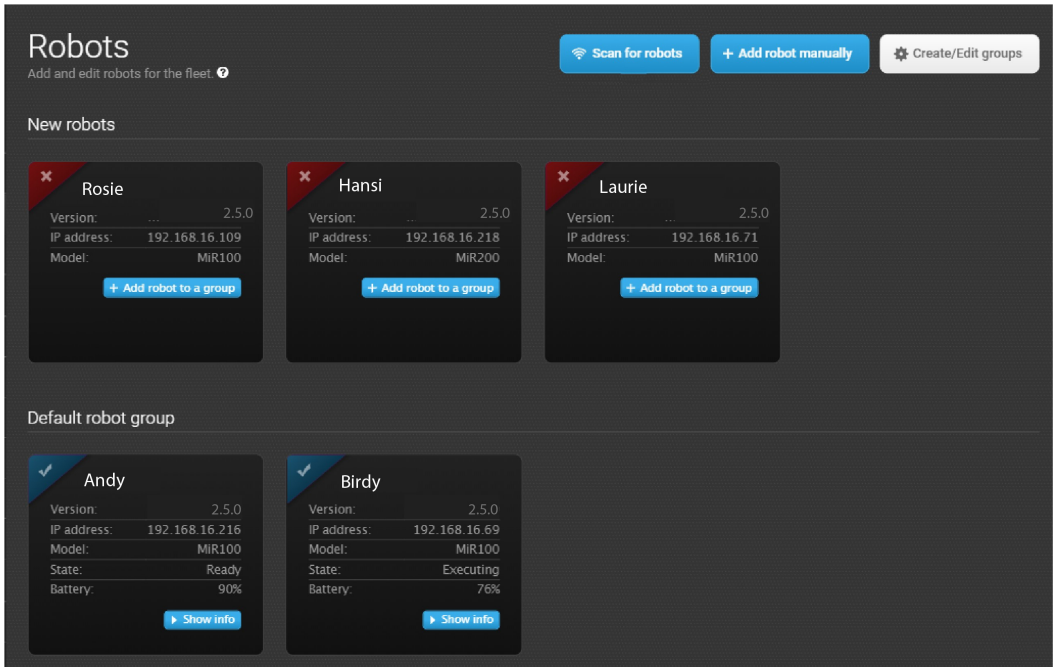
2. In the **Group type** drop-down menu, select **Robot group**.



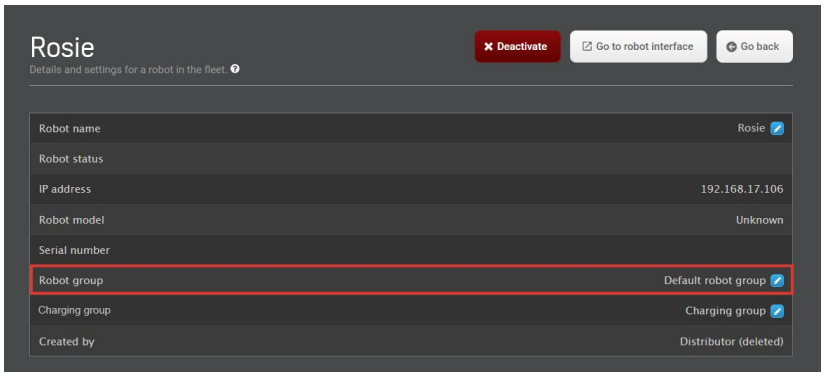
3. Match the robot group with the mission groups you want. When you create a robot group, the extra option **Allow all mission groups** is selected by default. If you want to match the robot group with a more limited number of mission groups, deselect this option and select the mission group(s) you want to match the robot group with.



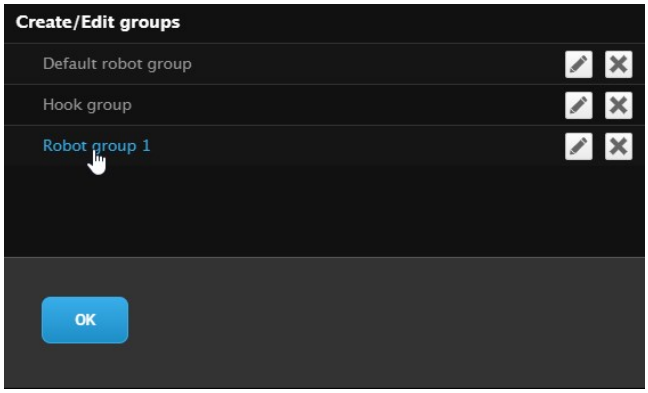
4. Select **Create/Edit group** to create the robot group. Select **OK** to exit the group editor. The list of available robots is shown.



5. Assign a robot to the robot group by selecting **Show info** for the robot you want to assign, and then **Edit** ✎ under **Robot group**.



6. Select the robot group you want to assign the robot to by clicking on its name.



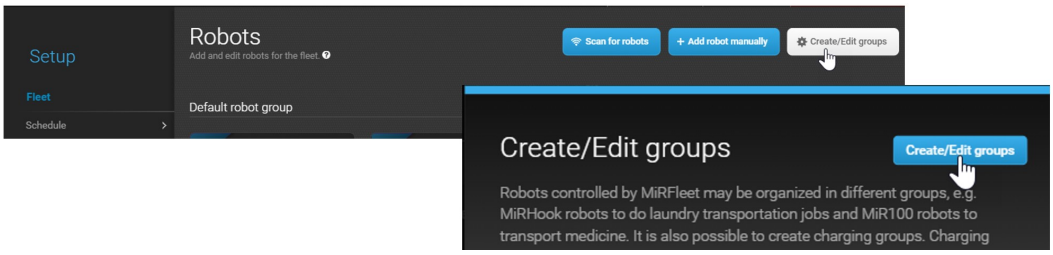
7. The robot is now assigned to the group.

Charging groups

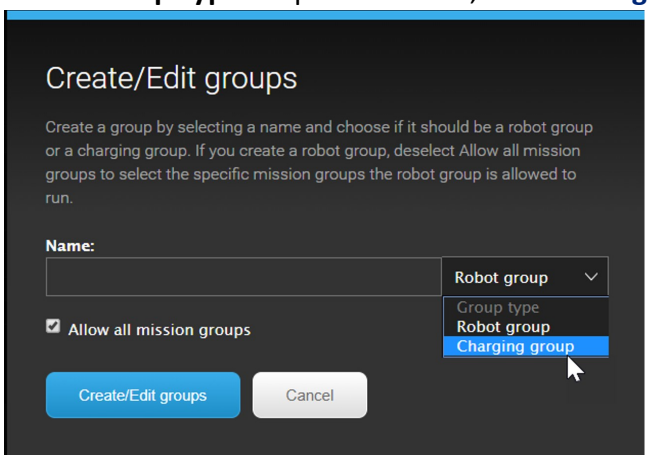
In MiR Fleet, charging groups are used to assign a certain set of charging stations to any number of robots. This is useful if you have enabled auto charging, and you have a set of chargers and robots in two isolated areas. Using charging groups ensures that robots from one area do not try to dock to charging stations in the second area.

Follow these steps to create a charging group:

1. Go to **Setup > Robots** and select **Create/Edit groups**. Select **Create/Edit groups** in the next window.

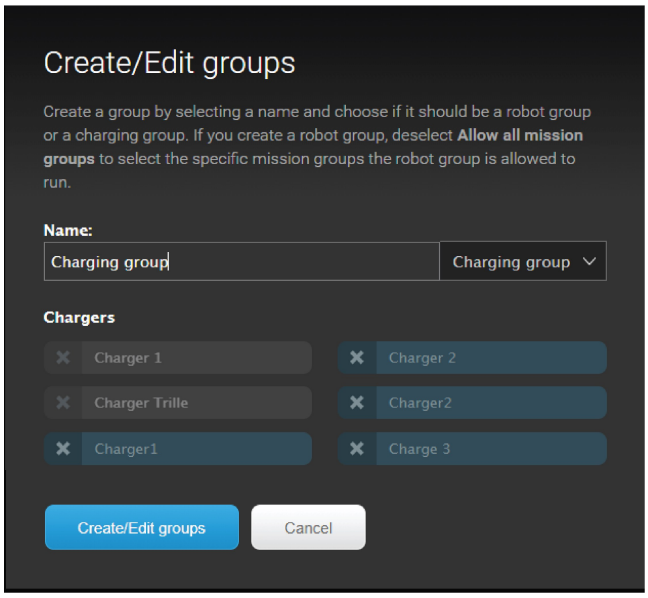


2. In the **Group type** drop down menu, select **Charging group**.

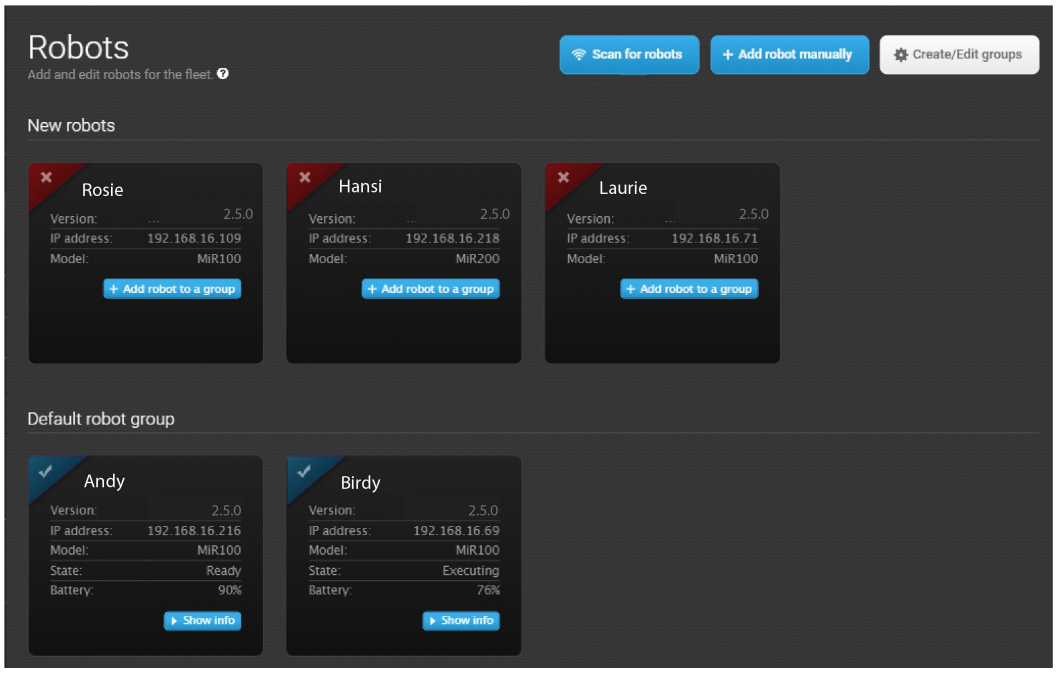


3. Select the charging stations you want to add to the charging group. This is often chargers located in the same area.

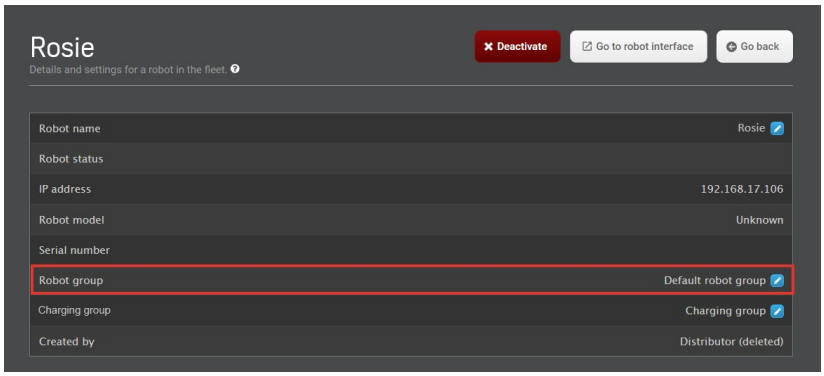
Each charging station can only be added to one charging group. Chargers that are gray are already part of a charging group.



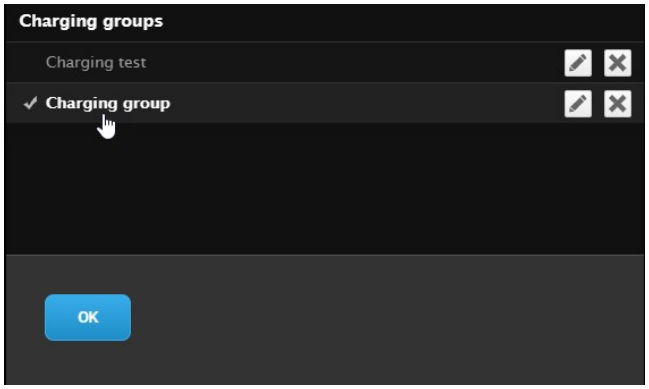
4. Select **Create/Edit group** to create the charging group. Select **OK** to exit the group editor. The list of available robots is shown.



5. Assign a robot to the charging group by selecting **Show info** for the robot you want to assign, and then **Edit** ✎ under **Charging group**.



6. Select the charging group you want to assign the robot to by clicking on its name.

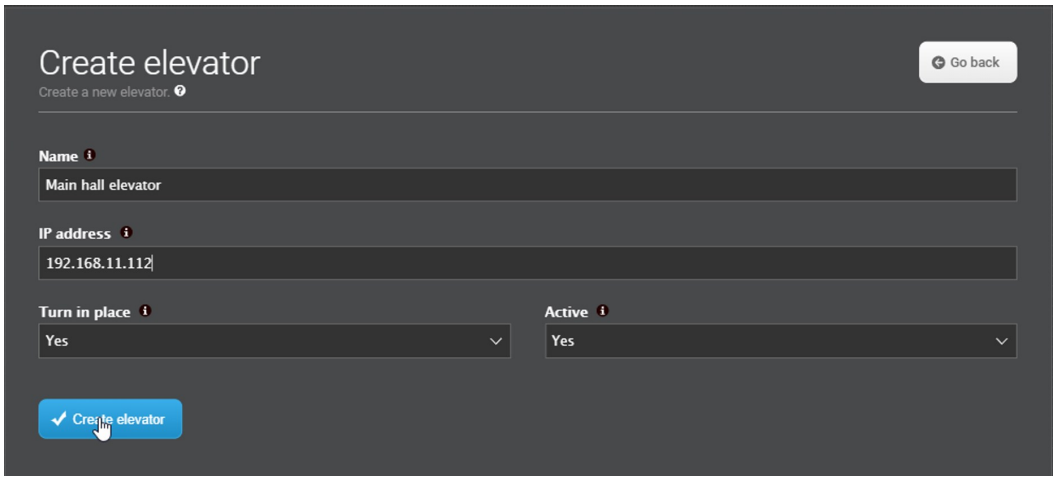


4.7 Setting up elevators

Elevators must be controlled using a PLC that either has its own IP address or is connected to a WISE module to work with MiR robots. Contact your distributor for further information.

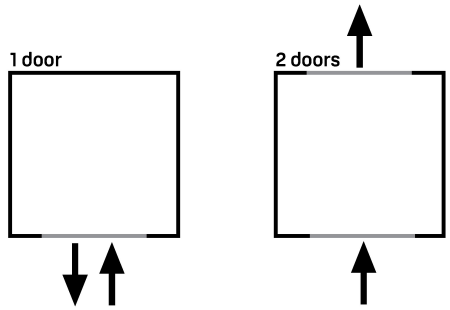
Follow these steps to set up an elevator:

1. Go to **Fleet > Elevators** and select **Create elevator**.
2. Name the elevator, insert its IP address, and choose if the robot should turn inside the elevator and if you want to activate the elevator right away.When you are done, select **Create elevator**.

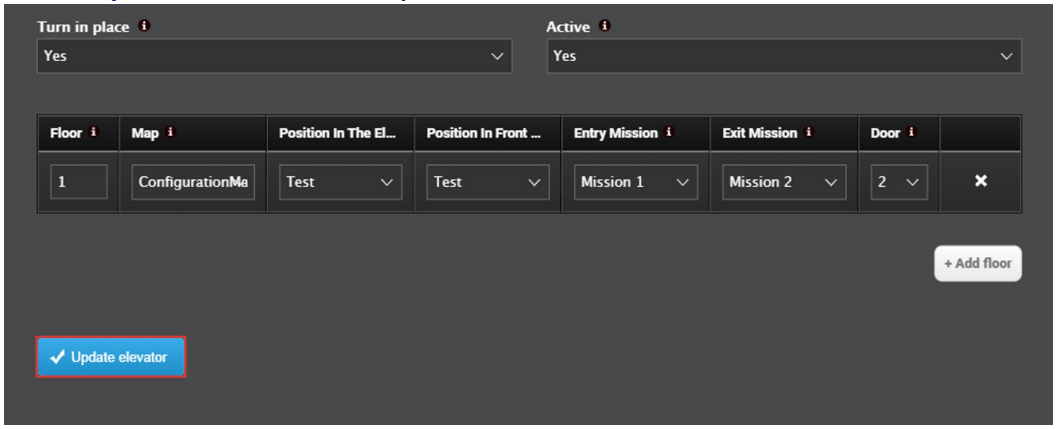


3. Select **Add floor** to set up the first floor.

4. Select settings for each floor. Positions and missions must have been setup previously in the map editor (**Setup > Maps > Create map / Edit map**).
   - **Floor**: Enter a floor number.
   - **Map**: The map must have been created in a robot and include two elevator positions that will enable the switching from one map to another.
   - **Position in the elevator**: This position represents the robot's position inside the elevator.
   - **Position in front of elevator**: The position in front of the elevator where the robot waits for the elevator to arrive and the door to open.
   - **Entry mission**: An entry mission is not mandatory. An example of an entry mission could be a sound as the robot enters the elevator. An entry mission must include a **Move** action with a variable position.
   - **Exit mission**: An exit mission is not mandatory. An example of an entry mission could be a sound as the robot leaves the elevator.
   - **Door**: Select **1** if the elevator has only one exit and entry and **2** if the elevator has a separate exit and entry and you want the robot to leave through the opposite door.



Select **Update elevator** when you are done.



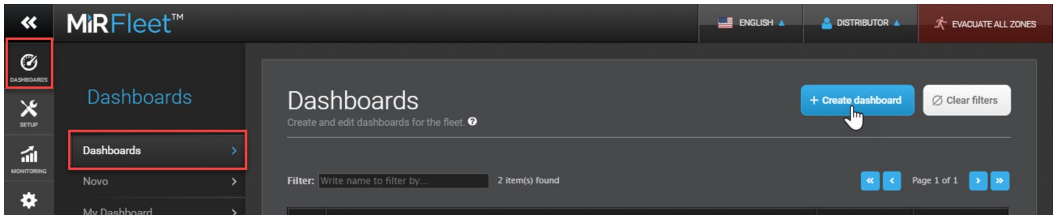
5. Keep adding floors until you have the required number for your building.

4.8 Setting up fleet dashboards

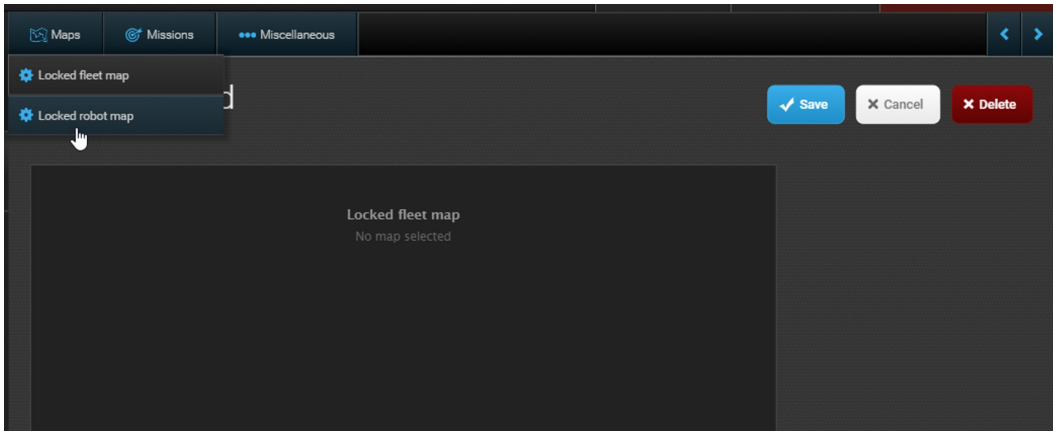
Dashboards are set up the same way as in the robot interface, though with a different set of available widgets.

Follow these steps to set up a dashboard:

1. Go to **Dashboards > Dashboards** and select **Create dashboard**. Name the dashboard, and select **Create dashboard**.

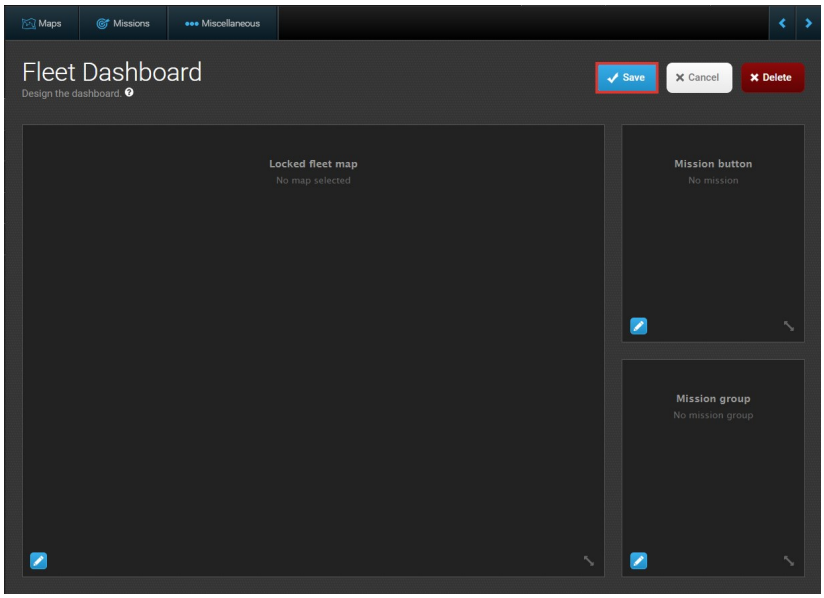


2. Select one of the widget groups and select a widget. Available widgets are shown in the top bar.



3. Keep adding widgets, until you have the wanted dashboard. You can move the widgets around and resize them as needed.

4. Select **Save** when you are done editing the dashboard. The dashboard is now accessible from the Dashboards menu.



The only fleet-specific widget is **Locked fleet map**. It corresponds to the **Locked robot map** widget from the robot interface, but it shows all fleet robots that are on the selected map.

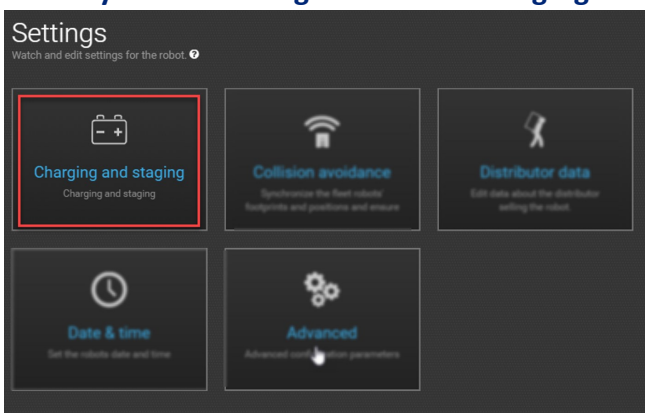
4.9 Setting up the fleet robots for automatic charging and staging

MiR Fleet is able to automatically send robots to charging stations when they begin to reach low power, and send them to staging positions to park when idle.

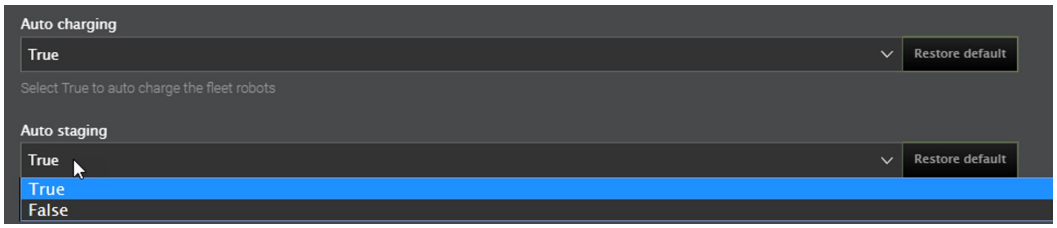
To enable auto staging, you must have at least one staging position in the site for each robot connected to MiR Fleet.

These settings are disabled by default. Follow these steps to set up the fleet robots for auto charging and auto staging:

1. Go to **System > Settings** and select **Charging and staging**.



2. Set **Auto charging** and **Auto staging** to **True**.



MiR Fleet now handles charging and staging automatically, using the default settings. If you want to change any other settings for auto charging and auto staging, see the following description of the parameters you can change:

- **Auto charging**
  Select **True** to enable MiR Fleet to send robots to charging stations automatically when they are low on power.
- **Threshold at charging position**
  The distance in meters a robot moves away from a charging station to allow another robot to use the charger.
- **Minimum time at charging station**
  The minimum number of minutes a robot must charge at a charging station before it can be released.
- **Minimum battery percentage for missions**
  The minimum battery percentage a robot needs before it can receive a new mission.
- **Minimum battery percentage for release**
  The minimum battery percentage a robot must be recharged to before it can be released from a charging station.

- **Maximum battery percentage for charging**
  The upper battery percentage limit for the fleet to be able to send a robot to charge. If the battery percentage is higher than the defined value, the fleet cannot send it to a charging station.
- **Time unassigned**
  The minimum number of minutes until a robot's next mission before the robot can be sent to a charging station. The robot cannot be sent to a charging station if there are fewer minutes until its next mission than the inserted value.
- **Idle time**
  The minimum number of minutes a robot must be idle before it is sent to a charging station or staging position. If its battery percentage is above the value defined under **Maximum battery percentage for charging**, the robot is sent to a staging position. If it is below, the robot is sent to a charging station.
- **Auto staging**
  Select **True** to enable MiR Fleet to send robots to staging positions automatically when they are idle. Enabling this feature requires a staging position for each robot.

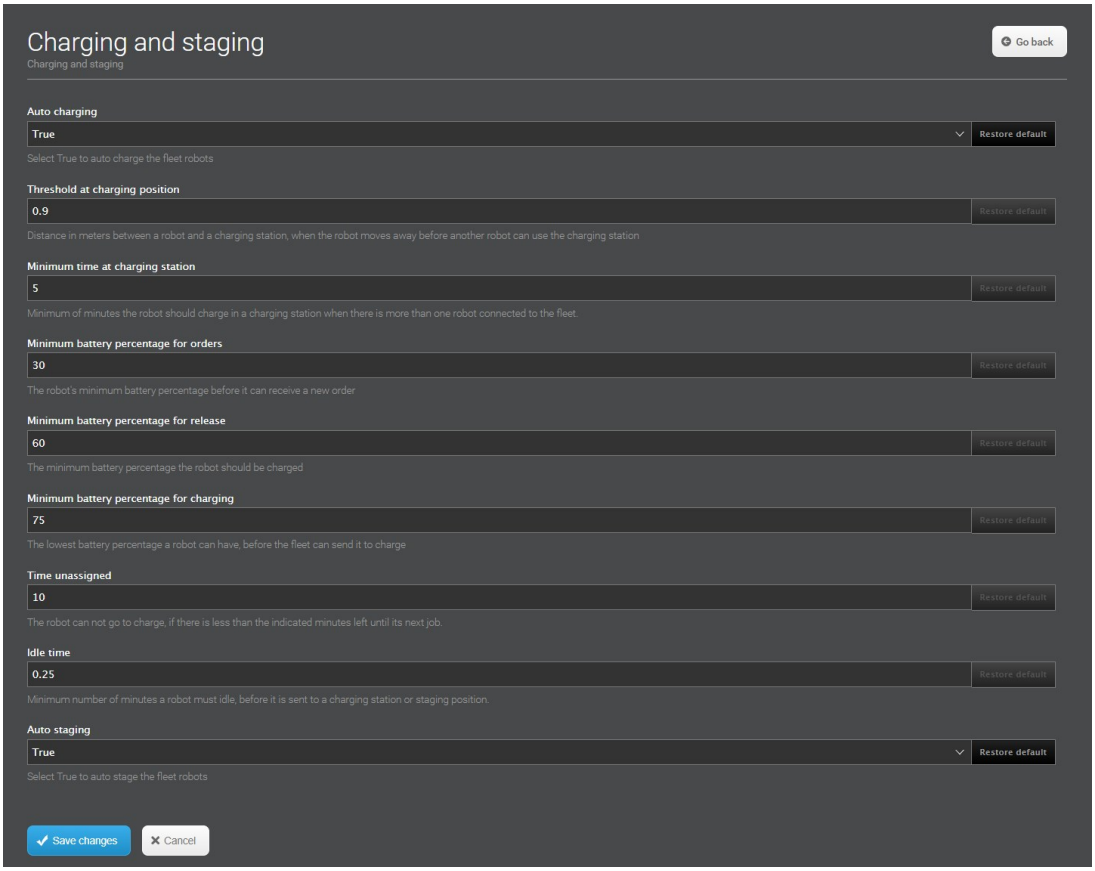
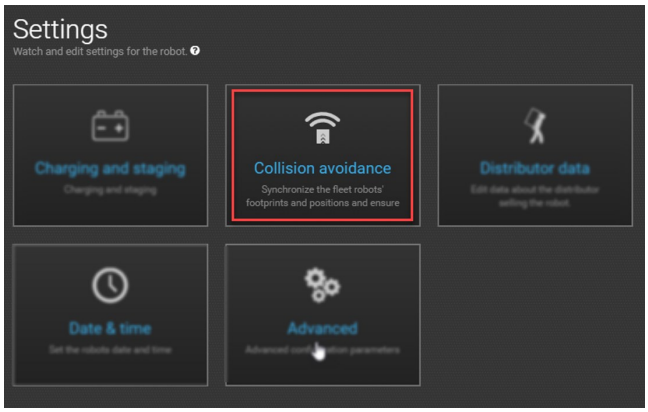


Figure 4.2. Parameters that can be set in **Charging and staging**.

4.10 Setting up the fleet robots for collision avoidance

Enabling collision avoidance synchronizes the footprints and positions of the robots connected to fleet, ensuring that the robots do not collide with each other. This setting is disabled by default. Follow these steps to enable collision avoidance:

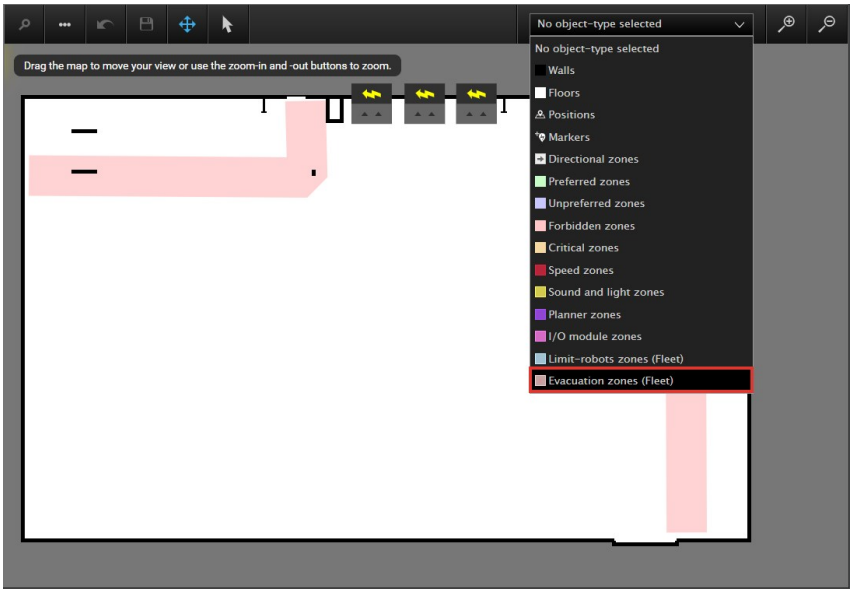
1. Go to **System > Settings** and select **Collision avoidance**.



2. Check that **Collision avoidance** is set to **True**.

4.11 Evacuation zones

By adding evacuation zones and positions to a map you can clear an area of robots from the MiR Fleet interface. Evacuation zones may be used in connection with for example, fire alarms.



For more information about Evacuation zones, see the how-to guide **How to set up evacuation zones and fire alarms** on the Distributor site.

5. MiR Fleet API

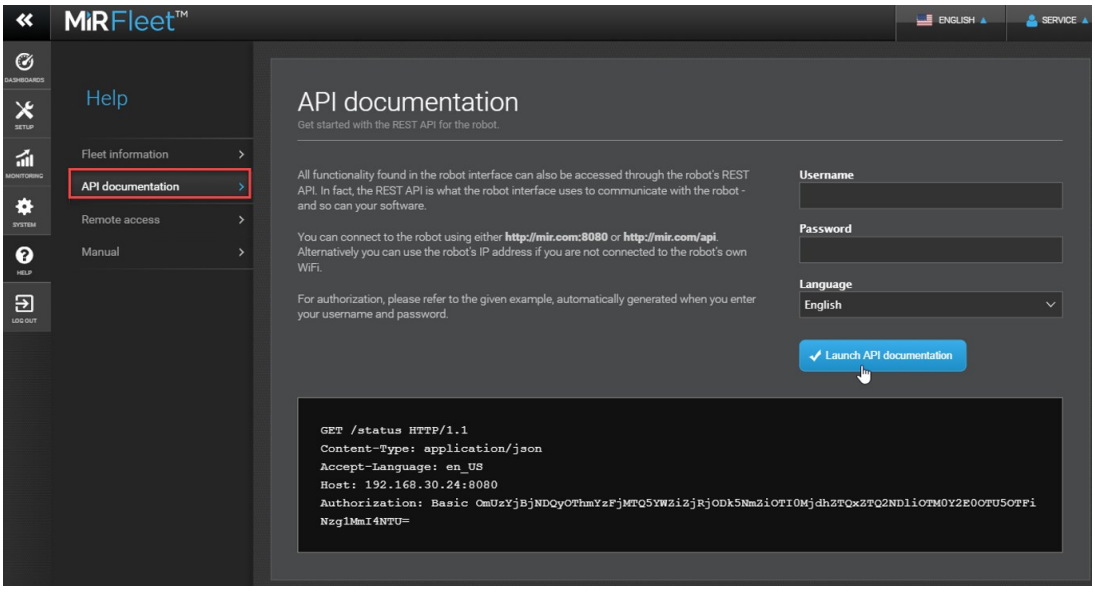
The MiR Fleet API is completely integrated with the robot API. This includes the request authentication and a large number of API endpoints.

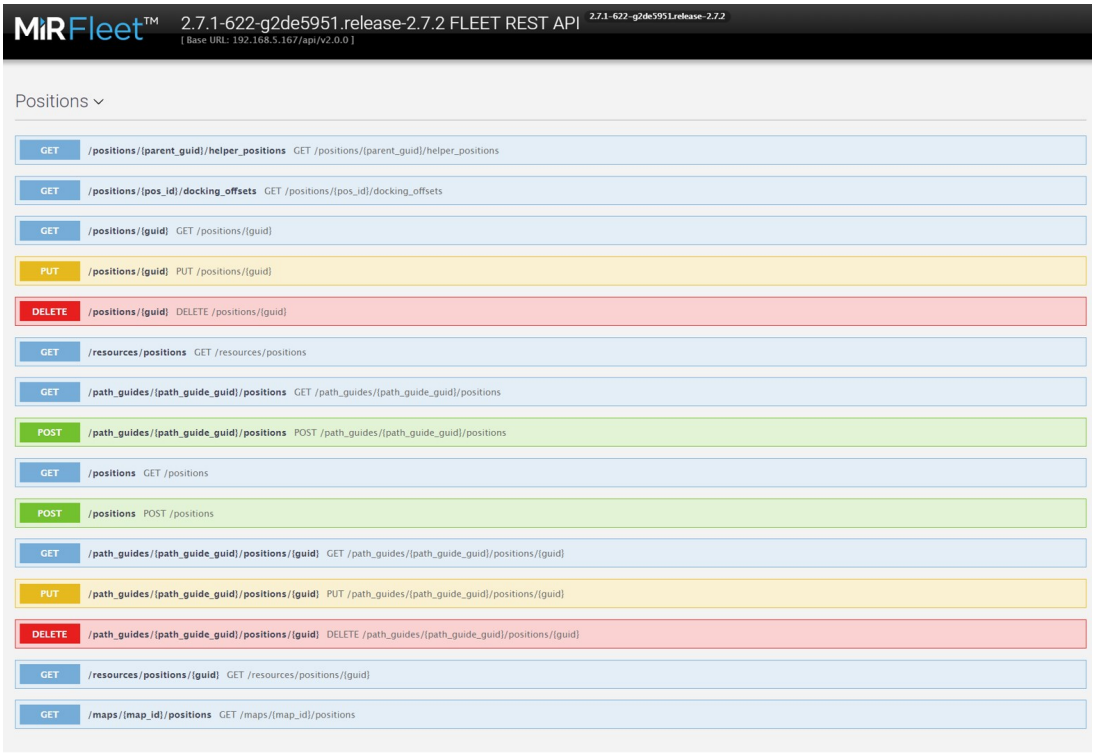
For additional information see:

- The how-to guide *How to use MiR v2.0.0 REST Interface using Postman or ARC* which describes how to use REST API.
- The reference guides for the REST API of each product. These can be found on the Distributor site under **Manuals**.

In general, the MiR Fleet API has possibilities for integration directly through the API, and you can try the API calls directly from the MiR Fleet interface help menu, like you know it from the robot interface. Make sure to check the parameters in the API documentation.

To open the API documentation, go to **Help > API documentation** and then select **Launch API documentation**.





NOTICE

The MiR Fleet API requires authentication. See Authentication below.

5.1 Authentication

To authenticate REST requests in the MiR Fleet API a basic authentication must be included in the header similar to the robot API. It consists of a base64 encoded string and is formed by the username followed by a colon and a sha-256-encoded password. The format can also be described as: **BASE64 (<username>:SHA-256(<password>))**, where BASE64 is applied to the entire authentication, and SHA-256 is only applied to the password inside the authentication.

For example, a header could look like this:

```
    Content-Type:application/json

    authorization:Basic
ZGlzdHJpYnV0b3I6NjJmMmYwZjFlZmYxMGQzMTUyYzk1ZjZmMDU5NjU3NmU0ODJiYjhlNDQ4MDY0MzNmNGNmOT
I5NzkyODM0YjAxNA==
```

When you are determining your authentication header the links below can be used to encode your user name and password information.

SHA-256 encoder: http://www.xorbin.com/tools/sha256-hash-calculator

Base64 encoder: https://www.base64encode.org/

The how-to guide *How to use MiR v2.0.0 REST Interface using Postman or ARC* provides additional information regarding the use of REST API. The guide is found on the Distributor site.

6. Maintenance of MiR Fleet PC

6.1 Updating MiR Fleet

The MiR Fleet PC software can be updated in two ways:

1. Update software from the MiR Fleet user interface using a .mir file.
   - Only the MiR Fleet software is updated to the new version.
   - See the MiR Fleet reference guide.
2. Update software and containers using a MiR Fleet PC installer file.
   - The MiR Fleet software is updated to the newest version. The packages and configuration in the containers are updated to the latest versions.

6.2 Updating robots

Robots and fleet share the same software file, so you only need to download one software file when updating robot and fleet software.

When you update the software in either a robot or a fleet, the software distinguishes between the two, which means that you cannot upload the wrong file, as long as you make sure to run the same software version on both MiR Fleet and all robots on the fleet.

6.3 Docker maintenance

For maintenance lifecycle of Docker see https://success.docker.com/article/maintenance-lifecycle.

Glossary

A

Auto charging

Auto charging enables MiR Fleet to send robots to charging stations autonomously when their battery percentage is low.

Auto staging

Auto staging enables MiR Fleet to send idle robots to staging positions automatically.

Autonomous mode

The mode in which the robot drives autonomously based on the missions you assign it.

C

Charging group

Charging groups are used to organize your charging stations into groups. You can link a robot to a charging station group so it only recharges at the charging stations in that group.

Collision avoidance

Collision avoidance enables MiR Fleet to share the positions and footprints of all connected robots. This information is used to avoid collisions between robots connected to the fleet.

D

Docker

Docker is a software platform that enables users to run applications in isolated environments called containers.

Docker container

A Docker container is a runtime instance of a Docker image. Launching a Docker container from a Docker image will execute the processes defined by the Docker image. For more information, see Docker's documentation.

Docker image

A Docker image is a private file system defining the environment needed to run an application. The processes defined in a Docker image can be run in a Docker contianer. For more information, see Docker's documentation.

M

Manual mode

The mode in which you can drive the robot manually using the joystick in the robot interface.

Mapping

Mapping is the process of manually driving the robot around to create a new map. The robot uses its sensors to detect walls and obstacles and generates a map of the area based on this input.

Markers

A marker is a physical element that the robot can detect with it laser scanners to use to dock to a certain position precisely. This can for example be V, VL, or L markers.

MiR Distributor site

The MiR Distributor site is accessed using your MiR user credentials at the following link: https://www.mobile-industrial-robots.com/en/sitetools/distributor-login/. The site contains resources, CAD files, and guides to help you use MiR products.

MiR Fleet interface

The MiR Fleet interface is the web-based interface that enables you to communicate with your MiR Fleet.

MiR Fleet License

The product license you received with MiR Fleet PC. This license is used to activate your MiR Fleet. A license can only be used to activate one MiR Fleet.

MiR robot interface

The robot interface is the web-based interface that enables you to communicate with your MiR robot. It is accessed by connecting to the robot's WiFi and then going to the site mir.com.

Mission group

Mission groups are used to organize your missions into various groups. You can link a mission group to a robot group so only a certain group of robots can execute a certain group of missions.

Model robot

The model robot contains all the site data you need to run the intended fleet operations. It is important that all missions are tested on the model robot before adding it to MiR Fleet.

R

REST API

REST API is used by MiR Fleet and MiR robots to communicate status data and orders.

Robot group

Robot groups are used to organize your robots into various groups. You can link a mission group to a robot group so only a certain group of robots can execute a certain group of missions.

S

Scheduler

The scheduler enables you to order when and which missions should be executed by a robot connected to the fleet.

Site

A site is the overall container of any number of maps and all data relevant to the map, such as missions, features, robot groups, and transitions.

W

WISE modules

WISE modules are wireless IoT devices that enable MiR robots to communicate I/O data to other devices.