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# **Mech-Mind User's Manual**

**Mech-Mind**

**Mar 06, 2023**

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This section introduces the process of loading the robot master-control program onto an AE Peitian robot. The process consists of the following steps:

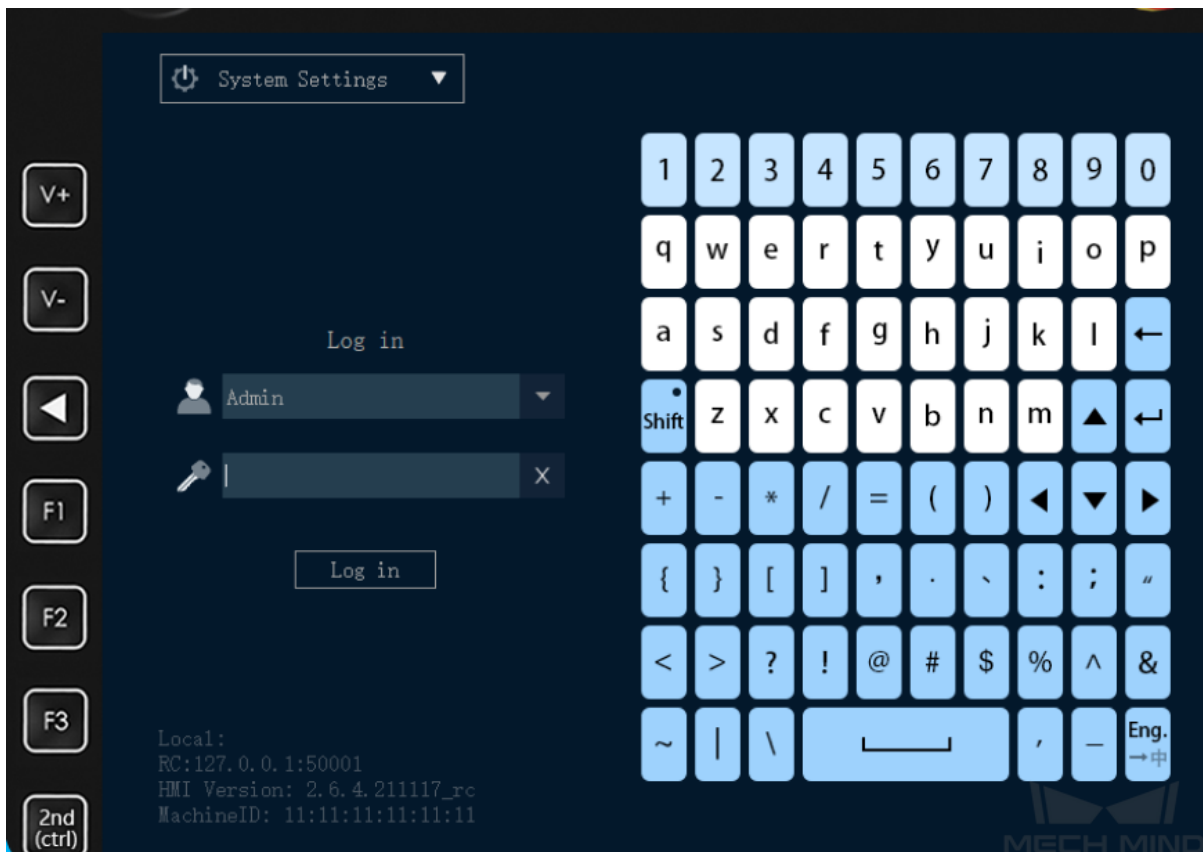
- *Log In*
- *Check IP and Controller Compatibility*
- *IP Configuration*
- *Load the Program File*
- *Run the Program*
- *Test Robot Connection*

Please have a flash drive ready at hand.

## LOG IN

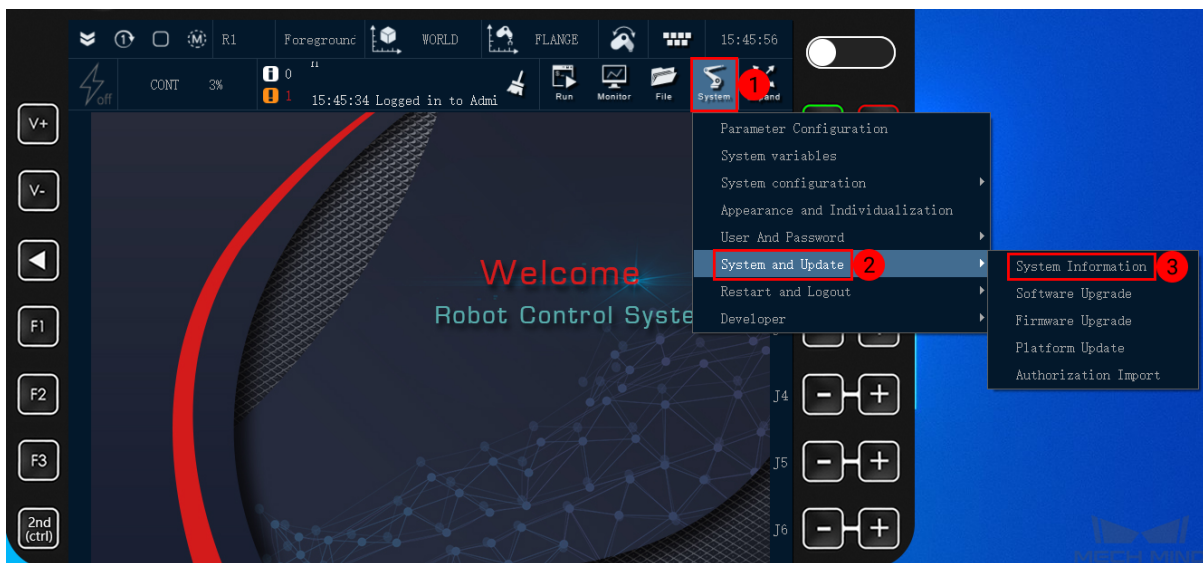
Every time you open the teach pendant, you will need to log in with an account. The initial passwords are shown below.

| Account | Password   |
|---------|------------|
| Teacher | PEACE      |
| OEM     | GRACE      |
| Admin   | OMNIPOTENT |



## CHECK IP AND CONTROLLER COMPATIBILITY

1. Go to System → System and Update → System Information.



2. Now you can check the IP information in the window as shown below.

The screenshot displays the Mech-Mind software interface. At the top, there is a status bar with icons for navigation and system status, including a battery level indicator at 3%. Below this is a toolbar with various function buttons like 'Run', 'Monitor', 'File', 'System', and 'Expand'. The main window is titled 'Coordinate system measurement' and contains three sections of data:

- Coordinate system measurement:** A table of system parameters including Device ID, ARCS and HG remain times, accumulated times, absolute times, and absolute dates.
- Store information:** System storage statistics such as total, occupied, and free space.
- IP information:** Network details for HMI and ARCS, with the ARCS IP address 127.0.0.1 highlighted by a red box.

| Coordinate system measurement |                          |
|-------------------------------|--------------------------|
| Device ID                     | 11:11:11:11:11:11        |
| ARCS Remain times             | 0                        |
| ARCS Remain accumulated time  | 0 Hour 00Minute 00second |
| ARCS Remain absolute time     | 0 Hour 00Minute 00second |
| ARCS absolute date            | 1970.01.01               |
| HG Remain times               | 0                        |
| HG Remain accumulated time    | 0 Hour 00Minute 00second |
| HG Remain absolute time       | 0 Hour 00Minute 00second |
| HG absolute date              | 1970.01.01. 星期四:08:00:00 |

| Store information        |                 |
|--------------------------|-----------------|
| Total space of system    | 111434720.00 GB |
| Occupied space of system | 0 B             |
| Free space of system     | 491629472.11 GB |

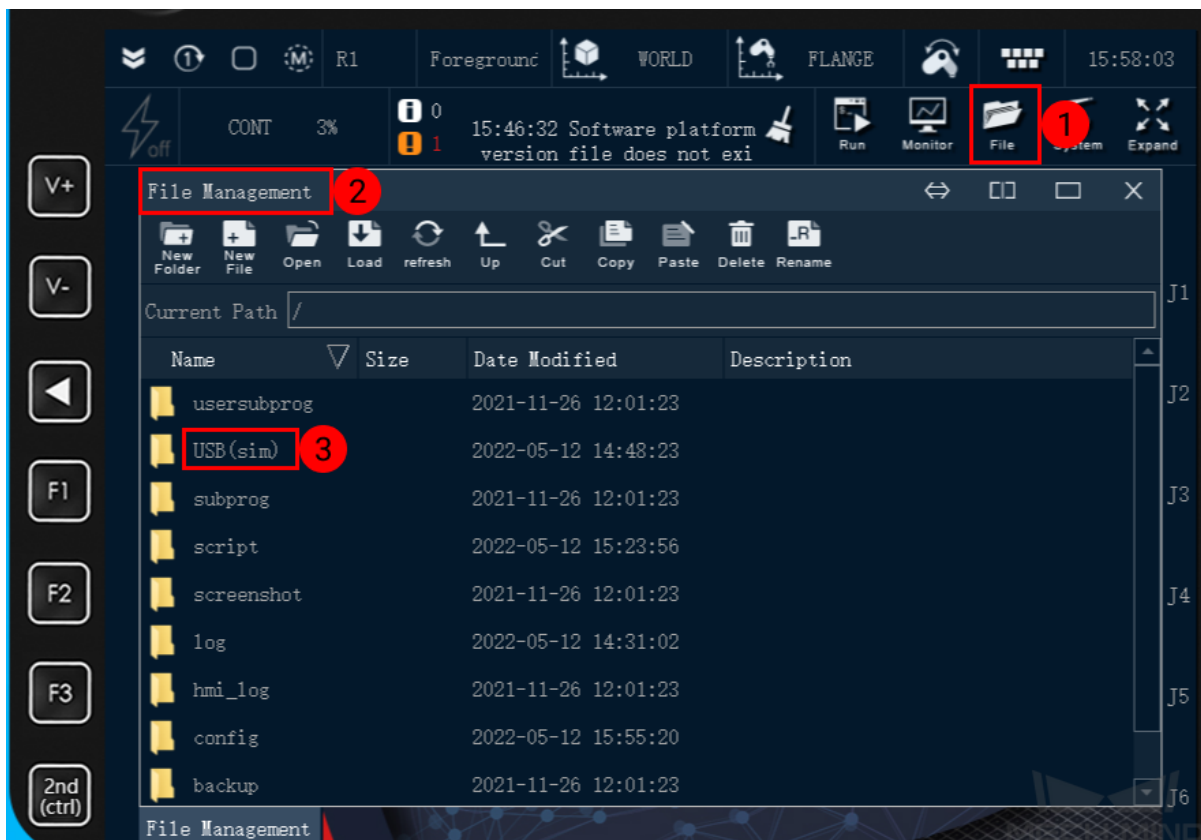
| IP information |           |
|----------------|-----------|
| HMI            |           |
| ARCS           | 127.0.0.1 |

## **IP CONFIGURATION**

The IP address of an AE Peitian robot has been specified during programming, and you only need to select the IP address when loading the program files.

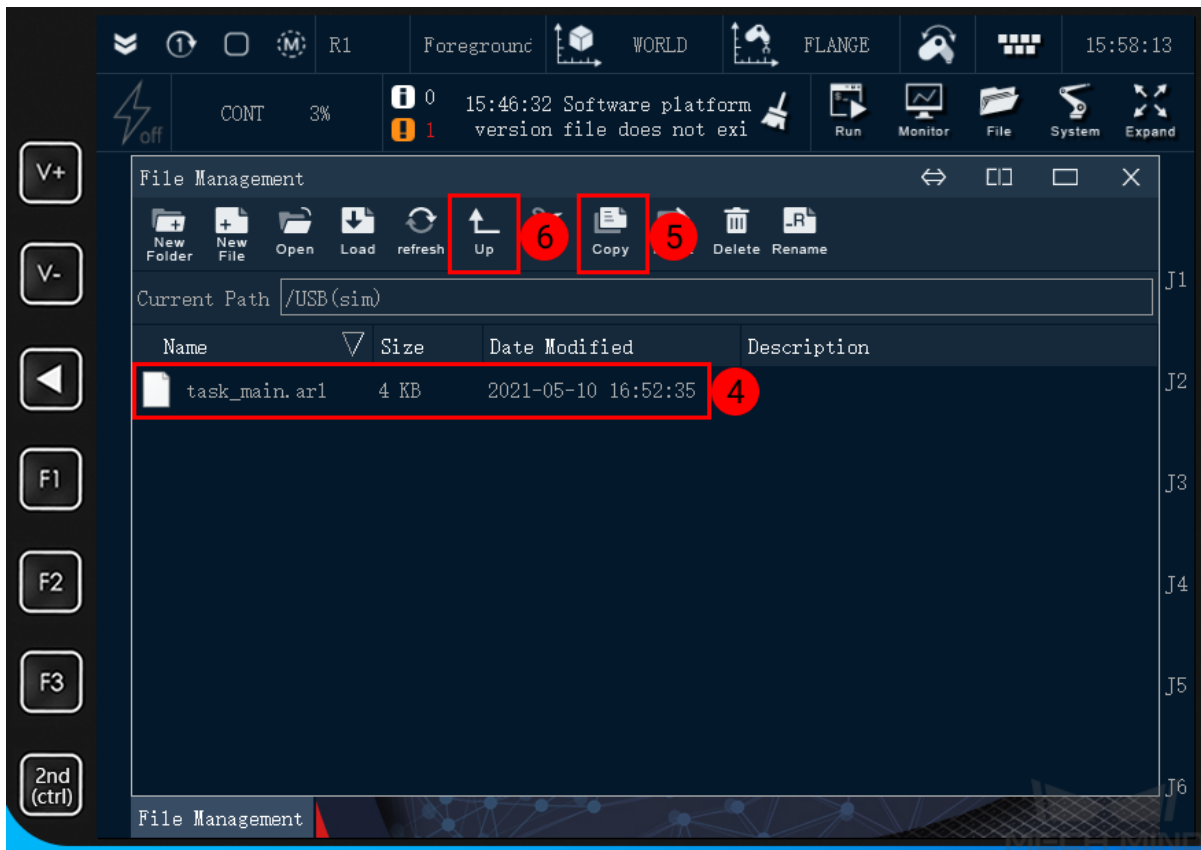
## LOAD THE PROGRAM FILE

1. Go to the folder where Mech-Mind Software Suite is installed, and locate the master-control program file **task\_main.arl**. The path of the file is: `xxx\Mech-Mind Software Suite-x.x.x\Mech-Center\Robot_Server\Robot_FullControl\ae`.
2. Use an USB flash drive to copy the program file **task\_main.arl** and paste it into the `/script` folder of the robot system.
3. Go to *File* → *File Management*, select *USB(sim)* in the list and open the folder.

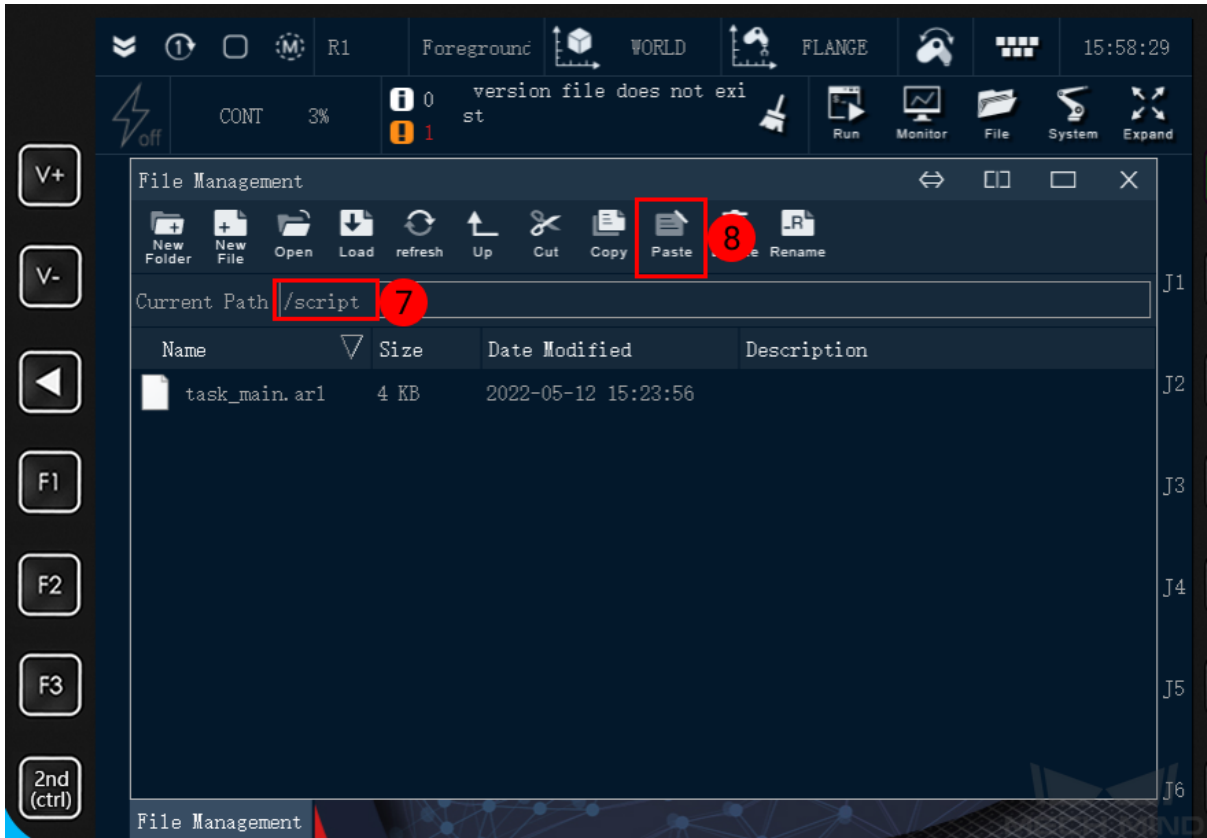


4. Select the file **task\_main.arl**, and select *Copy*, and then select *Up* to go to the parent directory.



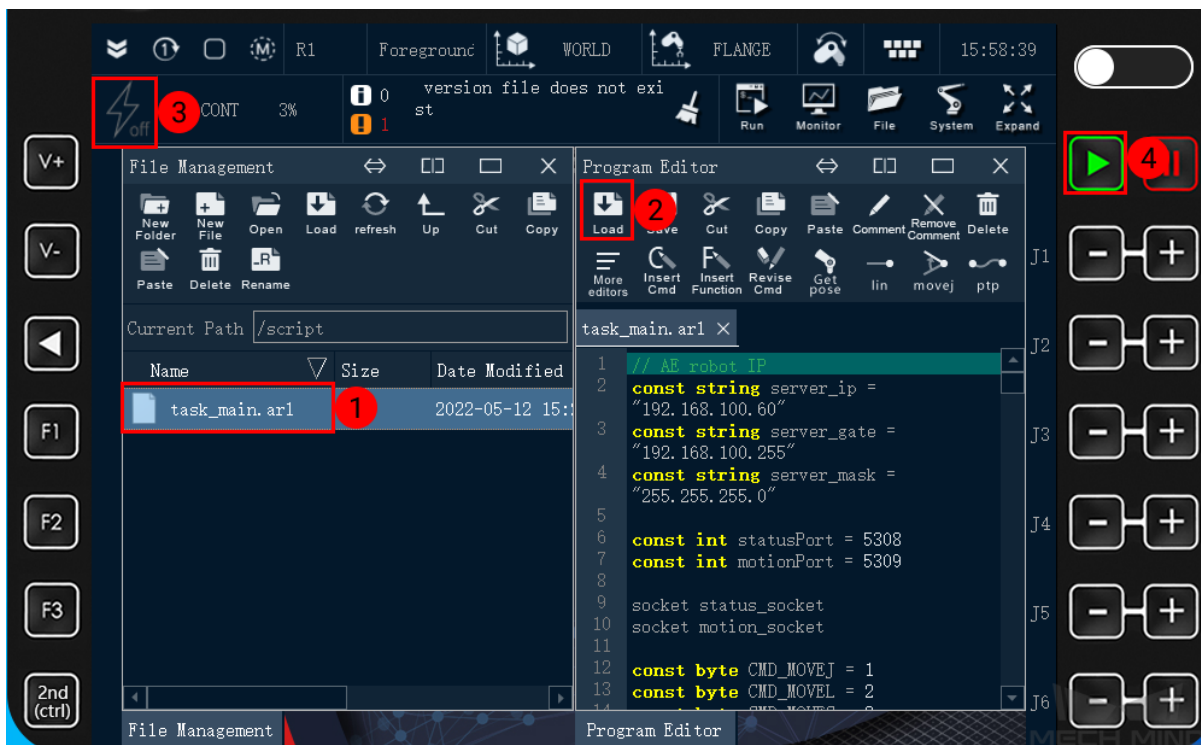




5. After opening the folder `/script`, select *Paste* to move the file `task_main.arl` into it.



## RUN THE PROGRAM

1. Double click on `task_main.arl` to open the program file and then select *Load*.



2. Press on , and then press  to run the program.

## TEST ROBOT CONNECTION

### 6.1 Configure Robot in Mech-Viz

1. Open Mech-Viz, click *New project* to create a new project.
2. Select the robot model in use in the next page.
3. Save the project by pressing **Ctrl + S**.
4. In the toolbar, change the **Vel.** (velocity) and **Acc.** (acceleration) parameters to **5%**.
5. Right-click the project name in **Resources** and select **Autoload Project**.

### 6.2 Configure Settings in Mech-Center

1. Open Mech-Center and click on *Deployment Settings*.
2. Go to **Robot Server**, and make sure **Use robot server** is checked.
3. Check if the robot model displayed next to **Robot type in Mech-Viz project** matches the one in use.
4. Set the Robot IP address, and click **Save**.

### 6.3 Connect to Robot in Mech-Center

1. Click *Connect Robot* in the Toolbar.
2. The robot is successfully connected if:
  - A message saying **Robot: server connected to the robot** shows up in the **Log** panel, and
  - A robot icon with the robot model shows up in the **Service Status** panel.

## 6.4 Move the Robot

1. In Mech-Viz, click *Sync Robot* in the toolbar to synchronize the pose of the real robot to the simulated robot. Then, click *Sync Robot* again to disable the synchronization.
2. Click the **Robot** tab in the lower right, and change the joint position of J1 slightly (for example, from 0° to 3°). The simulated robot will move accordingly.
3. Click *Move real robot*, the real robot should move accordingly.

**Attention:** When moving the robot, please pay attention to safety hazards. In the case of an emergency, press the emergency stop button on the teach pendant!