Mech-Mind User's Manual

Mech-Mind

Mar 06, 2023

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This section introduces the process of setting up master control of an ELITE robot.

CHAPTER

ONE

CHECK CONTROLLER AND SOFTWARE COMPATIBILITY

Controller software version: 2.19.2 or lower

Note: See step 2 in IP Configuration for instructions on checking the software version.

CHAPTER

TWO

SETUP THE NETWORK CONNECTION

2.1 Hardware Connection

Plug the Ethernet cable into:

- An Ethernet port on the IPC
- The Ethernet port inside the controller



2.2 IP Configuration

To allow communication between the IPC and the robot controller, both must have an IP address in the same subnet. This means that the first three numbers of the IP addresses should be the same. For example, 192.168.100.1 and 192.168.100.2 are in the same subnet.

1. Check the IP address of the IPC: please use the *ipconfig* command in Command Prompt or Power-Shell to check the IP address.

2. Press on System \rightarrow 5. System info to check the current IP address and software version.

| V2 172.16.11.251 (x11vnc) - VNC Viewer – | | | | | | | | | |
|---|--|----------------------------|--------------|---|--------------|------------|----------|--------|------------------------------|
| System 🔹 📘 | ram 👻 Set | tings 🔻 | Monitor | • | Instructions | Run | Prepare | Proc | cess 🔻 |
| Save to USB Load from U System confi Mechanism i | SB • iguration • info | .11.251 | | | | | | | 5% Manual Speed |
| 5. System info Pack Up | Va | 2 II Rigi | nts Reserve | d | | | | | |
| System ver PLC Version Servo versi Joint Type: | 3.1.2.20220318 rsion :3.10.18-V n:COBOT-f6662 ion[1138,1138, :[20,20,20,14,1- 5211211410001 ion : 0x21 | daa 1138,1138 4,14] | | | | | | | |
| hardware V Chip ID:f21 | Version: 2.0 Idb392211869d 75day23hour35 | | second | | | | | | |
| Expert User | top(Imprecise) | Teach Mode | Speed: 5% | | Tool: 1 | User: 3 | 05-07 17 | :54:25 | |
| Alarm | | | | | | | | | |

| V2 172 | 2.16.1 | 1.25 1 | (x11vnc) - V | NC Viewer | | | | | | - | | × |
|--------------|--------|--------------------|--------------|----------------------|-----|-------------|-----|------------------|-----------------------|---|-----------------|------------------------------|
| Syste | em | • P | rogram 💌 | Settings 💌 | Mor | nitor 👻 | Ins | truction | s Run | Prepare | Proc | ess 🔻 |
| A Pack Up | | | Set netwo | rk | | | | | IP:172.1 | 6.11.251 | | 5% Manual Speed |
| Expand | | | Address | 172.16.11.25 | 1) | | | | - | 2014 forw Reserved | | |
| CYL | | | Netmasl | <: (!55.255.255. | 0 | | | Systen | n versior | .20220318 n :3.10.18 | -V2.3. | |
| ic) Cycle | | | Gateway | r: [172.16.11.254 | 4 | | | Servo Joint 1 | version[Type:[20 | DBOT-f666 1138,113 0,20,20,14 12114100 | 8,113 ,14,14 | |
| U. | | | cateria | | | | | hardw Chip II | | | | |
| | U | pert ser arm | stop(Impre | ecise) Teach Mode | | oeed: 5% | | ool: 1 4 | User: 3 | 05-07 17 | 7:53:26 | |

- 3. If the IP address isn't in the same subnet as the IPC, change it with the following steps:
 - 1. Turn the key to **TEACH**, and check the current user mode in the lower left. If it's not Admin mode, press and select **Admin**. Then, enter the **Password** and press **OK**.



2. Select System \rightarrow 3. System configuration \rightarrow Network configuration.

| V2 172.16.11.251 (x11vnc) - VNC | Viewer | | - | | × |
|--|---|-------------|-------------|--------|------------------------------|
| System 💌 1 ram 👻 S | Settings Monitor In | nstructions | Run Prepare | Proc | ess 💌 |
| 1. Save to USB2. Load from USB3. System configuration | 16.11.251 | | | | 5% Manual Speed |
| 4. Mechanism into | Robot configuration A Network configuration | | | | |
| 5. System info | Network configuration Language configuration | | | | |
| PLC Version:COBOT-f66 Servo version[1138,113 Joint Type:[20,20,20,14 Robot ID:052112114100 FPGA Version : 0x21 hardware Version: 2.0 Chip ID:f21db39221186 Run time:75day23hour | 9-V2.3.4.20220225.1.1-2003 662daa 38,1138,1138,1138,1138] 4,14,14] 001 9d4 35minute50second | | | | |
| Expert stop(Imprecise) Alarm Stop(Imprecise) | e) Teach Speed: T Mode 5% | Tool: Use | 05-07 17 | :55:04 | |

3. Set the IP address to one in the same subnet as the IPC. Press Save to save the change.

| 172.16.1 | 1.251 (x1 | 1vnc) - Vi | C Viewer | | | | | _ | - | | \times |
|-------------|---|------------|-----------------|------------|-----|-------|-----------|----------------------|-------|------------------------------|----------|
| System | • Prog | gram 👻 | Settings 👻 | Monito | r 💌 | Inst | tructions | Run Pre | epare | Pro | cess 🔻 |
| Set network | | | | | | IP: | 172.16.1 | 1.251 | | 5% Manual Speed | |
| Expand | | Address: | 172.16.11.251 |) | 01 | igina | | t © 201 Rights Re | | | |
| <u>'</u> | | | | 7 | 8 | | 9 | - | Backs | pace | |
| CYL | Netmas | Netmask | : 255.255.255.0 | 4 | 5 | 5 | 6 | Left | Rig | ht | |
| Cycle | | Gateway | 172.16.11.254 | 1 | | 2 | 3 | Cancel | Do | ne | |
| | | | | | 0 | | | cancet | | | |
| | Run time: | | | | | | | | | | |
| | Expert Stop(Imprecise) Teach User Mode | | | Spee 5% | | | | ser: 05-07 18:21:0 | | | |
| Sa | ave | | | | | | | | ME | Quit | |

CHAPTER THREE

TEST ROBOT CONNECTION

Turn the key to **REMOTE**, press the **Servo** key in the lower right of the teach pendant, and make sure the **SERVO** indicator in the upper left lights up.

3.1 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.

3.2 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.

3.3 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.

3.4 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!