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

**Mech-Mind** 

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This section introduces the process of setting up master control of a ROKAE Xmate 7 collaborative robot. The process consists of the following steps:

- Upgrade Software
- Setup the Network Connection
- Load the Program Files
- Test Robot Connection

Please have a flash drive ready at hand.

#### CHAPTER

## **UPGRADE SOFTWARE**

- 1. Start the robot and open the ROKAE Xmate7 control system software.
- 2. Click on Robot  $\rightarrow$  Search Available Robots  $\rightarrow$  Connect to connect the robot as shown below.



- 3. If an alert window pops up, showing that the current control system is not compatible with the robot model, please upgrade the system according to the instruction.
- 4. After upgrading the control system, you will need to upgrade the controller software manually.
  - 1. Please download the ROKAE upgrade package first and then copy and paste it into a USB flash drive.
  - 2. Select Help.



3. Go to Software Upgrade  $\rightarrow$  Open to select the upgrade package in the USB flash drive, and then click on Upload.

≡	(j) System ready.		🗶 tool0	上 wobj0	•	0::
← Help	Software Upgrade					
About Rokae	Controller Upgrade		Controller Up	grade		
Robot Instruction	Select package	Open	yersion of on to avo	controller needs id compatibility p	to match th roblems.	e HMI
Software Upgrade	Interactive Data     Robot Configuration     Controller Log     Project Data     Demo     Servo		Controller Ba	<b>ckup</b> packs all the nee	ded files an	d upload
	Controller Backup Backup Options Interactive Data Robot Configuration					
	Controller Log Project Data Select folder	Open				
«	Export			м	есн	

**Note:** The ROKAE controller of 3.6 version is compatible with Mech-Mind Software Suite 1.5.0 or higher. If you are using a controller whose version is lower than 3.6, please use the Mech-Mind Software Suite of a previous version.

## SETUP THE NETWORK CONNECTION

## 2.1 Hardware Connection

Plug the Ethernet cable of the IPC into the F port as shown below.



## 2.2 IP Configuration

The default robot IP address is 192.168.0.160, please set the IP address of the IPC to 192.168.0.222. After configuration, you can check the connection by entering the command **ping 192.168.0.160** in the Command Prompt window.

## CHAPTER THREE

### LOAD THE PROGRAM FILES

#### 3.1 Prepare the Files

Go to the folder where Mech-Mind Software Suite is installed and copy the **Xmate.zip** in the directory xxx\Mech-Mind Software Suite-x.x.x\Mech-Center\Robot\_Server\Robot\_FullControl\rokae, and paste it into the flash drive.

#### 3.2 Connect the Robot

1. Click on Robot  $\rightarrow$  Search Available Robots  $\rightarrow$  Connect to connect the robot again.



## 3.3 Switch the Level

Go to Basic Settings  $\rightarrow$  User Group and select Admin as the user level, enter the default password 123456, and then click on Login to finish setting.

≡	i System ready.	🗶 tool0 🕹 wobj0 💿 😫
← Robot	User Group	
✓ Basic Settings	User Level	User Group Rights
User Group	Admin 2	Operator
Controller Setting		Run program Bug report
Calibration	Password	96
Page Calibration		Admin
base calibration	Login 4	Edit program
Dynamic Idenfication		Change robot settings
Body Params		
Kinematic Params		God All nermissions to control the robot
Force Control		
Quick Turn		
$\checkmark$ Safety		
Soft Limit		
Virtual Wall		
Collision Detection		
«		

## 3.4 Load the Files to the Robot

Please follow the steps below to load the master-control program to the robot.

1. Go to Project  $\rightarrow$  Project Configuration.

![](_page_7_Picture_7.jpeg)

≡				i System ready.	🗶 tool0	占 wobj0	0	•	<b>O</b> ⊞
← Project	Project Config	guratio	n			Drag		0	Ð
RL Code	Activated Project			Project		Jog	20%	<b>1</b>	⇒
Project Configuration	2 roject			A project is resp necessary inform robots.	oonsible for storing all th mation needed by workin	e g	0	<b>M</b>	
Task List	Pull form Controller Pu	ish to Control	er	Each project car	Each project can schedule multiple tasks,			v	
Variable List	Default Project			multiple projects	s.	E	л	G	Ð
Point List				Synchronization	n				
Path List	No Project			The project data immediatly after established.You	a is pulled from controlle r connection r local proiect will be		J2	Ģ	2
IO Signal List	Select Robot			pushed to contr important value	oller server when changed, such as tool,		ει	G	Ð
User Frame List	LOCALHOST		4	wobj, user tram RL code is trans operation trigge	e and so on. Besides, the mitted by running ard. If you want to keep				
Tool List	Select Project			your code safe a the buttons in th	at any time, please press nis page manually.		J4		
Work Object List	No Project	4	0	Initially Use	G	J5	G	•	
Predefined Parameters	Reload	Set Defa	ult	When using for the first time, pleas the "+" button below to create a m project wizard.			J6	G	Ð
				Default Project					
				After selecting t default button to as default proje	he project,click the Set o set the selected project ct.		71	G	7
«	± 3				+ ∠ 🛡			8==	6

2. Open the program file to be imported, and then click on Next Step.

≡	(j) System ready.	🗶 tool0	占 wobj0	ø	0::
← Project	Import Project		Drag		. H
RL Code	Project Option		Jog	20%	<u>→</u>
Project Configuration	Please select the type of import project. This upports Xcore and titanite.			~ ~	N
Task List	xCore     Titanite		N		
Variable List	Selection Project		G	л	Ð
Point List	Please select one project.Make sure that the project file being imported is complete, otherwise the import will fail!			12	•
Path List	D:/Mech-Mind/Mech-Center-1.6.0/Robot_Server/Robot_FullControl/rokae/Xmate7.zip	Open	4		
IO Signal List	Import Options			J3	Ð
User Frame List	If have duplicate project in the imported content, choose one of the following.The new project is renamed by default.you to override existing project.	i can also choose		J4	Ð
Tool List	Rename     Replace				
Work Object List				12	Ð
Predefined Parameters			G	J6	Ð
				J7	Ð
				-	
«	Cancel Previous Step	Next Step	5		

3. An "Import Success" message will appear in the lower right corner.

Project: Xmate7	7		i System ready.	🗶 tool0	🖢 wobj0	0	0H
← Project	Project Config	guration			Drag		6 U
RL Code	Activated Project			Project	Jog	20%	<u>∕</u> →
Project Configuration	Xmate7			A project is responsible for storing all the necessary information needed by working robots.			
Task List	Pull form Controller Pu	ish to Controller		Each project can schedule multiple tasks,			
Variable List	Default Project			and each robot is allowed to create multiple projects.	C	JI	Ð
Point List				Synchronization			
Path List	No Project			The project data is pulled from controller immediatly after connection established Your local project will be		J2	Ð
IO Signal List	Select Robot			pushed to controller server when important value changed, such as tool,	G	J3	Ð
User Frame List	LOCALHOST	4		wobj, user frame and so on. Besides, the RL code is transmitted by running operation triggerd. If you want to keep			
Tool List	Select Project			your code safe at any time, please press the buttons in this page manually.		J4	U
Work Object List	Xmate7	0		Initially Use	9	J5	Ð
Predefined Parameters	Reload	Set Default		When using for the first time, please click the "+" button below to create a new project wizard.	G	J6	Ð
			(i) Xmate7 in	mport success! X		17	•
							•
«	± ±			+ 2 0			

4. Select the program to be loaded.

Project: Xmate	7 (j) System ready.	🗶 tool0 🕹 wobj0 👁 😫
← Project	Project Configuration	Drag 🔵 🐁 🖑
RL Code	Activated Project	Project Jog 20% 🌜 →
Project Configuration	Xmate7	A project is responsible for storing all the necessary information needed by working robotic
Task List	Pull form Controller Push to Controller	Each project can schedule multiple tasks,
Variable List	Default Project	multiple projects.
Point List		Synchronization
Path List	No Project	The project data is pulled from controller immediatly after connection established.Your local project will be pushed to controller server when
IO Signal List	LOCALHOST	important value changed, such as tool, wobj, user frame and so on. Besides, the RL code is transmitted by running
Tool List	Select Project	operation triggerd. If you want to keep your code safe at any time, please press the buttons in this page manually.
Work Object List	Xmate7 O	Initially Use
Predefined Parameters	No Project ult	When using for the first time, please click the "+" button below to create a new project wizard.
	Xmate7	Default Project
	Xmate8	After selecting the project, click the Set default button to set the selected project as default project.
«	<u>t</u>	+ 2 * • • • •

5. Click on Reload.

Project: Xmate	7 (j) System ready.	🗶 tool0 🕹 wobj0 💿 😫
← Project	Project Configuration	Drag 🗩 🐇 🖑
RL Code	Activated Project	Project Jog 20% 🐇 →
Project Configuration	Xmate7	A project is responsible for storing all the necessary information needed by working
Task List	Pull form Controller Push to Controller	Each project can schedule multiple tasks, and each robot is allowed to create
Variable List	Default Project	multiple projects.
Point List		Synchronization
Path List	No Project	The project data is pulled from controller immediatly after connection established.Your local project will be
IO Signal List	Select Robot	pushed to controller server when important value changed, such as tool, J3
User Frame List	LOCALHOST	wobj, user trame and so on. Besides, the RL code is transmitted by running operation triggerd. If you want to keep
Tool List	Select Project	your code safe at any time, please press the buttons in this page manually.
Work Object List	Xmate7 O	Initially Use
Predefined Parameters	Reload Set Default	When using for the first time, please click the "+" button below to create a new project wizard.
		Default Project
		After selecting the project,click the Set default button to set the selected project as default project.
«	<b>±</b>	+ 2 • • • • •

# 3.5 Socket Configuration

1. Click on Robot.

![](_page_10_Picture_5.jpeg)

2. Go to Communication  $\rightarrow$  Socket and then follow the steps as shown in the figure below to configure the socket.

![](_page_11_Picture_1.jpeg)

#### CHAPTER

## **TEST ROBOT CONNECTION**

- 1. Click on Connect Robot in Mech-Center.
- 2. Run the master-control program, as shown below.

![](_page_12_Figure_5.jpeg)

![](_page_12_Picture_6.jpeg)

3. If a message saying **Robot: server connected to the robot** shows up in the **Log** panel, the robot is successfully connected.