

XCORE Palletizing Package Operation Manual V2.0



Guangzhou Auctech Automation Technology Ltd



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1.Palletizing Package Introduction

Palletizer technology package is a plug-in expansion scheme for palletizer applications, including multi-pallet robot, BoxPallet plug-in package and so on. This manual will provide information on how to configure and build palletizing applications. Palletizing process package is divided into two parts, the setting of process flow and the generation of palletizing instructions. Feature highlights include:

The feeding point and the middle obstacle avoidance road point can be customized

Provide interactive calibration flow of pallet coordinate system, tool offset and other parameters

Friendly interactive A/B dual stack configuration tool

Robot path reachability check function

Robot script one-click generation function

1.1 Adaptation description

Before installing the palletizing process package, it is necessary to ensure that the software version of the robot matches, specifically:

Control software version: V2.9.0 and above

You can query the version information of the robot on the About page after the robot is powered on. For how to open the "About" screen, see Section 7 of the XCORE- User Manual.

1.2 Process package installation and uninstallation

Palletised process package file for "BoxPallet-1.0.0.plugin" plug-in. The installation procedure is as follows:

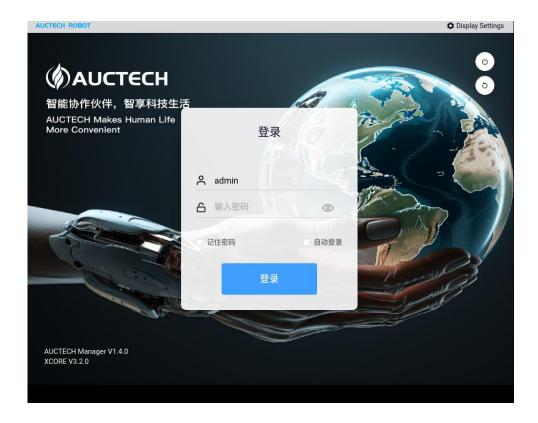
1、 the welding process package into the U disk, U disk requires FAT32 format



2、 After the robot system is started, insert a U disk into the USB interface on the robot control cabinet.



3. Log in to the robot system as user admin.—password: 123



4、 Click the user profile picture, select System Settings, as shown in Figure 1.



AUCTECH R	OBOT Robot	Manager						¢ D	isplay Settings
Power	off Project project_1	Install Vertical	Tool def… 0kg	Obj default 100%		bal Speed 100%	Manual	Real Collis	sion Check
UCTECH ROBOT	Cur	rrent program N/A	~	Run state Stopped	o	urrent running 02:56	(A	admin admin
Ţ	R S							🗘 Syst	em Setting
Dashboard					Log		Level: All	💄 User I	Management
⇔ Move			9 -4-					0	About
		1						0	Help
Program								L	ogout
Ç Interface	\oplus								ıtdown
Ë	Θ							R	eboot
Log					Joint	Position	IO status	Power	Force
¢					Joint	Position	10 status	Power	Force
Setting				$ \rightarrow $	Position	Joint1	0.00°	Joint4	0.00
					Temperature	Joint2	0.00°	Joint5	0.00
Sox Pallet	<u> </u>			++/	Voltage	Joint3	0.00°	Joint6	0.00
2024-04-25 08:15:02	► N/A	Load		0.0					

Figure 1

5. Select the plug-in management function and click the "Add" button.

AUCTECH R	Robot Robot	Manager						0	Display Settings
Power	r off Project	Install	Tool	Obj	JOG 1000/ Joint I	Global Speed			ision Check A
AUCTECH ROBOT				System	Setting		×	т	
		Language	Plugins						22:31:25
Dashboard	S	Network	Conveyor						
÷		Upgrade	BoxPallet						
Move		Time Setting							
Program		Plugin Setting							
\$	÷	Arm Config	Information						
Interface	Θ	Cloud Setting	mormation						
Log		Robot Auth							
ŵ								Power	Force
Setting	#							Joint4	0.00°
	A								0.00° 0.00°
Sox Pallet	<u> </u>	Restore factory				Add	Delete		0.00
2024-04-25 08:27:41	► N/A	Load	1 		0.0				

Figure 2

6 select the USB flash drive and from the file list, find and select the "BoxPallet-1.1.1.plugin" plug-in package, as shown in Figure 3.



AUCTECH F	ROBOT Rob	bot Manager	Display Settings
Powe	er off Projec	and the second s	L3 Sobe
AUCTECH ROBOT		System Setting	Total running time
		Lan	22:37:39
Dashboard	S	Nets Please select the file	
		Upg	
Move		Tim D System Volume Information	
<td></td> <td>Plug 🗈 BoxPallet-1.1.0.plugin</td> <td></td>		Plug 🗈 BoxPallet-1.1.0.plugin	
\$	÷	Arm BoxPallet-v1.1.1.plugin	
Interface	Θ	Clou	
Log	U	Rob	
ø			Power Force
Setting	4		Joint4 0.00°
	A	Back Refresh Cancel Enter Import	Joint5 0.00°
Sox Pallet	Ħ	Restore factory Add Delete	Joint6 0.00°
2024-04-25 08:33:55	► N/A	Load 0.0	

Figure 3

7 . After the plug-in package is installed, ϕ will be marked as shown in Figure 4. Newly installed plug-in packages will be enabled by default at κ . λ displays the name and version of the current plug-in package.

AUCTECH F	ROBOT	Robot	Manager							O Disp	lay Settings
Powe	er off P	roject	Install	Tool	Obj	JOG 1000 Laint I	Global Speed	Manual	Real	Collision L3	Check A
					System	Setting		×	2		running time
		L	anguage	Plugins						2	22:39:14
다. Dashboard	<u>,</u>	P N	etwork	Conveyor							*
÷		U	pgrade	BoxPallet							
Move		Т	ime Setting								
Program		P	lugin Setting								
t1	(+)	A	rm Config	Information							
Interface	Θ	С	loud Setting								
É Log	U	R	obot Auth								
ŵ									Pow	er	Force
Setting		1							Join	it4	0.00°
	É	-							Join		0.00°
Sox Pallet	Ħ	R	estore factory)			Add	Delete	Join		0.00°
2024-04-25 08:35:31	► N/A		Load			0.0					

Figure 4

8. After the palletizing process package is installed, open the main page, select "Program", and click the button "New Program", as shown in Figure 5.



AUCT	TECH R	OBOT	Robo	t	Manage	er									Display S	Settings
	Power	off	Project_1		Install Vertica		ool • 0kg	^{Obj} default	JO 100% J	oint J	Global Spi 100%		Manual	Real	Collision Ch L3 56	bbc A
AUCTECH	I ROBOT	All pro	grams			Back	Import	Expor	t	Preview						
Ģ	2	🖹 BO	XPallet.													
Dashb		🖹 HN	C.jspf					ŀ								
Mo		🖹 Tes	t.jspf						•••							
<br Prog																
Ę																
Inter	face		_										No Doto	5		
Please	input p	orogram	name									co	nsists of 1-	-30 letter	number un	derscore
	! 1	@ 2	Т	3	\$ 4	% 5			ł	8	9) 0	1	-	⊗Es	с
	q	w		e	r	t	S S	/ u		i	o	р	ľ	}		
		а	s		d	f	g	h	j	k		L.	;	1	×.	
	Sh	ift	z	>	:	с	v	b	n	m	<,			?	←	
												<	,		ОК	

Figure 5

9、Enter the program name and click the "OK" button (as shown in Figure 6) to enter the script setting interface (as shown in Figure 7).

AUCTECH R	OBOT Robot Manager		🗘 Display Settings
Power	off Project Install Tool Vertical def…		
AUCTECH ROBOT	All programs Back	Import Export Preview	
□ Dashboard	BOXPallet.jspf	··· ·	
¢	HNC.jspf	•••	
Move	Test.jspf	•••	
Program			
\$			
Interface			No Data
Log			
 Setting 			
Jetting			
😵 Box Pallet			
2024-04-25 08:37:27	Create folder	Create program	

Figure 6



AUCTECH ROBOT Robot	Manager						🗘 Dis	play Settings
Power off Project project_1	Vertical def 0kg	^{Obj} default		og Joint J	Global Speed	Manual	Real Collisi	on Check A
AUCTECH ROBOT	~	50		Task	Variable	System	Parameter	Simulation
	Main Single				Conveyor			
Dashboard 2	Start			传送带			1	Favourite
↔ Move			l		BoxPallet		-	(1) Move
					Conveyor			BB
Program				传送带				Base
₽ Interface					BoxPallet			P
					-			Flow
Ë				/> 传送带	Conveyor			(P)
Log								Comm
ø				>	BoxPallet			
Setting								Advance
								(4)
Box Pallet								Extend
2024-04-25								
09:03:39			0.0					

Figure 7

10、 The installed palletizing process package, as shown in Figure 8 below, can be temporarily disabled by turning off the enable signal. Or click the Delete button to delete the package completely.

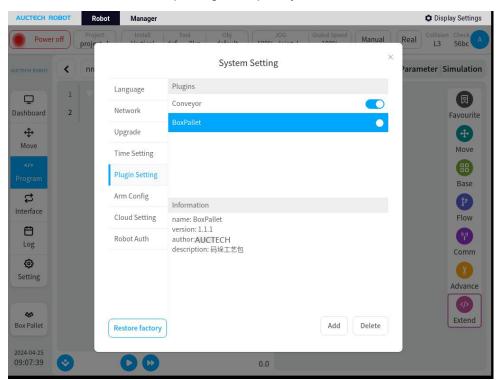


Figure 8



2.Palletizing package Settings

Palletizing process package setup, including engineering setup, BoxPallet module and script optimization.

Project setup: Create a palletizing executive

BoxPallet module: Set pallet scene related parameter definition

Script optimization: Improve the program functions and optimize the path planning of the robot arm

2.1 Project Settings

1、 "Tool Settings" interface, as shown in Figure 9.

Click the "Settings" button

Select "Tool Settings"

Click the "Add" button

AUCTECH F	ROBOT	Robot	Manager						Display Settings
Powe	er off	Project project_1	Install Vertical	Tool def… 0kg	Obj default	100	JOG 1% Joint.	J Global Speed 100% Manual Real	Collision Check
CTECH ROBOT		Tool	User	Install	Variable	Sa	afety	System Event Other Bg-Scri	ot Plugins
₽ ashboard	ТСР						Add	2 2 5 0 0	
	Index	Name	Position	Mass	Centroid	Action	1		-
Move	1	default	0,0,0,0,0,0	0	0,0,0	•••	Default		7
rogram									
\$								⊕	
terface								Θ	
H Log									
ŵ	1								
etting									
	-								
😵 ox Pallet									
24-04-25 9:33:21									



 2_{\sim} Install the tool, as shown in Figure 10.



The Z axis of the tool coordinate system is perpendicular to the plane where the suction cup is located, and the direction is the same as the opening of the suction cup

The plane formed by the X and Y axes of the tool coordinate system coincides with the surface of the suction box





Figure 10

- 3. Set coordinate system parameters, as shown in Figure 11.
- $(\ensuremath{\underline{1}})$: Enter the name of the coordinate system
- 2 : Input six degrees of freedom bias



③ : Input tool quality

Click the "OK" button

AUCTECH R	OBOT Robo	t Manager						1	Display Settings
Power	off Project project_	1 Install Vertical	Tool def… 0kg	^{Obj} default	JOG 100% Join	nt J··· Global Spee	Manual	Real	L3 56bc
AUCTECH ROBOT	Tool	User	Install	Variable	Safety	System Event	Other	Bg-Script	Plugins
Dashboard	Name	1			Add TCP				
↔ Move	Coordinate								TCP calibration
Program	X(mm)	0					RX(°)		0
\$	Y(mm)	0					RY(°)		0
Interface	Z(mm)	0					RZ(°)		0
Log	Payload mess	age							Load Calibration
 Setting 	Mass(kg)	0 3		Inertia t	ensor(kg*mr	n ²) X	Y		Z
	CentroidX(mm) 0			Х	0	0		0
😵 Box Pallet	CentroidY(mm) 0			Υ		0		0
2024-04-25 09:35:31	CentroidZ(mm	0			Z	0	0	Cancel	0 Confirm

Figure 11

4. Activate the tool coordinate system, as shown in Figure 12.

Select the generated tool coordinate system

Click "Set as Current"

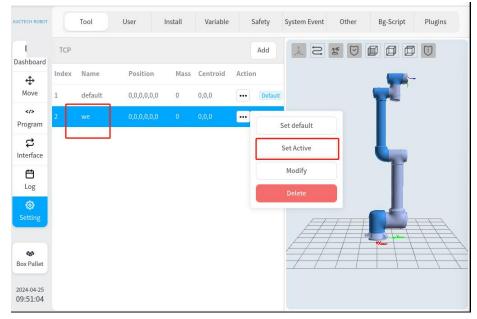


Figure 12



AUCTECH R	OBOT Robot	Manager	-		_	Display Settings
Power	off Project *project_1	Install Tool Obj Vertical we 0kg defaul	lt 10	Enter program	ual Real	Collision Check
AUCTECH ROBOT	All programs	Back Import	Export	Сору		
Ģ	BOXPallet.jspf		··· .	Rename)	
Dashboard	HNC.jspf			Delete		
⇔ Move	Test.jspf			Export		Ĵ
	■ nm.jspf			Save local)
Program	≡ nn.jspi					
☆ Interface						
E Log						
@						
Setting						
Box Pallet						
2024-04-25 09:53:12	Create folder	Create pr	ogram	Opened Programs		Þ

5. Click the created project and click "Enter Program".

Figure 13

6、 Add BoxPallet module.

Click the BoxPallet module on the "Instructions" page and drag it to the appropriate location in the programming area

AUCTECH RO	BOT	Robot	Manager						🗘 Di	splay Settings
Power	off	Project *project_1	Install Tool Vertical we (Obj Okg default		JOG Joint J	Global Speed	Manual	Real Collisi	on Check
ctrou songt	<	BOXPallet.	jspf *	v 🔈 C		Task	Variable	System	Parameter	Simulation
Q	1	Ma	iin Single				Conveyor			Ø
ashboard	2	+	Start			传送带				Favourite
⇔	3	D 🕂	Move			>	BoxPallet			(+)
Move	5	V ()	BoxPallet							Move
	6		undefined)			Conveyor			88
Program	Ĩ		undenned			传送带				Base
t						>	BoxPallet			P
nterface										Flow
Ħ						>	Conveyor			(y)
Log						传送带				Comm
ŵ						>	BoxPallet			
Setting										Advance
										(v)
Sox Pallet										Extend
Jun r allet										
024-04-25										
9:54:59	S				0.0					

Figure 14

2.2 BoxPallet module

The BoxPallet module defines a complex solution for palletizing application scenarios in the palletizing process package. This function can make it more convenient for users to define and set parameters.

BoxPallet module has five configuration function interfaces, which are described as follows:

Feeding point configuration: Set parameters related to feeding point

Box configuration: Set box dimensions, quality and other related parameters

Pallet configuration: Set pallet-related parameters for the palletizing box

Stack configuration: Set the number of stack layers and stack layout

Script configuration: Set waypoints and other functions in the palletizing process

2.2.1 module common configuration interface

1. Enter the parameter configuration interface of BoxPallet module, as shown in Figure 15.

Click the "Programs" button

Select the module BoxPallet

Position (1) in the figure: Click to change the module name; Position (2) in the figure: click this area and enter the module comment

Select the "Parameter" card, click "Open Configuration Tool" and press



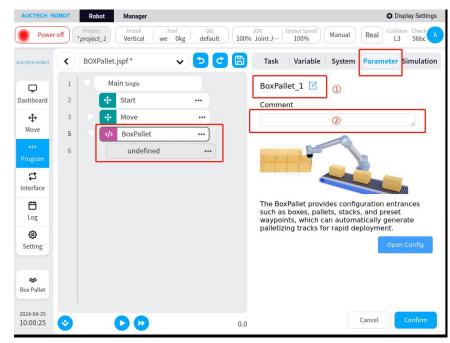
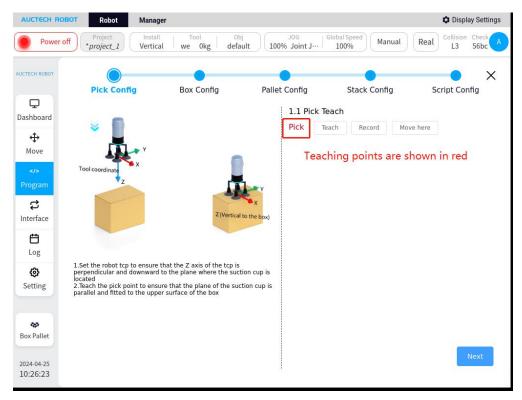


Figure 15

2.2.2 loading point configuration

1. Enter the loading point configuration interface, as shown in Figure 16.





2、 teach the material spot.

Click the teaching point button and move the end of the mechanical arm above the top material point box by operating the teaching device As shown in Figure 17, slowly move the end of the arm so that the suction cup is fully attached to the housing surface

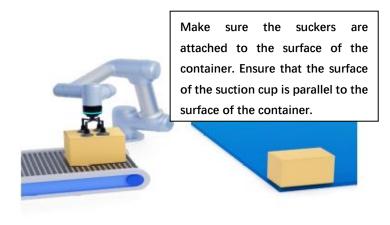
Ensure that the surface of the suction cup is parallel to the surface of the container

Ensure that the Z-axis of the tool coordinate system is perpendicular to and downward from the plane where the suction cup is located

Ensure that the position and direction of each box at the feeding point are consistent

Click the "Record current position" button to jump to the loading point configuration interface

As shown in Figure 18, the font of "Feed point" appears green, click the "Next" button





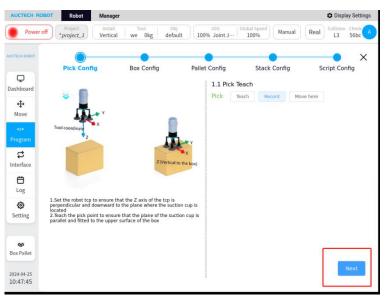


Figure 18

2.2.3 container configuration

1. Select the origin of the pallet.

Under the overhead Angle, select any corner of the pallet as the origin of the pallet coordinate system

As shown in Figure 19, the lower right corner of the pallet is used as the origin point





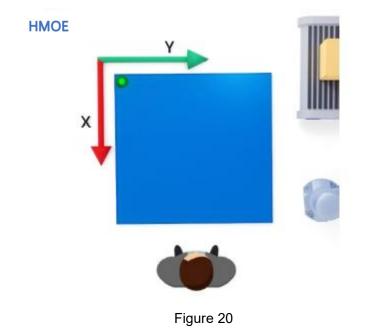
2. Determine the pallet coordinate system.

Adjust the user's field of view as shown in Figure 20 so that the pallet origin is at the top left of the field of view

In this field of view, down the origin is the positive direction of the X axis of the pallet coordinate system

In this field of view, the right direction along the origin is the positive Y-axis of the pallet coordinate system





3、 Set box parameters.

Select any side of the box as the "front". As shown in Figure 21, "Front" has been selected

As shown in Figure 22, the operating robot will fit the "front" of the box with the upper edge of the pallet, the side with the left edge of the pallet, and the bottom with the pallet

Set the box parameters in Figure 23, where L1(X direction), L2(Y direction)

Click the "Next" button

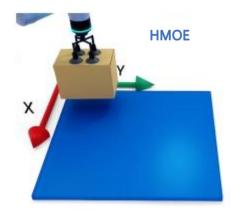


Figure 21



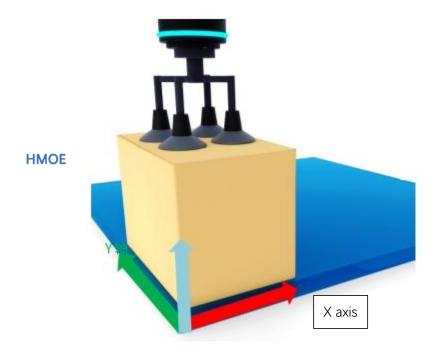


Figure 22

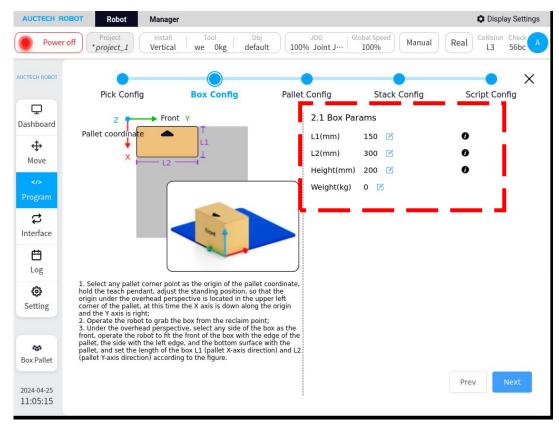


Figure 23

2.2.4 pallet configuration

1. Enter the "Pallet Configuration" interface, as shown in Figure 24, and fill in the pallet parameters.



Refer to the "first point" diagram in the figure, pallet side length D1 is the direction of pallet X



The pallet side length D2 is in the Y direction of the pallet

Figure 24

2、Pallet calibration.

Teach in the order of P1 to P4

Teach P1 point (as shown in the "first point" in Figure 24)

The box position shown in the previous step (box configuration) is denoted as P1 point

Teaching point P2 (as shown in the "second point" in Figure 25)

The robot will translate the box forward along the X axis at any distance (more than half of the side length of the pallet), place the box on the pallet, and confirm that the edge and bottom of the box are fitted. Record it as point P2

Teach P3 point (the "third point" in Figure 25)



Operate the robot to return to point P1, move forward along the Y axis for any distance (more than half of the pallet side length), and place the box on the pallet, similarly referred to as point P3

Teach P4 points (as shown in the "fourth point" in Figure 25)

Operate the robot back to P1 point, turn the box "front" to the bottom (180° in the top view), the same as P4 point

Complete the 4 teaching points and click the "Next" button

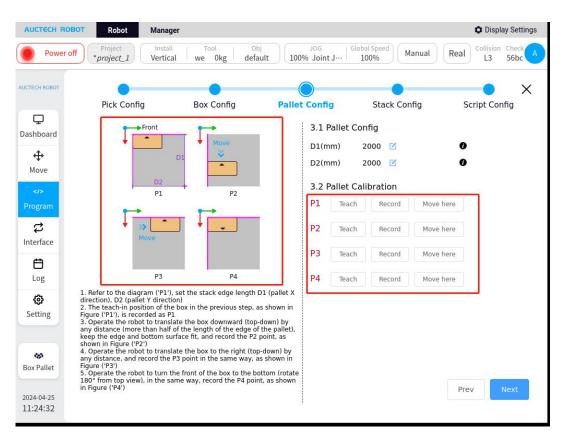


Figure 25

2.2.5 Stack configuration

- 1. Set stack type parameters, as shown in Figure 26.
- 1) Location: Choose A stack type

② Position: Set the boundary reference and enter the actual value in the margin

When stacking on the pallet, if there is a requirement for the spacing between the box and the pallet, please turn on this function, if there is no requirement, you can turn off this function



③ Position: Set the number of layers (palletizing height)

Layer 1 is the lowest layer on the pallet

As the number of layers increases, so does the number of layers

Each layer can be set up A stack or B stack

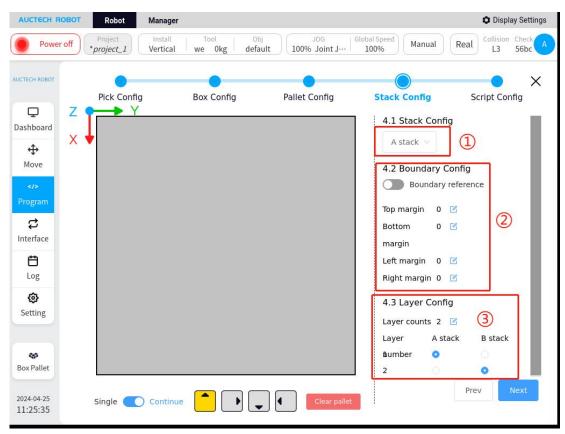


Figure 26

2、 Place the stack type, as shown in Figure 27.

① Position: Click the box button in any direction (it will be highlighted)

The arrow direction of the container in the figure is consistent with the definition of "front" in the container configuration

⁽²⁾ Location: the pallet placement area is shown in the figure (when using the boundary reference, the placement area is in the area surrounded by the boundary reference line)

Place the box into the pallet placement area

Close to the pallet boundary or reference line, click to place, the box will automatically adsorb the border



If a box is placed on the pallet, click close to the box, and the newly placed box will be automatically adsorbed and attached to the existing box

AUCTECH ROBOT Display Settings Robot Manager Power of Manual Real 100% Joint J... we 0kg default 100% *project_1 Vertical L3 56bc AUCTECH ROBO X Pick Config Box Config Pallet Config Script Config **Stack Config** Ð Ζ 4.1 Stack Config Dashboard X A stack ⇔ Move 4.2 Boundary Config Boundary reference 0 🗹 Top margin \$ Bottom 0 🗹 Interface margin Left margin 0 🗹 Log Right margin 0 🗹 3 4.3 Layer Config Setting Layer counts 2 Layer A stack B stack **h**umber 0 -Box Pallet Prev -2024-04-25 Single Continue • 11:31:25

To retype the stack, click the "Empty pallet" button

Figure 27

3、 Adjust the box, as shown in Figure 28.

Click on the box you want to adjust, and three ICONS appear icon

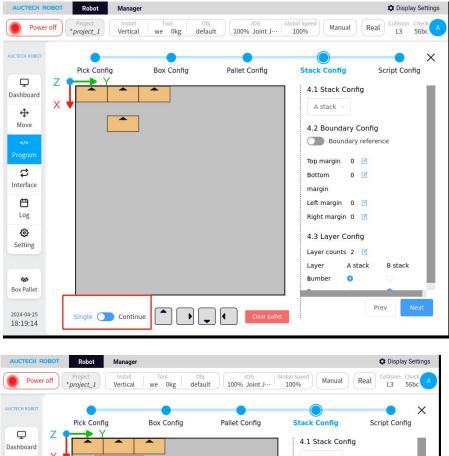
: Using this icon, rotate the case clockwise (90° per click)

icon. : Use this icon to delete the currently selected box

icon. Use this icon to confirm the direction and position of the current container

Click on the box to move the box (in the layout area) by dragging and dropping, and click on the icon once it is in place





AUCTECH ROBOT	Robot Mana	ger		Display	Setting
Power off	Project Insta *project_1 Vertic			Global Speed Manual Real Collision C 100% L3 5	heck 66bc
UCTECH ROBOT		•	•		×
	Pick Config	Box Config	Pallet Config	Stack Config Script Confi	g
Dashboard X				4.1 Stack Config	
⊕ Move				4.2 Boundary Config	
				Boundary reference	
Program				Top margin 0 🗹	
\$				Bottom 0 🗹	
Interface				margin	
Ë				Left margin 0 🗹	
Log				Right margin 0 🗹	
\$				4.3 Layer Config	
Setting				Layer counts 2 🗹	
				Layer A stack B stack	
*				🌢 umber 🧿 📀	
Box Pallet					
2024-04-25		0 1	Clear pallet	Prev Ne	ext
18:19:54			Clear pallet		

Figure 28

4、 Switch the stack type, as shown in Figure 29.

As shown in the picture, set the B-stack type

The same way to complete the B-stack layout

You can see both A stack (typeset) and B stack (currently typeset)

After configuring the A and B stacks, confirm the stack Settings for each layer



Avoid the upper and lower boxes falling due to the stack layout.

Click the "Next" button.

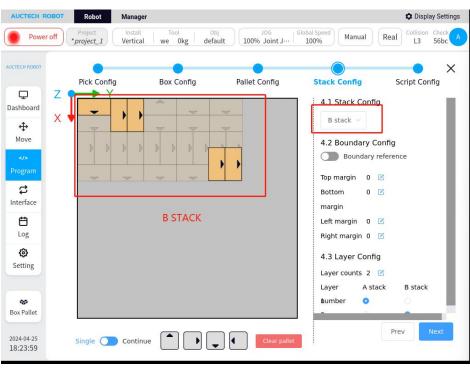


Figure 29

2.2.6 script configuration

1、 Teaching three teaching points and their pullback points, as shown in Figure

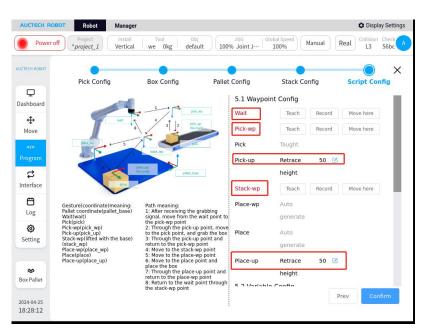


Figure 30



Figure 30 (1) Position: teaching "waiting for loading point"

As shown in Figure 31, click the teaching point and move the robot to the position between the pallet and the feeding point

Raise to a certain height in the negative direction of the Z-axis of the world coordinate system (does not affect interference with other objects in subsequent motion)

Click the "Record current Location" button





Position (2) in Figure 30: Teach "loading obstacle avoidance point"

Operate the robot to move to the loading point (loading point Configuration section)

As shown in Figure 32, click on the teaching point and lift up (along the normal direction of the top surface of the box).

Similarly lift to a certain height (above the height of the "feed back point")

Click the "Record current Location" button

As shown in Figure 30, "Feed back point" : Enter the height value (mm), the height is greater than 10mm

If there is a boot block, the height value is greater than the height of the boot block, as shown in Figure 32



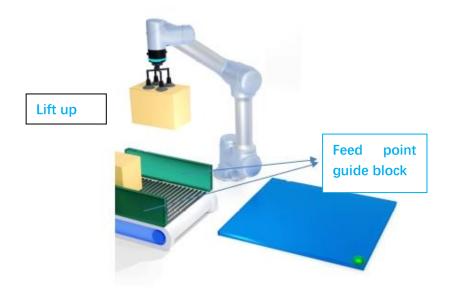


Figure 32

Position (3) in Figure 30: Teach "pallet obstacle avoidance point"

Click the teaching point and move the robot to the top of the pallet

As shown in Figure 33, lift up (along the normal side of the top surface of the box)

Similarly lift to a certain height (higher than the height of the top box of the stack)

Click the "Record current Location" button

As shown in Figure 30, "Place a retracement point" : Enter the height value (mm), which is greater than 10mm





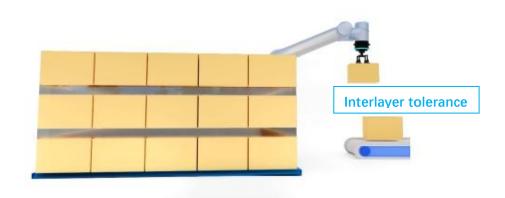
Figure 33

2 Interlayer tolerance setting (in Figure 35), the effect is shown in Figure 34.

Enter the value of interlayer tolerance, the range is [-100, +100], the unit is mm

Enter a positive value to expand the spacing between layers

Enter negative values to press the spacing between layers







3. Motion speed, as shown in Figure 35.

As shown in Figure 35, the speed or speed of the actual motion can be adjusted by pulling the per

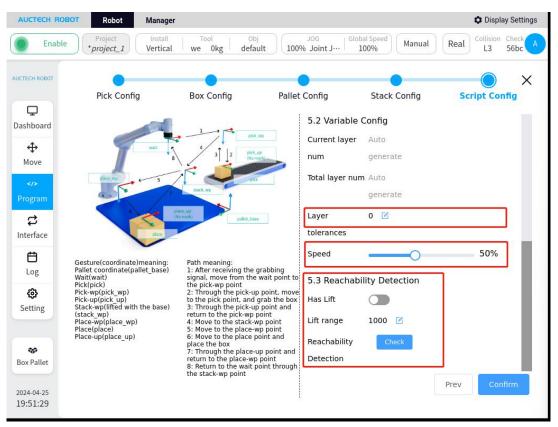


Figure 35

4、 Reachability test, as shown in Figure 35.

"Whether there is a lifting platform" : If the device is available, turn it on, and if not, turn it off

Lift Table Travel: Enter the actual value

"Accessibility Test" :

Check whether all boxes on the pallet can be placed in place

Test results are for reference only

Click the "Finish" button to jump to the program interface, as shown in Figure 36

Click the "OK" button to complete the configuration of BoxPallet module and generate script, as shown in Figure 37



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÷	3	Move		pick90
Move	5	▼ *BoxPallet)	
Program	6	undefined)	
C Interface				
Ë Log				The BoxPallet provides configuration entrances such as boxes, pallets, stacks, and preset waypoints, which can automatically generate
ø				palletizing tracks for rapid deployment.
Setting				Open Config
Box Pallet				
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Figure 36

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4. Croup 5 MotionConfig 9 88 Group 7 9 Move ###± 8 9 9 Move ###±		The BoxPallet provides configuration entrances such as boxes, pallets, stacks, and preset waypoints, which can automatically generate
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Figure 37

2.3 Script optimization

1. Set parameters of the "Start" module, as shown in Figure 38.

Operate the robot to move to the position of "waiting for loading point"

Click "Record current point" button, click "Confirm button"



<	winder_test.jspf	已行开税序 輸用	5.8 9,745
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	D BoxPallet	Teach Record	
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	HotionConfig of on	Joint 1 (°)	0
		Joint 2 (°)	-3.639
	Group +++	Joint 3 (°)	135.148
Ψ	Move ###155.8 ···	Joint 4 (°)	-40.518
	MoveJ Boshslet_1.se ***	Joint 5 (°)	-75.792
9	Group ###### ***	Joint 6 (°)	0
10	undefined +-+	Joint speed(*/s) 30	
ш.	B SetLoad		
	🛨 Mave		
- 13	Movel, BorPalat, Lpi	Cancel	Confirm

Figure 38

2. Set the "Group waiting signal" module, as shown in Figure 39.

By adding instructions, the robot continues to grab the box and start stacking

There are three ways to add instructions:

Example Setting an I/O port

Set up communication module

Set up the "Wait" module (execute according to fixed wait time)

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	SS Group +++	Group
3	Move #BR256 ++	
	MoveJ Bod'slid_1.vs	
	EB Group #Rings: BR +++	Clear
10	undefined	1
11	EE SetLoad	
u (🕂 Move	
0	🕂 Movel, BosPalat_Tpic +++	
16	🔶 Moyel, DosPale_1_pic +++	
15	Movel_BoxPalet_1_sic +++	
16	Group #R=HELSER	
17	undefined	

Figure 39

3、Set up the "Group custom crawl" module, as shown in Figure 40.



Add instructions to set the fetching mode

It can be realized by setting the I/O interface and communication

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\$					C) Wait threa	ad end Sel	ect thread			
Interface					C) Condition	expression				
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ø					Co	omment					
Setting						Comment					
🗱 Box Pallet											
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Figure 40

4 Set the "Group custom lifting platform lifting" module, as shown in Figure 41.

Position (2) in the figure: the "Group lifting platform" module can raise the height of the lifting platform by loading the command module

Positions (1) and (3) in the figure: "Group middle waypoint" module. You can add new waypoints by loading the command module to prevent path interference during script running



20	Movel_ &cuFalet_1_pic +++	Group	
	Hovel, BoxPalid_1.pic +++		
"	Group + Rin EX, + RM +++		
n U	undefined +++	Clear	
" (2)	SE Group #RMEX.RME		
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# 3	EE Group + Ron EX, millit		
11	undefined +++		
20.	4 Move		
29-	Hove/ BuiPalid_1_ma +++		
35	4 Move		
31	Movel_ BosPalet_1_pla		
	There I have be the total		Cancel Confirm

Figure 41

5. Set the "Group Custom placement" module, as shown in Figure 42.

Add instructions to set how to place the box

The box can be placed by setting the I/O interface and communication

28	Move ····	Task Variable System Parameter Simulation
- 29	MoveJ BerPalet_1_sta	Group
30	Move	
31	Movel. BonPake_1_pla	
11	Movel. BeePeler_t_pla +++	Clear
- 23	Movel. 800Palit_1.pla	
34	Group #R=#x.mk	
35	undefined +++	1
. 16	SetLoad	
32		
- 20	MoveL BoePake_1_pla	
39	+ Move	
-40	Movel. BosPatet_t_sta +++	Cancel

Figure 42

6. Set the "Group custom lifting platform lowering" module, as shown in Figure 43.

Position (2) in the figure: the "Group lifting platform lowering" module can reduce the height of the lifting platform by loading the command module

Positions (1) and (3) in the figure: "Group middle waypoint" module. You can add new waypoints by loading the command module to prevent path interference during script running



37		÷	Move	***		Task	variable	System	Parameter	Simulation
30		+	MoveL BasPalet_1_p			Group				
		+	Move							
40		+	Movel, BasPalet,1,s							
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42	0		undefined	***						
40	a 1	88	Group #MPRLMPR							
-44	2)		undefined							
-	3	88	Group +Rings.+da							
-45	9	E	undefined		11					
42		+	Move							
48		+	MoveJ BooPeter_t_e							
									Cancel	Confirm

Figure 43

7. The mechanical arm returns to the initial position of the script, as shown in Figure 44.

Click the "Save Program" button

Click the "Drag Move" button

The robot moves in the mode of movej. Releasing stops the movement. In order to prevent the movej from bumping into other objects in its path, it is recommended that the user return to the waiting point in advance in a manual jog



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\		3	D 💠 Move			
Move		5	Group			**
		6	88 Wait			
Program	1	7	V 💠 Move			(
C Interface	e	8	🕂 MoveJ	wp1		
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						×
😵 Box Pallet	t					
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Figure 44

Click as shown in Figure 45

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Button to start running the script

Using Manual Mode, select Simulation mode to run the entire process

Use Manual Mode and select Real Machine mode to run the entire process

If trajectory interference or singularity occurs after the above two processes are executed, add instructions to the "Group Custom intermediate waypoint" module in the script and set a new waypoint to solve the problem

Using "Real Machine" mode, click "Automatic Mode" to run the whole process

The user can adjust the robot running speed by clicking the "global speed"

button to make the rhythm meet the production demand



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Dashboard	2	💠 Start		
\$	3	D 💠 Move		
Move	5	∇ BB Group		
Program	6	88 Wait		
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Ë				
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Click the "Save Program" button to solidify the entire script



3.Palletizing exception handling

Summarize the problems in the use of palletizing process package, and provide solutions to related problems.

No	Exception topic	Cause	Solution	Info
		The vacuum degree of the suction cup is insufficient	Adjust the vacuum valve pressure	
1	Case grab failure	There are depressions or cracks on the adsorption surface of the housing	Replace with a more complete box grab	
		The teaching point of the grab is different from the current state	Re-set the palletizing package	
2	The palletizing box exceeds the pallets	The position of stacked pallets is different from the position when teaching	1.Reset the pallet configuration in the BoxPallet module and all subsequent modules Block setting. 2.And fixed pallet position to prevent pallet deviation	
3				

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