

RayBox

Product Manual

V2.1

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1 Product Introduction

1.1 product description

RayBox is developed by Shanghai Friendess Electronic Technology Co.,Ltd independently，which is the intelligent hardware serving the laser industry on internet platform. It is committed to helping improving sheet metal factory processing efficiency，providing users immediate value. RayBox could connect to CypCut,CypNest,TubePro,TubesT,HypCut and MES seamlessly， giving automatic transfer and storage management of processing drawings. Raybox has powerful edge computing capabilities and provides real-time machine tool processing statistics for sheet metal factories.



1.2 Features

Automatic transfer of processing drawing files

RayBox realizes the automatic transfer function of processing drawing files in smart factories. It has large file storage and scheduling management functions, which has 1T hard disk space,providing reading and writing processing drawings service for CypCut,HpyCut,TubePro. The layout on CypNest and TubesT can be saved in RayBox. Cutting software can obtain processing tasks and processing files from RayBox. RayBox provides a two-dimensional code identification function for each processing file. The cutting software scans the two-dimensional code with a scanning gun to automatically retrieve the processing files from RayBox for processing.

Connect with MES system

RayBox can realize the seamless connection of multiple Laser machine tools and MES system, uniformly receive the processing task instructions and processing drawings of MES, and distribute to different machine tools according to the rules. Real-time feedback of the processing progress

during processing, helping the MES system to jointly control and process multiple laser machine tools to achieve a reasonable allocation of processing tasks.

Smart factory visualization screen

RayBox provides multi-dimensional statistical analysis of machine tools, provides machining statistics, machining daily reports, operation statistics, cutting length and stroke statistics, piercing number statistics, etc. RayBox provides external statistical output interfaces, and also provides smart factory billboard function to feedback machine processing statistics and change the previous manual statistical workload method.

1.3 Application scenario diagram



1.4 Functions

Name		RayBox	**Version**	V2.1
Function Item		**Function Description**		
Basic Function	System setting	Basic information, Network, IP setting		
Lathe Management	Add lathe	Discover the machine tool equipment in the local area network and add it to the RayBox.		
	Lathe list	Display the bound machine tool and its status and basic information.		

	Basic information	View and modify machine information or delete machine tools.
	Process log management	View the process log and process record，export table
	Statistics board	View real-time operating data of machine tools
Task Management	There is a slight difference in the use of task management between plane and pipe.	
	Scan code to import drawings	On the CypCut, you can automatically download the magic box drawing by scanning the code with the scanner.
	Add tasks	Upload the drawing file, specify the quantity, the thickness of the plate, etc., and create it as a task.
	Task status	View the current completion of the task.
	Task queue	Three queues are provided by default: Process queue, Completed and Deleted. Adding customized queue is supported.
	Task scheduling	Drag tasks to sort, move tasks to different queues freely.
Automatic Processing	Realize nesting and cutting automation	Requires cutting software, RayBox system, loading and unloading machines to complete.
API Management (MES or other service call)	Push tasks	Push task number and drawing files to RayBox
	Assign tasks to machine tools	Call the RayBox interface to send tasks to the specified machine tool.
	Obtain machine tool information	Obtain details of machine tool based on IP address.
	Unassign task to machine tool	Unassign task to specified machine tool.
	Get machine list	Get a list of machine tools in the local network
	Machine statistics	Obtain various statistical data of the machine tool, such as Number of perforations, Cutting length, etc.
Callback address setting	File (task) completion notification	Configure according to the document to realize the notification service

	Part completion notification	
	Nesting completion notification	

2 Operating conditions

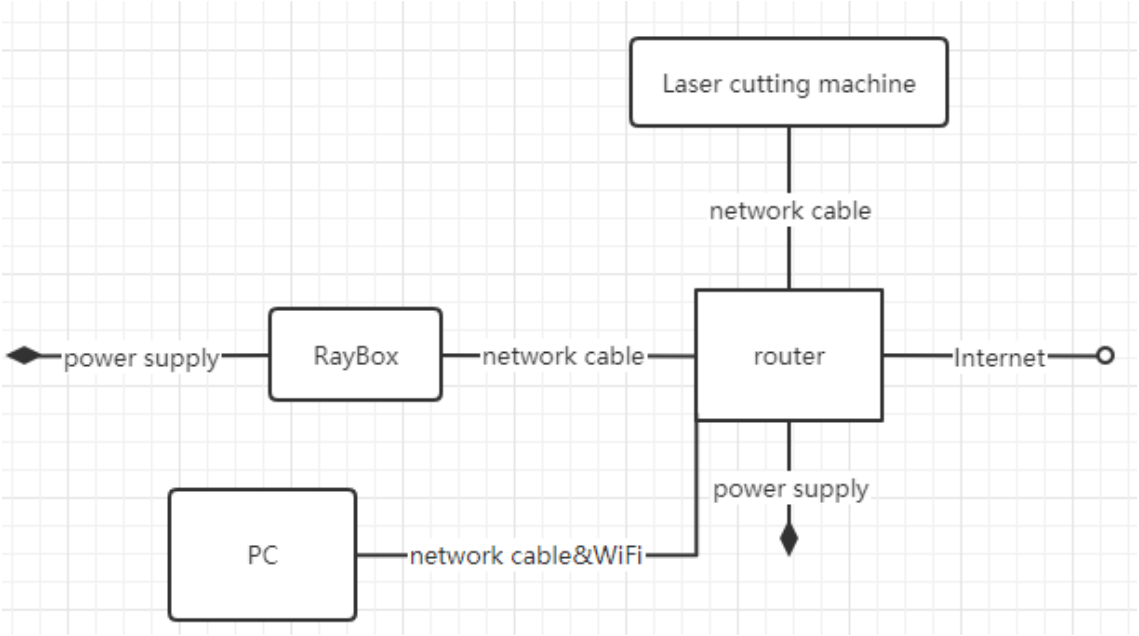
2.1 Hardware conditions

I3-9100 CPU、180W power supply、8G DDR4 RAM、1T hard disk、Two-year warranty；



2.2 Web environment

When using the RayBox, the RayBox can be on the Internet or on the internal LAN, but it must be in the same network as the laser machine tool.



3 Instructions

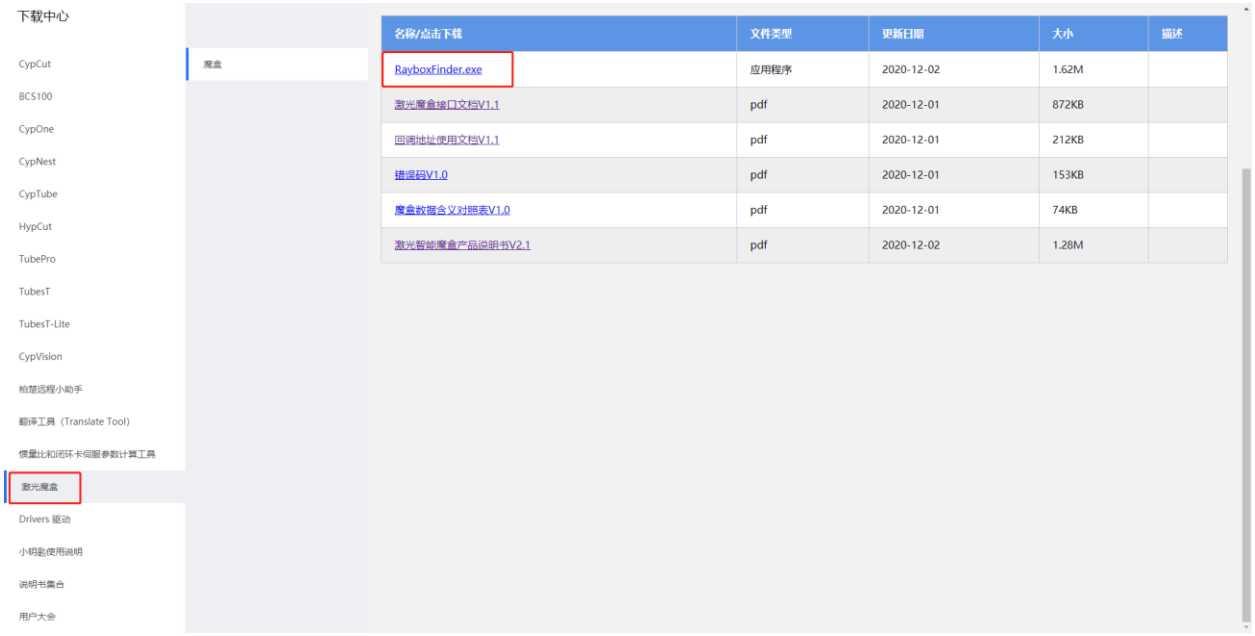
The RayBox has a power-on self-start function, so it can be turned on when it is plugged in.（Frequent abnormal power failures will cause data loss in the RayBox or damage to the system. Please connect to a stable power supply, otherwise you will be at your own risk）

3.1 Basic function

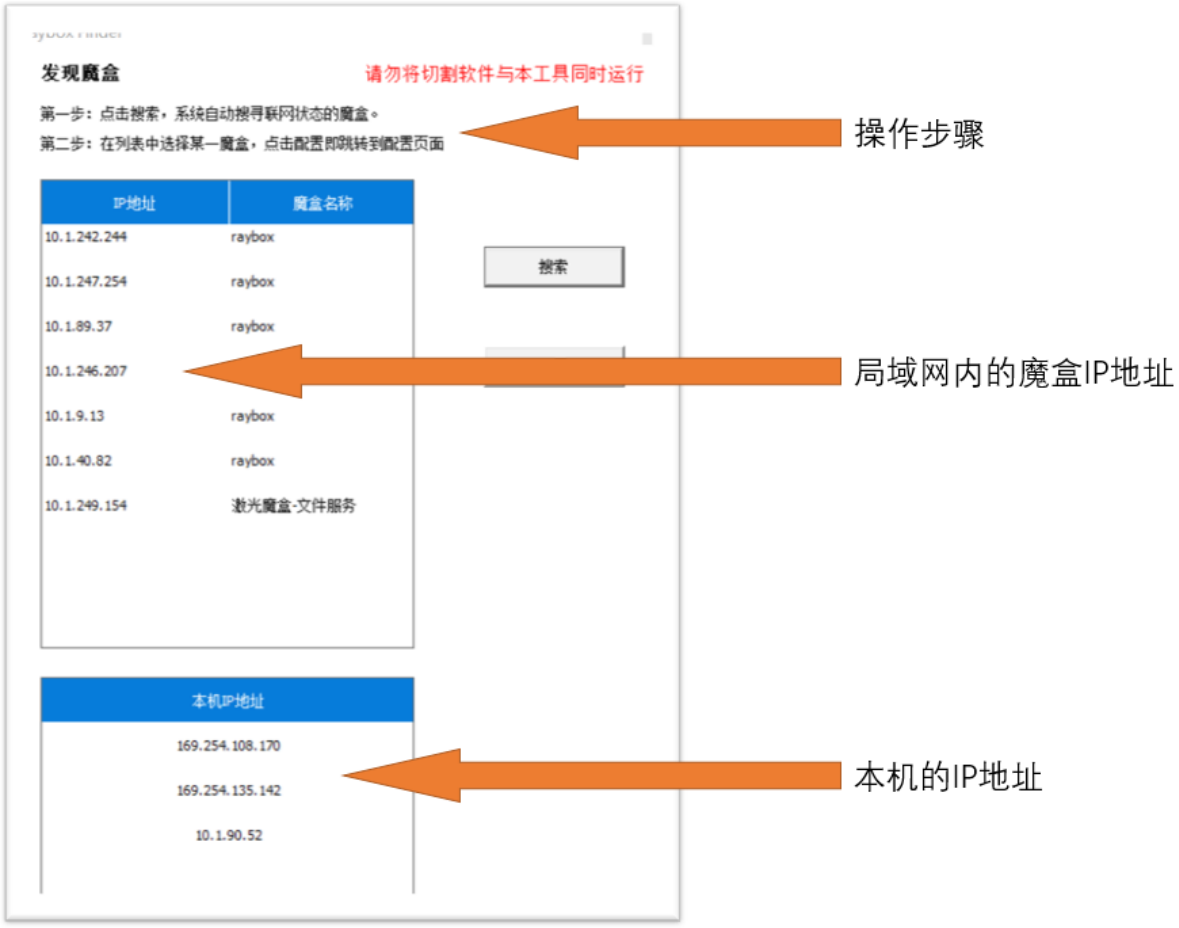
3.1.1 Find RayBox

The RayBox runs automatically after power on, download RayBoxFinder.exe on PC.

Download address: https://www.fscut.com/download/



Click “搜索” to automatically find the RayBox in the local network, select one and click “配置” to open the RayBox web page.



Web address：http:// RayBox ip:8080/pages （eg：http://10.1.9.13:8080/pages）

3.1.2 Visit the RayBox Website

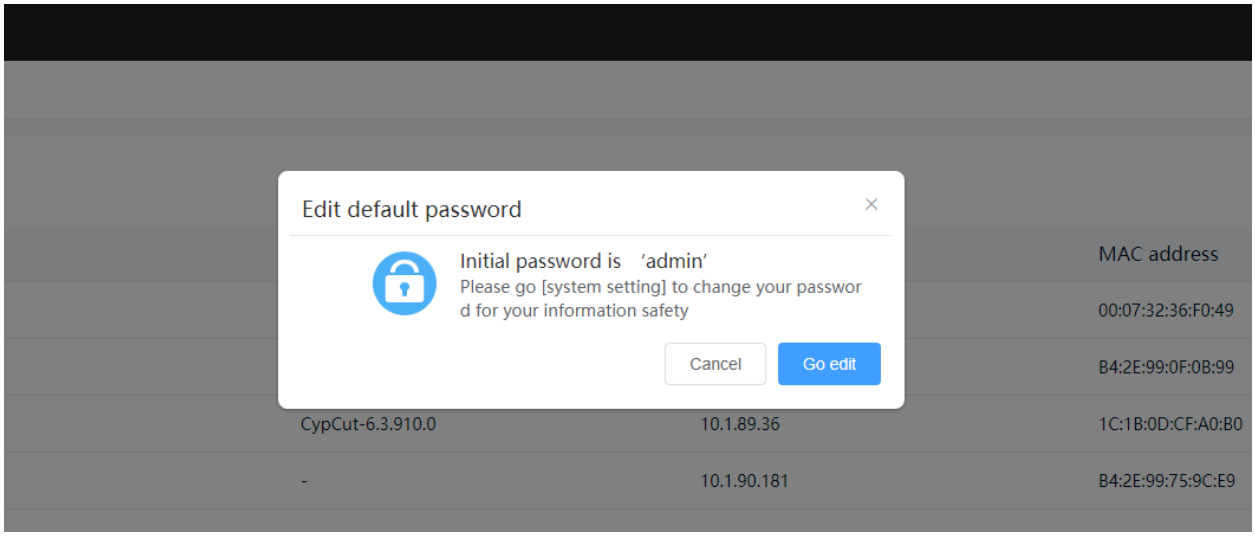
Open the browser to visit the RayBox address, as shown below:



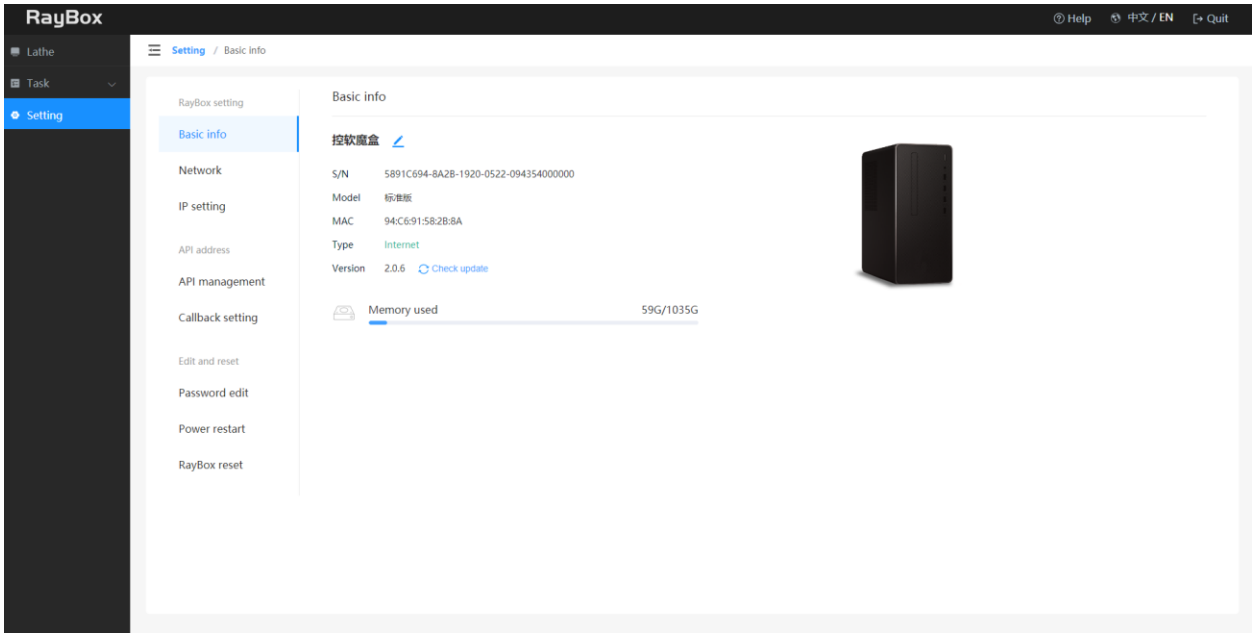
You can switch languages in the upper right corner.

The initial login password is admin, and you will be prompted to change the password after the first login.

Tip: If you forget the password, please choose reset, enter the UUID on the body of the RayBox to reset the password or contact our marketing staff.



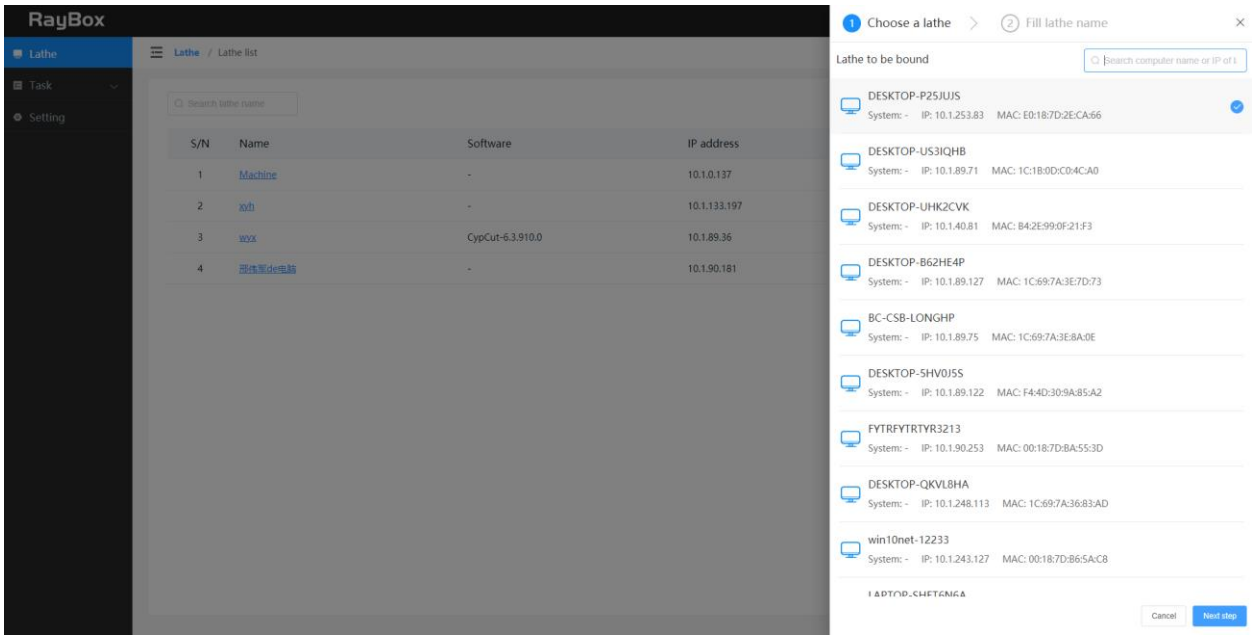
3.1.3 View basic information



3.2 Machine tools management

3.2.1 Add machine tools

RayBox will automatically scan the machines in the local network, but manual binding is required for the first use.

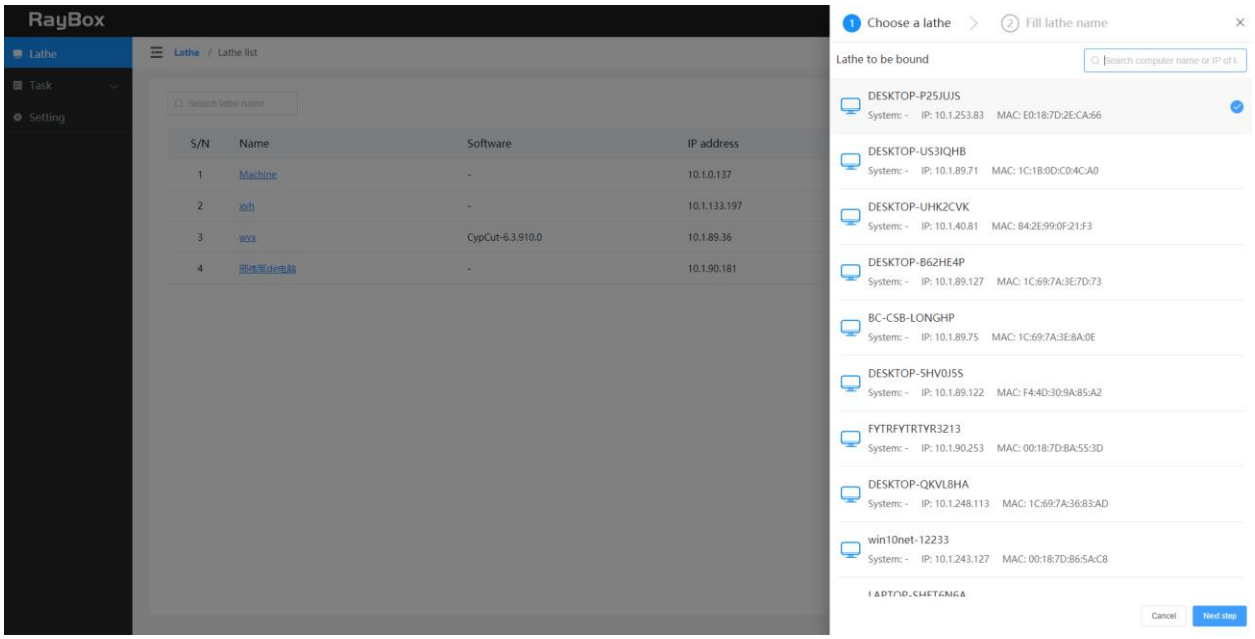


The machine tool can be judged according to the IP address or computer name, and the IP address of the machine can be checked by running the RayBox Finder.exe on the machine tool.



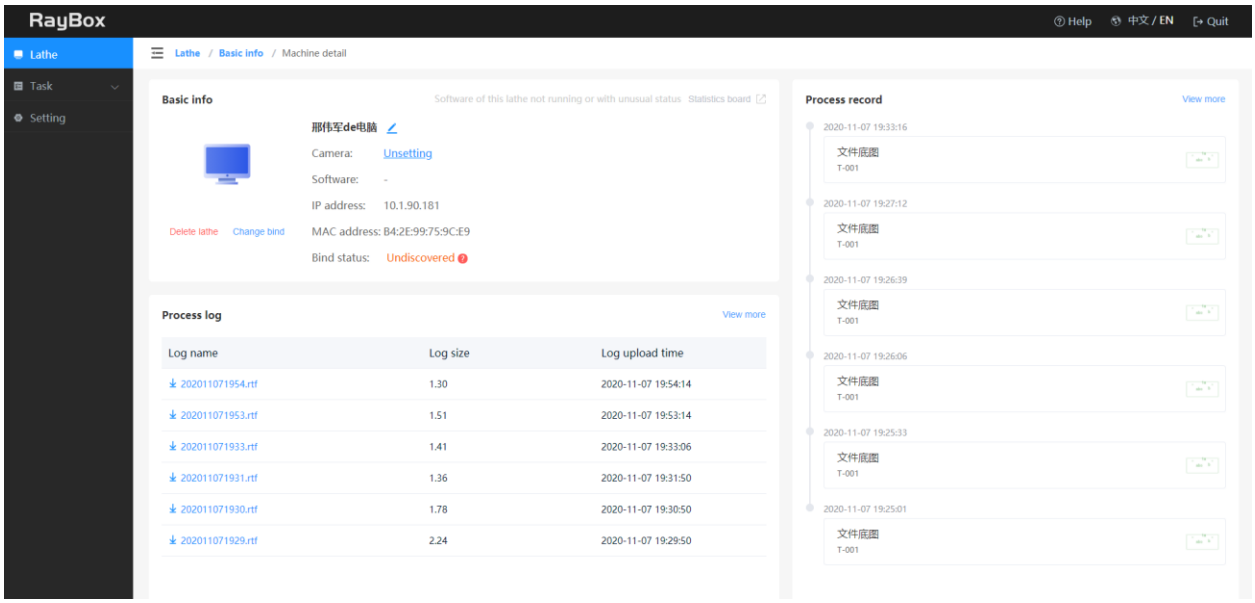
3.2.2 Lathe List

The Lathe list displays the machine tools running the CypCut, TubePro or HypCut system in the local network and displays their basic status information.



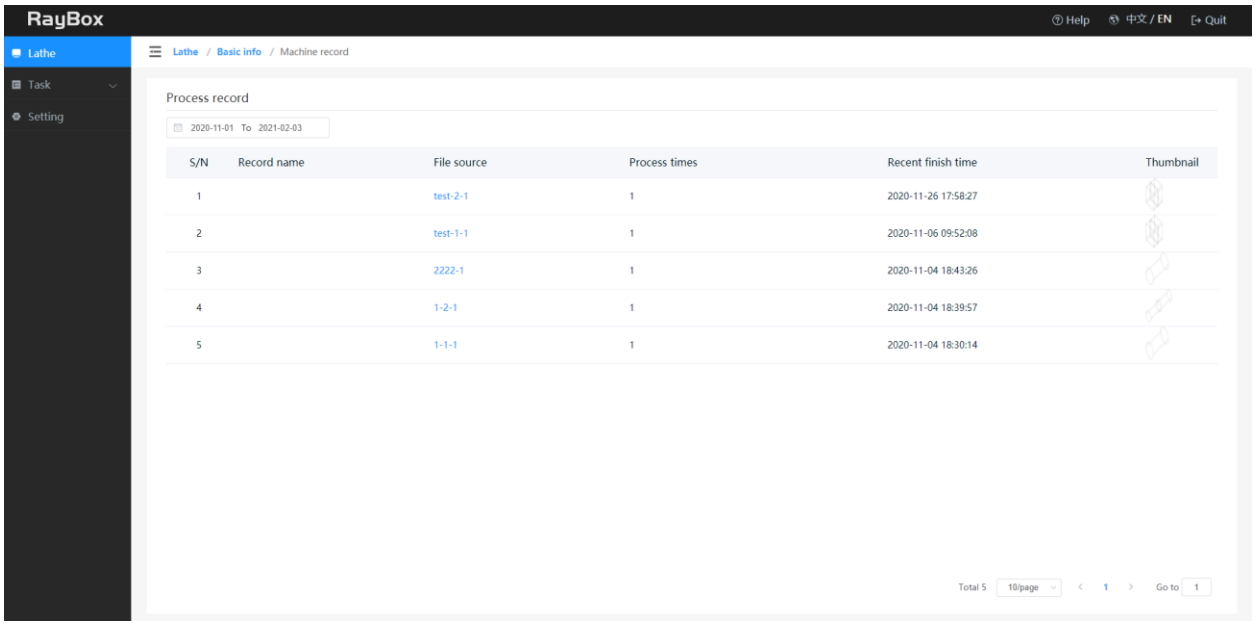
3.2.3 Lathe information

Basic information display of machine tools.



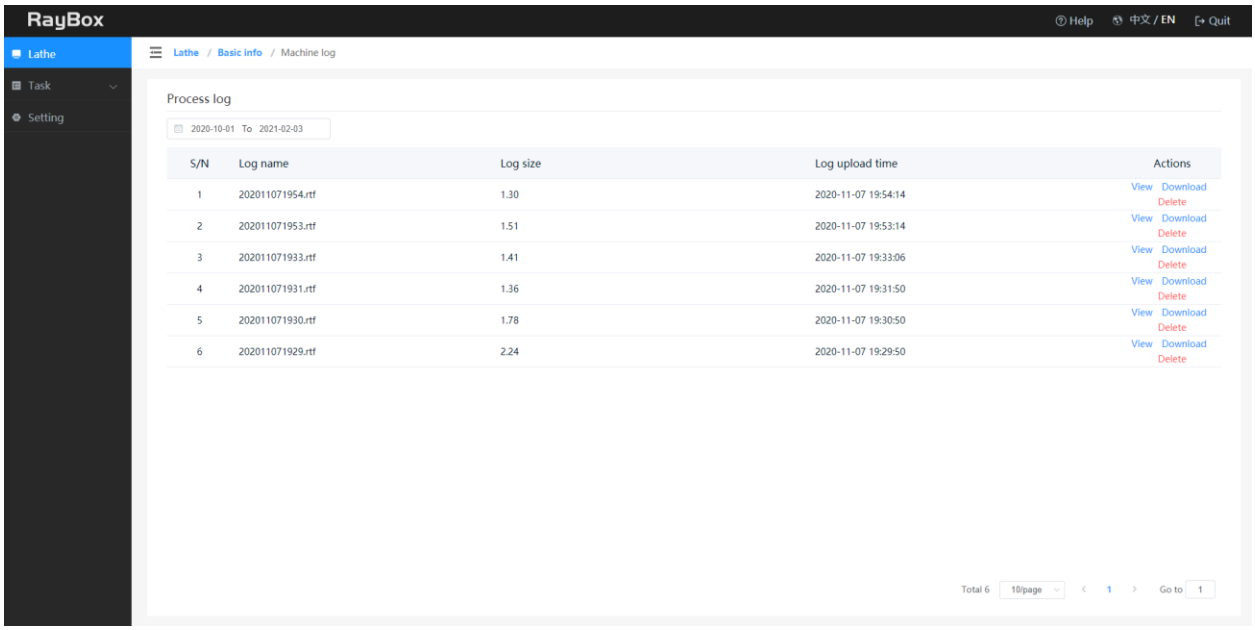
3.2.4 Process record

View the historical process records of the machine tool.



3.2.5 Process log

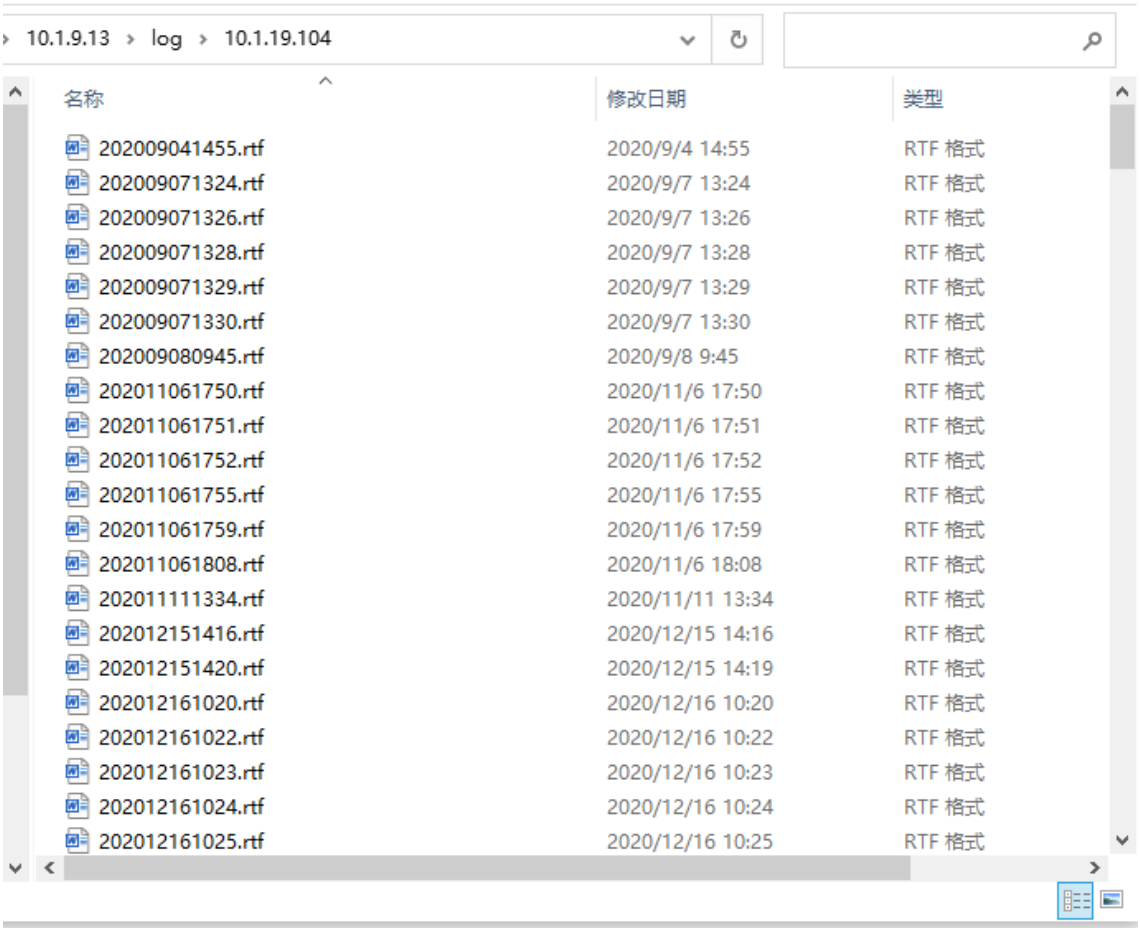
View or delete the process log of the machine tool.



Read the log file directly in the shared folder:

Folder address: \\RayBox IP\log (eg: \\10.1.9.13\log)

Find and read log files based on machine IP or machine number.



3.3 Task management

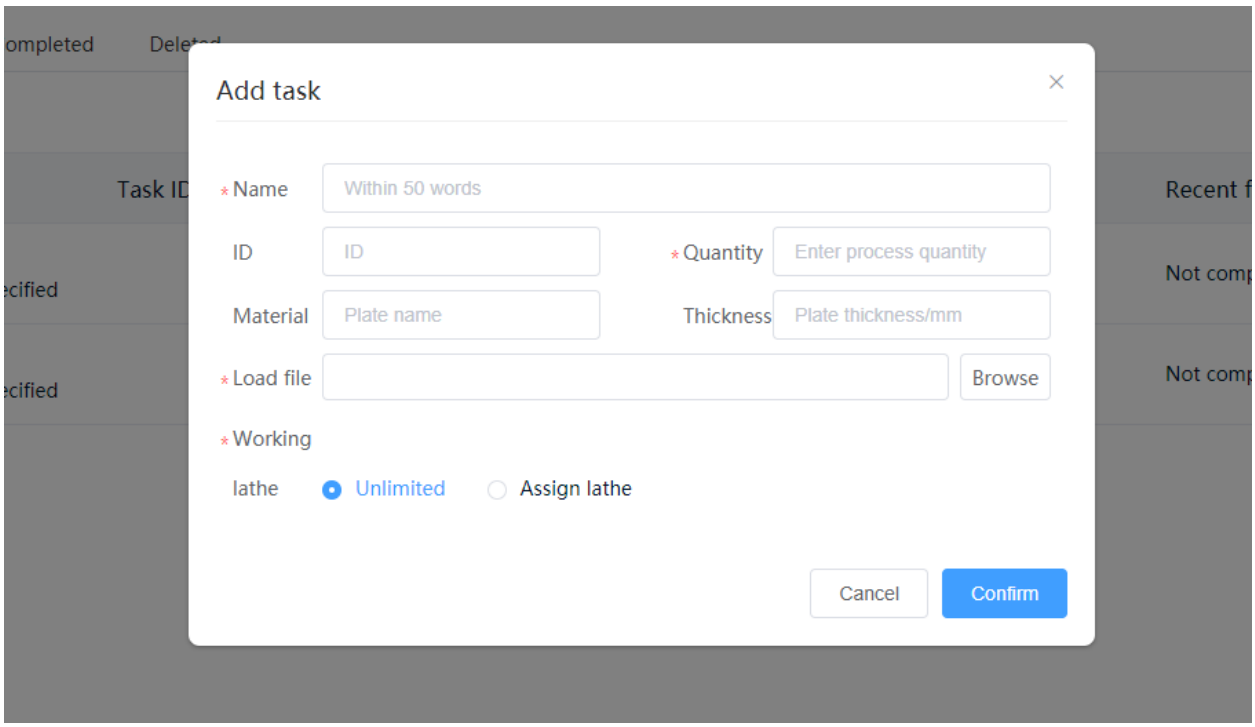
Task management is divided into two types: plane tasks and pipe tasks. Plane tasks support CypCut and CypNest. pipe tasks support TubePro and TubesT.

3.3.1 Add tasks

Upload Nesting files or parts drawings, enter information such as quantity and material to create processing tasks. By default, all machine tools can see this task, and you can choose to specify online machine tool to process.

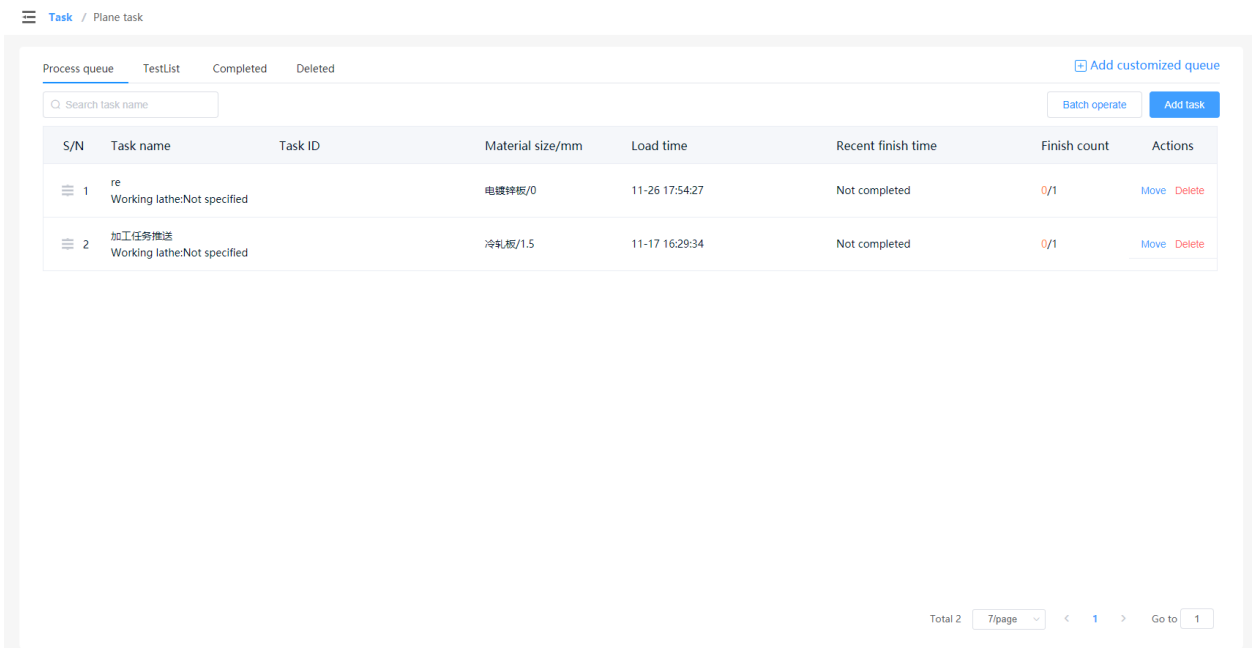
The suffix of the file format supported by the plane task are lxd, lxds, dxf, nrp, nrp2, cps and cps2.

The suffix of the file format supported by the pipe task are zx, zzx, yxy, ctd, ctds and jhb.



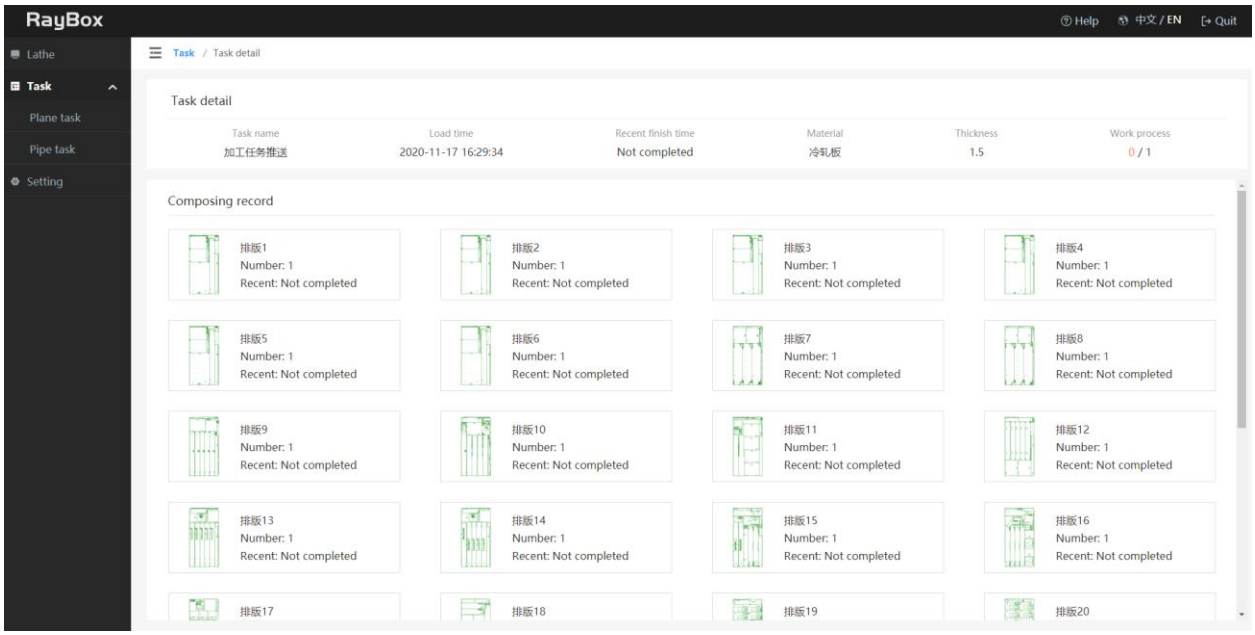
3.3.2 task list

You can move tasks to any list or create a new task list.



3.3.3 Task status

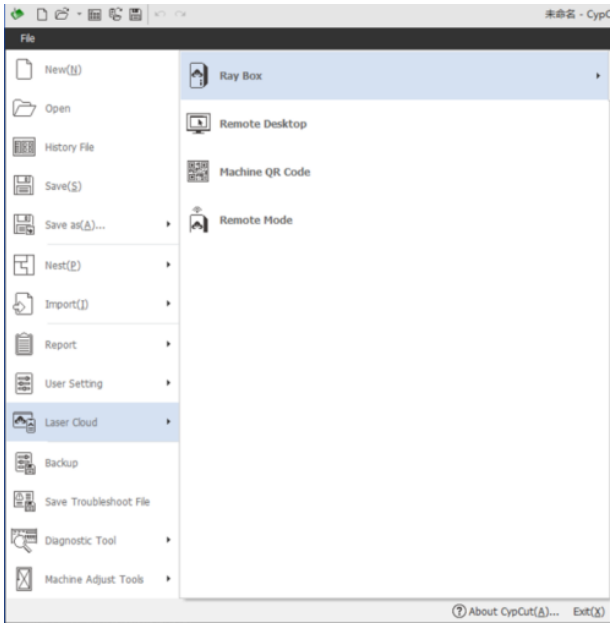
You can check the processing status of a task at any time, see the processing times of the task, the remaining processing times and the degree of completion.



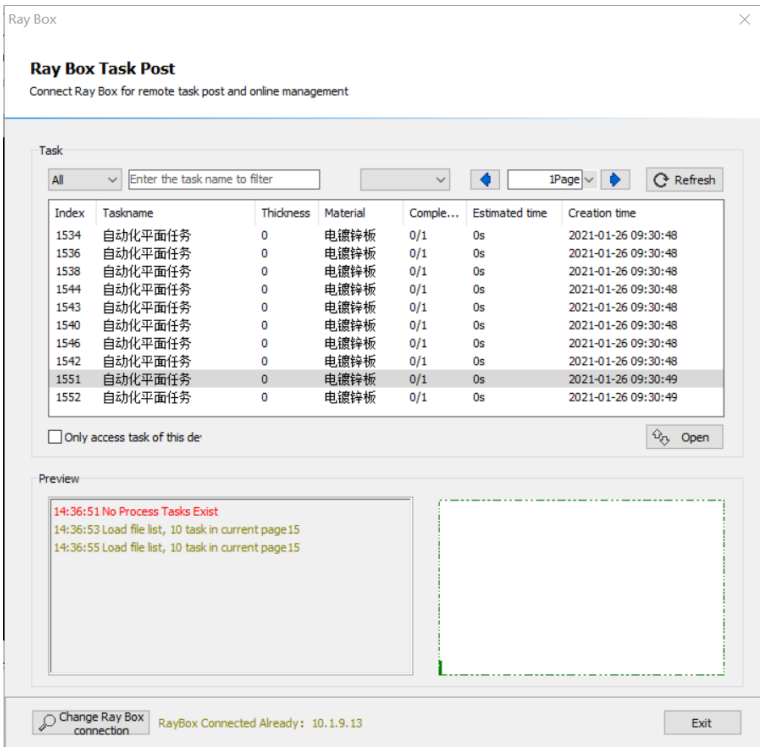
3.4 Software connect RayBox

3.4.1 CypCut connect RayBox

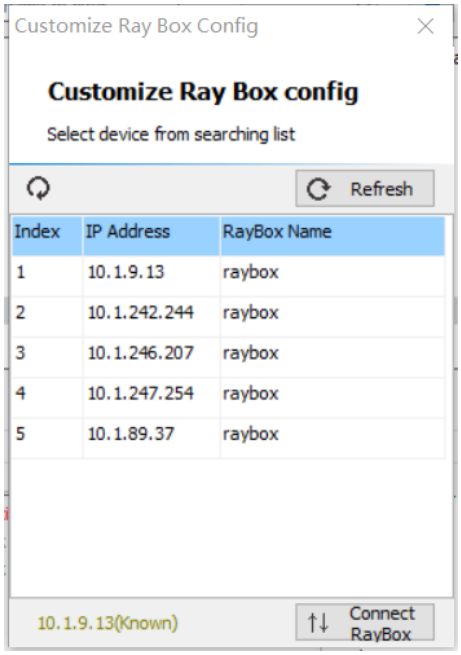
1. **Open CypCut，Click on the upper left corner** “File”



2. **Click “Laser Cloud”-“RayBox”， as shown above：**



There is a “Change RayBox connection” buttom，you need to manually connect to the box for the first.

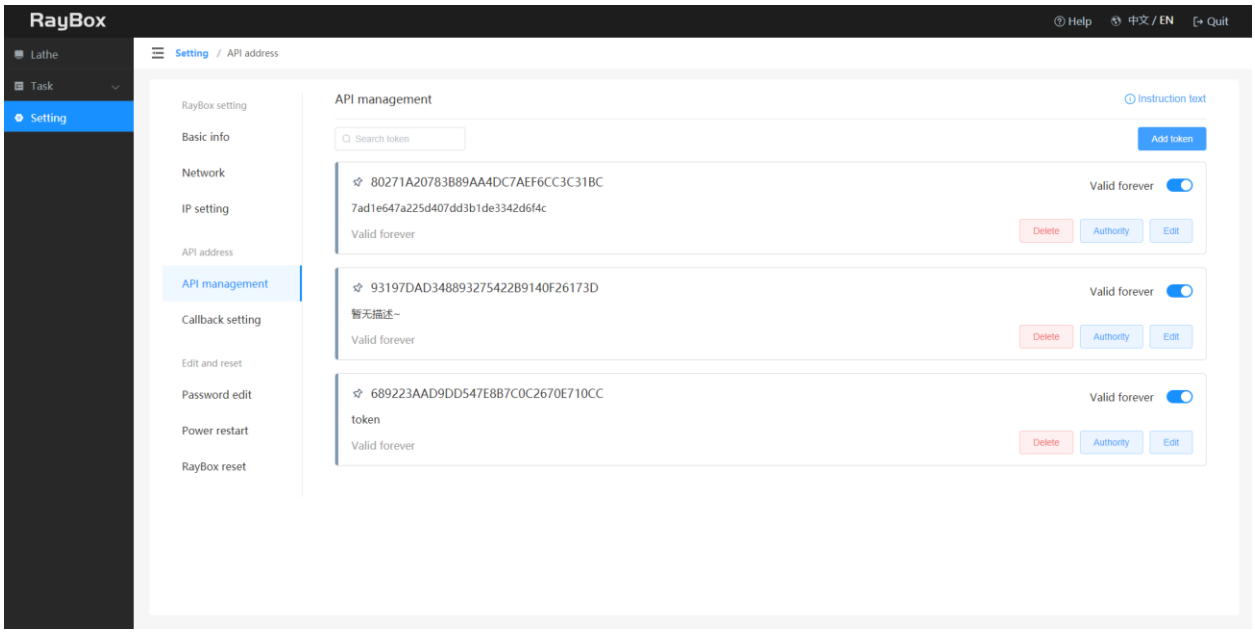


After connection, you can see the created tasks on the [RayBox], and you can click “open” for processing.

3.5 MES or service call interface

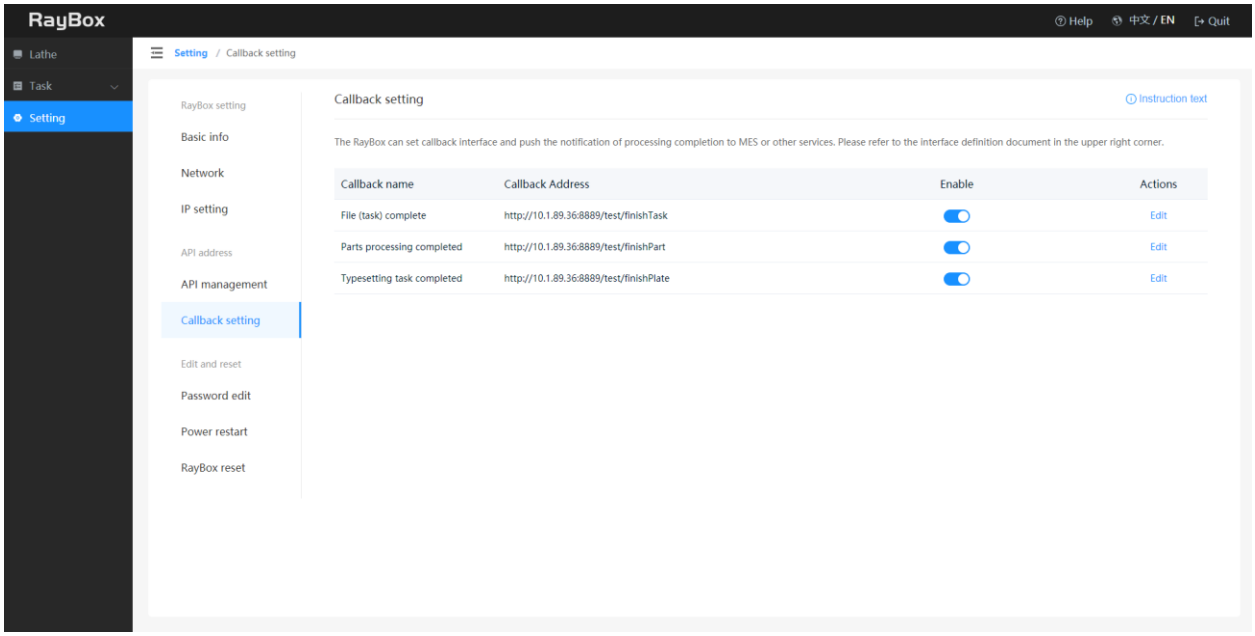
3.5.1 RayBox API interface management

Access the RayBox API interface through token. For specific usage, please refer to the documentation in the upper right corner of the webpage.



3.5.2 Callback address setting

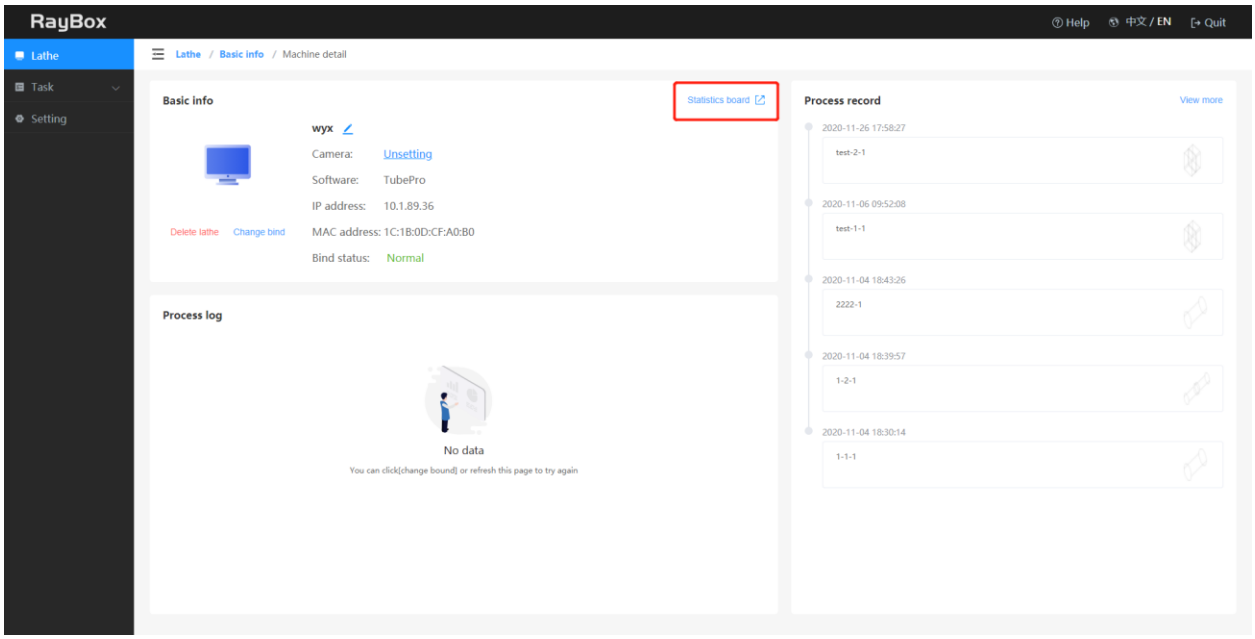
Push notifications to third-party services. For specific usage, please refer to the documentation in the upper right corner of the webpage.



3.6 Factory data visualization screen

3. 6. 1 **Real-time monitoring screen**

Click the “Statistics board” in the Machine detail page.



The Statistics board is shown below.

