



# RayBox Product Manual

V2.1

上海控软网络科技有限公司

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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	<b>There is a slight difference in the use of task management between plane and pipe.</b>	
	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;

**激光魔盒**

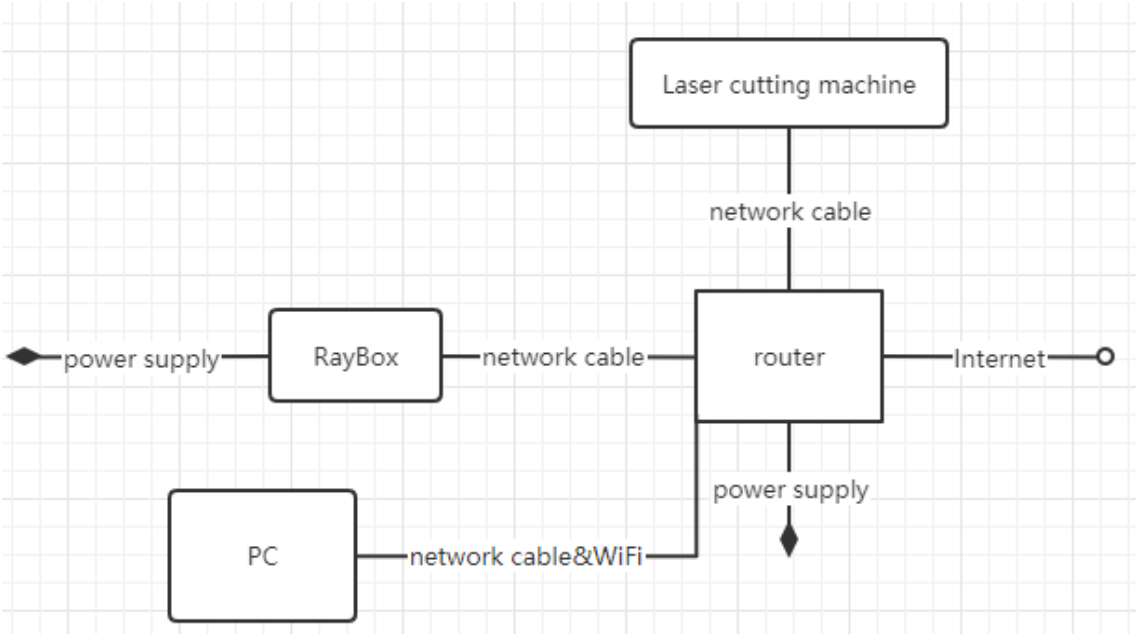
型号: RayBox  
CPU: I3-9100  
内存: 8G  
硬盘: 1TB  
电源: 180W适配器  
尺寸: 307.9(L) x 102(w) x 332(h) mm  
保修期: 两年

激光魔盒是面向激光切割机床的智能硬件, 提供加工图纸自动流转和机床数据监控功能; 能够为激光切割机床提供数据接入服务, 协助机床接入工厂MES系统和工业互联网平台; 同时还具备边缘计算能力, 并搭载了多个工业级应用。

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传真: +86 21 64308817

## 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

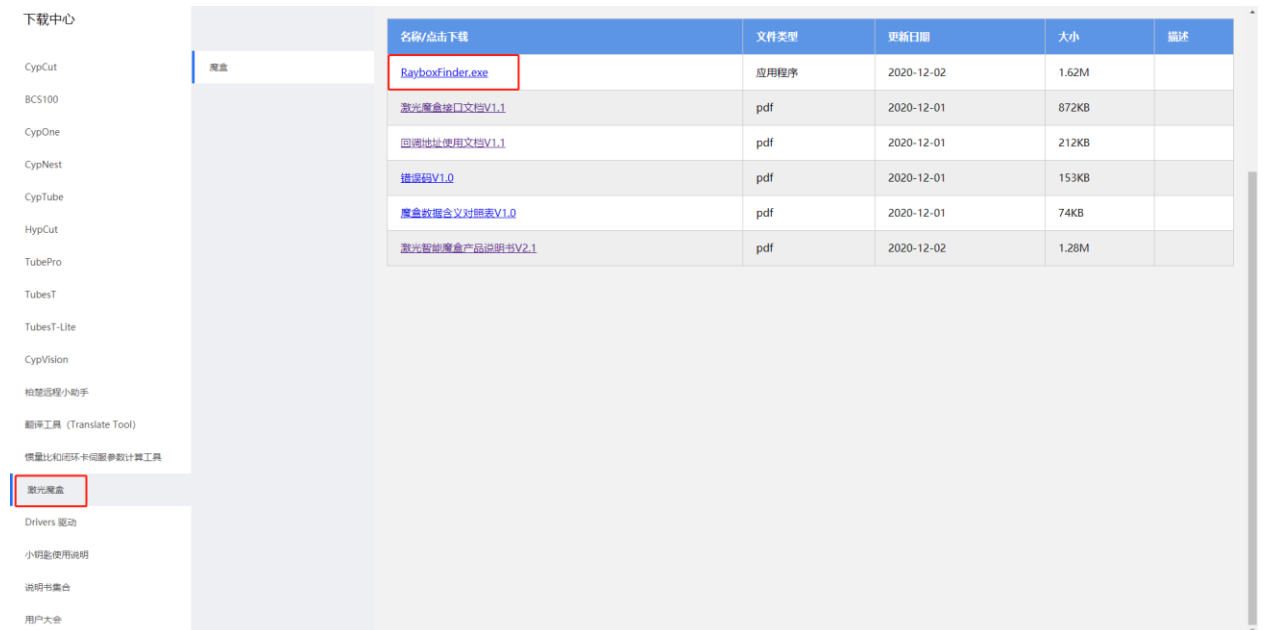
The RayBox has a power-on self-start function, so it can be turned on when it is plugged in. (Frequent abnormal power failures will cause data loss in the RayBox or damage to the system. Please connect to a stable power supply, otherwise you will be at your own risk)

## 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/>



下载中心

名称/点击下载	文件类型	更新日期	大小	描述
<a href="#">Rayboxfinder.exe</a>	应用程序	2020-12-02	1.62M	
<a href="#">激光魔盒接口文档V1.1</a>	pdf	2020-12-01	872KB	
<a href="#">回测地址使用文档V1.1</a>	pdf	2020-12-01	212KB	
<a href="#">错误码V1.0</a>	pdf	2020-12-01	153KB	
<a href="#">魔盒数据含义对照表V1.0</a>	pdf	2020-12-01	74KB	
<a href="#">激光智能魔盒产品说明书V2.1</a>	pdf	2020-12-02	1.28M	

激光魔盒

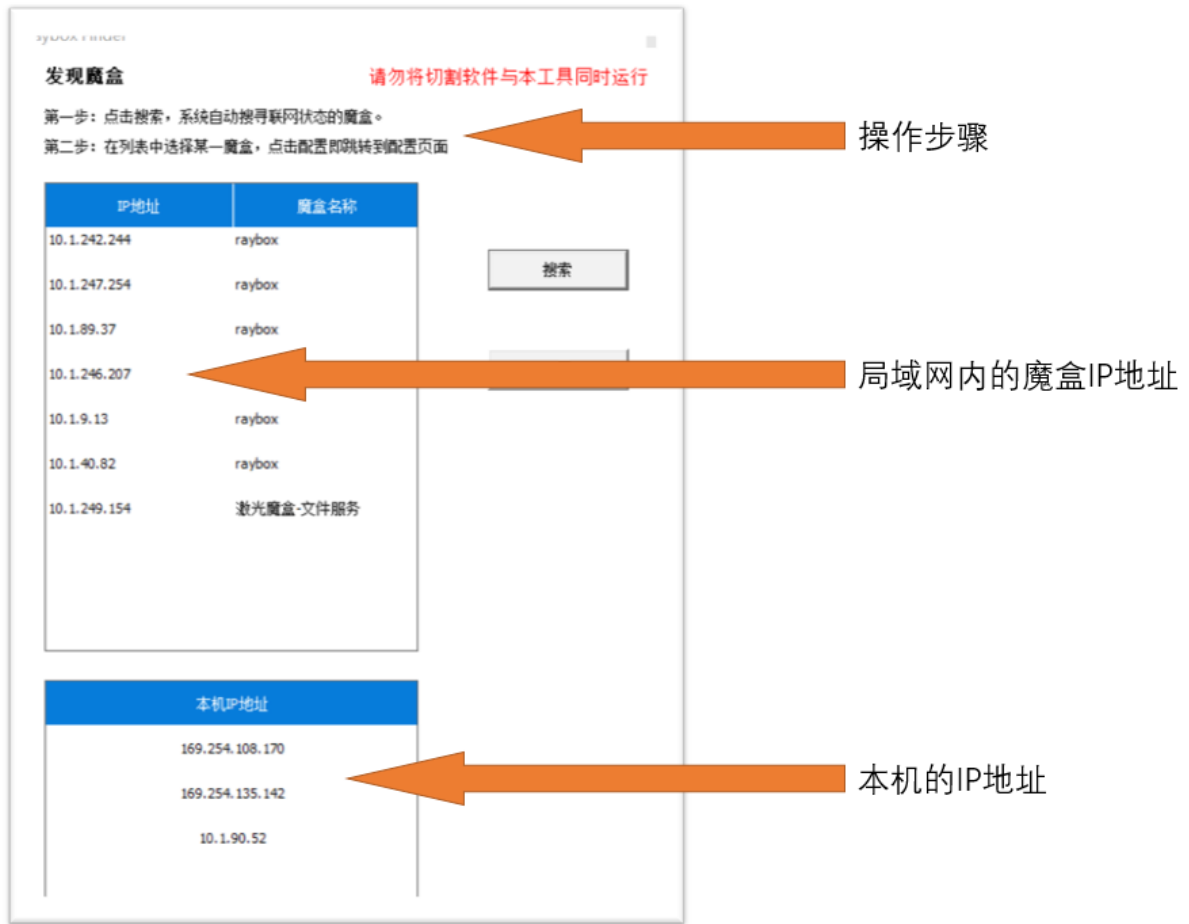
Drivers 驱动

小明盒使用说明

说明书平台

用户大会

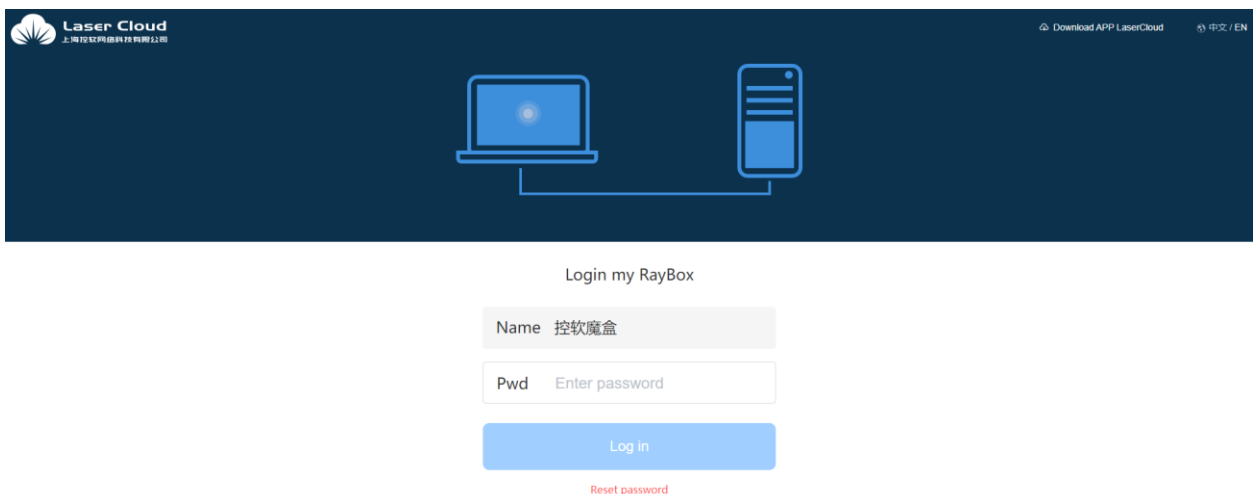
Click “搜索” to automatically find the RayBox in the local network, select one and click “配置” to open the RayBox web page.



Web address: 错误!超链接引用无效。 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:

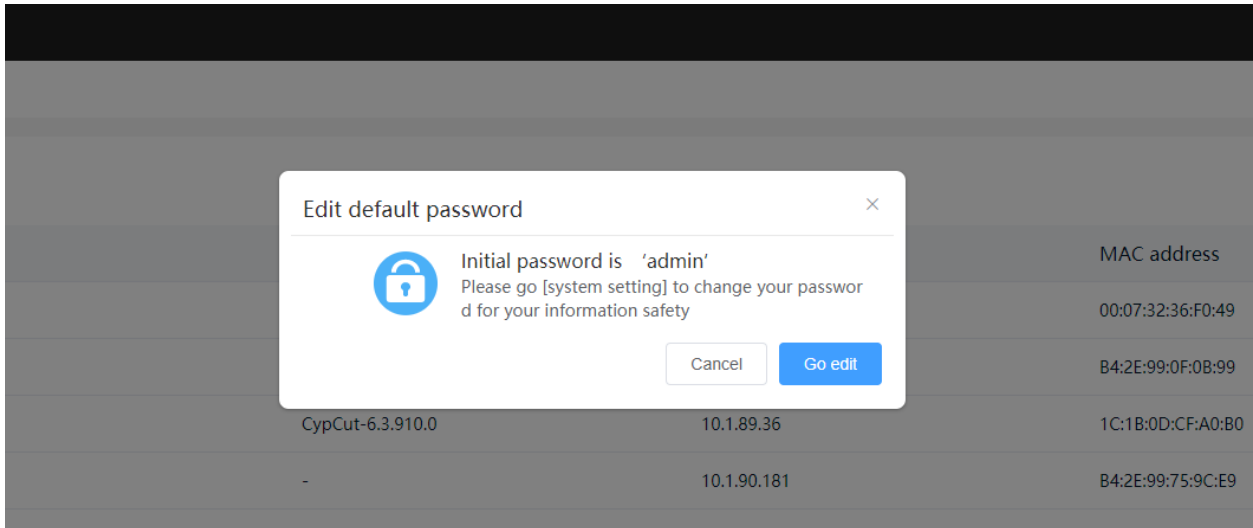




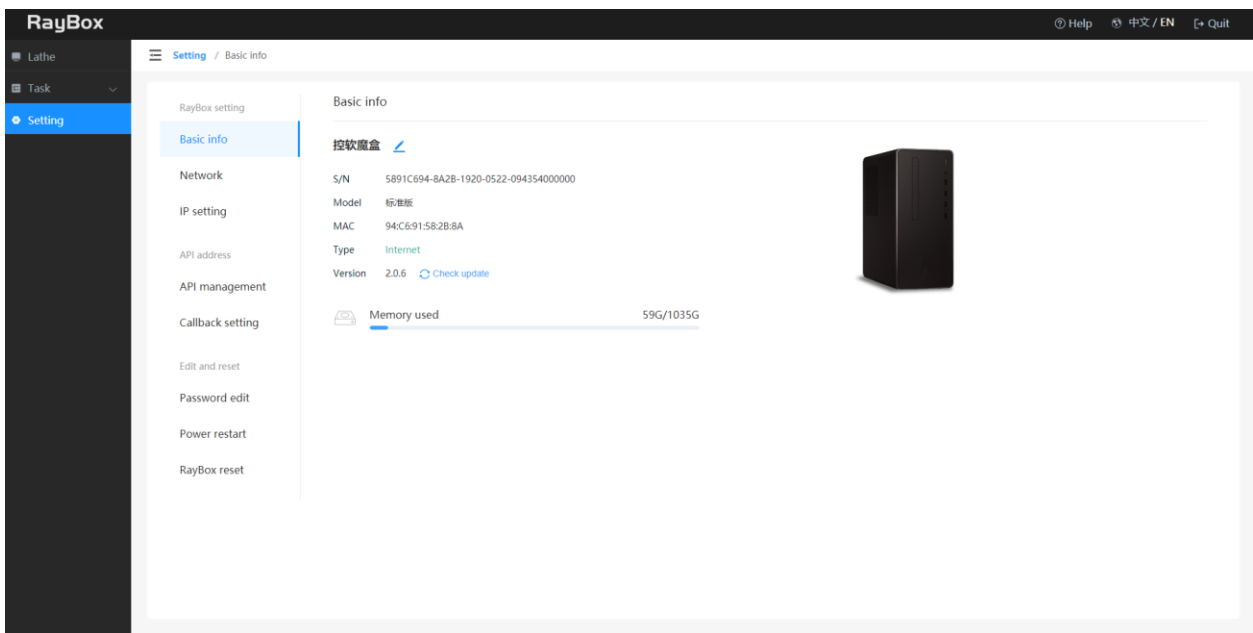
You can switch languages in the upper right corner.

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.**



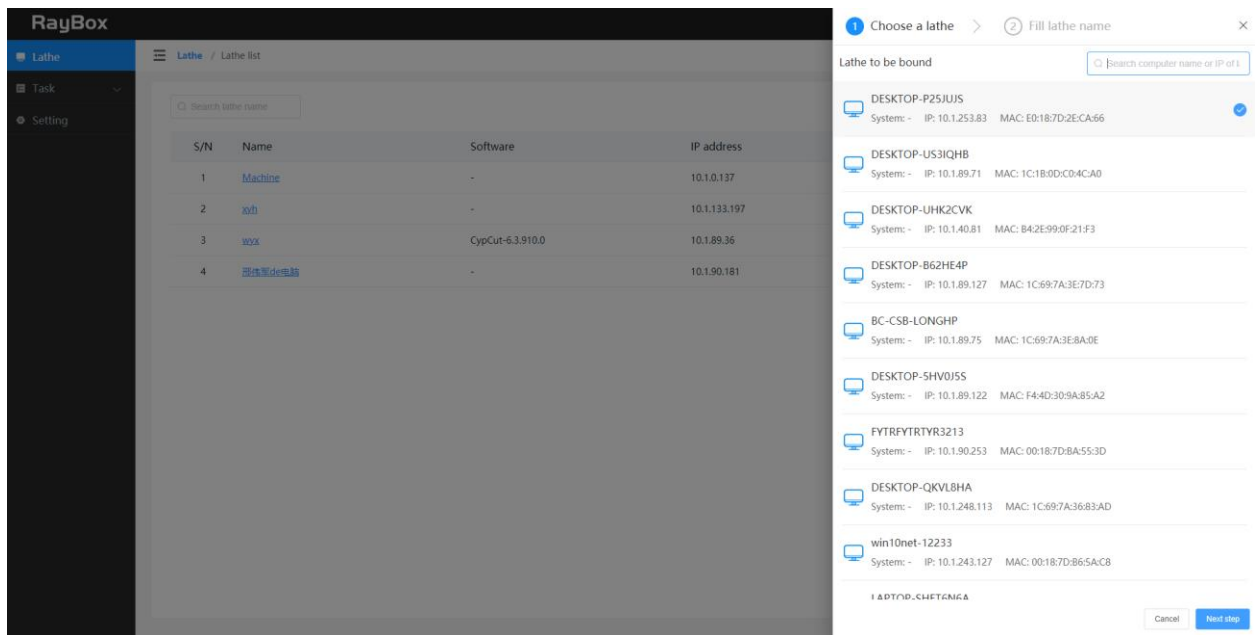
### 3.1.3 View basic information



## 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.

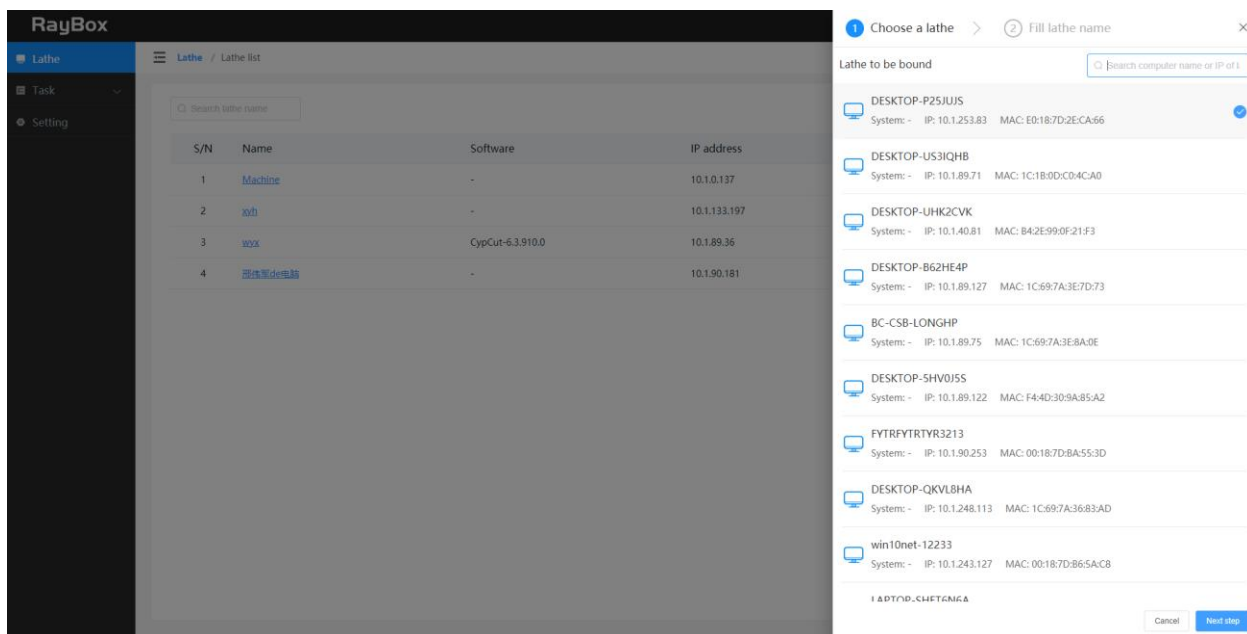


The machine tool can be judged according to the IP address or computer name, and the IP address of the machine can be checked by running the RayBox Finder.exe on the machine tool.



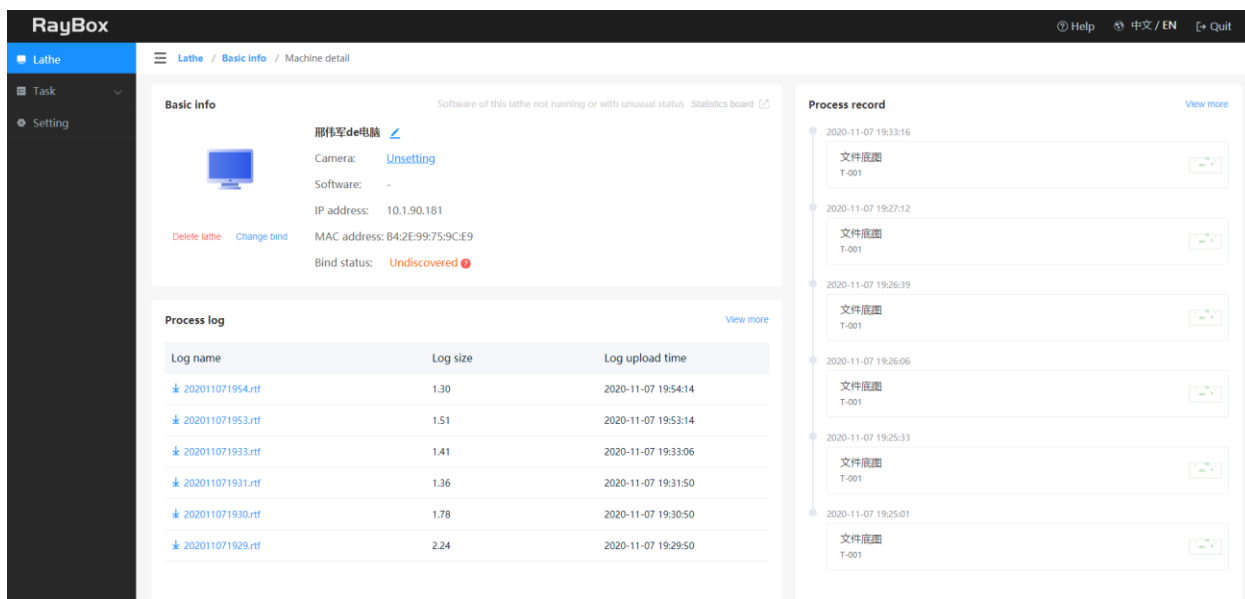
### 3.2.2 Lathe List

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



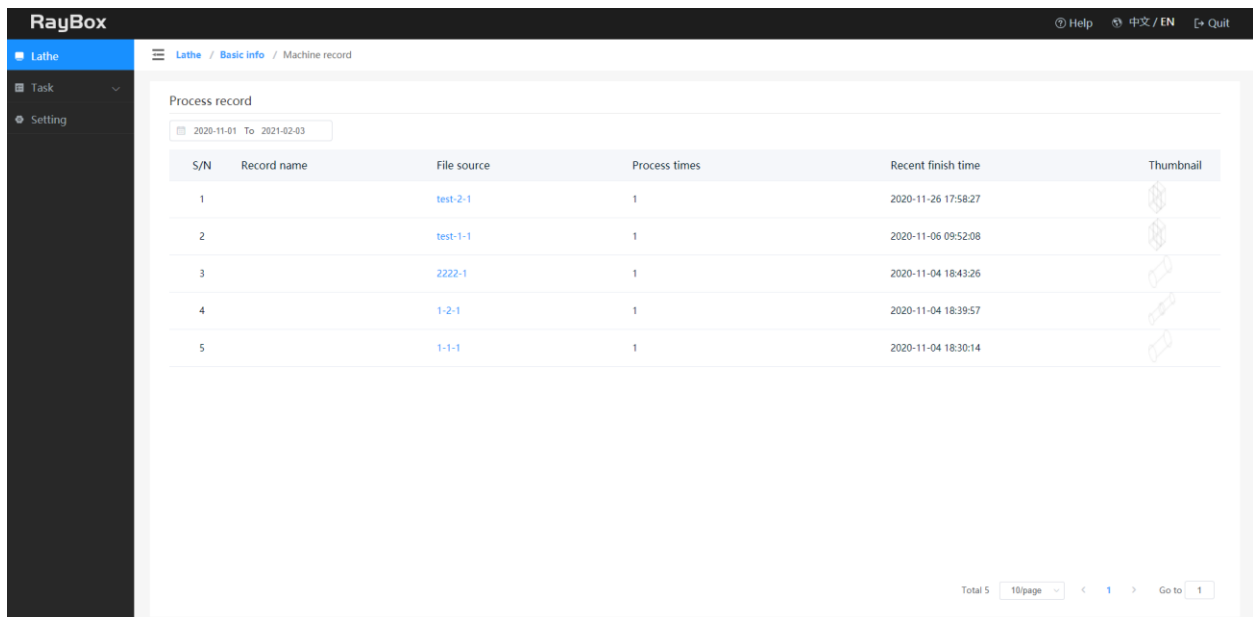
### 3.2.3 Lathe information

Basic information display of machine tools.



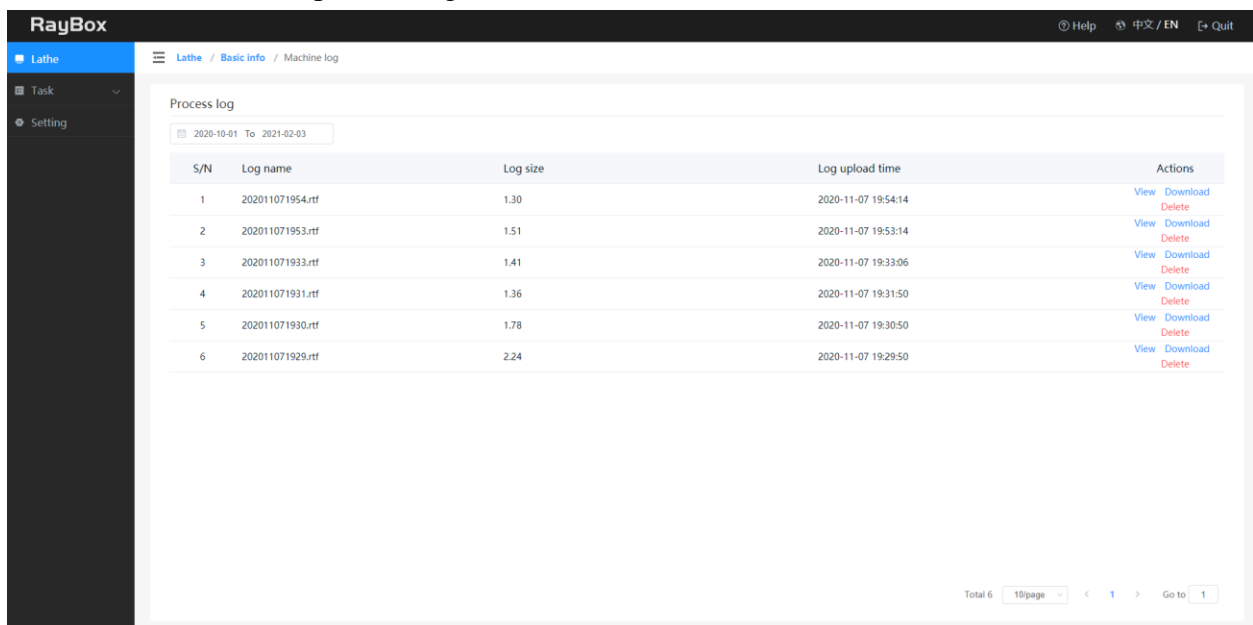
### 3.2.4 Process record

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.

名称	修改日期	类型
202009041455.rtf	2020/9/4 14:55	RTF 格式
202009071324.rtf	2020/9/7 13:24	RTF 格式
202009071326.rtf	2020/9/7 13:26	RTF 格式
202009071328.rtf	2020/9/7 13:28	RTF 格式
202009071329.rtf	2020/9/7 13:29	RTF 格式
202009071330.rtf	2020/9/7 13:30	RTF 格式
202009080945.rtf	2020/9/8 9:45	RTF 格式
202011061750.rtf	2020/11/6 17:50	RTF 格式
202011061751.rtf	2020/11/6 17:51	RTF 格式
202011061752.rtf	2020/11/6 17:52	RTF 格式
202011061755.rtf	2020/11/6 17:55	RTF 格式
202011061759.rtf	2020/11/6 17:59	RTF 格式
202011061808.rtf	2020/11/6 18:08	RTF 格式
202011111334.rtf	2020/11/11 13:34	RTF 格式
202012151416.rtf	2020/12/15 14:16	RTF 格式
202012151420.rtf	2020/12/15 14:19	RTF 格式
202012161020.rtf	2020/12/16 10:20	RTF 格式
202012161022.rtf	2020/12/16 10:22	RTF 格式
202012161023.rtf	2020/12/16 10:23	RTF 格式
202012161024.rtf	2020/12/16 10:24	RTF 格式
202012161025.rtf	2020/12/16 10:25	RTF 格式

### 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.

Task / Plane task

Process queue | TestList | Completed | Deleted

Search task name

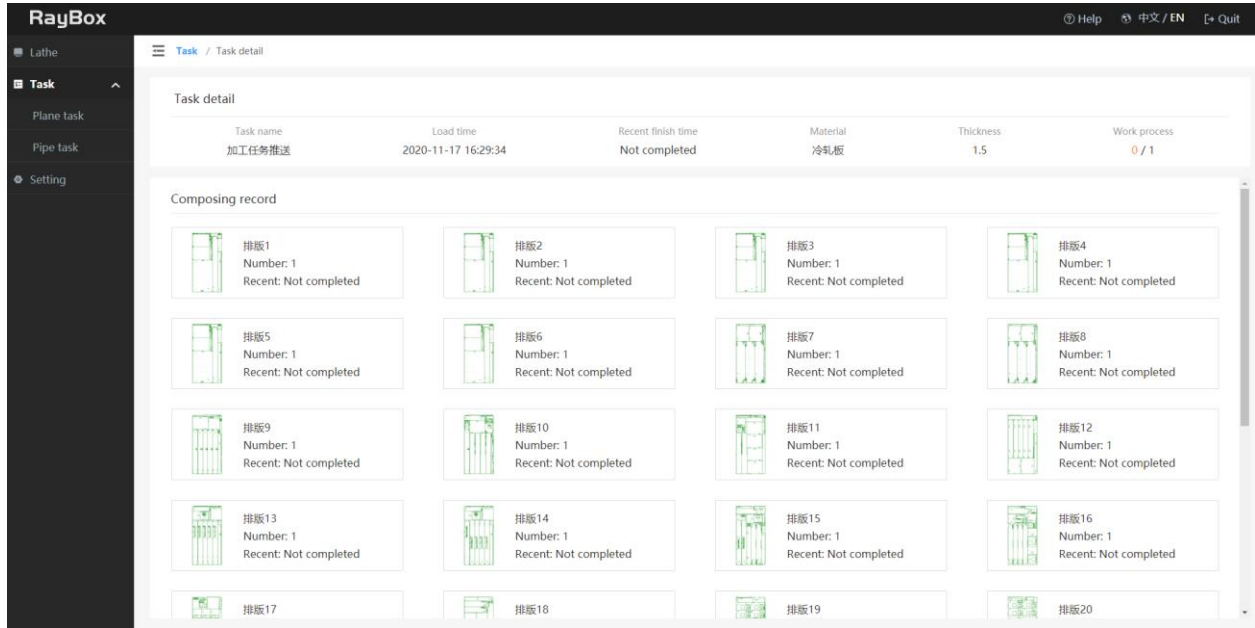
Batch operate | Add task

S/N	Task name	Task ID	Material size/mm	Load time	Recent finish time	Finish count	Actions
1	re Working lathe:Not specified		电镀锌板/0	11-26 17:54:27	Not completed	0/1	Move Delete
2	加工任务推送 Working lathe:Not specified		冷轧板/1.5	11-17 16:29:34	Not completed	0/1	Move Delete

Total 2 | 7/page | < 1 > | Go to 1

### 3.3.3 Task status

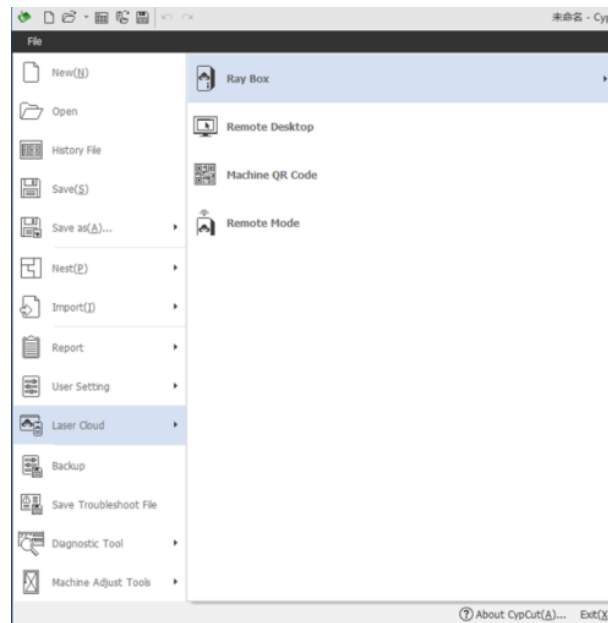
You can check the processing status of a task at any time, see the processing times of the task, the remaining processing times and the degree of completion.



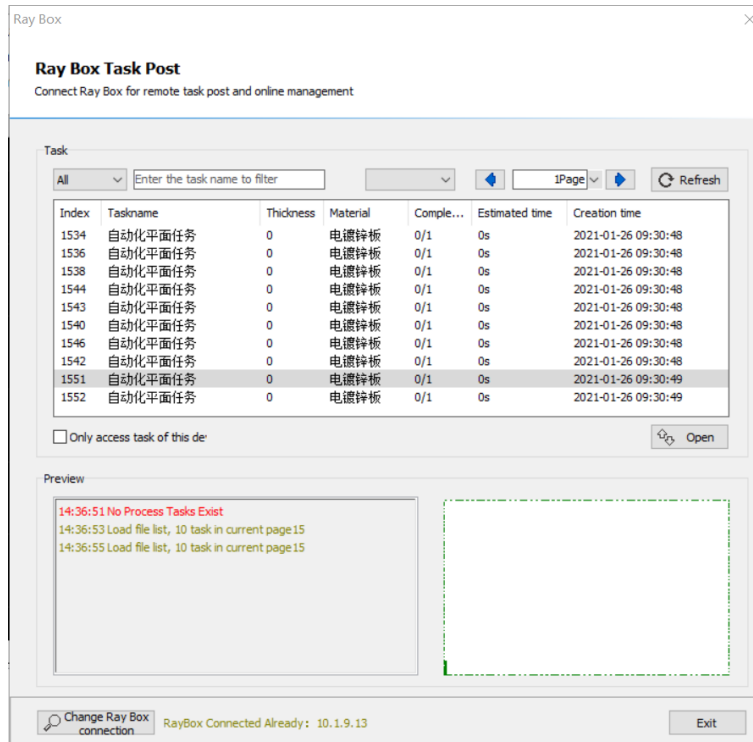
## 3.4 Software connect RayBox

### 3.4.1 CypCut connect RayBox

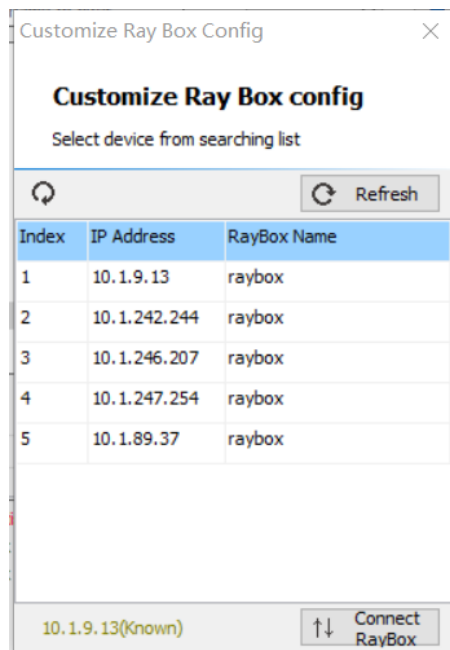
1. Open CypCut, Click on the upper left corner “File”



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



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



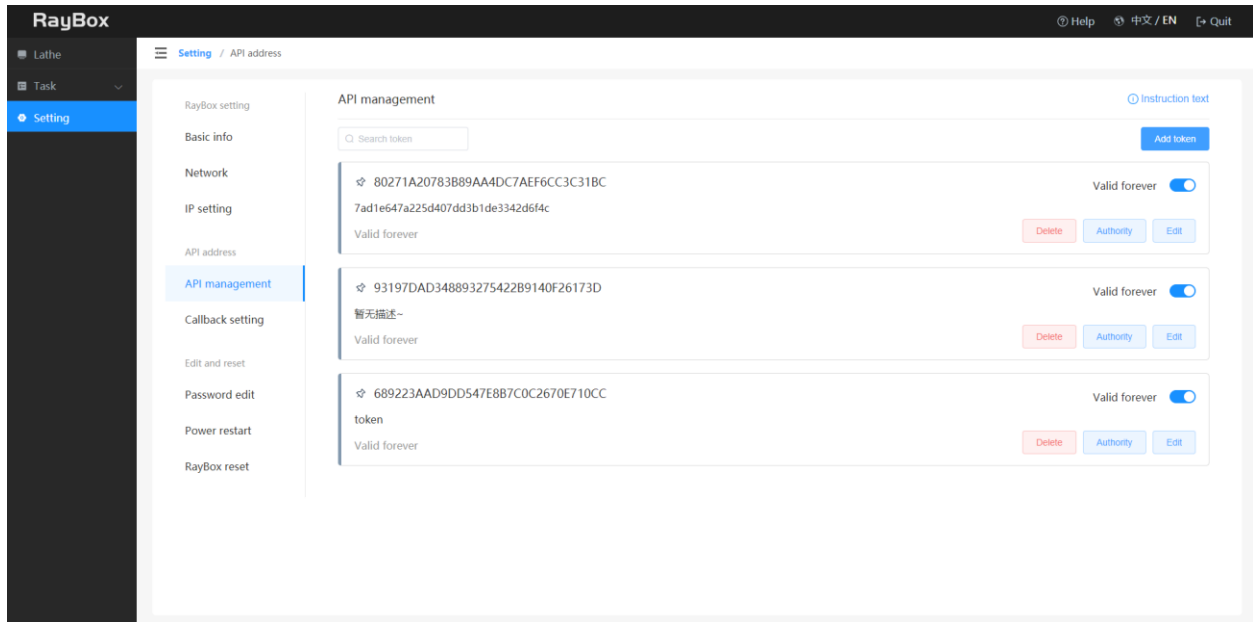
After connection, you can see the created tasks on the [RayBox], and you can click “open” for processing.



## 3.5 MES or service call interface

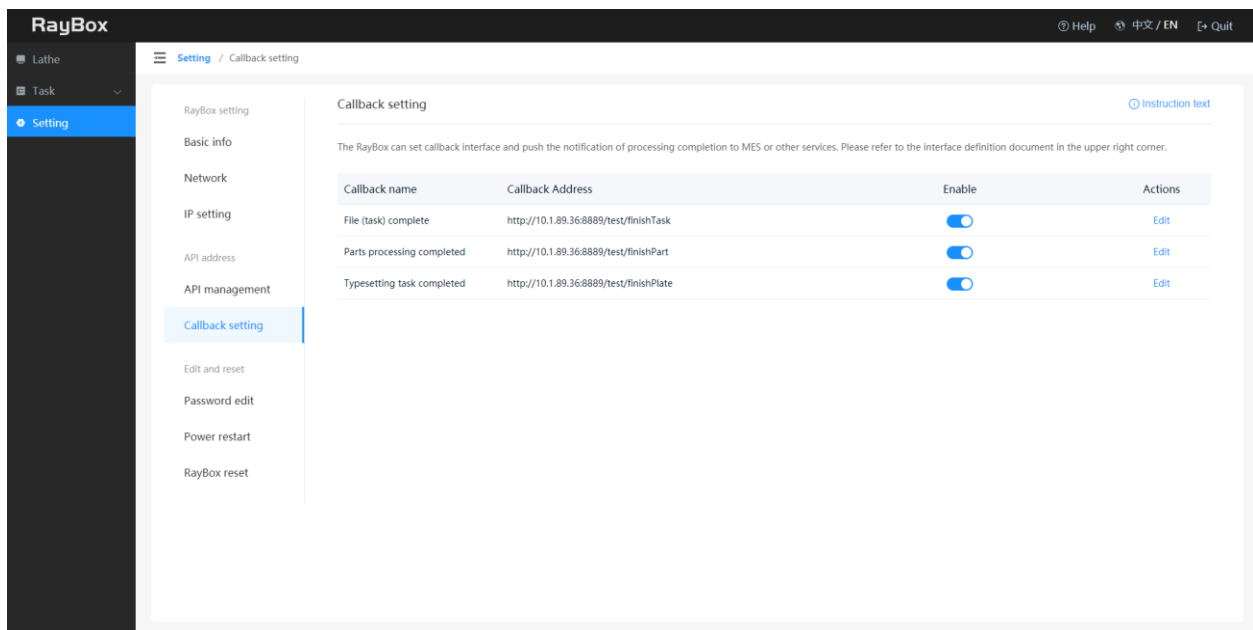
### 3.5.1 RayBox API interface management

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

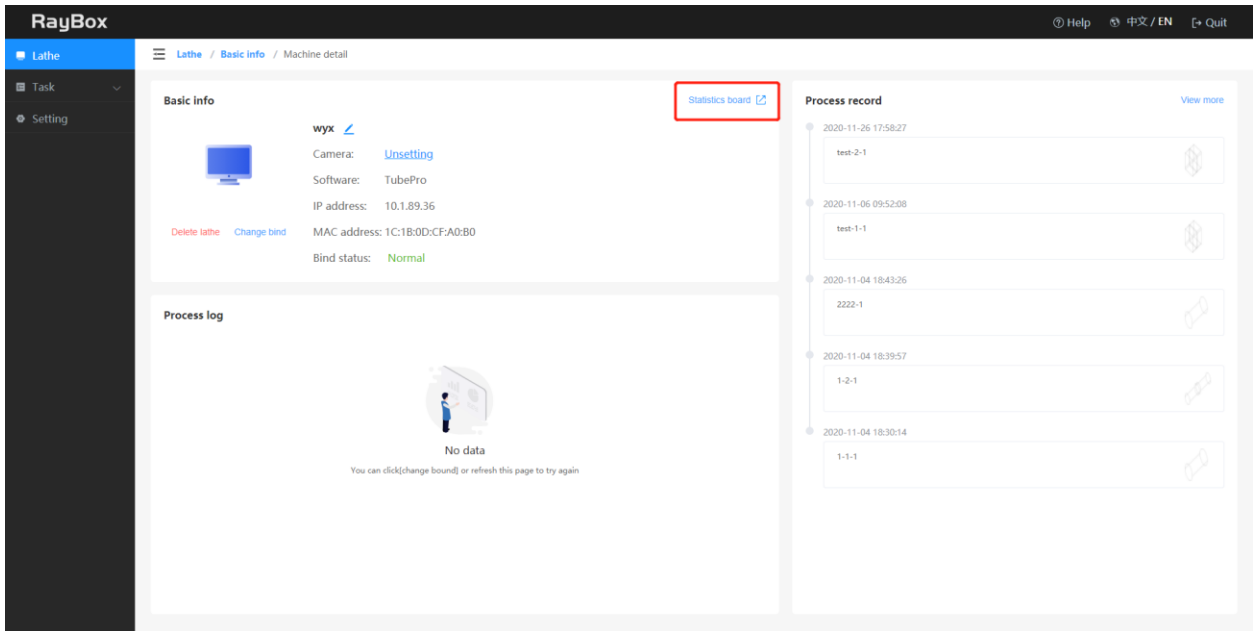
Push notifications to third-party services. For specific usage, please refer to the documentation in the upper right corner of the webpage.



## 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.

