LIN Gateway User Guide V0.1

1 REVISION HISTORY

Table 1 Revision History

| Rev #	Date	Action	By
0.1	11/05/2021	First draft	JackPan

2 TABLE OF CONTENTS

3 SYSTEM OVERVIEW

LIN gateway is designed to speed up indiemicro interior light and LIN bus-based production development, it integrates general LIN command editor, interior light color control and color configuration, bootloader, chip programming, and general color transition formula etc.
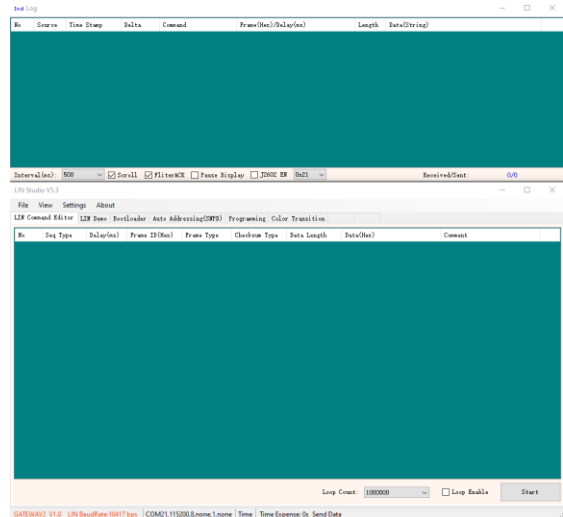
3.1 HARDWARE CONNECTION

LIN gateway is a LIN master, it transfers the data from PC software command to LIN slave and send back the LIN slave data to PC software.

4 PC SOFTWARE GUI DESCRIPTION

1) **_LOG and Debug Window_**: used to log all of the command and data which operated through Command Operation Window.

2) **_Command Operation Window_**: all of the commands are defined in this window.

Communication Port need to be set before communicating with LIN gateway:
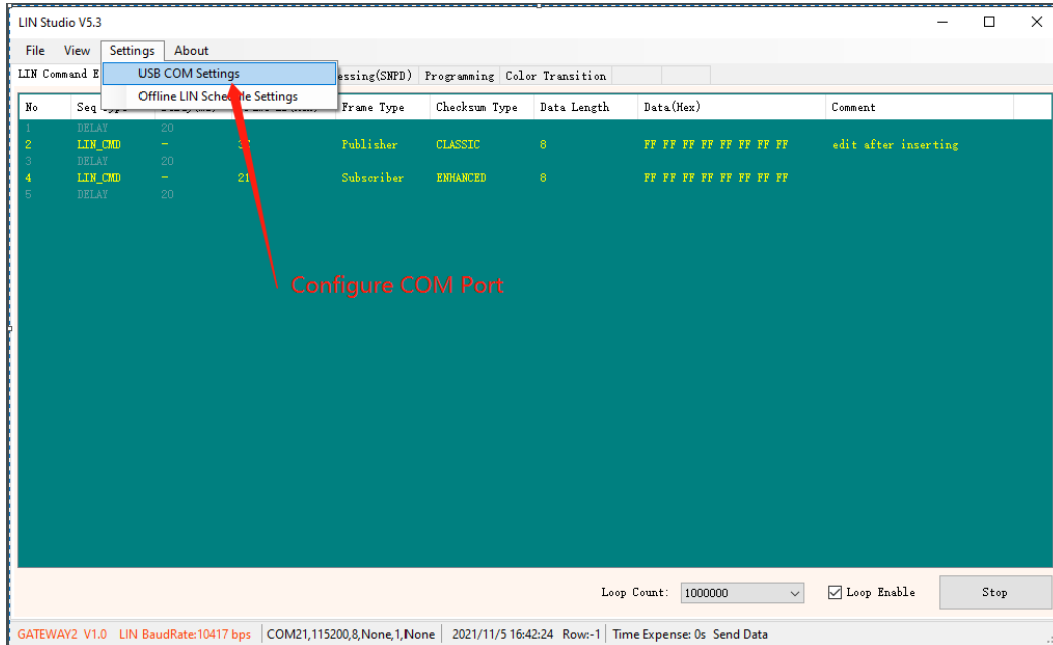
Select the gateway COM port and press OK button:

4.1 LOG AND DEBUG

1) **Interval(ms)**: data display refresh rate.

2) **Scroll**: always display the latest information when enabled.

3) **FilterACK**: there is handshake command between PC software and LIN gateway, disabled to check whether the communication is okey or not.

4) **Pause Display**: pause display to help browse the log data

5) **J2602 EN**: enabled to interpret J2602 command, if disabled, the developer can pick up the LIN2.2 state report command FID through the dropdown list (FID= 0x21 by default)

6) **Received/Sent**: Sent data and got data statistics.

Right click to save the data log or clear the log window.

4.2 COMMAND EDITOR
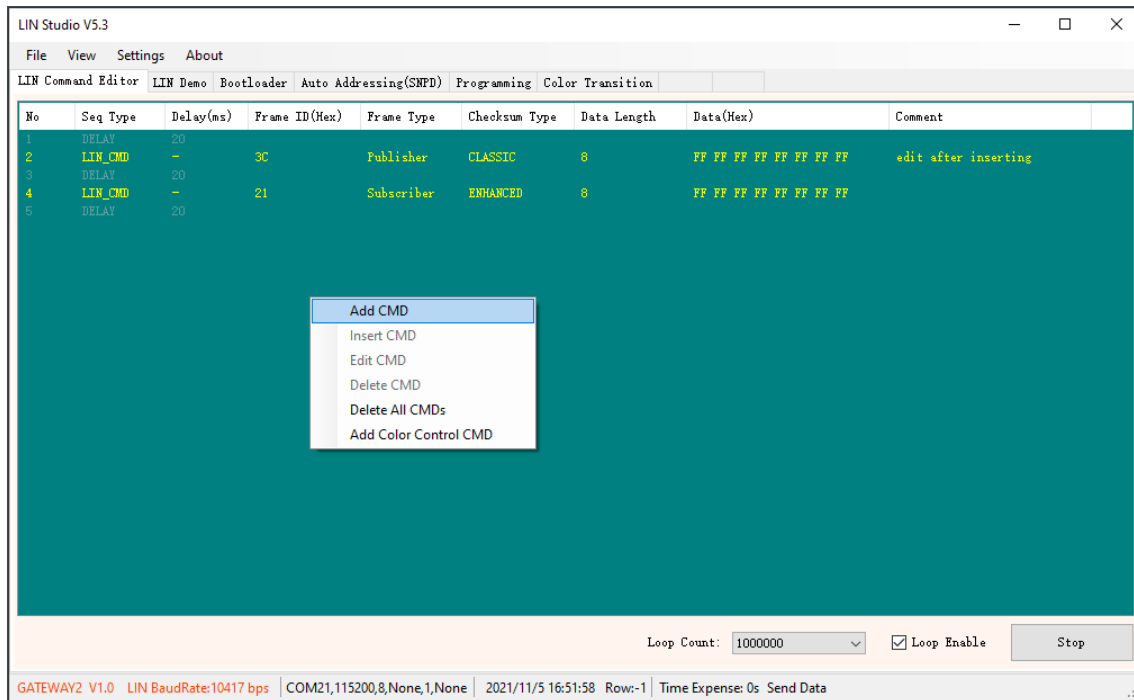
Edit LIN command by right clicking LIN command Editor page

1) **Add CMD** : Add LIN command or Add a delay time between LIN commands

2) **Insert CMD**: Insert command between exist commands.

3) **Edit CMD**: Edit exist command

4) **Delete all CMDs**: Clear all of the command in the command editor.

5) **Add Color Control CMD**: Add the color control command which is defined in SDK.

4.2.1 Command Content Edit

Click one of the commands to enter command configuration window:
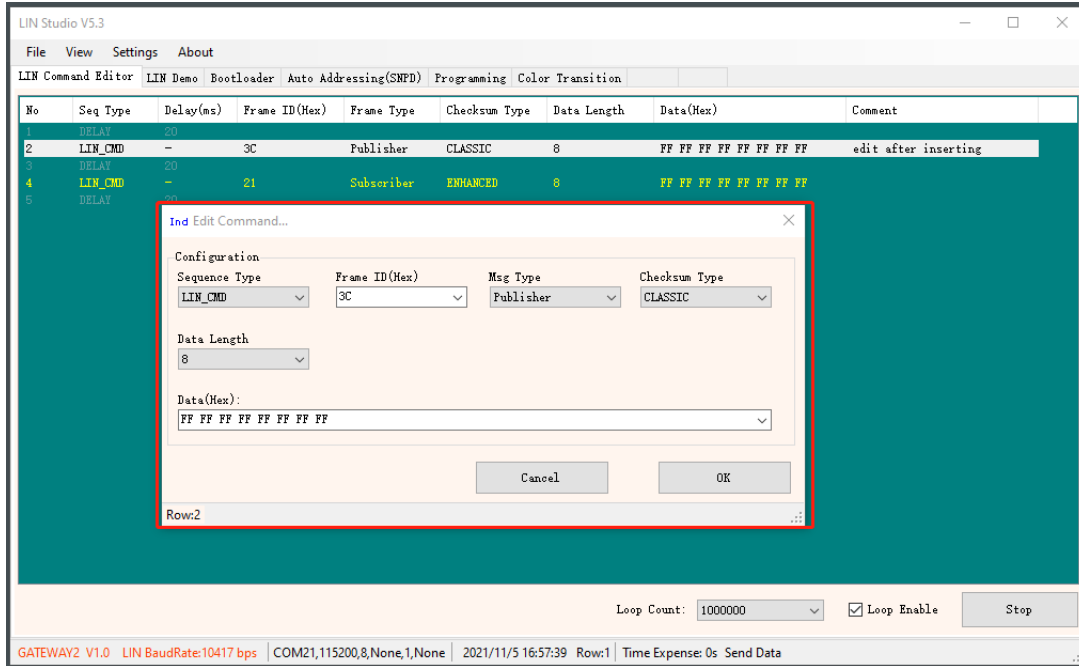
4.2.2 Save/Load commands to/from File
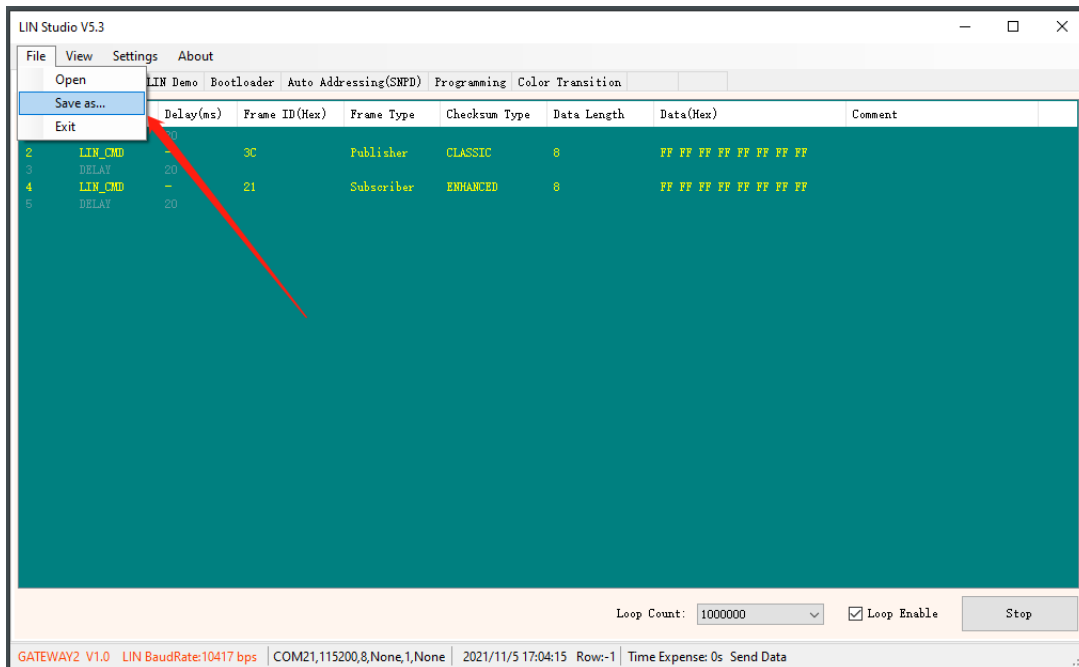
4.3 LIN DEMO
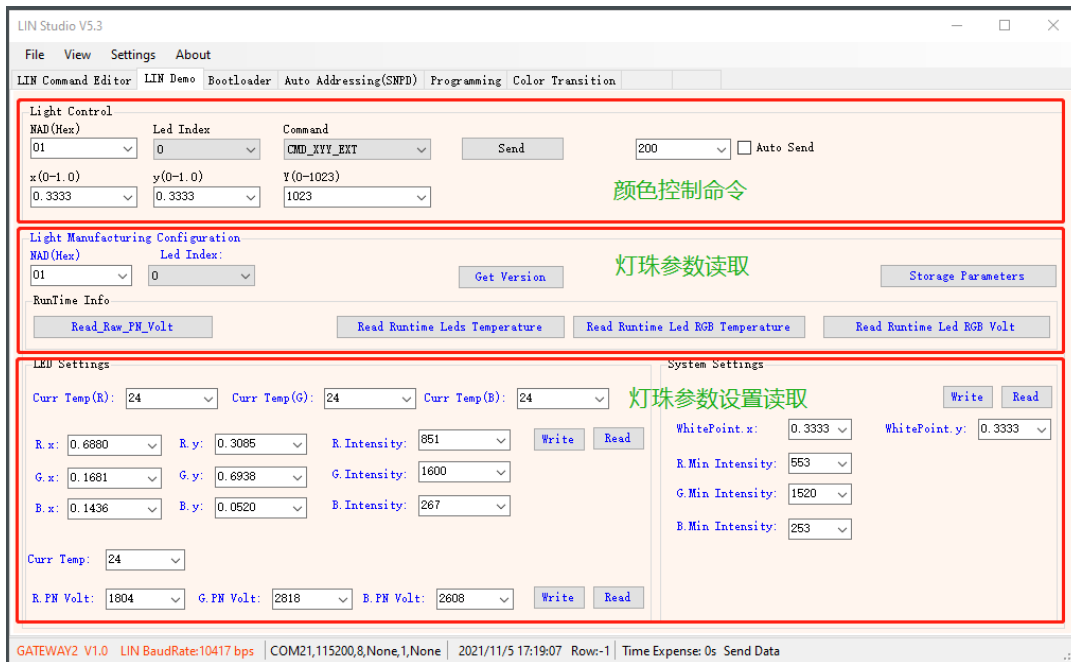
Refers to Color calibration user guide for specific information.

4.4 BOOTLOADER
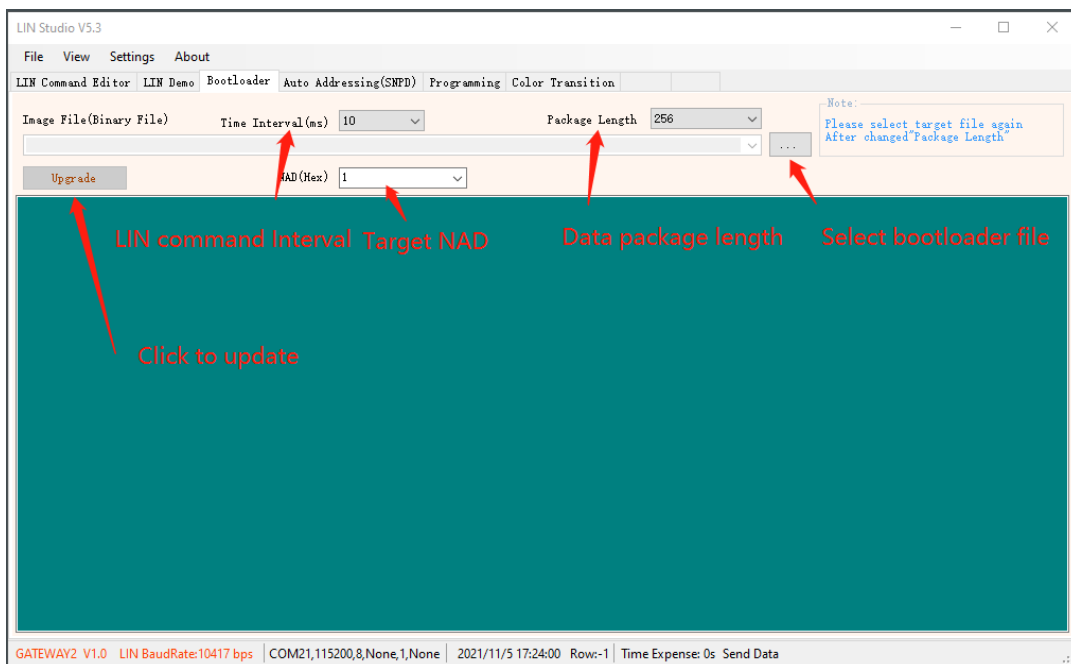
4.5 AUTO ADDRESSING
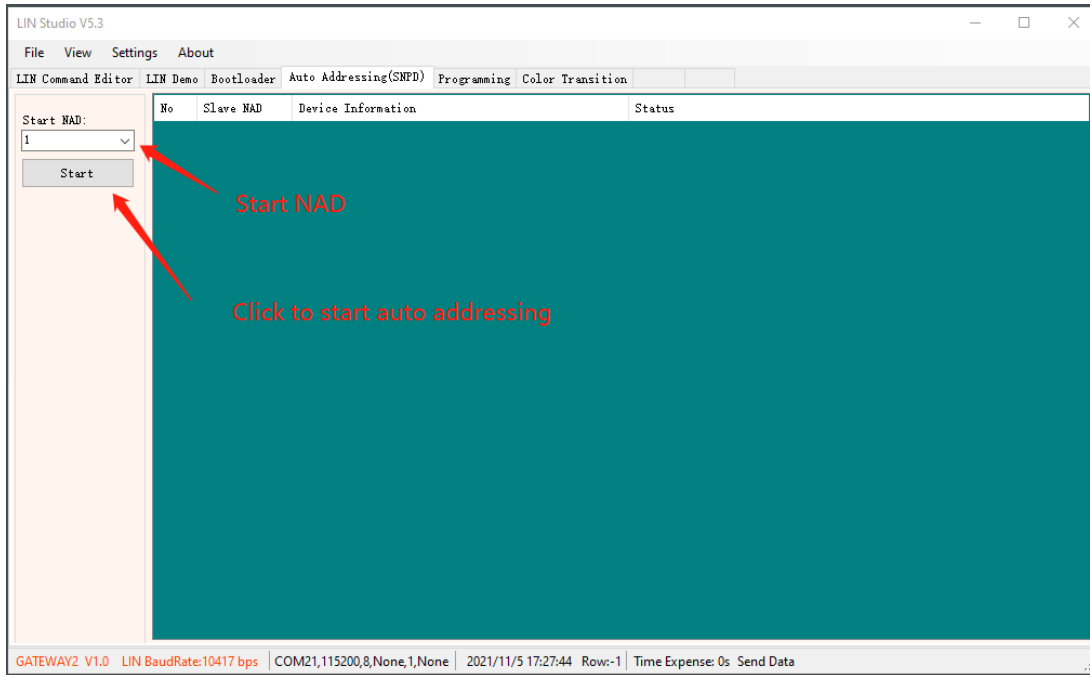
4.6 PROGRAMMING

Current PC tool supports programming the target device together with Jlink tool.
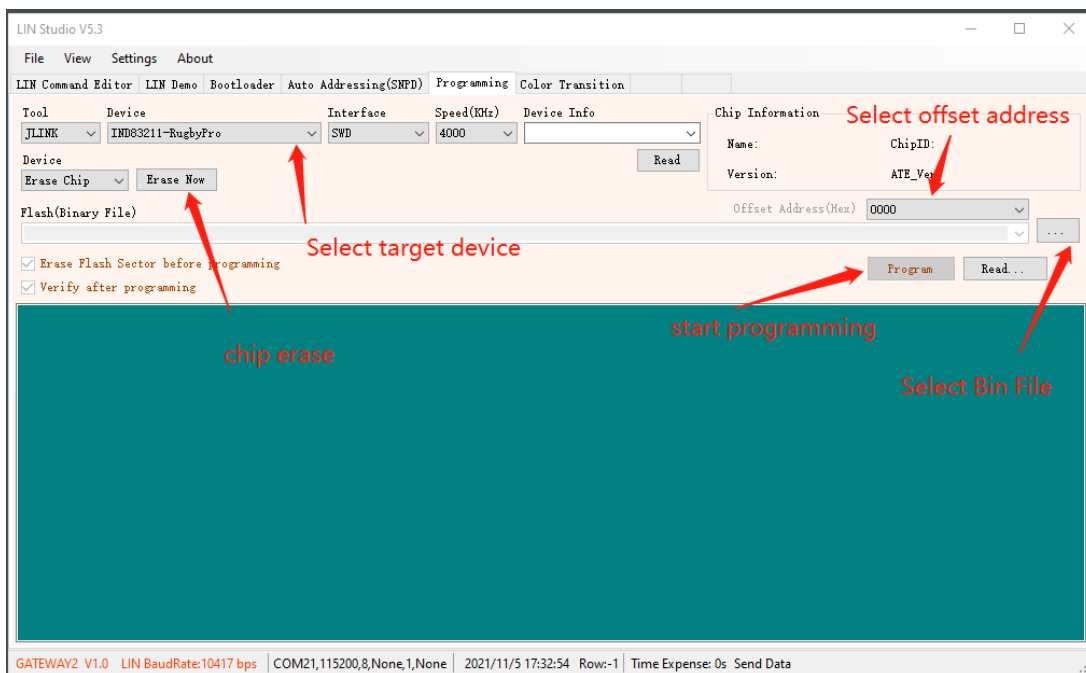
4.7 COLOR TRANSITION
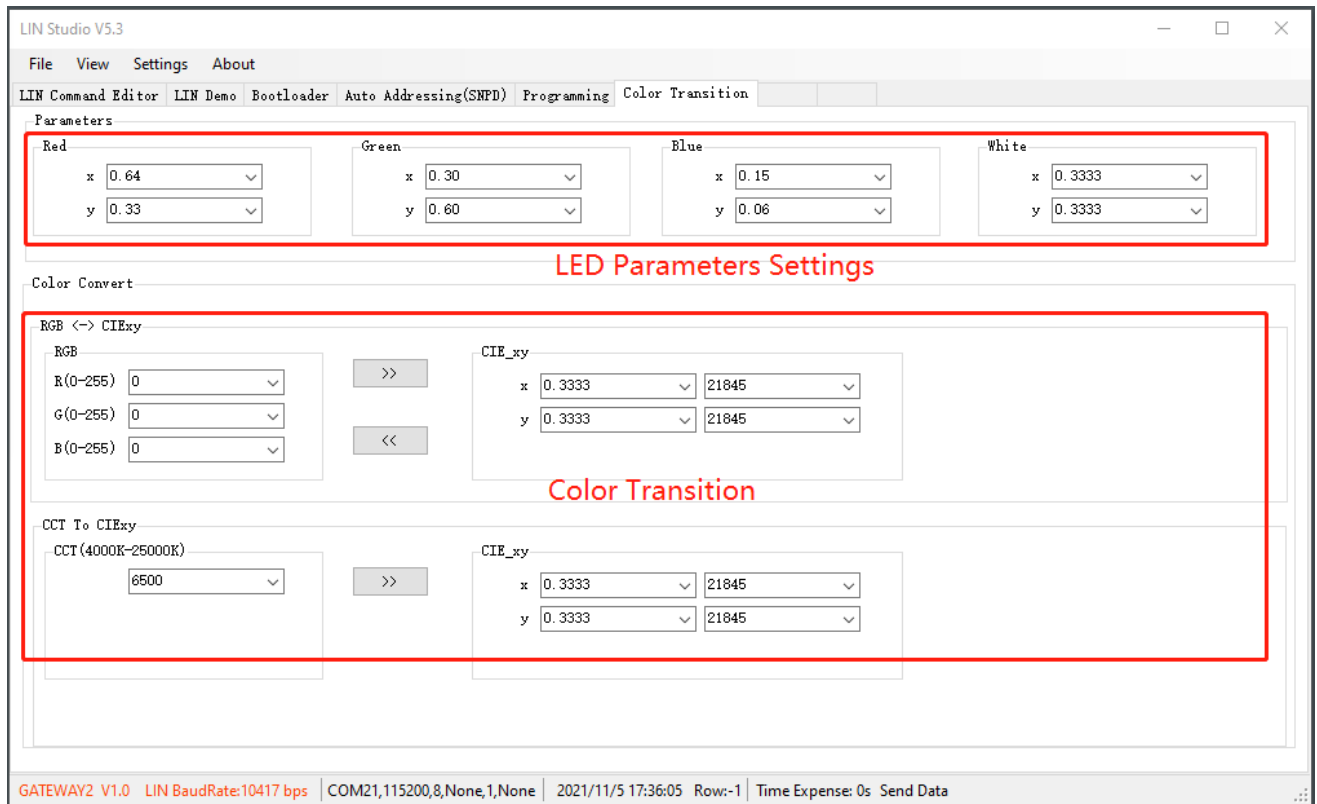
5 OFFLINE LIN COMMAND

There is an offline command editor in PC software which can run in gateway without PC tool, this function is only supported by LIN gateway V2.0.
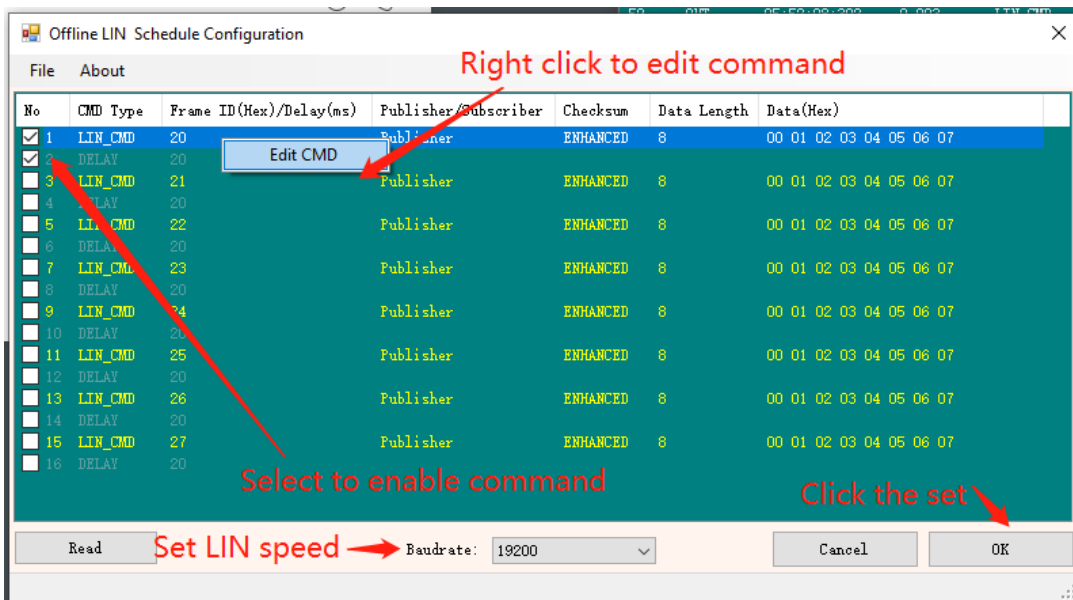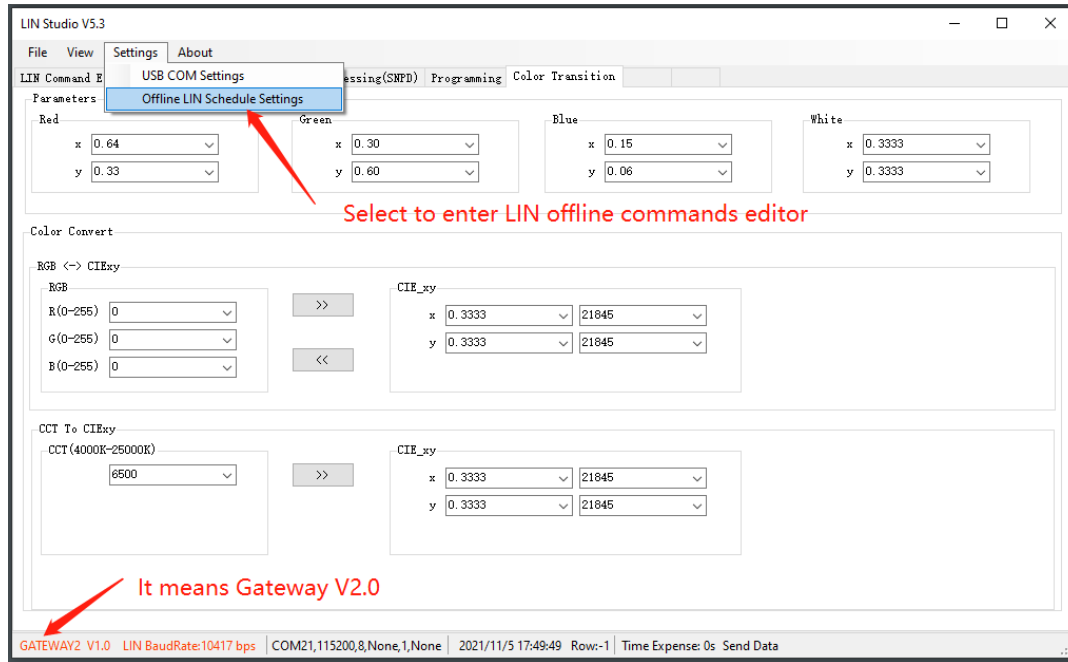
Press "START" button to run offline command periodically, Press "STOP" button to stop offline command.

6 COMMUNICATION PROTOCOL BETWEEN PC TOOL AND LIN GATEWAY

COM Settings:

BaudRate:	115200	
DataBits:	8	
Parity	None	
Stop Bits	1	

Data Frame Description

Head(1byte)	FrameID(1byte)	PEC(1byte)	Control Byte(1byte)			Data(Data Lengthbyte)
			Data Length:bit7:4	Frame Type:bit3:1	Checksum Type: bit0	Data[0:Data Length-1]

Head:	0x55:	SEND	**Frame ID**	0x00-0x3F	LIN Frame ID without Parity	
	0xA5:	ACK/RSP				

PEC	Sum of Control Byte + Data	**Control Byte**			
		Data Length	0-8	Data size	
		Frame Type	0x00:	Request Data	
			0x01:	Send data	
		Checksum Type	0x00:	Classic	
			0x01:	Enhanced	

Send Data To Target

|	Head(1byte)	FrameID(1byte)	PEC(1byte)	Control Byte(1byte)			Data(Data Lengthbyte)
				Data Length:bit7:4	Frame Type:bit3:1	Checksum Type: bit0	Data[0:Data Length-1]
SEND	0x55	FID		Len	1	Checksum	Data[0:Len-1]

	Head(1byte)	FrameID(1byte)	PEC(1byte)	Control Byte(1byte)			Data(Data Lengthbyte)
				Data Length:bit7:4	Frame Type:bit3:1	Checksum Type: bit0	
ACK	0xA5	FID		0	1	Checksum	

Request Data From Target

	Head(1byte)	FrameID(1byte)	PEC(1byte)	Control Byte(1byte)			Data(Data Lengthbyte)
				Data Length:bit7:4	Frame Type:bit3:1	Checksum Type: bit0	Data[0:Data Length-1]
Request	0x55	FID		Len	0	Checksum	Data[0:Len-1]=0xFF

	Head(1byte)	FrameID(1byte)	PEC(1byte)	Control Byte(1byte)			Data(Data Lengthbyte)
				Data Length:bit7:4	Frame Type:bit3:1	Checksum Type: bit0	
ACK	0xA5	FID		0	0	Checksum	

	Head(1byte)	FrameID(1byte)	PEC(1byte)	Control Byte(1byte)			Data(Data Lengthbyte)
				Data Length:bit7:4	Frame Type:bit3:1	Checksum Type: bit0	
RSP	0xA5	FID		Len	0	Checksum	Data[0:Len-1]