

N51

EVK User Guide

Issue 1.1 Date 2020-01-08



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Notice

This document provides a guide for users to use N51.

This document is intended for system engineers (SEs), development engineers, and test engineers.

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About This Document

Scope

This document is applicable to the N51 series.




Audience

This document is intended for [system engineers \(SEs\)](#), [development engineers](#), and [test engineers](#).

Change History

Issue	Date	Change	Changed By
1.0	2019-01	Initial draft	Evan Huang
1.1	2020-01	Changed chapter 4	Evan Huang

Conventions

Symbol	Indication
	This warning symbol means danger. You are in a situation that could cause fatal device damage or even bodily damage.
	This means the reader be careful. In this situation, you might perform an action that could result in module or product damages.
	Means note or tips for readers to use the module

Related Documents

Neoway_N51_Datasheet

Neoway_N51_Product_Specifications

Neoway_N51_HW_User_Guide

Neoway_N51_AT_Command_Manual

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1 Overview

N51 EVB is designed to commission and test the N51 module. It provides one power interface, three UART interfaces, one USB interface, two SIM card interfaces, one antenna interface, and one PWRKEY button. You can connect it to a power supply and a computer through the USB cable or serial-to-USB cable to commission the functions of the module.

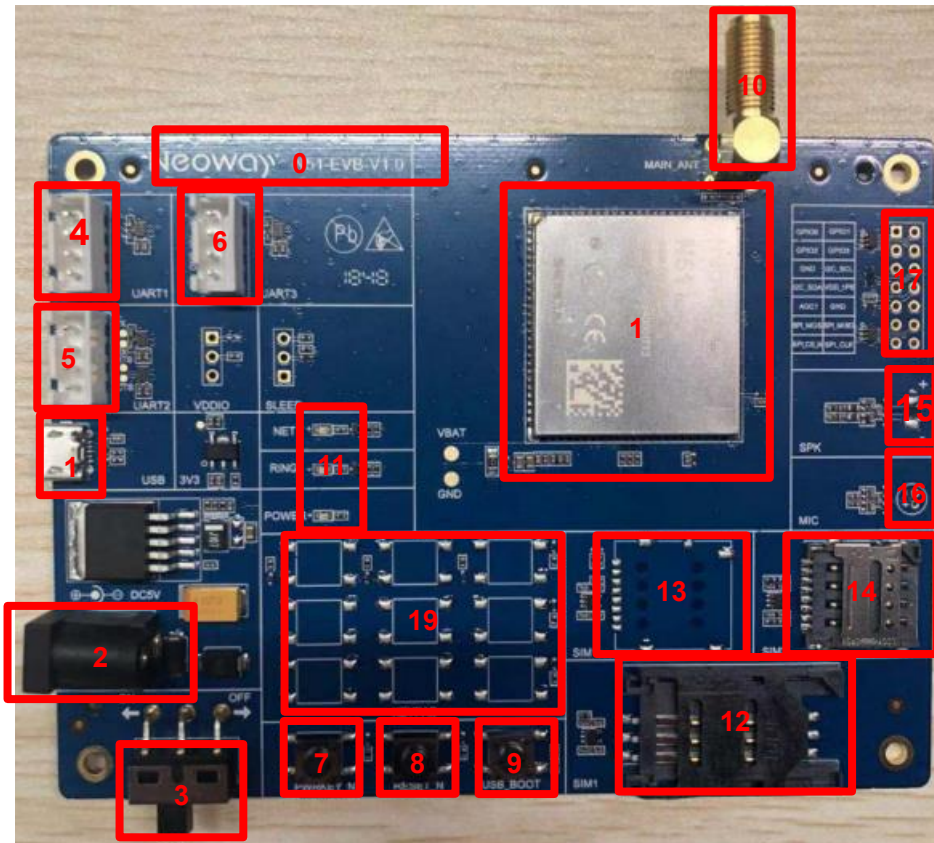
N51 EVK provides the following items:

- N51_EVB_V1.0 (including N51 module)
- M5X0-PWR power cable
- Micro-USB cable
- Others (5V/2A power adapter, 2G/3G antennas)

2 About N51 EVB

This chapter describes the hardware layout of the N51 EVB.

Figure 2-1 Top view of N51 EVB



In Figure 2-1, each interface and keys of N51 is marked in red rectangles. Read this user guide carefully before using N51 EVB. If necessary, please refer to the schematic diagram and PCB file of the board.

Table 2-1 lists each interface or button and their functions.

Table 2-1 Interfaces and button of N51 EVB

No.	Interface/Button	Description
0	N51_EVB_V1.0	EVB model
1	N51	Cellular module
2	5V DC power port	Main power supply, input 5V/2A
3	Power switch	ON/OFF

4	UART1	Not supported
5	UART2	Used to send and receive AT commands
6	UART3	Used to print log
7	PWRKEY_N button	After supplying power to the module, hold this button for more than 5 seconds to start the module
8	RESET_N button	Hold this button for more than 50 ms to reset the module
9	USB_BOOT button	Hold this button and power up the board, and the module will enter download mode.
10	MAIN_ANT	2G/3G antenna connector
11	LED	Ring, network status, and power indicators
12	SIM1 connector 1	SIM1 card connector
13	SIM1 connector 2	SIM1 card connector, supporting SIM card detection It is in DNI state.
14	SIM2 connector	SIM2 card connector. It does not support SIM detection. Not supported.
15	SPK	Not supported
16	MIC	Not supported
17	GPIO test interfaces	Not supported
18	USB port	To download firmware
19	3*3 keypad	Not supported

3 Power and Connection

Power is supplied for the N51 EVB only through a 5V DC adapter or external power cables. The N51 EVK provides one M5X0-PWR cable and one Micro-USB cable for data communication.

3.1 Power Supply

N51 EVB supports different types of power supply:

- 5V/2A DC adapter
Insert the DC output end into the DC port of the EVB.
- Soldering external power cable

3.1.1 5V/2A Adapter

Figure 3-1 shows the recommended power adapter for N51 EVB.

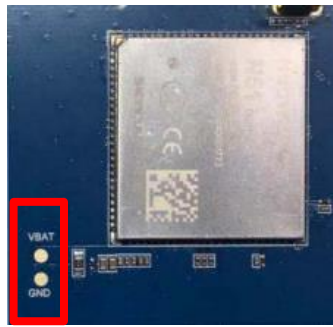
Figure 3-1 Power adapter



3.1.2 Soldering Power Cable

The N51 EVB provides solder pads for external power cables, as shown in Figure 3-2. The input voltage ranges from 3.4V to 4.2V and a 3.8V regulated power source is recommended.

Figure 3-2 Soldering pads

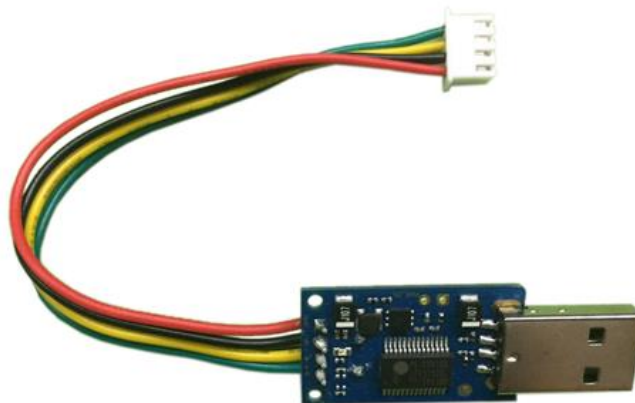


The power source supplies voltage to the module directly in this manner. Do NOT connect the pads reversely. Otherwise, the module will be burned and cannot be repaired.

3.2 Communication Connection

3.2.1 M5X0-PWR Board

M5X0-PWR board is developed on PL2303 chipset by Neoway and used to convert USB to UART. You can also choose another USB-to-UART cable/board based on FT2232, CP210X, and other chipsets.

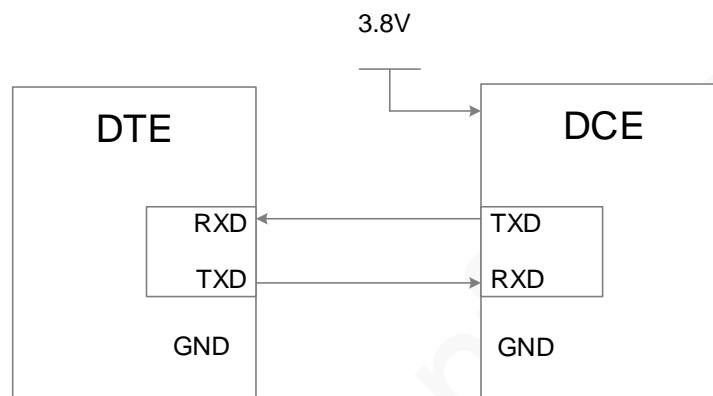


M5X0-PWR is connected to the N51 EVB through 4-pin cables, which have been soldered to the power board in a sequence of red, black, yellow, and green at one end and should be inserted into the plug of the EVB at the other end. Among the 4-pin cables:

- Green
Module TXD, output, CMOS level

- Yellow
Module RXD, input, maximum 3.3 V CMOS level
- Black
Ground
- Red
VBAT, main power input, 3.6V to 4.5V, 3.8 V recommended

To use the UART function, install the USB-to-UART driver (PL2303) first. If an MCU is used to control the module, connect the as shown in the following figure:



3.2.2 Micro-USB Cable

A micro-USB cable is used to connect N51 to a computer for USB or serial communication.

Figure 3-3 USB cable



4 Commissioning

N51 can be commissioned either through a serial port or a USB port. This chapter describes how to connect the module and how to implement commissioning through either port.

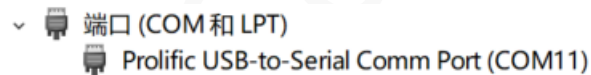
4.1 Through Serial Port

Step 1: Connect the EVB board and start it.

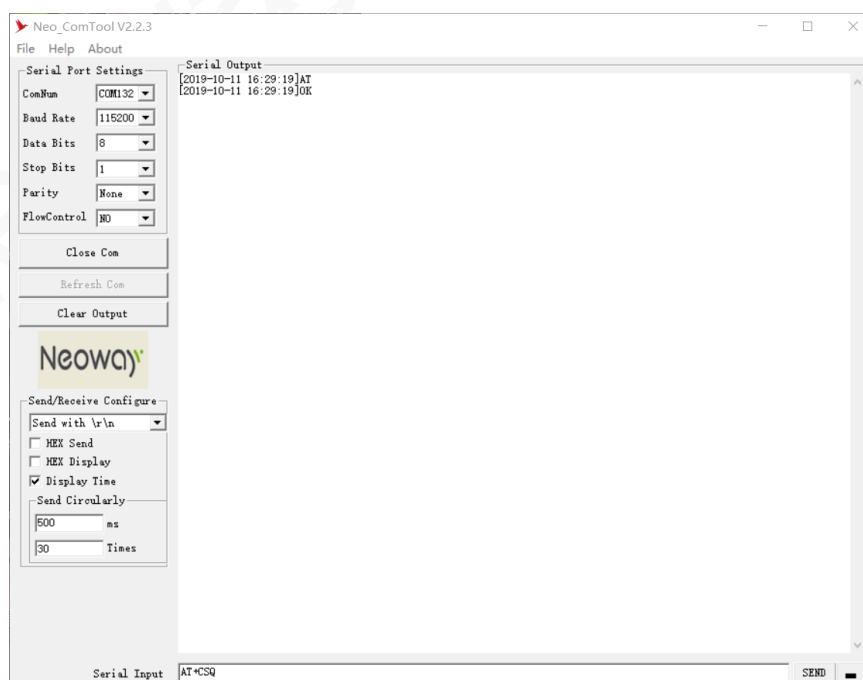
1. Connect it to the computer through the M5X0-PWR board.
2. Use the 5V adapter to supply power and push the power switch to the ON side.
3. Hold the PWRKEY_N button for 5 seconds, and the module starts up.

Step 2: Install the PL2303 driver.

Obtain the driver package from Neoway FAE or download it from the Internet if you use the serial-to-USB cable Neoway provided.



Step 3: Start the Neo_ComTool and send AT commands.



4.2 Through USB Port

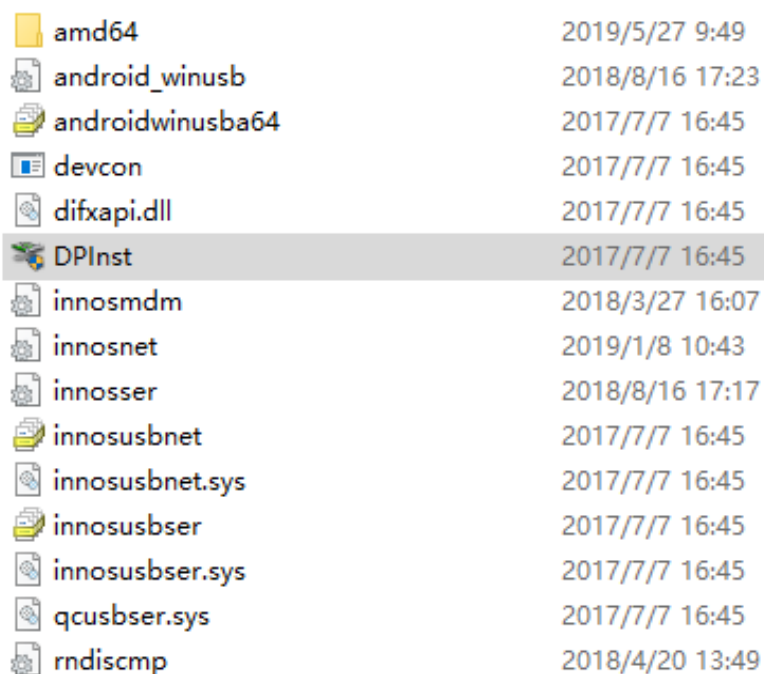
Perform the following steps to commission N51 through USB port:

Step 1: Connect the EVB board and start it.

1. Connect it to the computer through the USB cable.
2. Use the 5V adapter to supply power and push the power switch to the ON side.
3. Hold the PWRKEY_N button for 5 seconds, and the module starts up.

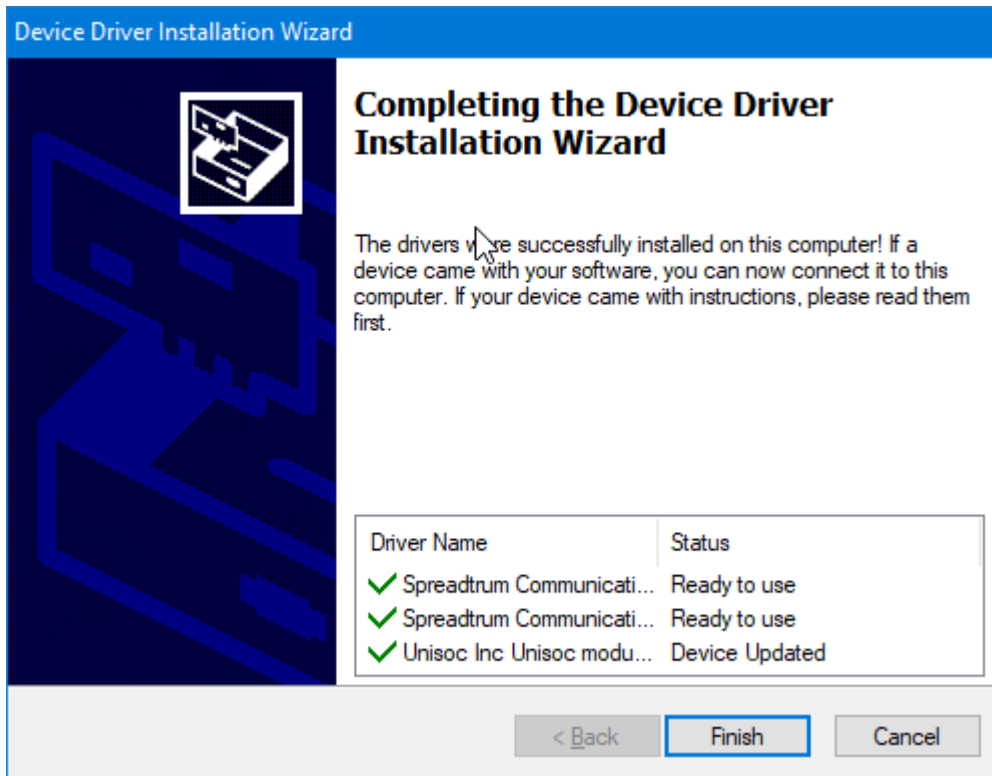
Step 2: Install the N51 USB drivers on your computer.

1. Decompress the N51 tool package that Neoway provides.
2. Open the folder of the driver for your OS.



amd64	2019/5/27 9:49
android_winusb	2018/8/16 17:23
androidwinusb64	2017/7/7 16:45
devcon	2017/7/7 16:45
difxapi.dll	2017/7/7 16:45
DPInst	2017/7/7 16:45
innosmdm	2018/3/27 16:07
innosnet	2019/1/8 10:43
innosser	2018/8/16 17:17
innosusbnet	2017/7/7 16:45
innosusbnet.sys	2017/7/7 16:45
innosusbser	2017/7/7 16:45
innosusbser.sys	2017/7/7 16:45
qcusbser.sys	2017/7/7 16:45
rndiscomp	2018/4/20 13:49

3. Double-click **DPInst.exe** and install the drivers by following the installation Wizard.



- If any driver fails to be installed, update it in Device Manager.
- If the driver still cannot be installed, contact Neoway FAE.

Step 3: Start the Neo_ComTool and send AT commands.

