

# USB-SATA Bridge Manufacturing Kit

Introduction & Development

by

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- What is included in this Kit?
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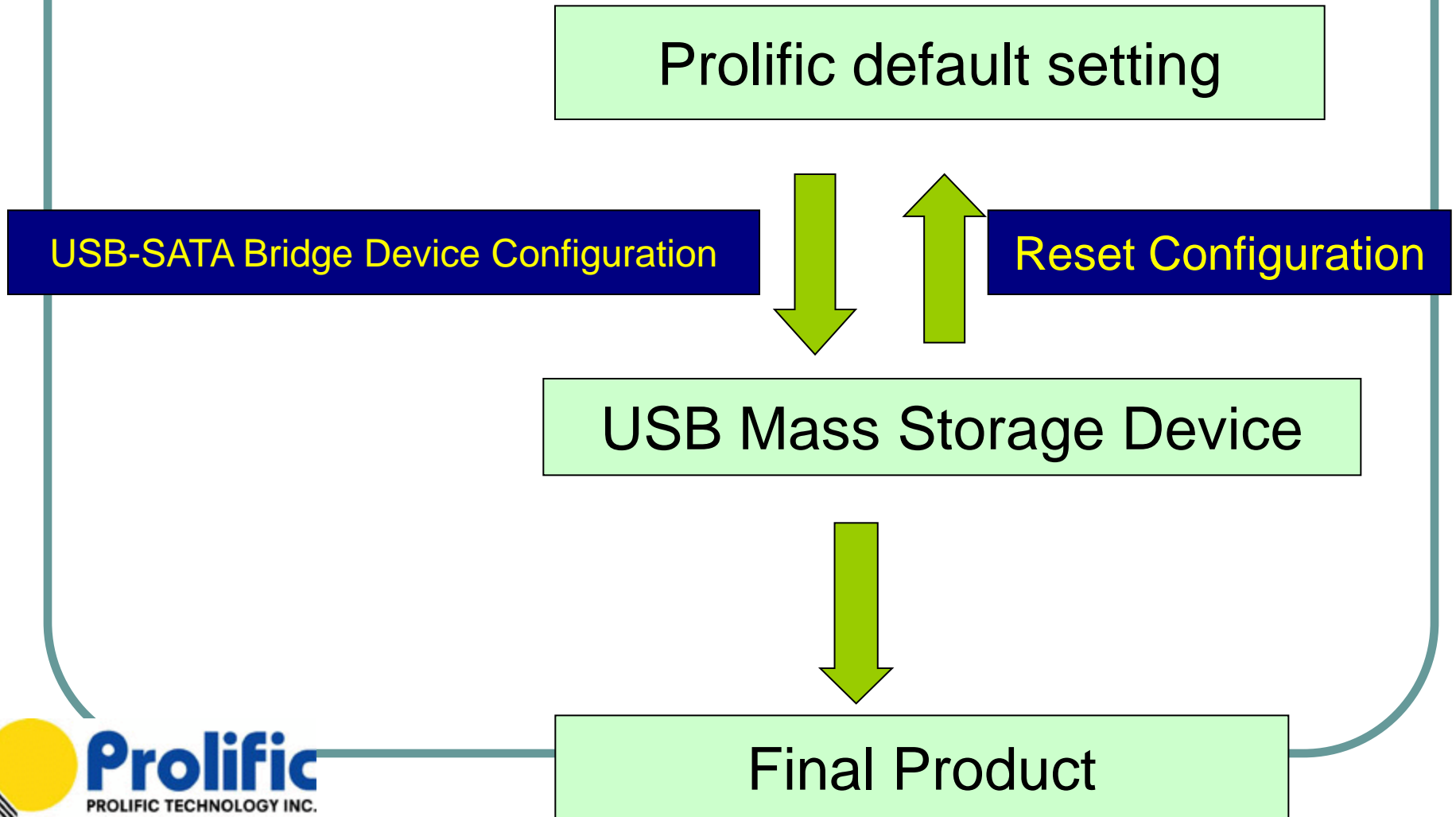
- 2.1 EEP Editor (Hotkey Alt+E)
- 2.2 MultiPortConfiguration

# 1. Overview

# What is included in this Kit?

- **USB-SATA Bridge Manufacturing Kit**
  1. Tool to Configure USB-SATA Bridge Device
    - a. EEPROM Editor (Hotkey Alt+E)
    - b. USB-SATA Bridge Device MultiPortConfiguration

# USB-SATA Bridge Device Production Flow



## 2. Build USB-SATA Bridge Device

-2.1 EEPROM Editor (Hotkey Alt+E)

-2.2 MultiPortConfiguration

# 2.1 EEPROM Editor

- Content
  - 2.1.1 EEPROM Editor Description
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    - A. EEPROM Editor overview
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  - 2.1.3 EEPROM Editor Operation Step
    - A. configure chip step
    - B. EEP file operation
  - 2.1.4 EEPROM file Naming rule
  - 2.1.5 Virtual ODD image operation

## 2.1.1 EEPROM Editor Description

- EEPROM editor is the tool :
  - to compose the **EEP file** which is the SOP for production line
  - to define the configuration information of USB-SATA Bridge Device, such as
    - USB information
    - Firmware information
  - to generate a production evaluation sample



# 2.1.2.a EEP Field Sample

The screenshot displays the 'EEPROM Editor - Prolific' application window. It is divided into two main sections: 'USB Descriptor Table' on the left and 'Firmware Information' on the right.

**USB Descriptor Table:**

- Vendor ID: 067B
- Product ID: (empty)
- Vendor Desc: Prolific Technology Inc.
- Product Desc: USB-SATA Bridge
- PCB Revision: 0100
- Serial Number: PROLIFICMP 000000001
- ☒ Exceed 10-Bytes
- Attributes: ☒ Self-Powered

**External Firmware Information:**

- ☐ Filename: (empty) ...
- Checksum: (empty)
- ☐ ISO Filename: (empty) ...

**Firmware Information:**

- Device: No device (dropdown menu)
- Version: (empty)

**Buttons:**

- Read chip
- Write configure & FW
- Load EEP
- Save to EEP
- Erase Chip
- More >>
- Exit

# 2.1.2.b.1 EEP Field Definition

## ● USB Descriptor Table Information

- Vendor ID (VID assigned by USB-IF)
  - *character length = 4*
- Product ID (PID)
  - *character length = 4*
- Vendor Desc (Manufacturer Name)
  - *character length = 31*
- Product Desc (Product Name)
  - *character length = 31*
- PCB Revision (bcdDevice)
  - *character length = 4*
- Serial Number
  - *character length = 10*
  - *character length = 10+9 (Exceed 10-Bytes enabled)*
- Attributes
  - Self-powered (default enabled) or bus-powered (self-powered disabled)

USB Descriptor Table

Vendor ID:	<input type="text" value="067B"/>	Product ID:	<input type="text"/>
Vendor Desc:	<input type="text" value="Prolific Technology Inc."/>		
Product Desc:	<input type="text" value="USB-SATA Bridge"/>		
PCB Revision:	<input type="text" value="0100"/>		
Serial Number:	<input type="text" value="PROLIFICMP"/>	<input type="text" value="000000001"/>	<input checked="" type="checkbox"/> Exceed 10-Bytes
Attributes:	<input checked="" type="checkbox"/> Self-Powered		

**Vendor ID, Product ID fields are in alphanumeric, and all fields should not be blank.**

## 2.1.2.b.2 EEP Field Definition

- **External Firmware and AutoRun ISO Filename**
  - Filename
    - *Firmware hex file*
    - *Checksum value of hex file*
  - ISO Filename (Optional)
    - *AutoRun ISO file (to be written in Virtual CDROM)*
      - *Requires to load AutoRun firmware for this function.*

External Firmware and AutoRun ISO Filename

☒ **Filename:** PL2771\_100728\_C0E5.hex

**Checksum:** C0E5

☒ **ISO Filename:** LockToGo\_Prolific.iso

# 2.1.2.b.3 EEP Field Definition

## ● Firmware Information

- Detected device number (drive letter)
- Version (Firmware version)

## ● Switch Buttons

- Read Chip
  - *Reads the EEPROM content and FW version*
- Write configure & FW
  - *Writes the EEP field settings and firmware*
- Load EEP
  - *Loads the predefined EEP file*
- Save to EEP
  - *Saves the current EEP field settings to EEP file*
- Erase Chip
  - *This will erase all contents and firmware in EEPROM*
- More >>
  - *This will open Advanced Settings window*
- Exit

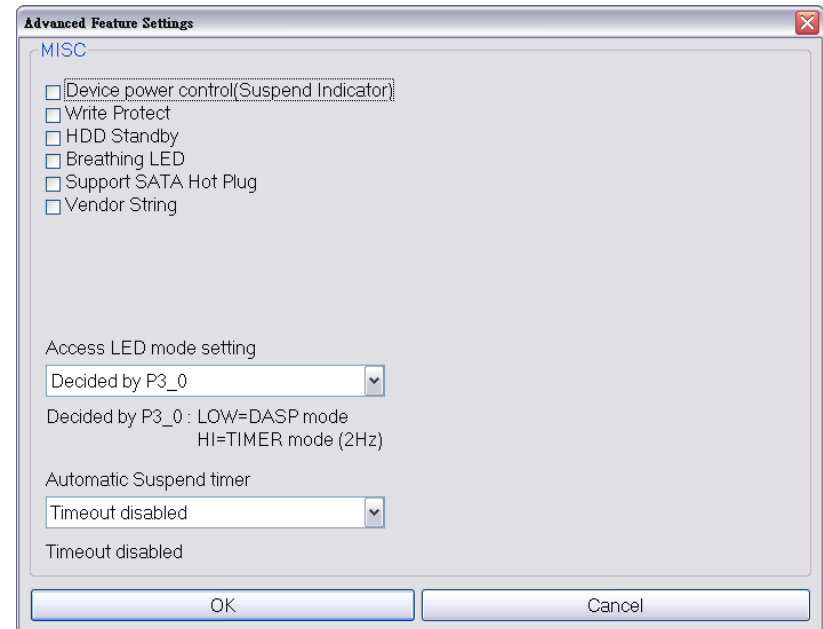
The screenshot shows a software window titled "Firmware Information". It contains a dropdown menu showing "Device 00 ( F: )", a text field for "Version:" with the value "20100728", and a vertical stack of buttons: "Read chip", "Write configure & FW", "Load EEP", "Save to EEP", "Erase Chip", "More >>", and "Exit".

Firmware Information	
▼ Device 00 ( F: )	
Version:	20100728
Read chip	
Write configure & FW	
Load EEP	
Save to EEP	
Erase Chip	
More >>	
Exit	

# 2.1.2.b.4 EEP Field Definition

## ● More Settings (Advanced Feature)

- Device power control (Suspend indicator)
  - *Use GPIO P3\_4 as device power control*
- Write Protect
  - *Use GPIO P3\_0 as write protect pin*
- HDD Standby
  - *HDD Spindown during Bus Suspend or after USB cable unplug*
- Breathing LED
  - *Enable/disable Breathing LED function*
  - *If enabled, Access LED setting is disabled.*
- Support SATA Hot Plug
  - *SATA device interface hot plug*
- Vendor string
  - *Show Vendor (8 char) and Product (16 char) descriptor string in Device Manager*
- Access LED mode setting
  - *Decided by GPIO P3\_0: LOW=DASP mode; HIGH= Timer Mode (2Hz)*
- Automatic suspend timer
  - *Select different auto-suspend periods*



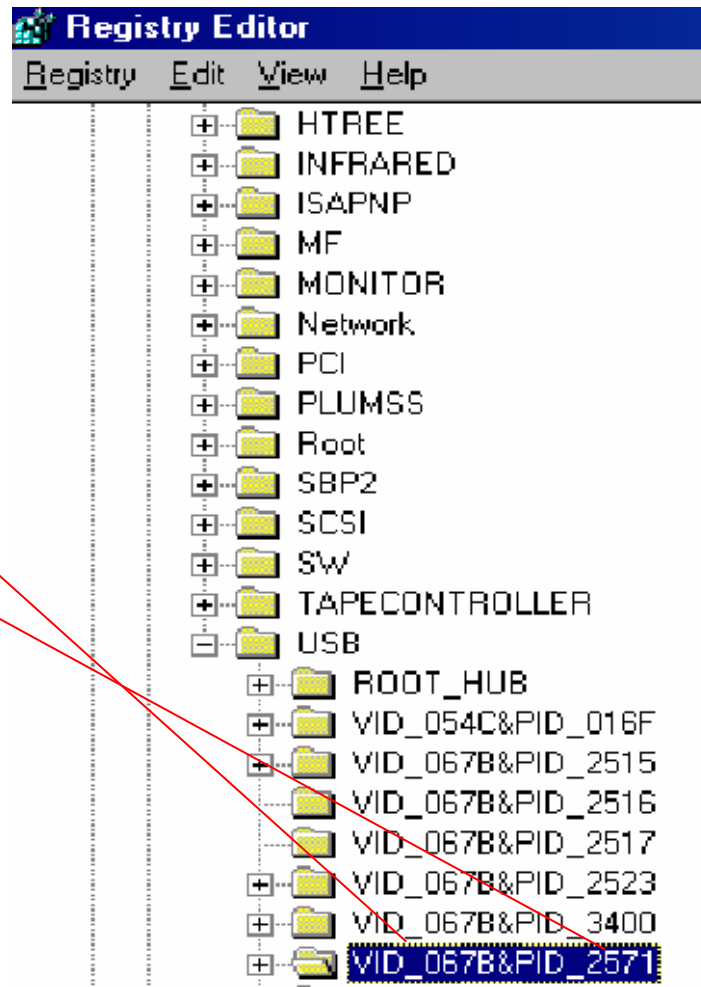
## 2.1.2.c.1 Where can I see the items ?

Introduction for each column &  
where you may find them

## 2.1.2.c .2

# USB Vendor ID / Product ID

- Registry
- *In the example*
  - VID : 067b
  - PID : 2X71



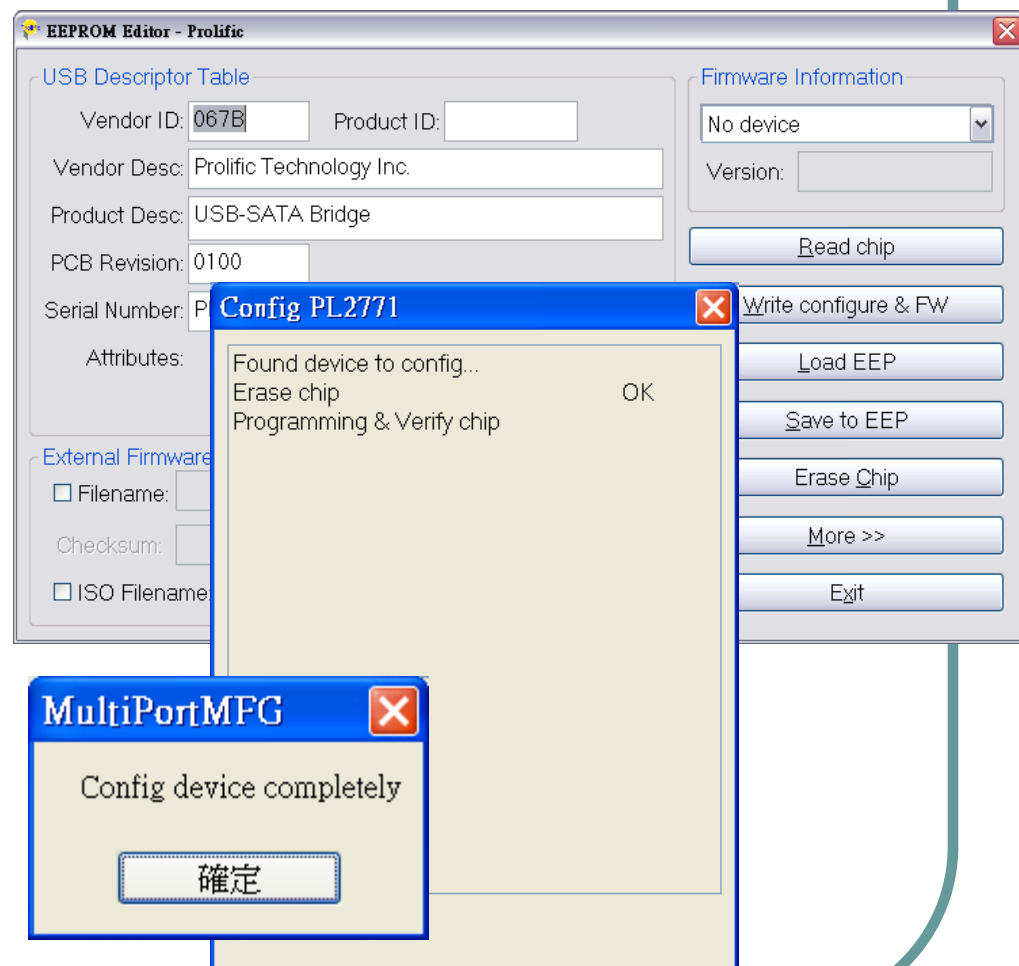
## 2.1.3 EEPROM Editor Operation Step

- Show how to operate step by step



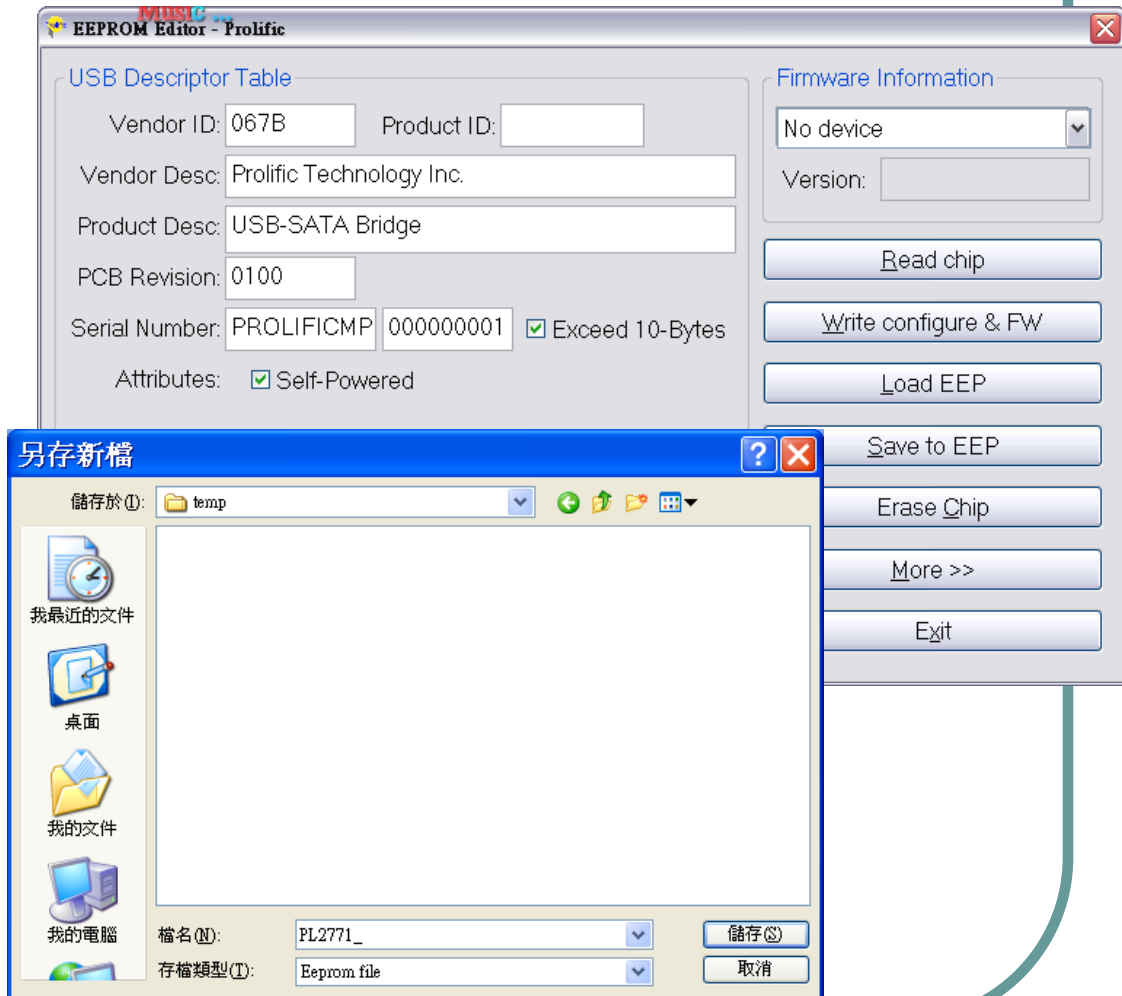
## 2.1.3a Configure chip step

- Plug-In
  - Plug-in a PL-2X71 device.
- Edit the USB relevant information
- Or click **LOAD** existing EEP file
- Click **Write configure & FW** to make a sample device
  - Program will **config** device with current configuration setting in the editor.



## 2.1.3b Step2

- Click *SAVE to EEP*
  - Save the EEP file according to the sample device generated.
- Saving dialog refer 2.1.4
- File naming rule refer 2.1.5



## 2.1.4 EEP file Naming rule

- File name - Default type

**Model***\_your added*

- *Model* : controller model, i.e. 2X71
- *Your added* : type what you want
- Example refer the previous page (2.1.4)

## 2.1.5 Virtual ODD Image

- Load AutoRun external firmware supporting virtual ODD function
- Select ISO file
- Configure chip
- Refer to PL2x71 AutoRun and LockToGo Application Note

EEPROM Editor - Prolific

**USB Descriptor Table**

Vendor ID: 067B Product ID:

Vendor Desc: Prolific Technology Inc.

Product Desc: USB-SATA Bridge

PCB Revision: 0100

Serial Number: PROLIFICMP 000000001 ☒ Exceed 10-Bytes

Attributes: ☒ Self-Powered

**Firmware Information**

No device

Version:

**External Firmware Information**

☒ Filename: D:\share\工作\2x7x懒人包\2771\PL2771\_100...

Checksum: 4334

☐ ISO Filename:

## 2.2 MultiPortConfiguration

- Description
- Stage
- Function
- Operation Step
- Result

## 2.2.1 Description

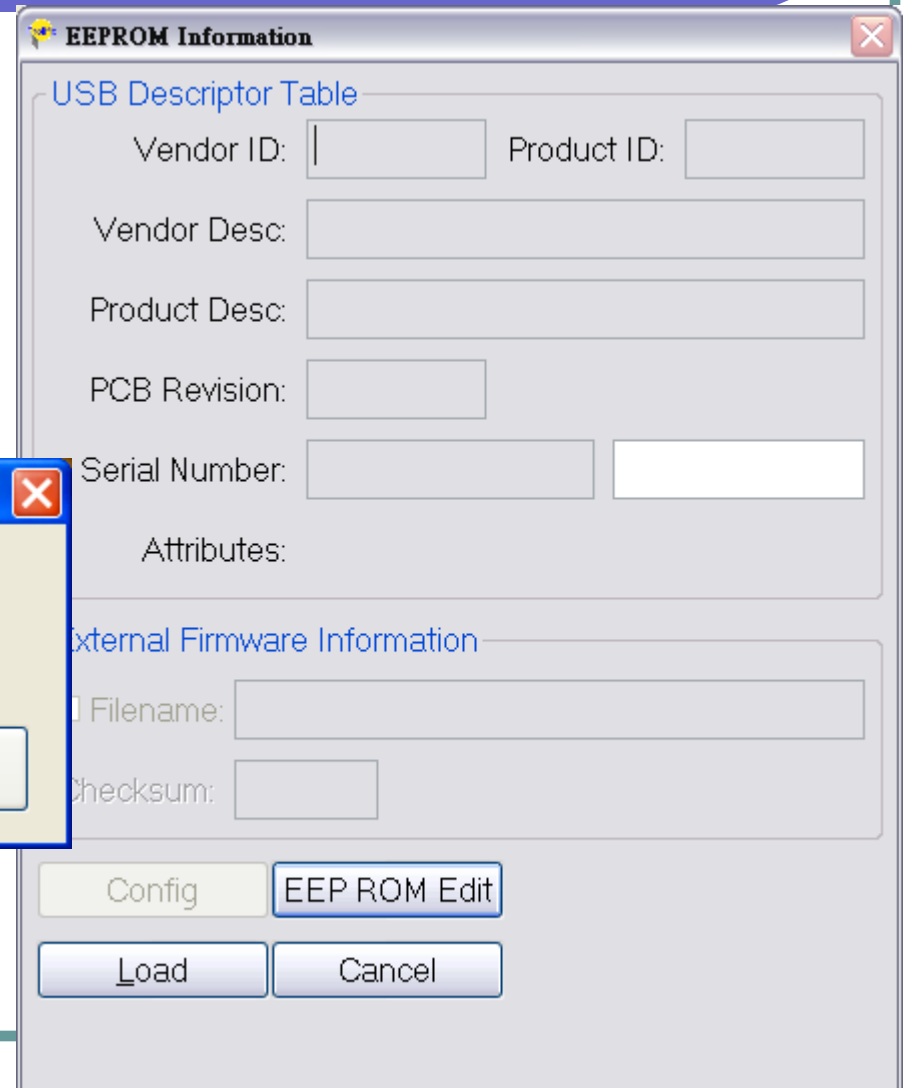
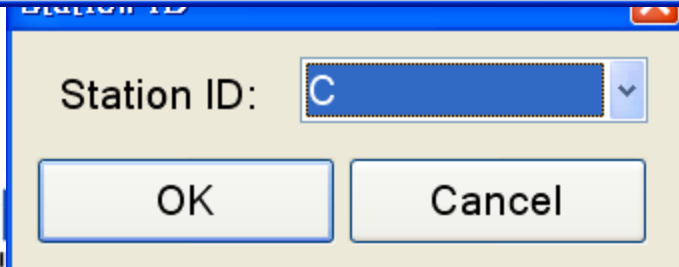
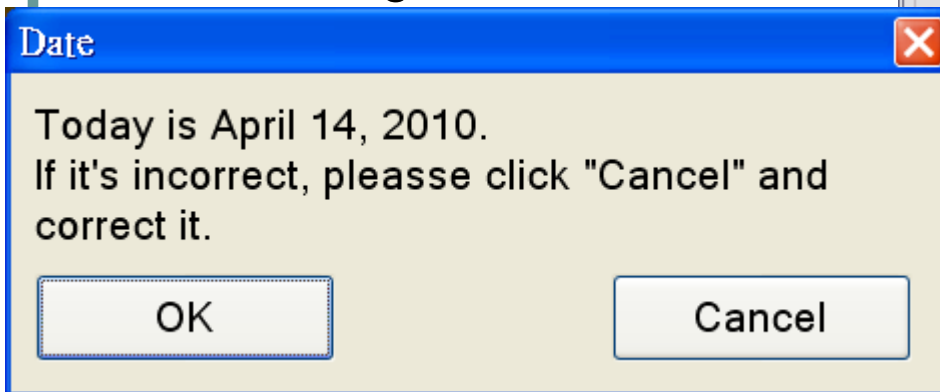
- Purpose:
  - This tool is to build a PL-2X71 device into USB-SATA Bridge device, including functional test.
- Input:
  - PL-2X71 device.
- Output:
  - **Configured USB-SATA Bridge device.**

## 2.2.2 Function – Stage

- *Initialize PL-2X71 device*
- *Write configuration data*
  - *Media card reader configuration, and USB information like USB VID & PID.*
- *Verify*
  - *Verify USB information and configuration table.*

## 2.2.3.1 Operation Step – Stage1

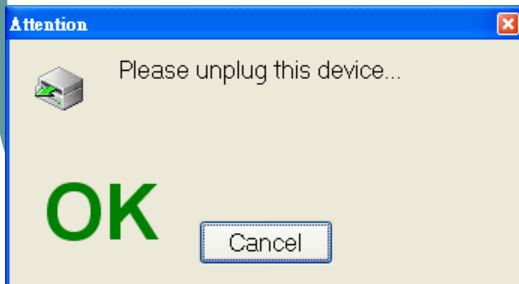
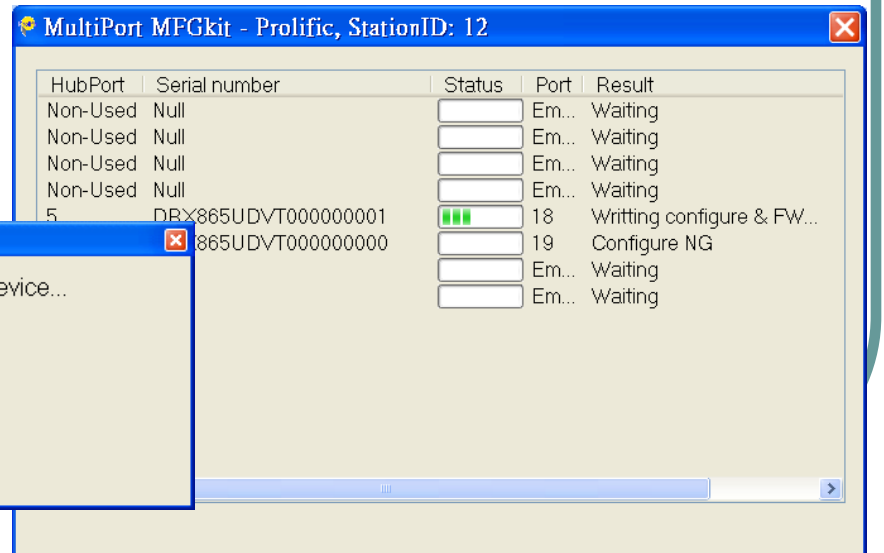
- **Step:**
  - Set Station ID
  - Confirm date
  - Load EEP
  - Configure device





## 2.2.3.2 Operation Step – Stage2

- Step
  - Plug-In
    - OK
      - Successful configuration
      - **pull-out** device and continue to **Stage 3**
    - Fail
      - Reason maybe the EEPROM fail



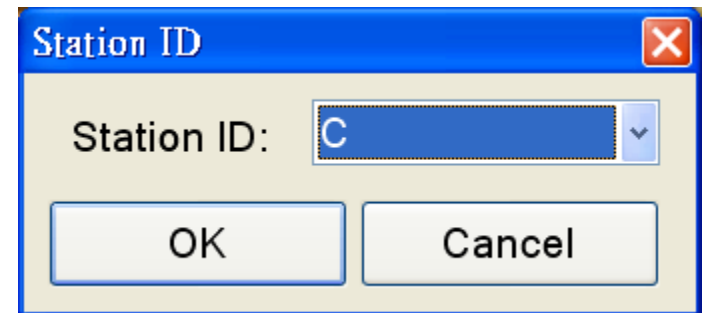
## 2.2.4 Serial number

- Description:
  - Serial number will be burned into device automatically during configuration process
- Default type:

**Customer string(10Character) + Number(9Character)**
- Example:
  - PROLIFICMP000000001

## 2.2.5 Serial number operation

- StationID:
  - Station number can be form 0 to 15
  - A station can be assigned the ID only once
  - Station ID will be saved in system registry
- Serial number:
  - MultiPortConfiguration program will increase the decimal code automatically



# THE END

*Present by watts yang*