ST-Link 解除读保护说明

开发板使用 SWD 下载程序时,可能会遇到下载异常。当出现如下异常情况时,那可能是主控 IC 的 flash

被设置了读保护,此时无法对 flash 进行读操作,所以不能擦除 flash,程序也就无法下载。

	387 OLED_W
Debugger - Cortex-M Error	OLED W
Flash Timeout. Reset the Target and try it ag	gain.
	确定
🖻 Build Output 🛛 🙀 Find In Files	
Erase: 0800000H	

现提供使用 ST-Link 解除主控 IC 读保护的方法说明,步骤如下:

- 1. 使用 ST-LINK 连接开发板和 PC (具体方法可以查看 SWD 下载之 ST-Link 使用说明 (keil) 文档)
- 2. 打开 STM32 ST-LINK Utility 软件 (需要提前在 PC 机上下载好)
- 3. 点击软件上的 Target 按钮,如下图所示:

STM32 ST-LINK Utility	
File Edit View Target ST-LINK External Loader Help	
Memory display	Device Device ID
Address: 0x08000000 ▼ Size: 0x6F5C Data Width: 32 bits ▼	Revision ID
	Flash size
Device Memory Binary File	LiveUpdate
Device Memory	

4. 在弹出的下拉菜单里点击 Option Bytes...按钮,如下图所示:

🖏 STM32 ST-LINK U	Jtility				_ 🗆 🗙
File Edit View T	arget ST-LINK Extern	al Loader Help			
Memory display	Connect Disconnect	CTRL+D		Device	
Address: 0x08000	Erase Chip Erase Bank1	CTRL+E	•	Device ID Revision ID	
Device Memory Bin Device Memory	Erase Bank2 Erase Sectors			Flash size	LiveUpdate
	Program Program & Verify	CTRL+P			
	Blank Check Memory Checksum Target memory com	pare with file			
	Option Bytes	CTRL+B			
	MCU Core				
	Automatic Mode				
	Settings				

5. 在弹出来的界面里将 Read Out Protection 由 Enabled 改为 Disabled, 然后点击 Apply 按钮, 如

下图所示:

Option Bytes	
Read Out Protection	BOR Level
Disabled 🗸	OFF
User configuration option byte IWDG_STOP IWDG_SW WWDG_SW IWDG_SW IWDG_U nSRAM_Parity SRAM2_RST SRAM2_PE PCROP_ nRST_SHDW nRST_STOP NBST_STDBY	TDBY nBoot0 nBOOT0 LP nBoot1 BOOT1 G_STOP nDBOOT I nBFB2 G_STDBY NDBANK NBOOT_SEL RDP DB1M DUALBANK SW_Cfg IRHEN BOREN DT0 I WDG_SW Appitor SDADC12 VDD Mapitor
NRST MODE Unavail	
Security option bytes SEC_SIZE 0x00	SEC_SIZE2 0x00 BOOT_LOCK
BOOT_ADD1 (H) User data storage option bytes Data 0 (H) 0x00 Flash sectors protection	Boot from (H) Data 1 (H) 0x00
Page Start add Size	e Protection
Page 0 0x08000 1 K Page 1 0x08000 1 K Page 2 0x08000 1 K Page 3 0x08000 1 K Page 4 0x08001 1 K Page 5 0x08001 1 K Page 6 0x08001 1 K Page 7 0x08001 1 K Page 8 0x08001 1 K Page 9 0x08001 1 K Page 10 0x08002 1 K Page 11 0x08002 1 K Page 12 0x08002 1 K	No Protection No
Unselect all Select all	

6. 出现如下界面,就说明读保护解除成功,接下来就可以使用 SWD 方式进行正常下载了。

5 STM32 ST-L	INK Utility							_ 0	X
File Edit Vie	w Target	ST-LINK	External Lo	ader Help)				
🖴 🔚 👋 🖗	요 🖥 🖕 🤹 🔗 🥨 📾								
Memory display					Device	STM32F10xx Medium-densit	y		
Addresses 0x00000000 - Cizes 0x6E5C Data Widths 22 hits -			32 hits 👻	Device ID	0x410				
Address, addoddodd y Size, addri Se Bala Width, Sz bils y			Revision ID	Rev B					
Device Memory @	D 0x08000000	: Binary File				FidSh Size	UNKNOWN	LiveUt	pdate
Target memory, A	ddress range:	[0x0800000	0x08006F5C]						
Address	0	4	8	С	ASCII				*
0x08000000	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					=
0x08000010	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000020	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000030	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000040	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000050	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000060	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000070	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000080	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					
0x08000090	FFFFFFF	FFFFFFF	FFFFFFF	FFFFFFF					Ŧ
•		111						•	
14:37:59 : ST-LI	NK SN : 53FF7:	106776648525	59261681						
14:37:59 : Conne	cted via SWD.								
14:37:59 : SWD F 14:37:59 : Conne	Frequency = 4 ction mode : 1	,0 MHz. Vormal.							
14:37:59 : Debug	in Low Power	mode enable	d.						
14:37:59 : Device	ID:0x410 family :STM3	2E10xx Mediu	m-density						
14:43:21 : Option	i bytes update	d successfully.							