



应用笔记

PowerWriter AT 应用文档

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本章节将详细地介绍 PowerWriter AT GUI 相关的软件系统，用户可以将其作为软件的使用指南，或者是参考手册，当遇到不理解的内容时，可以随时查阅。

软件下载地址：

[PowerWriter](#) -> [资料下载](#) -> [客户端](#)-> [PowerWriter AT 应用](#)

1. PowerWriter AT GUI主界面

PowerWriter AT GUI应用软件的启动界面如下图 1.1.1 所示。



图 1.1.1 Power Writer 应用软件主界面

2. PowerWriter AT GUI 功能

2.1 添加命令

弹出命令选择界面，如图1.1.1.1AT命令选择界面所示



图 1.1.1.1 AT命令选择界面

鼠标单击指定的AT命令，便会将对应的命令添加到命令列表中来，若命令有参数需要设置，命令列表的"AT命令参数"列则会提示"鼠标双击设置或修改参数"，若需要修改AT命令，鼠标双击"AT命

令"列即可，如下图1.1.1.2命令列表所示

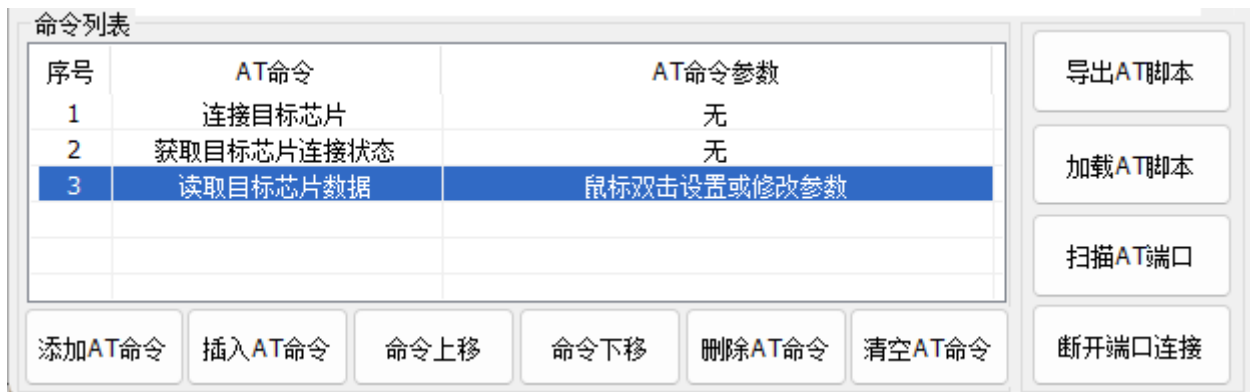


图 1.1.1.2 命令列表

2.2 插入AT命令

在选中行上方插入一条AT命令。

2.3 命令上移

将选中行AT命令移动至上一行。

2.4 命令下移

将选中行AT命令移动至下一行。

2.5 删除AT命令

将选中行AT命令删除。

2.6 清空AT命令

将命令列表中的AT命令清空。

2.7 导出AT脚本

将命令列表里的AT命令，导出为AT脚本，文件内容格式详见 [1.4 AT脚本文件内容格式](#1.4 AT脚本文件内容格式) 默认文件名为“patscript年-月-日时-分-秒”，文件后缀名为:".patscript"，与命令行版本通用，如下图1.1.1.3 AT脚本文件导出所示

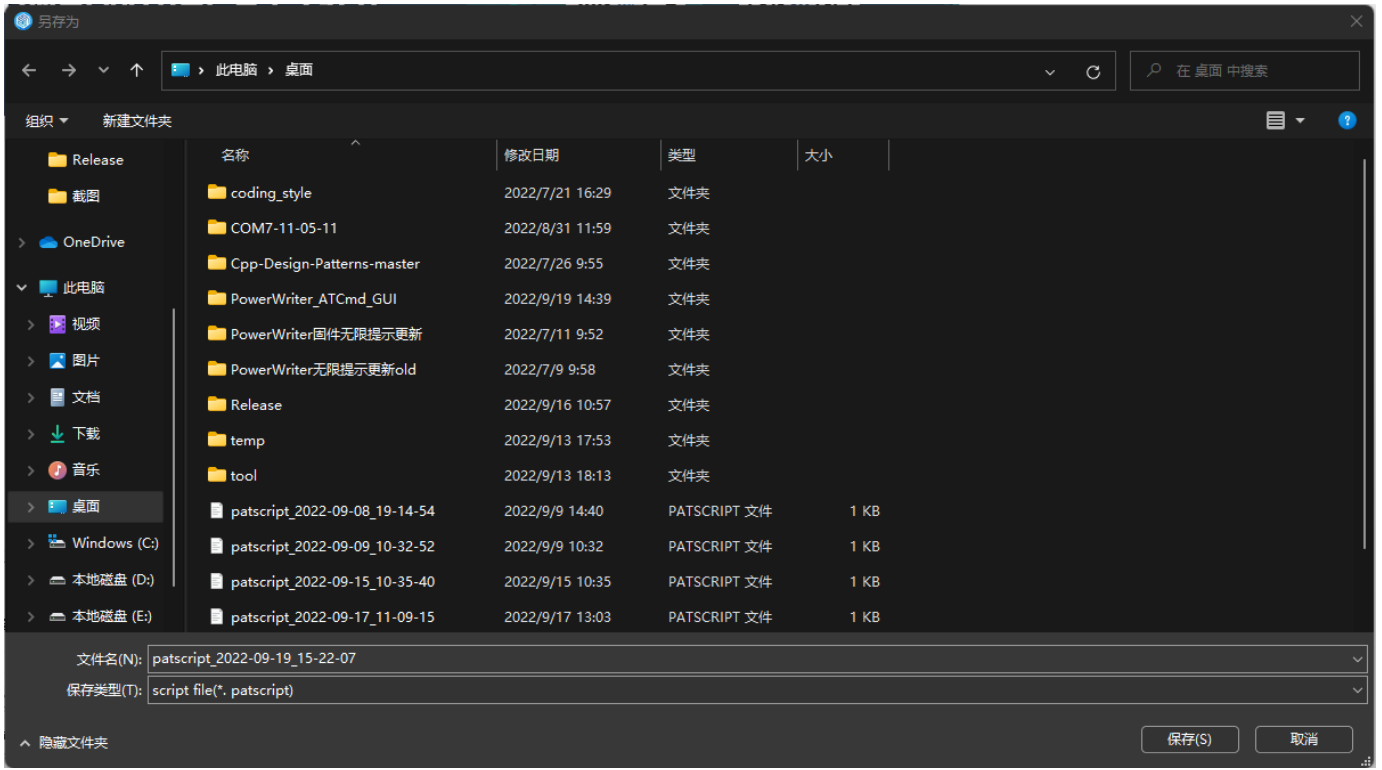


图 1.1.1.3 AT脚本文件导出

2.8 加载AT脚本

将选定的AT脚本文件导入到命令列表中来。

2.9 扫描AT端口

扫描开启了“USB端口AT功能”的PowerWriter，并将扫描到的端口显示到软件界面上，若未扫描到设备，则会提示“未扫描到PowerWriter，请检查设备连接情况”，如下图1.1.1.4 AT端口所示

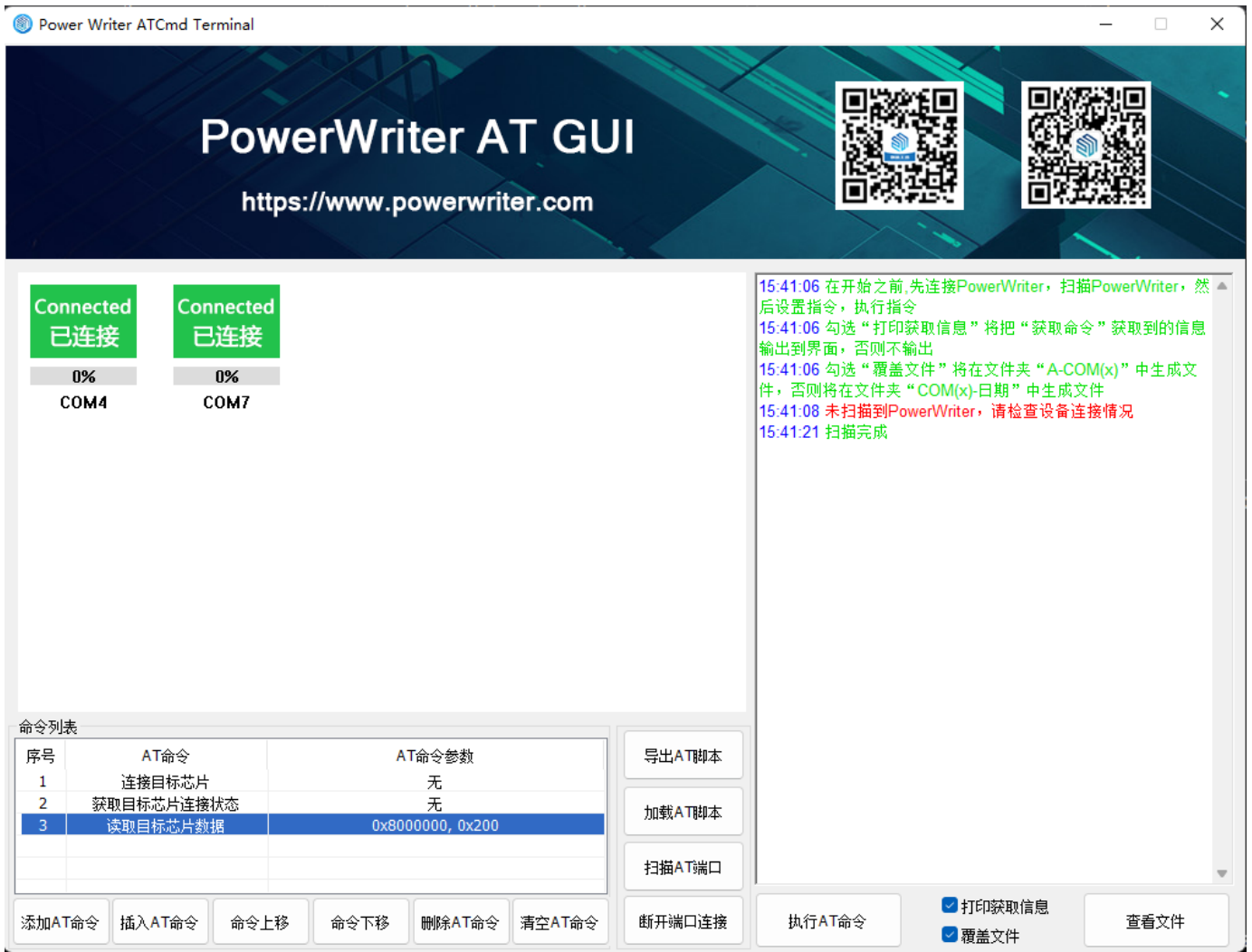


图 1.1.1.4 AT端口

2.10 断开端口连接

断开所有的端口连接，如下图1.1.1.5 断开端口所示

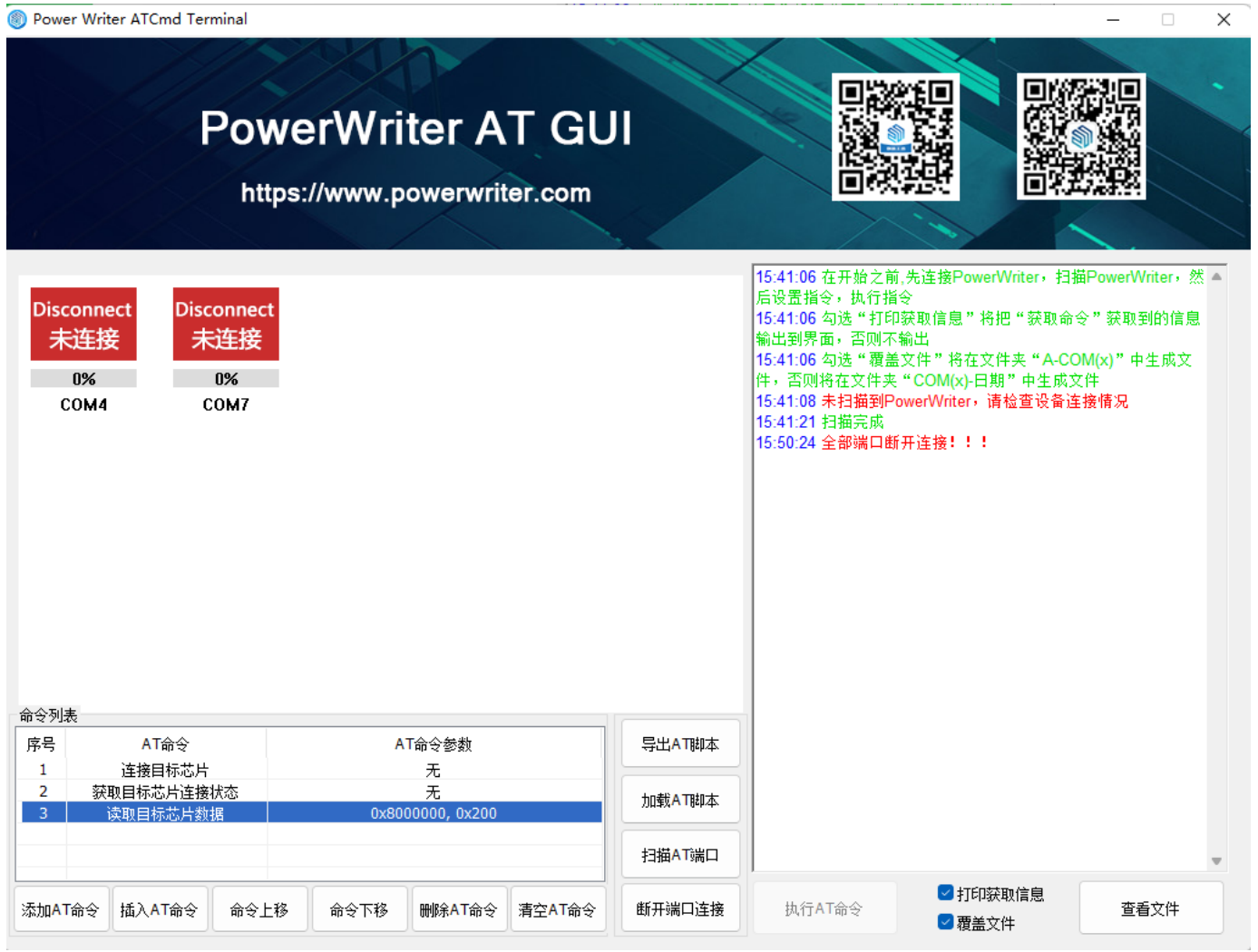


图 1.1.1.5 断开端口

2.11 执行AT命令

各个已连接的端口，多线程并发执行命令列表里的所有命令，每执行完一条命令会打印执行结果，命令执行出错，对应的端口将停止执行命令，并报错。如下图1.1.1.6 命令执行所示



图 1.1.1.6 命令执行

2.12 打印获取信息

勾选“打印获取信息”将把“获取命令”获取到的信息输出到界面，否则不输出。

2.13 覆盖文件

勾选“覆盖文件”将在文件夹“A-COM(x)”中生成文件，否则将在文件夹“COM(x)-日期”中生成文件，如下图 1.1.1.7 查看文件所示。

2.14 查看文件

“获取命令”会将获取到的数据保存至文件，文件路径为Info\A-COM(x)或Info\COM(x)-年-月-日_时-分-秒，点击“查看文件”按钮查看获取命令生成的文件，具体的文件请查看 [1.3 “获取命令”生成的文件](#1.3 “获取命令”生成的文件)，如下图 1.1.1.7 查看文件所示

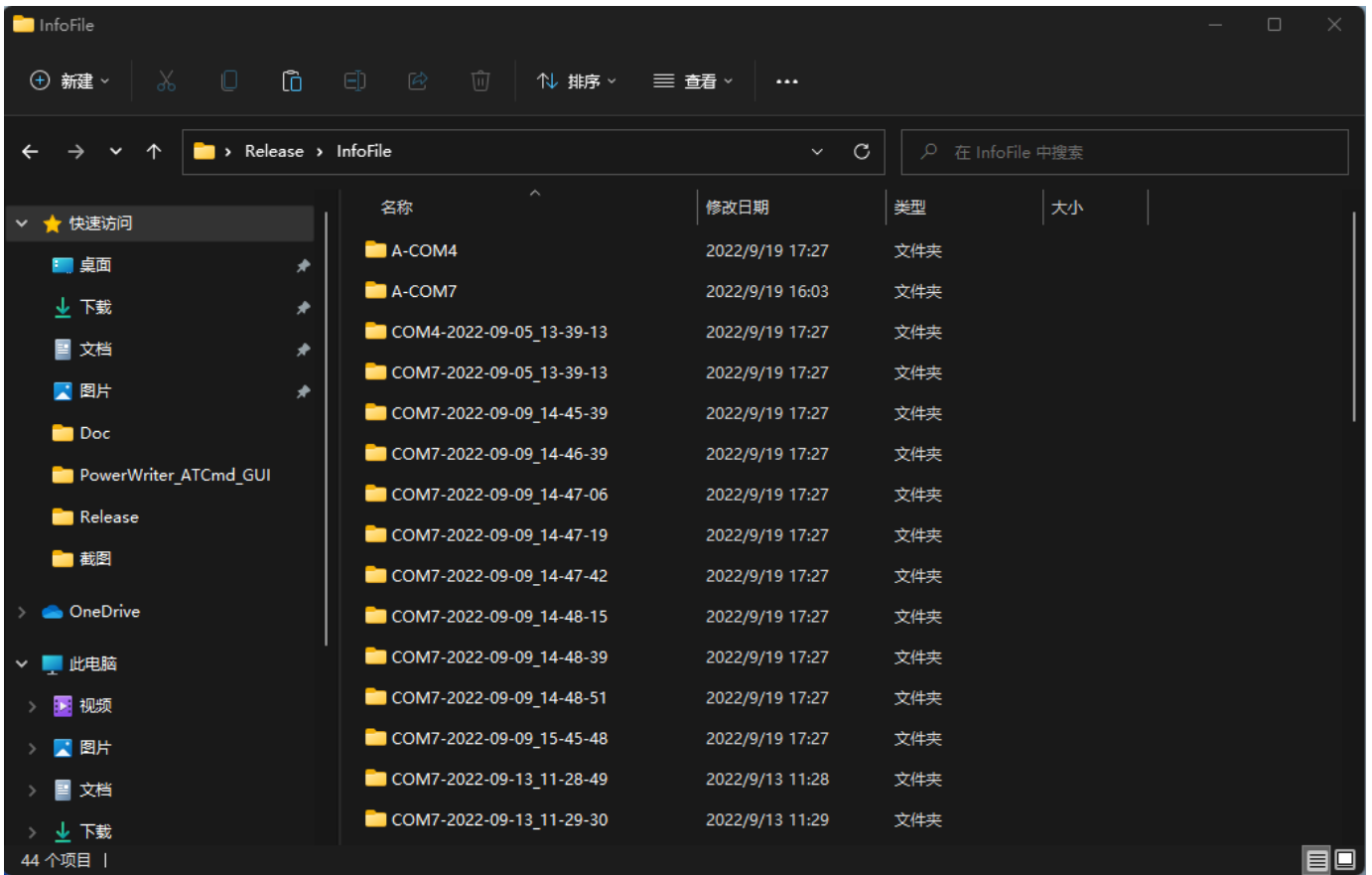


图 1.1.1.7 查看文件

3. 参数设置界面

鼠标双击"AT命令"列，若该命令需要设置参数，则会弹出参数设置界面，不同的命令会显示不同的参数，注：若AT命令是更新"PW配置"，还会将设置好的配置保存为json文件，路径为软件根目录\writer_cfg.json。如下图1.2.1 和1.2.2 所示



图 1.2.1



图 1.2.2

4. “获取命令”生成的文件

- "查询PW信息"生成文件为: writer_info.json
- "查询PW配置"生成文件为: writer_cfg.json
- "获取目标芯片ID"生成文件为: chip_id.txt
- "读取目标芯片数据"生成文件为: memory.bin
- "读取目标芯片选项字"生成文件为: option_byte.bin
- "查询离线项目信息"生成文件为: project_info.json"

- "广播响应数据"生成文件为: broadcast_rsp.bin"

如下图1.3.1所示

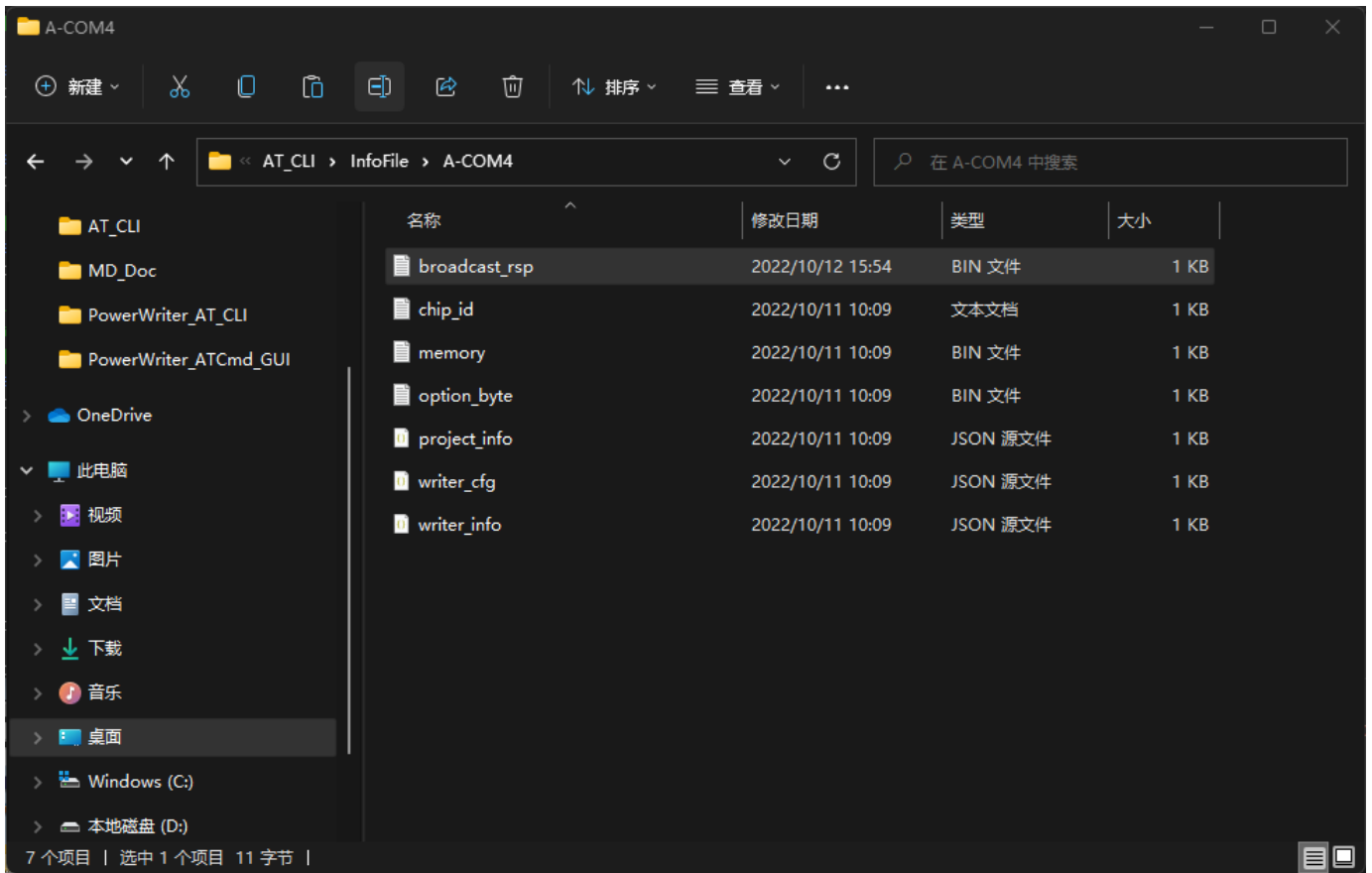


图 1.3.1

5. AT脚本文件内容格式

AT命令码 命令参数1 参数值1 命令参数2 参数值2

5.1 AT命令码说明

- "-info": 查询PW信息
- "-cfg": 查询PW配置
- "-setcfg {-f *.json}": 更新PW信息
- "-setbaud {-b}": 设置AT接口波特率
- "-connect": 连接目标芯片
- "-status": 获取目标芯片连接状态

- "-cid": 获取目标芯片ID
- "-read {-addr -s}": 读取目标芯片数据
- "-erase {-t}": 擦除目标芯片
- "-erase {-t -addr -s}": 擦除目标芯片扇区
- "-write" {-addr -f *.bin}: 写入目标芯片数据
- "-read-ob": 读取目标芯片选项字
- "-write-vob {-t}": 写入目标芯片默认选项字
- "-write-uob {-t}": 写入目标芯片用户选项字
- "-prj-info": 查询离线项目信息
- "-prj-ld {-f *.pkg} [-pwd]": 加载离线项目
- "-prj-dis": 禁用离线项目
- "-start": 启动离线烧录
- "-factory-sram-fw": 运行FactoryTest SRAM 固件
- "-factory-flash-fw": 运行FactoryTest Flash 固件
- "-bcst {-data} | {-f .txt/.bin} [-dir][-kf] [-wtrsp -t]": 扩展指令-广播
- "-sleep {-t}": 睡眠

5.2 AT命令参数说明

- "-f": 指定读取文件路径和文件名
- "-pwd": 输入工程密码
- "-b": 设置波特率
- "-addr": 设置地址 (10、16进制)
- "-s": 设置数据大小 (10、16进制)
- "-t": 超时时间
- "-data": 设置立即数数据

- "-dir": 设置广播方向: "usbtouart/uarttousb"
- "-kf": 是否转发完整的AT 帧结构: "true/false"
- "-wtrsp": 是否等待广播应答: "true/false"
- "-fw-num": hex文件固件的序号, 0为起始序号, 全部烧录参数为"all"

6. 错误码

- 0.Unknown error ...
- 1.The package crc validation failure...
- 2.The writer product oem does not match...
- 3.The writer is busy now...
- 4.The writer is in use...
- 5.The writer communication handle error...
- 6.The writer configuration error...
- 7.The target flash algorithm config error...
- 8.The target option byte config error...
- 9.The target chip is not connected...
- 10.The target erase failed...
- 11.The target write data failed...
- 12.The target read data failed...
- 13.The package timeout error...
- 14.The extends flash initial failed...
- 15.The extends flash erase failed...
- 16.The extends flash write failed...
- 17.The extends flash verify failed...
- 18.The extends flash read failed...
- 19.The package size error...
- 20.The target chip type error...
- 21.The target read unique id failed...
- 22.The writer update firmware failed...
- 23.The target chip protection is enabled...
- 24.The target write flash failed...
- 25.The target write option byte failed...
- 26.The writer SN error or don't match...

- 27.The target write matrix license failed...
- 28.The target write ICWKEY license failed...
- 29.The project matrix license version error...
- 30.The ICWKEY failed to request a signature...
- 31.The project of offline times has used up...
- 32.The project of version error...
- 33.The project of oem error...
- 34.The project of magic tag error...
- 35.The project of data corruption...
- 36 .The project disabled...
- 37.The package size error...
- 38.The communication port error...
- 39.The communication package error...
- 40.The writer needs to be disconnected from the online connection....
- 41.The communication port send package error...
- 42.The communication port waiting response time out...
- 43.The command is unsupported ...
- 44.The config is(has) null value ...
- 45.The target flash algorithm config error...
- 46.The Incorrect authentication password...
- 47.Disconnect the device and power it on again to complete the upgrade...
- 48.The extends ICWKEY device is not connect...
- 49.The voltage error (abnormal power supply)...
- 50.The debugger is connected...
- 51.The wireless is connecting...
- 52.The serial port check failed...
- 53.The I/O check failed...
- 54.The button check failed...
- 55.The wireless check failed...
- 56.The writer memory error...
- 57.The writer sn is limited ...
- 58.The target unique ID is limited...
- 59.The project file version is too low, please repackage...
- 60.Please connect PowerWriter device first...

- 61.The target FT(CP) validation fails ...
- 62.The target password error(such as KPROM)...
- 63.The target SPI flash not connected(such as NUVOTON) ...
- 64.The target abnormal access detected...
- 65.The target write KPROM failed...
- 66.The target write XOM failed...
- 67.The target write secure setting failed...
- 68.The target write MTP failed...
- 69.The FUS not running ...
- 70.The stack not running ...
- 71.The FUS upgrade error ...
- 72.The stack upgrade error ...
- 73.The FUS state image not found...
- 74.The FUS state image corrupt...
- 75.The FUS state image not authentic...
- 76.The FUS state image not enough space...

提示

未列出的错误码均为保留。

7: CLI 命令行文档

7.1 不带参数运行命令行软件

直接运行命令行软件，会打印软件的说明和帮助文档，如图2.1和图2.1-2所示，"PowerWriter AT command"是命令软件的名字，">"后面可以输入命令。可输入命令详见[2.3 命令行软件命令] (#2.3 命令行软件命令)。注意：执行所有AT命令前，需先执行"-scan"命令，扫描开启了AT功能的PowerWriter。

```

C:\Users\10609\Desktop\PowerWriter_AT_CLI.exe
-----
PowerWriter AT Multithreaded cli
This application provides PowerWriter AT command line interface, the purpose is to facilitate
users to integrate PowerWriter product services, strive to be simple, convenient, and provide
parallel operation functions, this project is based on the PowerWriter AT Core open source project
(https://gitee.com/openpowerwriter/PowerWriter_AT_Command.git) development,. If you need any assistance
please contact us.

team    : ICWorkshop HPT Dep Team
website : https://docs.powerwriter.com/
docs    : https://docs.powerwriter.com/docs/powerwriter_for_arm/reference/ATCommand_Cli
-----

All commands:
  -bcst          [-data] | [-f *.txt|*.bin] [-dir] [-kf] [-wtrsp -t]    Broadcast
  -cfg           Get PowerWriter configuration
  -cid          Get target chip ID
  -close        Close ports
  -cls          Clear screen
  -connect      Connect target chip
  -cover-file   {true|false}    Whether to overwrite the obtained file.The default
  value is true
  -erase        [-t -addr -s]    Erase target chip sectors
  -erase        [-t]            Erase target chip
  -factory-flash-fw Run factory flash firmware
  -factory-sram-fw Run factory SRAM firmware
  -info         Get PowerWriter information
  -info-file    View information files
  -log          View log
  -print-info   {true|false}    Whether to print the command information.The default
  value is false

```

图 2.1

```

C:\Users\10609\Desktop\PowerWriter_AT_CLI.exe

AT commands parameters:
  -addr        Address
  -b           Specifies the baudrate
  -data        Specifies input data
  -dir         Broadcasting direction
  -f           Specifies the file to read
  -kf         Whether to forward the complete AT frame structure
  -pwd         Password
  -s           Data size
  -t           Timeout
  -wtrsp      Whether to wait for broadcast response

Examples:
-prj-ld -f .\factory_test.pkg
-setcfg -f .\writer_cfg.json
-read -addr 0x8000000 -s 0x200
-write -addr 0x8000000 -f ./test_bin.bin
-erase -t 1000
-erase -t 1000 -addr 0x8000000 -s 0x100

Notes:
When running the software without parameters, you must use the "-scan" command to scan the port before executing
the AT command.
Curly braces {} indicate a group of options, and curly braces[] indicate optional options.If you do not enter this
parameter,
default parameters will be used instead, and all other parameters are mandatory.

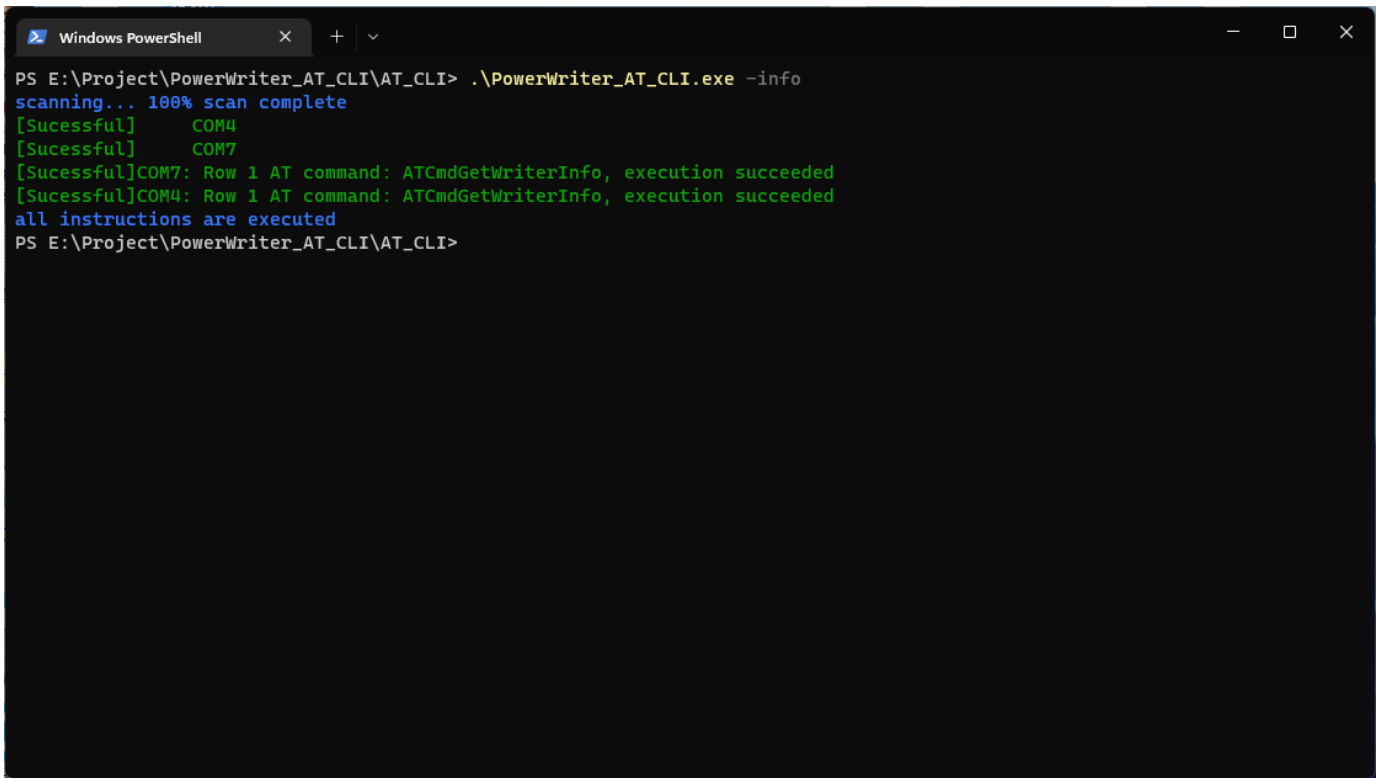
PowerWriter AT command >

```

图 2.1-2

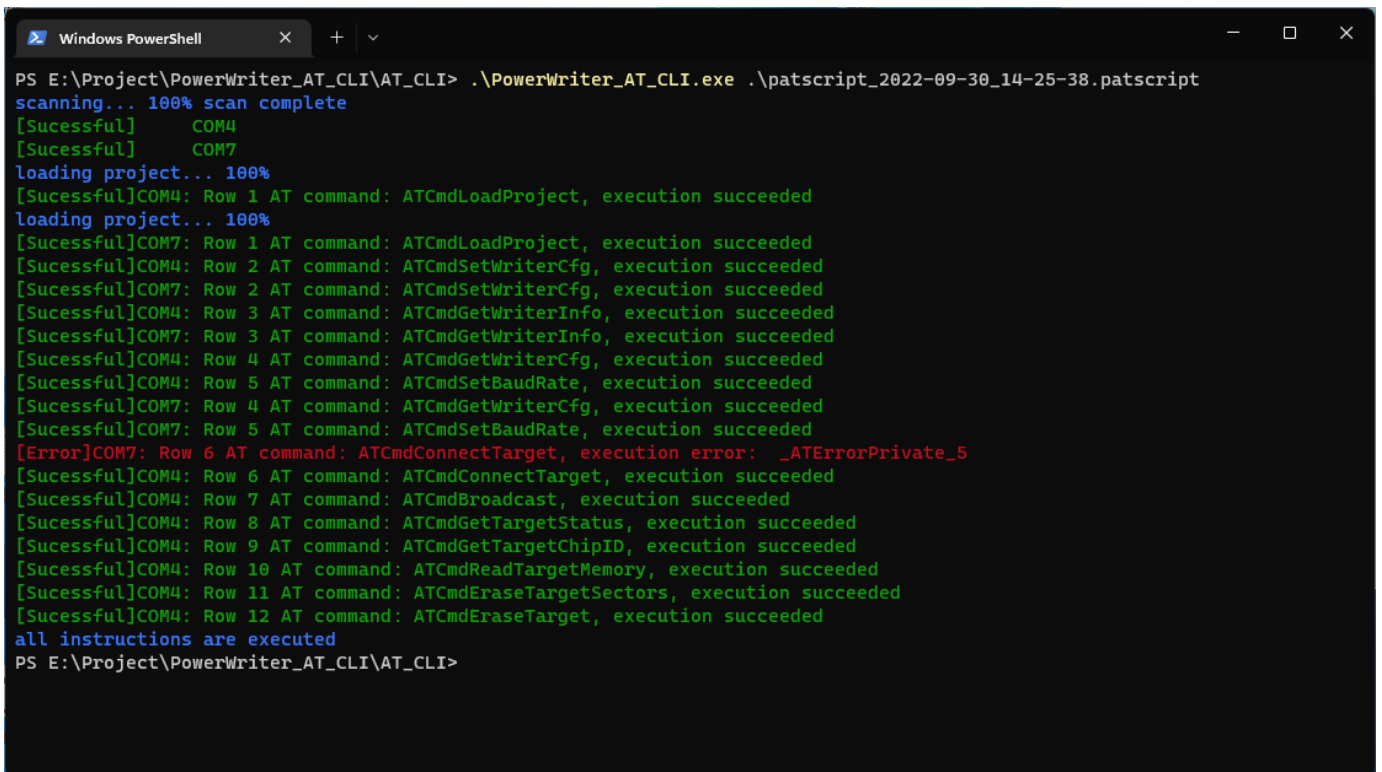
7.2 带参数运行命令行软件

可带的参数为一个AT命令码，或.\AT脚本文件，程序会自动执行"-scan"命令，然后再执行输入的参数命令，命令执行完成，程序结束。如下图2.2和图2.3所示：



```
Windows PowerShell
PS E:\Project\PowerWriter_AT_CLI\AT_CLI> .\PowerWriter_AT_CLI.exe -info
scanning... 100% scan complete
[Successful] COM4
[Successful] COM7
[Successful]COM7: Row 1 AT command: ATCmdGetWriterInfo, execution succeeded
[Successful]COM4: Row 1 AT command: ATCmdGetWriterInfo, execution succeeded
all instructions are executed
PS E:\Project\PowerWriter_AT_CLI\AT_CLI>
```

图 2.2



```
Windows PowerShell
PS E:\Project\PowerWriter_AT_CLI\AT_CLI> .\PowerWriter_AT_CLI.exe .\patscript_2022-09-30_14-25-38.patscript
scanning... 100% scan complete
[Successful] COM4
[Successful] COM7
loading project... 100%
[Successful]COM4: Row 1 AT command: ATCmdLoadProject, execution succeeded
loading project... 100%
[Successful]COM7: Row 1 AT command: ATCmdLoadProject, execution succeeded
[Successful]COM4: Row 2 AT command: ATCmdSetWriterCfg, execution succeeded
[Successful]COM7: Row 2 AT command: ATCmdSetWriterCfg, execution succeeded
[Successful]COM4: Row 3 AT command: ATCmdGetWriterInfo, execution succeeded
[Successful]COM7: Row 3 AT command: ATCmdGetWriterInfo, execution succeeded
[Successful]COM4: Row 4 AT command: ATCmdGetWriterCfg, execution succeeded
[Successful]COM4: Row 5 AT command: ATCmdSetBaudRate, execution succeeded
[Successful]COM7: Row 4 AT command: ATCmdGetWriterCfg, execution succeeded
[Successful]COM7: Row 5 AT command: ATCmdSetBaudRate, execution succeeded
[Error]COM7: Row 6 AT command: ATCmdConnectTarget, execution error: _ATErrorPrivate_5
[Successful]COM4: Row 6 AT command: ATCmdConnectTarget, execution succeeded
[Successful]COM4: Row 7 AT command: ATCmdBroadcast, execution succeeded
[Successful]COM4: Row 8 AT command: ATCmdGetTargetStatus, execution succeeded
[Successful]COM4: Row 9 AT command: ATCmdGetTargetChipID, execution succeeded
[Successful]COM4: Row 10 AT command: ATCmdReadTargetMemory, execution succeeded
[Successful]COM4: Row 11 AT command: ATCmdEraseTargetSectors, execution succeeded
[Successful]COM4: Row 12 AT command: ATCmdEraseTarget, execution succeeded
all instructions are executed
PS E:\Project\PowerWriter_AT_CLI\AT_CLI>
```

图 2.3

7.3 命令行软件命令

7.3.1 所有AT脚本命令

详见[1.4 AT脚本文件内容格式](#1.4 AT脚本文件内容格式)。

7.3.2 特有命令

- "-scan": 扫描开启了AT功能的PowerWriter
- "-close": 断开所有PowerWriter连接
- "-cls": 清除屏幕内容
- "-q": 退出程序
- "-print-info {true|false}": 是否打印获取命令获取到的信息
- "-cover-file {true|false}": 是否覆盖获取命令获取到的信息文件
- "-info-file": 打开"获取命令获取到的信息文件"文件夹
- "-log": 打开日志文件夹
- ".*.patscript": 执行AT脚本文件
- "-h": 帮助

7.3.3 特别说明

1. Tab键可补全命令, 输入".\+文件夹"按Tab键可直接补全.patscript文件, 若脚本文件在软件目录, 输入".\"再按Tab键可直接补全。
2. 输入了-f参数, Tab键可补全文件
3. 字符串参数可以不使用引号, 如-f"sample_files\test.bin"可写成-f sample_files\test.bin。不使用引号时, 解析命令以空格为结束标志。

7.4 返回值

- 0: 执行成功, 没有错误
- 1~24: PowerWriter执行命令出错个数
- 1000: 没有扫描到PowerWriter
- 1001: 参数文件(-f的目标文件)不是json文件格式
- 1002: 参数文件(-f的目标文件)不是bin文件格式

- 1003: 参数文件(-f的目标文件)不是pkg文件格式
- 1004: 参数文件(-f的目标文件)不是txt文件格式
- 1005: 波特率小于等于0
- 1006: time out小于等于0
- 1007: 参数文件(-f的目标文件)不存在
- 1008: 参数文件(-f的目标文件)为空
- 1009: json文件数据错误(缺少key)
- 1010: 起始地址小于等于0
- 1011: 数据大小小于等于0
- 1012: 无效字符串命令参数(有效字符串参数为true, false, uarttousb, usbtouart)
- 2001: 命令重复
- 2002: 命令无效
- 2003: 命令参数重复
- 2004: 命令参数二义, 2选1参数, 两个参数都出现了
- 2005: 命令参数过多
- 2006: 文件格式错误
- 2007: 文件不存在



提示

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