UDS710_UDX710 SlogModem Configuration Guide

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About This Document

Purpose

This document describes the operation mechanism and usage method of SlogModem which is a CP log saving program of the UNISOC smartphone platform, for the reference by developers, testers and other users.

Intended Audience

This document is applicable to SlogModem developers and testers.

Symbol Conventions

The symbols that may be found in this guide are defined in the following table.

Symbol	Description
NOTE	Calls attention to important information, best practices and tips. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.
CAUTION	Calls attention to error-prone operations. CAUTION is used to address information not related to personal injury, equipment damage, and environment deterioration.
WARNING	Calls attention to irreversible operations. WARNING is used to address information not related to personal injury and environment deterioration.

Acronyms and Abbreviations

Acronym and Abbreviation	Full Name
AP	Application Processor
CP	Communication Processor
MODEM	MOdulator/DEModulator

Change History

Issue	Date	Description
V1.0	2020-11-21	This issue is the first official release.

Keywords

SlogModem, SlogModem Control, Cplogctl, Command Reference

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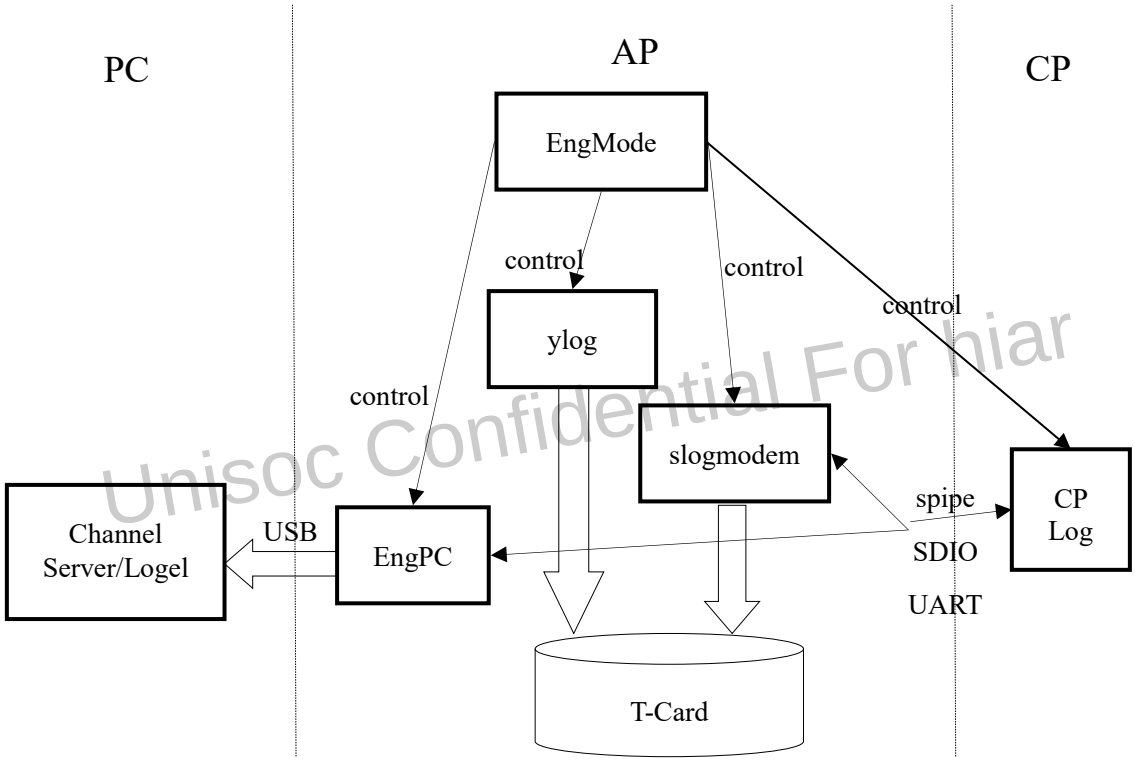
1 SlogModem Architecture

1.1 Log Subsystem

The Log subsystem architecture of UNISOC Android smartphone platform is as shown in Figure 1-1.

Figure 1-1 Log subsystem architecture of UNISOC smartphone platform



The log of the entire system is divided into two parts, namely as AP log and CP log.

- AP log is the log generated by various programs in the Android system, which is saved by Ylog.
- CP is the log generated by other subsystems except AP which includes:
  - Cellular MODEM that is 2G/3G/4G MODEM which is called as MODEM.
  - UNISOC Wi-Fi and BT system.
  - GNSS system, that is, Geographic Location System.
  - UNISOC AG-DSP system.
  - UNISOC Power Management/SensorHub subsystem.
  - UNISOC ORCA AP subsystem

- UNISOC ORCA DP subsystem

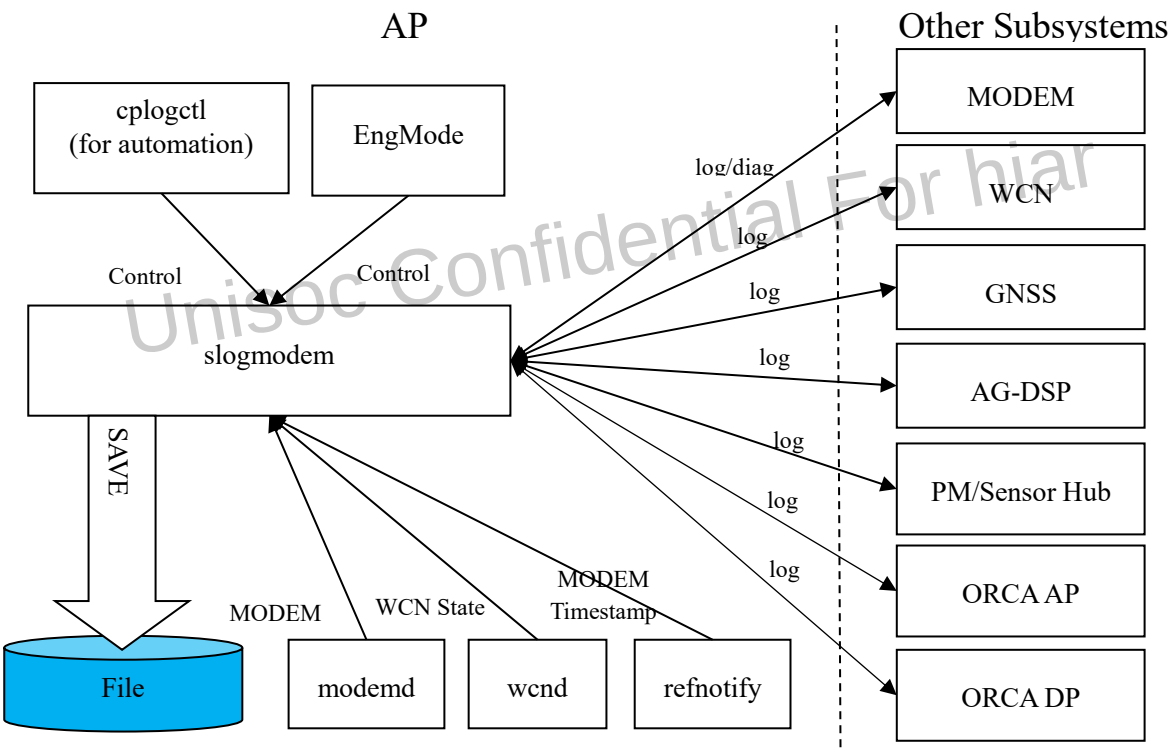
The description of the main parts in Log subsystem are as follows:

- Engineer Mode Application EngMode:
  - Output the logs of the subsystems other than AP to PC in real-time, or save them to internal storage of mobile phone or an external T-card.
  - Control the log output and log type of each subsystem other than AP.
- EngPC program sends logs to PC in real-time.
- SlogModem program stores CP logs to internal storage of the mobile phone or an external T-card.

1.2 Interaction with Other Components

Interaction between SlogModem and other components is shown in Figure 1-2.

Figure 1-2 Interaction with other components



The interaction between SlogModem and other components are listed in Table 1-1 below.

Table 1-1 Interaction between SlogModem and other components

Other Components	Interactive Relationship
cplogctl	cplogctl is a command line program to control the running status of SlogModem, such as turning on or turning off the log of a specified subsystem and setting the storage capacity.
EngMode	Engineer mode application is the interface for user to configure log. The engineer mode application establishes a Unix domain socket connection with SlogModem, and the user's configuration interacts between the engineer mode application and SlogModem in the form of command and response.
MODEM, WCN, GNSS, AG-DSP, PM/Sensor Hub, ORCA AP, and ORCADP	SlogModem receives the logs generated by subsystems. SlogModem can also transmit commands through the diagnostic channel between the MODEM to complete special functions such as sleep log.
Modemd	Modemd program controls the loading or reloading of the MODEM firmware and monitors the working status of the MODEM (ready, abnormal, blocked, etc.), and reports to the required process such as SlogModem. After receiving the status reports, SlogModem takes necessary actions, such as saving MODEM memory dump file or mini dump file, etc.
Wcnd	Wcnd is responsible for WCN firmware loading or reloading, monitoring WCN working status (abnormality), and reporting to the required process such as SlogModem. After receiving the abnormal report, SlogModem takes necessary actions, such as saving WCN memory dump files, etc.
Refnotify	Refnotify can get the time value of MODEM. After getting this value from refnotify, SlogModem saves the correspondence between the time value and AP calendar time in the log, so that Logel can display the time value in log playback.
File	SlogModem saves the log of each subsystem in file.

2 SlogModem Control

2.1 Service

SlogModem is a native service process of Android, which is defined as:

- Normal Android mode:

```
service slogmodem /system/bin/slogmodem
    class main
    user shell
    group system sdcard_rw media_rw audio radio
```

- Recovery Mode:

```
service slogmodem /system/bin/slogmodem --test-ic /system/etc/test_mode.conf --test-conf test_mode.conf
    class cali
    user shell
    group system sdcard_rw media_rw root
```


2.2 Configuration File

The behavior of SlogModem is controlled by a series of options where the initial values of these options are saved in the initial configuration file. Client process can establish a Unix domain socket connection with SlogModem after SlogModem process starts and change the options through commands on the connection to control the behavior of SlogModem during the runtime.

The path to the initial configuration file of SlogModem is:

- Normal Android Mode: /system/etc/slog_modem.conf
- Recovery Mode: /system/etc/test_mode.conf

If the options of SlogModem are modified during the runtime, SlogModem will save the modified options to the runtime configuration file. The path to the runtime configuration file is:

- Normal Android Mode: /data/local/slogmodem/slog_modem.conf
- Recovery Mode: /data/local/slogmodem/test_mode.conf

The initial configuration file of SlogModem in source program directory is under device/sprd/<family>/<board>, or device/sprd/<family>/<board>/log_conf. Since the user version and userdebug version have different requirements for log storage, hence the two versions have their own initial configurations. The initial configuration files of user version and userdebug version are shown in Table 2-1.

Table 2-1 Source files of initial configuration files for user version and userdebug version

Versions	Normal Android Mode	Recovery Mode
User Version	slog_modem_user.conf	test_mode_user.conf
Userdebug Version	slog_modem_userdebug.conf	test_mode_userdebug.conf

The four initial configuration files support the same types of options, but the option values are defined according to different scenes. The options supported by SlogModem are shown in Table 2-2.

Table 2-2 Options supported by SlogModem

Option	Description	Configuration File Format
mini dump	Set whether to save mini dump file when MODEM assert as well as the medium to save mini dump file.	minidump enable <media> Save the mini dump file to the <media>. <media> value may be: • Internal: internal storage • External: external T-card minidump disable Do not save mini dump file.
The maximum size of a single log file	Set the maximum size of a single log file. Once a log file reaches the size, a new log file is created to save logs. File size of memory dump file, mini dump file and WCDMA I/Q file are not affected by this parameter.	log_file_size <size> <size> refers to the maximum size of a log file, which is a number in MB.
The maximum size of total logs of a specified non-AP subsystem in internal storage.	Set the maximum size of total logs of a specified non-AP subsystem in internal storage.	Internal Size <size> <size> refers to the upper limits of all logs, which is a number in MB. If the <size> is 0, then it will use all free space in internal storage.
The maximum size of total logs of a specified non-AP subsystem in external T-card.	Set the maximum size of total logs of a specified non-AP subsystem in external T-card.	External Size <size> <size> refers to the upper limits of all logs, which is a number in MB. If the <size> is 0, then it will use all free space in external T-card.
Log cycle storage	Set whether to delete the oldest log file and save new logs when the total log capacity reaches the upper limit.	log_overwrite <ow> <ow> value can be: • Enable: enable cycle storage • Disable: disable cycle storage

Option	Description	Configuration File Format
Log storage of a specific subsystem	Set whether to save the log of a specific subsystem.	stream <subsys> <save> <size> <level> • <subsys> is a subsystem, values can be: – cp_wcdma: WCDMA MODEM – cp_5mode: LTE 5 mode MODEM – cp_wcn: UNISOC WCN – cp_gnss: UNISOC GNSS – agdsp: AG-DSP – pm_sh: PM/Sensor Hub – cp_orcaap: ORCA AP, that is, Kernel log – cp_orcadp: ORCA DP, that is the cm4 in modem • <save> value can be: – On: save log – Off: do not save log • <size> not used, the value is 0. • <level> not used, the value is 5.
WCDMA I/Q	Set whether to save WCDMA I/Q data in WCDMA I/Q mode.	iq <cp_type> [<iq_type1> <iq_type2> …] • <cp_type> is the corresponding subsystem type, where the value can be: – cp_wcdma: WCDMA MODEM – cp_5mode: LTE MODEM • <iq_typen> is I/Q type, where the value can be: WCDMA: WCDMA I/Q
AG-DSP log output	Set the output state of AG-DSP log during mobile phone startup.	agdsp_log_dest <dest> <dest> the value can be: • off: no log output • uart: log output to UART • ap: log output to AP
AG-DSP PCM log output	Set the output state of AG-DSP PCM data during mobile phone startup.	agdsp_pcm_dump <dump> <dump> the value can be: • on: PCM data output • off: no PCM data output

2.3 SlogModem Runtime Control

SlogModem monitors Linux abstract address after it starts. In case of data transmission, SlogModem accepts and processes it. The client process can establish a Unix domain socket connection over this address to communicate with SlogModem to control the behavior of SlogModem. See Chapter 3 SlogModem Command for details.

In addition, the UNISOC reference platform provides the command line program cplogctl to control part of SlogModem options for debugging and automated testing. See Chapter 4 cplogctl Command for details.

See Table 2-3 for the runtime control of each SlogModem option (See Table 2-2).

Table 2-3 SlogModem RunTime Control

Option	SlogModem Command	Cplogctl Command
mini dump	ENABLE_MD DISABLE_MD GET_MD_STOR_POS SET_MD_STOR_POS	N/A
The maximum size of a single log file	GET_LOG_FILE_SIZE SET_LOG_FILE_SIZE	cplogctl getfilesize cplogctl setfilesize
The maximum size of total logs of a specified subsystem	GET_CP_LOG_SIZE SET_CP_LOG_SIZE	cplogctl getcpcapacity cplogctl setcpcapacity
Log cycle storage	GET_LOG_OVERWRITE ENABLE_LOG_OVERWRITE DISABLE_LOG_OVERWRITE	cplogctl getoverwrite cplogctl setoverwrite
Log storage of a specific subsystem	ENABLE_LOG DISABLE_LOG	cplogctl enable cplogctl disable
WCDMA I/Q	ENABLE_IQ DISABLE_IQ	N/A
AG-DSP log output	GET_AGDSP_LOG_OUTPUT SET_AGDSP_LOG_OUTPUT	No query cplogctl setaglog
AG-DSP PCM data output	GET_AGDSP_PCM_OUTPUT SET_AGDSP_PCM_OUTPUT	No query cplogctl setagpcm

2.4 Log Storage and Output

2.4.1 Log Storage

The main function of SlogModem is to save the logs of each subsystem to the storage medium. Client process can enable and disable log storage with the ENABLE_LOG and DISABLE_LOG commands given in Chapter 3 SlogModem Command, as well as the enable and disable commands given in Chapter 4 cplogctl Command.

2.4.2 Log Output

Generally, the log output of each subsystem is controlled by the engineer mode application through AT commands, but AG-DSP is an exception, because no AT command is provided to control AG-DSP log output.

AG-DSP log output is controlled by ioctl system call, so SlogModem provides the following commands to client process to control AG-DSP log output. See Chapter 3 SlogModem Command for details.

- GET_AGDSP_LOG_OUTPUT
- SET_AGDSP_LOG_OUTPUT
- GET_AGDSP_PCM_OUTPUT
- SET_AGDSP_PCM_OUTPUT

AG DSP log output can also be set by the command setaglog and setagpcm. However, cplogctl does not provide the function of AG-DSP log query. See Chapter 4 cplogctl Command for details.

2.5 Storage Medium

SlogModem preferentially stores log in external T-card. In case of no external T-card, logs are stored in internal storage of mobile phone.

When the mobile phone is powering on, it takes minutes to mount external T-card, and the logs generated in this process are stored in internal storage. SlogModem switches to external T-card for log storage after external T-card is mounted. In case of external T-card removal during log storage, SlogModem switches back to internal storage to continue log storage.

In some test scenarios, although the external T-card is available, only internal storage can get the log, and under this test condition only mini dump file of the MODEM can be saved. So set to store mini dump file in internal storage, or preferentially store logs in external T-card (by default).

2.6 Storage Capacity Control

SlogModem can control the maximum size of total logs of a specified non-AP subsystem in internal storage and external T-card respectively, and the maximum size of a single log file.

Due to the following reasons, logs are stored in several files:

- To avoid the situation of Logel failure during log playback caused by oversized log files.
- To be beneficial to log cycle storage.

If the maximum size of a single log file is greater than the maximum size of total logs, the total size limit takes precedence over the single size limit, that is, a single log file can never reach the upper limit.

2.7 Cycle Storage

SlogModem can be configured for cycle storage, that is, when the maximum size of total logs is reached, the oldest log file is deleted and new logs are saved.

The first log file stored after each startup is the startup log of the subsystem. The startup log is significant for locating problems during startup, so it does not participate in cycle storage and is retained until a user deletes it. In addition, the log files currently being saved does not participate in cycle storage.

Therefore, the cycle storage takes effect only when there are additional log files besides the startup log file and the log file currently being saved.

2.8 Log File Flush

To improve the efficiency of log file I/O and reduce the CPU and memory occupancy by log storage, the logs output by each subsystem are firstly stored in memory cache and written to files until they reach a certain size. Therefore, before log collection, client process needs to first command SlogModem to write the currently cached logs to files and then collect them.

Refer to 3.2.15 FLUSH and 4.2.4 flush for details.

2.9 Log Clear

To clear the logs currently stored in internal storage and external T-card, see 3.2.33 slogctl clear and 4.2.1 clear for details.

3 SlogModem Command

3.1 General Format

SlogModem provides services to Engineer Mode in the form of request and response. Both request and response are text strings ended with line breaks (\n).

Request

<REQ-TYPE> [<REQ-PARAM1> <REQ-PARAM2> …]\n

Parameter	Description
<REQ-TYPE>	This is the request type, and its possible values are described in Section 3.2 Command Reference.
<REQ-PARAM*n*>	This is a request parameter depending on the specific request type.

Response

- Successful: OK\n
- Failed: ERROR <ERR_NO>\n

Parameter	Description
<ERR_NO>	This is a positive integer, indicating the cause of the error. Its possible values are described in Section 3.3 Error Code.

3.2 Command Reference

The commands currently supported by SlogModem are shown in Table 3-1.

Table 3-1 SlogModem Commands

Command	Description
COLLECT_LOG	Collect the specified CP log, including all logs and memory dump files of a corresponding CP.
COPY_FILE	Copy the specified memory dump files to a corresponding log directory. This command is only used for GNSS memory dump.
CP_DUMP_END	Notification message, indicating the completion of the memory dump process of a specified subsystem.

CP_DUMP_START	Notification message, indicating the start of the memory dump process of a specified subsystem.
DISABLE_IQ	Disable the saving of WCDMA I/Q. This command does not restart mobile phone to normal mode, and SlogModem does not save WCDMA I/Q data after mobile phone restarts to normal mode.
DISABLE_LOG	Disable the log saving of a specified subsystem.
DISABLE_LOG_OVERWRITE	Disable log cycle storage.
DISABLE_MD	Disable the saving of mini dump file in case of MODEM assert.
DISABLE_SAVE_DUMP	Disable the saving of dump in case of assert in a specified subsystem. This command is not implemented currently.
ENABLE_IQ	Enable the saving of WCDMA I/Q. This command does not restart mobile phone to WCDMA I/Q mode. SlogModem starts to save WCDMA I/Q data after mobile phone restarts to WCDMA I/Q mode.
ENABLE_LOG	Enable the log saving of a specified subsystem.
ENABLE_LOG_OVERWRITE	Enable log cycle storage.
ENABLE_MD	Enable the saving of mini dump file in case of MDOEM assert.
ENABLE_SAVE_DUMP	Enable the saving of memory dump file in case of assert in a specified subsystem. This command is not implemented currently.
FLUSH	Write the logs currently cached in memory to files.
GET_AGDSP_LOG_OUTPUT	Get the output destination of AG-DSP log.
GET_AGDSP_PCM_OUTPUT	Get the output state of AG-DSP PCM.
GET_CP_LOG_SIZE	Get the maximum size of total logs of a specified subsystem.
GET_DUMP_SAVE_STATE	Query the current settings of dump saving.
GET_LOG_FILE_SIZE	Get the maximum size of a single log file.
GET_LOG_OVERWRITE	Get the settings of log cycle storage.
GET_LOG_STATE	Get the log saving state of a specified subsystem.
GET_MD_STOR_POS	Get the storage medium of MODEM mini dump file, always stored in internal storage or preferentially in external T-card.
MINI_DUMP	Save the mini dump file of MODEM, which is not supported currently.
SAVE_LAST_LOG	Save the latest log.
SAVE_RINGBUF	Save the Ring Buffer of MODEM.
SAVE_SLEEP_LOG	Save the sleep log of MODEM.
SET_AGDSP_LOG_OUTPUT	Set the output destination of AG-DSP log.
SET_AGDSP_PCM_OUTPUT	Set the output state of AG-DSP PCM data.
SET_CP_LOG_SIZE	Set the maximum size of total logs of a specified subsystem.

SET_LOG_FILE_SIZE	Set the maximum size of a single log file.
SET_MD_STOR_POS	Set the storage medium of MODEM mini dump file, always stored in internal storage or preferentially in external T-card.
slogctl clear	Delete all logs.
SUBSCRIBE	Subscribe to notification message.
UNSUBSCRIBE	Unsubscribe.
SET_MINIAP_LOG	Set the on and off state of miniap log.
SET_ORCADP_LOG	Set the on and off state of orcadp log.
SET_MIPI_LOG_INFO	Set the information to be included in mipi log.
GET_MIPI_LOG_INFO	Get the information included in mipi log.

3.2.1 COLLECT_LOG

Description

Collect the specified CP log, including all logs and memory dump file of the corresponding CP.

Request

COLLECT_LOG [<cp_type1> [<cp_type2>[…]]]

Parameter	Description
<cp_type*n*>	It indicates the CP type of the log to be collected, and its possible values are the same as that of the <cp_type*n*> parameter in the ENABLE_LGO command. If <cp_type*n*> is not defined, it indicates collecting the logs of all CPs in the current system.

Response

See **Response** in Section **3.1** General Format.

3.2.2 COPY_FILE

Description

Copy the specified memory dump file to the corresponding log directory. This command is only used for GNSS memory dump.

Request

COPY_FILE <cp_type> <file_type> <file1 path> [<file2 path>…]

Parameter	Description
<cp_type>	It is the same as the <cp_typen> parameter in the EABLE_LOG command.
<file_type>	If it is for DUMP, this parameter is memory dump file, and if it is for LOG, this parameter indicates log. Currently it only supports DUMP.
<file*n* path>	The full path of the file.

Response

See **Response** in Section **3.1** General Format.

3.2.3 CP_DUMP_END

Description

Notification message, indicating the completion of the memory dump process of a specified subsystem.

Request

CP_DUMP_END <cp_type>

Parameter	Description
<cp_type>	Its possible values are the same as that of the <cp_type> in ENABLE_LOG.

Response

See **Response** in Section **3.1** General Format.

3.2.4 CP_DUMP_START

Description

Notification message, indicating the start of the memory dump process of a specified subsystem.

Request

CP_DUMP_START <cp_type>

Parameter	Description.
<cp_type>	Its possible values are the same as that of the <cp_type> in ENABLE_LOG.

Response

See **Response** in Section **3.1** General Format.

3.2.5 DISABLE_IQ

Description

Disable the saving of WCDMA I/Q. This command does not restart mobile phone to normal mode, and SlogModem does not save WCDMA I/Q data after mobile phone restarts to normal mode.

Request

DISABLE_IQ <cp_type> [<iq-type>]

Parameter	Description
<cp_type>	It indicates on which CP to disable the IQ data storage. Its possible values are the same as other subsystems shown in Figure 1-2.
<iq-type>	It indicates the type of I/Q to be disabled. Its possible values are the same as that of <iq-type> in ENABLE_LOG. If <iq_type> is default, it indicates stop saving all types of I/Q on a specified CP.

Response

See **Response** in Section **3.1** General Format.

3.2.6 DISABLE_LOG

Description

Disable the log saving of a specified subsystem.

Request

DISABLE_LOG <cp_type1> <cp_type2> …

Parameter	Description
<cp_type*n*>	Its possible values are the same as that of the <cp_type> in ENABLE_LOG.

Response

See **Response** in Section **3.1** General Format.

3.2.7 DISABLE_LOG_OVERWRITE

Description

Disable log cycle storage.

Request

DISABLE_LOG_OVERWRITE

Response

See **Response** in Section **3.1** General Format.

3.2.8 DISABLE_MD

Description

Disable the saving of mini dump file during MODEM assert.

Request

DISABLE_MD

Response

See **Response** in Section **3.1** General Format.

3.2.9 DISABLE_SAVE_DUMP

Description

Disable the saving of dump when a specified subsystem assert. This command is not implemented currently.

Request

DISABLE_SAVE_DUMP <cp1> [<cp2> ...]

Parameter	Description
<cp*n*>	Its possible value is the same as that of the <cp_type> in ENABLE_LOG.

Response

See **Response** in Section **3.1** General Format.

3.2.10 ENABLE_IQ

Description

Enable the saving of WCDMA I/Q. This command does not restart mobile phone to WCDMA I/Q mode. SlogModem starts to save WCDMA I/Q data after mobile phone restarts to WCDMA I/Q mode.

Request

ENABLE_IQ <cp_type> <iq-type>

Parameter	Description
<cp_type>	It indicates enabling the saving of IQ data of a specified CP. Its possible value is the same as that of the <cp_type> in ENABLE_LOG.
<iq-type>	It indicates I/Q type, and its possible values can be: • WCDMA: WCDMA I/Q • GSM: GSM I/Q

Response

See **Response** in Section **3.1** General Format.

3.2.11 ENABLE_LOG

Description

Enable the log saving of a specified subsystem.

Request

ENABLE_LOG <cp_type1> <cp_type2> …

The possible value of <cp_type*n*> is as follows.

Parameter	Description
5MODE	LTE 5-mode MODEM
AG-DSP	AG-DSP
GNSS	UNISOC GNSS
PM_SH	PM/Sensor Hub
WCDMA	WCDMA MODEM
WCN	WCN
ORCAAP	The kernel of miniap module
ORCADP	CM4 in Modem

Response

See **Response** in Section **3.1** General Format.

3.2.12 ENABLE_LOG_OVERWRITE

Description

Enable log cycle storage.

Request

ENABLE_LOG_OVERWRITE

Response

See **Response** in Section **3.1** General Format.

3.2.13 ENABLE_MD

Description

Enable the saving of mini dump file during MDOEM assert.

Request

ENABLE_MD

Response

See **Response** in Section **3.1** General Format.

3.2.14 ENABLE_SAVE_DUMP

Description

Enable the saving of memory dump file when a specified subsystem assert. This command is not implemented currently.

Request

ENABLE_SAVE_DUMP <cp1> [<cp2> ...]

Parameter	Description
<cp*n*>	Its possible values can be: • WAN: Wireless WAN MODEM • WCN: WCN

Response

See **Response** in Section **3.1** General Format.

3.2.15 FLUSH

Description

Write the logs currently cached in memory to files.

Request

FLUSH

Response

See **Response** in Section **3.1** General Format.

3.2.16 GET_AGDSP_LOG_OUTPUT

Description

Get the output destination of AG-DSP log.

Request

GET_AGDSP_LOG_OUTPUT

Response

- Successful: OK <output>

Parameter	Description
<output>	The output destination. Its possible values are the same as the <output> in SET_AGDSP_LOG_OUTPUT.

- Failed: ERROR <code>

Parameter	Description
<code>	Error code. See Section 3.3 Error Code for its possible values.

3.2.17 GET_AGDSP_PCM_OUTPUT

Description

Get the output state of AG-DSP PCM.

Request

GET_AGDSP_PCM_OUTPUT

Response

- Successful: OK <state>

Parameter	Description
<state>	AG DSP PCM output state. Its possible values can be: • ON: PCM dump has been enabled. • OFF: PCM dump has been disabled.

- Failed: ERROR <code>

Parameter	Description
<code>	Error code. See Section 3.3 Error Code for its possible values.

3.2.18 GET_CP_LOG_SIZE

Description

Get the maximum size of total logs of a specified subsystem.

Request

GET_CP_LOG_SIZE<cp_type><pos>

Parameter	Description
<cp_type>	A specified subsystem. Its possible values are the same as that in ENABLE_LOG.
<pos>	Storage medium. The possible values can be: • internal: internal storage • external: external storage

Response

- Successful: OK <size>

Parameter	Description
<size>	Log size in MB unit. 0 indicates using all free space, while other values indicates the maximum log size.

- Failed: ERROR <code>

Parameter	Description
<code>	Error code. See Section 3.3 Error Code for its possible values.

3.2.19 GET_DUMP_SAVE_STATE

Description

Query the current settings of dump saving.

Request

GET_DUMP_SAVE_STATE <cp>

Parameter	Description
<cp>	Its possible values are the same as that of <cp*n*> in ENABLE_SAVE_DUMP.

Response

- Successful: OK <state>

Parameter	Description
<state>	Saving settings. Its possible values can be: • ON: Enable • OFF: Disable

- Failed: ERROR <code>

Parameter	Description
<code>	Error code. See Section 3.3 Error Code for its possible values.

3.2.20 GET_LOG_FILE_SIZE

Description

Get the maximum size of a single log file.

Request

GET_LOG_FILE_SIZE

Response

- Successful: OK <size>

Parameter	Description
<size>	Log file size in MB unit.

- Failed: ERROR <code>

Parameter	Description
<code>	Error code. See Section 3.3 Error Code for its possible values.

3.2.21 GET_LOG_OVERWRITE

Description

Get the settings of log cycle storage.

Request

GET_LOG_OVERWRITE

Response

- Successful
  - OK ENABLE: Log cycle storage is enabled currently.
  - OK DISABLE: Log cycle storage is disabled currently.
- Failed: See **Response** in Section 3.1 General Format.

3.2.22 GET_LOG_STATE

Description

Get the log saving state of a specified subsystem.

Request

GET_LOG_STATE <cp_type>

Parameter	Description
<cp_type>	It is the same as the parameter <cp_type*n*> in ENABLE_LOG.

Response

- Successful:
  - OK ON: The T-card log of the subsystem is turned on.
  - OK OFF: The T-card log of the subsystem is turned off.
- Failed: ERROR <code>

Parameter	Description
<code>	Error code. See Section 3.3 Error Code for its possible values.

3.2.23 GET_MD_STOR_POS

Description

Get the storage medium of MODEM mini dump file, always stored in internal storage or preferentially in external T-card.

Request

GET_MD_STOR_POS

Response

- Successful
  - OK INTERNAL: Always store the mini dump file in internal storage.
  - OK EXTERNAL: Store the mini dump file in external T-card if external T-card is available; otherwise store it in internal storage.
- Failed: See **Response** in Section 3.1 General Format.

3.2.24 MINI_DUMP

Description

Save the mini dump file of MODEM, which is not supported currently.

Request

MINI_DUMP

Response

See **Response** in Section 3.1 General Format.

3.2.25 SAVE_LAST_LOG

Description

Save the latest log.

Request

SAVE_LAST_LOG <cp_type>

Parameter	Description
<cp_type>	It indicates the CP with the latest log saved. Currently, <cp_type> can only be MODEM, indicating cellular network MODEM.

Response

See **Response** in Section 3.1 General Format.

3.2.26 SAVE_RINGBUF

Description

Save the Ring Buffer of MODEM.

Request

SAVE_RINGBUF <cp_type>

Parameter	Description
<cp_type>	Its possible values are the same as that of the parameter <cp_type> in ENABLE_LOG.

Response

See **Response** in Section 3.1 General Format.

3.2.27 SAVE_SLEEP_LOG

Description

Save the sleep log of MODEM.

Request

SAVE_SLEEP_LOG <cp_type>

Parameter	Description
<cp_type>	Its possible values are the same as that of the parameter <cp_type> in ENABLE_LOG.

Response

See **Response** in Section 3.1 General Format.

3.2.28 SET_AGDSP_LOG_OUTPUT

Description

Set the output destination of AG-DSP log.

Request

SET_AGDSP_LOG_OUTPUT <output>

Parameter	Description
< output>	Output destination. Its possible values can be: • OFF: Turn off (no output) • UART: Output to UART • USB: Output to AP

Response

See **Response** in Section 3.1 General Format.

3.2.29 SET_AGDSP_PCM_OUTPUT

Description

Set the output state of AG-DSP PCM data.

Request

SET_AGDSP_PCM_OUTPUT <state>

Parameter	Description
<state>	Data output state. Its possible values can be: • ON: Turn on PCM dump • OFF: Turn off PCM dump

Response

See **Response** in Section 3.1 General Format.

3.2.30 SET_CP_LOG_SIZE

Description

Set the maximum size of total logs of a specified subsystem.

Request

SET_CP_LOG_SIZE <cp_type><pos><size>

Parameter	Description
<cp_type>	A specified subsystem, which possible value is the same as that in ENABLE_LOG.

Parameter	Description
<pos>	Storage medium. The possible values can be: • internal: internal storage • external: external storage
<size>	Log size in MB unit. 0 indicates using all free space, while other values indicates maximum size.

Response

See **Response** in Section 3.1 General Format.

3.2.31 SET_LOG_FILE_SIZE

Description

Set the maximum size of a single log file.

Request

SET_LOG_FILE_SIZE <size>

Parameter	Description
<size>	Log file size in MB unit.

Response

See **Response** in Section 3.1 General Format.

3.2.32 SET_MD_STOR_POS

Description

Set the storage medium of MODEM mini dump file, always stored in internal storage or preferentially in external T-card.

Request

SET_MD_STOR_POS <pos>

Parameter	Description
<pos>	Storage location. Its possible values can be: • INTERNAL: Always store mini dump file in internal storage. • EXTERNAL: Store mini dump file in external T-card if external T-card is available, otherwise store in internal storage.

Response

See **Response** in Section 3.1 General Format.

3.2.33 slogctl clear

Description

Delete all logs.

Request

slogctl clear

Response

See **Response** in Section 3.1 General Format.

3.2.34 SUBSCRIBE

Description

Subscribe to notification message.

Request

SUBSCRIBE <cp_type> <event>

Parameter	Description
<cp_type>	Its possible values are the same as that of the parameter <cp_type> in ENABLE_LOG.
<event>	Currently, only DUMP is the possible value, indicating CP memory dump event. If DUMP event is subscribed, the client can receive the notification message of CP_DUMP_START and CP_DUMP_END in case of any event.

NOTE

If the client is disconnected from SlogModem, the event subscription of the client is cancelled automatically.

Response

See **Response** in Section 3.1 General Format.

3.2.35 UNSUBSCRIBE

Description

Unsubscribe.

Request

UNSUBSCRIBE <cp_type> <event>

Parameter	Description
<cp_type>	Its possible values are the same as that of the parameter <cp_type> in ENABLE_LOG.
<event>	Only DUMP is the possible value, indicating CP memory dump event.

Response

See **Response** in Section 3.1 General Format.

3.2.36 SET_MINIAP_LOG

Description

Set the on and off state of miniap log.

Request

SET_MINIAP_LOG <state>

Parameter	Description
<state>	The on and off state of miniap log. Its possible values can be: OFF: Turn off, not saving miniap log. ON: Turn on, saving miniap log.

Response

See **Response** in Section 3.1 General Format.

3.2.37 SET_ORCADP_LOG

Description

Set the on and off state of orcadp log.

Request

SET_ORCADP_LOG <state>

Parameter	Description
<state>	The on and off state of orcadp log. Its possible values can be: OFF: Turn off, not saving orcadp log. ON: Turn on, saving orcadp log.

Response

See **Response** in Section 3.1 General Format.

3.2.38 SET_MIPI_LOG_INFO

Description

Set the information to be included in mipi log.

Request

SET_MIPI_LOG_INFO <type> <channel> <freq>

Parameter	Description
<type>	Its possible values can be serdes0, serdes1, serdes2.
<channel>	Its possible values can be close, training, v3, nr.
<freq>	Its possible values can be 500000, 1500000, 2000000, 2500000. The unit is Hz.

Response

See **Response** in Section 3.1 General Format.

3.2.39 GET_MIPI_LOG_INFO

Description

Get the information included in mipi log.

Request

GET_MIPI_LOG_INFO <type>

Parameter	Description
<type>	Its possible values can be serdes0, serdes1, serdes2.

Response

- Successful: OK<type><channel><freq>

Parameter	Description
<type>	The same as the <type> in the request.
<channel>	Its possible values can be close, training, v3, nr.
<freq>	Its possible values can be 500000, 1500000, 2000000, 2500000. The unit is Hz.

- Failed: Only return <type>, which value is the same as that in the request.

3.3 Error Code

See Table 3-2 for error codes and description.

Table 3-2 Error code of SlogModem Command

Error Code	Description
1	Unrecognized request.
2	Request parameter error.
3	Request execution failure.
4	The system is saving CP dump, sleep log or RingBuf.
5	The log saving of a specified CP is not enabled.
6	MODEM does not support sleep log function.
7	Modem does not support RingBuf function.
8	CP assert occurred.
9	Unrecognized CP type.
10	No AG-DSP in the system.
11	The specified CP does not exist in the system.

4 cplogctl Command

Cplogctl is a command line program that controls part of SlogModem options in the runtime.

4.1 General Format

Command

The command line format: cplogctl <command> [<arg1> [<arg2> ...]]

- <command>: Command, see Section 4.2 Command Reference.
- <arg*n*>: Command parameter

Result

- If cplogctl is successful, the exit code is 0, and the result is given in standard output.
- If cplogctl is failed, the exit code is 1, and the result is give in standard error message.

4.2 Command Reference

See Table 4-1 for cplogctl commands. Refer to the sections below for detailed command description.

Table 4-1 Cplogctl Command

Command	Description
clear	Clear the log of each subsystem other than AP, including the logs in both internal storage and external T-card.
disable	Disable the log saving of a specified subsystem.
enable	Enable the log saving of a specified subsystem.
flush	Write the currently cached log to files.
getcpcapacity	Get the maximum size of total logs of a specified subsystem.
getfilesize	Get the maximum size of a single log file.
getoverwrite	Get the settings of log cycle storage.
setaglog	Set the output destination of AG-DSP log.
setagpcm	Set the output state of AG-DSP PCM data.
setcpcapacity	Set the maximum size of total logs of a specified subsystem.
setfilesize	Set the maximum size of a single log file.

Command	Description
setoverwrite	Set log cycle storage.
setminiaplog	Set the on and off state of miniap log.
setorcadplog	Set the on and off state of orcadp log.
setmipilog	Set the information to be included in mipi log.
getmipilog	Get the information included in mipi log.
state	Get the log storage state of a specified subsystem.

4.2.1 clear

Description

Clear the log of each subsystem other than AP, including the logs in both internal storage and external T-card.

Command

cplogctl clear

Result

See **Result** in Section 4.1 General Format.

4.2.2 disable

Description

Disable the log saving of a specified subsystem.

Command

cplogctl disable <subsys1> [<subsys2> …]

Parameter	Description
<subsys*n*>	Subsystems. Its possible values can be: • 5mode: LTE MODEM • agdsp: AG-DSP • gnss: GNSS • pmsh: PM/Sensor Hub • wcn: WCN • orcaap: miniap log • orcadp: cm4 log

Result

See **Result** in Section 4.1 General Format.

4.2.3 enable

Description

Enable the log saving of a specified subsystem.

Command

cplogctl enable <subsys1> [<subsys2> …]

Parameter	Description
<subsys*n*>	Subsystems. Its possible values can be: • 5mode: LTE MODEM • agdsp: AG-DSP • gnss: GNSS • pmsh: PM/Sensor Hub • wcn: WCN • orcaap: miniap log • orcadp: cm4 log

Result

See **Result** in Section 4.1 General Format.

4.2.4 flush

Description

Write the currently cached log to files.

Command

cplogctl flush

Result

See **Result** in Section 4.1 General Format.

4.2.5 getcpcapacity

Description

Get the maximum size of total logs of a specified subsystem.

Command

cplogctl getcpcapacity <subsys> <storage>

Parameter	Description
<subsys>	Subsystems. Its possible values can be: • 5mode: LTE MODEM • agdsp: AG-DSP • gnss: GNSS • pmsh: PM/Sensor Hub • wcn: WCN • orcaap: miniap log • orcadp: cm4 log
<storage>	The specified storage medium. Its possible values can be: • external: External T-card. • internal: Internal storage (/data partition)

Result

- The result on standard output in case of success: <capacity> MB

Parameter	Description
<capacity>	Log size in MB unit.

- The result in case of failure: See **Result** in Section 4.1 General Format.

4.2.6 getfilesize

Description

Get the maximum size of a single log file.

Command

cplogctl getfilesize

Result

- The result on standard output in case of success: <size> MB

Parameter	Description
<size>	Log file size in MB unit.

- The result in case of failure: See **Result** in Section 4.1 General Format.

4.2.7 getoverwrite

Description

Get the settings of log cycle storage.

Command

cplogctl getoverwrite

Result

- The result on standard output in case of success: overwrite:<state>

Parameter	Description
<state>	Log cycle storage settings. Its possible values can be: • enabled: log cycle storage is enabled. • disabled: log cycle storage is disabled.

- The result in case of failure: See **Result** in Section 4.1 General Format.

4.2.8 setaglog

Description

Set the output destination of AG-DSP log.

Command

cplogctl setaglog <output>

Parameter	Description
<output>	Log output destination. Its possible values can be: • off：no log output • uart：log output to UART • ap：log output to AP

Result

See **Result** in Section 4.1 General Format.

4.2.9 setagpcm

Description

Set the output state of AG-DSP PCM data.

Command

cplogctl setagpcm <enable>

Parameter	Description
<enable>	Its possible values can be: • on: output PCM data. • off: Do not output PCM data.

Result

See **Result** in Section 4.1 General Format.

4.2.10 setcpcapacity

Description

Set the maximum size of total logs of a specified subsystem.

Command

cplogctl setcpcapacity <subsys> <storage> <size>

Parameter	Description
<subsys>	Subsystems. Its possible values can be: • 5mode: LTE MODEM • agdsp: AG-DSP • gnss: GNSS • pmsh: PM/Sensor Hub • wcn: WCN • orcaap: miniap log • orcadp: cm4 log
<storage>	The storage medium to be set. Its possible values can be: • external: External T-card. • internal: Internal storage
<size>	The total log size in MB unit. If <size> is 0, it indicates using all free space in the specified storage medium.

Result

See **Result** in Section 4.1 General Format.

4.2.11 setfilesize

Description

Set the maximum size of a single log file.

Command

cplogctl setfilesize <size>

Parameter	Description
<size>	The Maximum size of a single file in MB unit.

Result

See **Result** in Section 4.1 General Format.

4.2.12 setoverwrite

Description

Set log cycle storage.

Command

cplogctl setoverwrite <enable>

Parameter	Description
<enable>	The state of log cycle storage. Its possible values can be: • enable: enable log cycle storage. • disable: disable log cycle storage.

Result

See **Result** in Section 4.1 General Format.

4.2.13 setminiaplog

Description

Set the on and off state of miniap log.

Command

cplogctl setminiaplog <state>

Parameter	Description
<state>	The on and off state of miniap log. Its possible values can be: • on: Save miniap log • off: Do not save miniap log

Result

See **Result** in Section 4.1 General Format.

4.2.14 setorcadplog

Description

Set the on and off state of orcadp log.

Command

cplogctl setorcadplog <state>

Parameter	Description
<state>	The on and off state of orcadp log. Its possible values can be: • on: Save orcadp log. • off: Do not save orcadp log.

Result

See **Result** in Section 4.1 General Format.

4.2.15 setmipilog

Description

Set the information to be included in mipi log.

Command

cplogctl setmipilog <type> <channel> <freq>

Parameter	Description
<type>	Its possible values can be serdes0, serdes1, serdes2.
<channel>	Its possible values can be close, training, v3, nr.
<freq>	Its possible values can be 500000, 1500000, 2000000, 2500000. The unit is Hz.

Result

See **Result** in Section 4.1 General Format.

4.2.16 getmipilog

Description

Get the information included in mipi log.

Command

cplogctl getmipilog <type>

Parameter	Description
<type>	Its possible values can be serdes0, serdes1, serdes2.

Result

- The result on standard output in case of success: <type><channel> <freq>

Parameter	Description
<type>	The same as the <type> in the request.
<channel>	Its possible values can be close, training, v3, nr.
<freq>	Its possible values can be 500000, 1500000, 2000000, 2500000. The unit is Hz.

- The result in case of failure: Return <type>, which value is the same as that in the command.

4.2.17 state

Description

Get the log storage state of a specified subsystem.

Command

cplogctl state <subsys>

Parameter	Description
<subsys>	The specified subsystem. Its possible values can be the same as that of the parameter <subsysn> in the enable command.

Result

- The result on standard output in case of success: <subsys><state>

Parameter	Description
<subsys>	The queried subsystem, which is the same as that of the parameter <subsys> in this command.
<state>	Log storage state. Its possible values can be: • on: Save log. • off: Do not save log.

- The result in case of failure: See **Result** in Section 4.1 General Format.