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TR-800 GSM/GPRS Module
AT Commands Guide
(For firmware version AB_02_00_28N_DEF003_IVER10)

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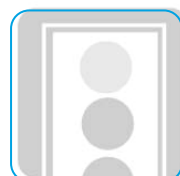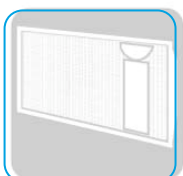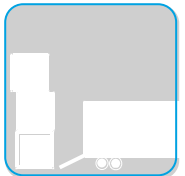
Document Information

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1.0	03 May 2007	▪ Preliminary Release, Beta version	AB_02_00_28N_DEF002_IVER02
1.1	14 Jun 2007	▪ Added $MMSTRACE: 1061and AT$ MMSCS	AB_02_00_28N_DEF002_IVER03
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1.3	22 Aug 2007	▪ MMSW=5 for <mode>=2	AB_02_00_28N_DEF003_IVER08
1.4	31 Aug 2007	▪ Example on how to save text file in Unicode Format (Windows)	AB_02_00_28N_DEF003_IVER09
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1. Introduction

This document presents iWOW's AT-commands dedicated to IP connectivity implemented in the TR-800 GSM/GPRS module.

The commands shown in this document applies to firmware revision AB_02_00_28N_DEF003_IVER10.

2. File management

2.1. Upload File to TR-800 : $FUPL

Description: This command is used to upload a file to TR-800.
Note: The UFS maximum storage capacity is 600Kbytes.

Command Syntax: AT$FUPL="<filename>"[,<filesize>]

Command	Possible response(s)
AT$FUPL="<filename>"[,<filesize>] Note: Copy a file into Module	Ok_Info_FileUploadStarted Note: Xmodem Mode Started

Defined Values:

<filename>   String. Support 8.4 file format with extenstion, example: picture.jpg, picture.jpeg. (First character must be an Alphabet). This file will be receive the file via X-Modem file transfer protocol and create into the Module.
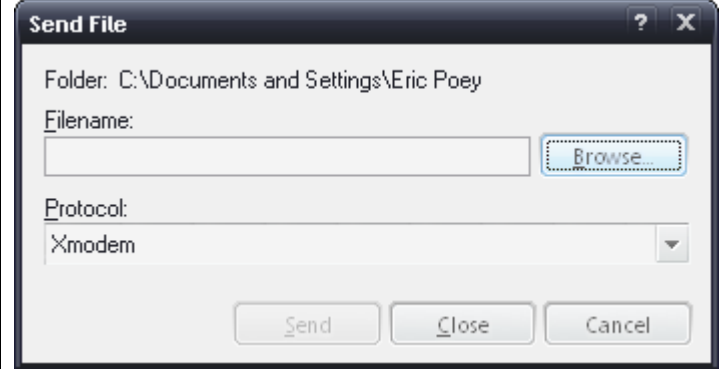
filesize   Size of file in bytes. Range from 1 to 600000.

Note: 30 seconds after X-Modem mode has started, system will time out and return to AT-Command mode

Example

Connect module to HyperTerminal and execute the following commands:

Command	Possible Response(s)
AT$FUPL="MyPic",10 *Note: Copy a file into Module*	Ok_Info_FileUploadStarted *Note: Xmodem Mode Started*
	§§§§§§§ *Note: Xmodem started*
On the Hyperterminal, goto Menu → [Transfer]→ [Send].	
From the prompted dialog (as shown in the figure below), select the source file (from [Browse]) and select Xmodem in the Protocol field. Click on [Send] to start file transfer.	

   Send File ? X Folder: C:\Documents and Settings\Eric Poey Filename: [ ] Browse... Protocol: Xmodem ▼ Send Close Cancel	
	§§§§§§§ *Note: Xmodem transferring file*
NOTE: If there is no error	Ok_Info_FileClose OK *Note: Xmodem has completed transferring file successfully*
NOTE: If there is an error	Ok_Info_FileClose $FERR: 4005

2.2. Download File from TR-800 : $FDWL

Description: This command is used to download a file from TR-800.

Command Syntax: AT$FDWL="<filename>"

Command	Possible response(s)
AT$FDWL="<filename>" *Note: Copy file from Module*	Ok_Info_FileUploadStarted *Note: X-Modem Mode Started*

Defined Values
<filename>   String Support 8.4 file format with extenstion, example: picture.jpg, picture.jpeg. (First character must be an Alphabet). The module will send this file via X-Modem file transfer protocol.

Note: 15seconds after X-Modem mode has started, the system will time-out and return to AT-Command mode

Example

Connect module to HyperTerminal and execute the following commands:

Command	Possible Response(s)
AT$FDWL="MyPic" *Note: Copy a file into Module*	Ok_Info_FileDownloadStarted *Note: Xmodem Mode Started*
	§§§§§§§ *Note: Xmodem started*

On the Hyperterminal, goto Menu and select [Transfer]→ [Send].	
From the prompted dialog (as show in figure below), select the folder and select Xmodem in the Protocol field. Click on [Receive] to start file transfer.	
	§§§§§§§ *Note: Xmodem transferring file*
NOTE: If there is no error	Ok_Info_FileClose OK *Note: Xmodem has completed transferring file successfully*
NOTE: If there is an error	Ok_Info_FileClose $FERR: 4006

2.3. Delete a File in TR-800: $FDEL

Description: This command is used to delete a file in the module.

Command Syntax: AT$FDEL="<filename>"

Command	Possible response(s)
AT$FDEL="<filename>" *Note: Delete a file from the Module*	OK *Note: File deleted successfully*
AT$FDEL="<filename>"	$FEER:<file error code> *Note: File Error*

Defined Values

<filename>   String. Support 8.4 file format with extenstion, example: picture.jpg, picture.jpeg. (First character must be an Alphabet). This file will be deleted from the module.
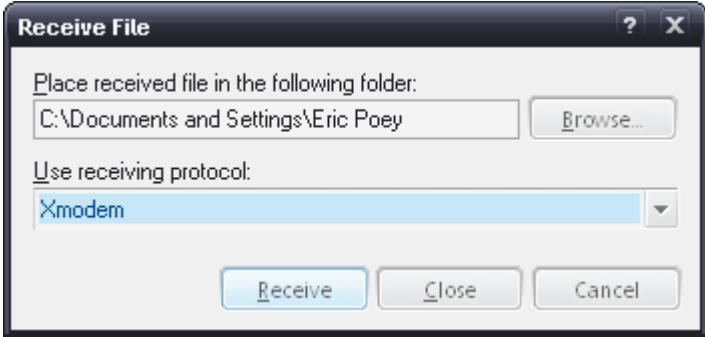If <filename> = "*", all files stored will be deleted.

Example

Command	Possible Response(s)
AT$FDEL="haha.jpg"	OK
AT$FDEL="*" Note: Delete all files from User File System (UFS)	OK Note: All files deleted from UFS

2.4. List File properties: $FLST

Description: This command is used to list all files and their properties.

Command Syntax: AT$FLST

Command	Possible response(s)
AT$FLST	$FLST: <filename>,<file size>
	$FLST: <filename>,<file size>
	…
	$FLST: <filename>,<file size>
	OK
Note: List all files in the Module	*Note: Successfully listed all files*
AT$FLST	OK
Note: List all files in the Module	*Note: No file in the Module*

Defined Values
<filename>   String. Up to 8 alphanumeric characters.
<file size>   Numeric. 0 to 600,000 bytes.
                       This field reports the file size of the respective files.

2.5. List Folder properties: $FFLD

Description: This command is used to list folder properties.

Command Syntax: AT$FFLD

Command	Possible response(s)
AT$FFLD	$FFLD: <used>,<free>,<total>,<file count>
	OK
	Note: Successfully listed folder properties
Note: List folder properties	

Defined Values
<used>   Numeric. 0 to 600,000 bytes. This field reports the used space in the UFS.
<free>   Numeric. 0 to 600,000 bytes. This field reports the available free space in the
                       UFS.
<total>   Numeric. 0 to 600,000 bytes. This field reports the total available folder
                       capacity in UFS.
<file count>   Numeric: 0 to 20. This field reports the number of files that are currently
                       saved in UFS.

2.6. Last File Error: $FERR

Description: This command requests for the last reported file error.

Command Syntax: AT$FERR

Command	Possible response(s)
AT$FERR	$FERR: <file error code>
Note: Query last reported file error	OK

Defined Values
<file error code>   Please refer to File Error Code table in Appendix.

3. MMS Configuration

3.1. MMS Bearer: $MMSBEARER

Description: This command sets the bearer for the MMS transaction.
For this release, only GPRS proxy is available.

Command Syntax: AT$MMSBEARER=1,"<apn >","<userid>","<pw>"

Command	Possible response(s)
AT$MMSBEARER=?	$MMSBEARER: 1,"<apn>","<userid>","<pw>" OK
AT$MMSBEARER=1,"<apn >","<userid>","<pw>"	OK
AT$MMSBEARER?	$MMSBEARER: 1,"<apn>","<userid>","<pw>" OK

Defined Values
<apn>   String. Up to 150 characters. MMS GPRS APN
<userid>   String. Up to 50 characters. MMS GPRS log-in User ID
<pw>   String. Up to 50 characters. MMS GPRS log-in password

Example

Commands	Possible Responses
AT$$MMSBEARER=1,"e-ideas","",""	OK
AT$MMSBEARER?	$MMSBEARER: 1,"e-ideas","","" OK

3.2. MMS Proxy: $MMSPROXY

Description: This command sets the MMS proxy/URL

Command Syntax: AT$MMSPROXY="<proxy hostname/ip>",<port>

Command	Possible response(s)
AT$MMSPROXY=?	$MMSPROXY: "255",(1 – 65535) OK
AT$MMSPROXY="<proxy hostname/ip>",<port>	OK
AT$MMSPROXY?	$MMSPROXY: "<proxy hostname/ip>",<port> OK

Defined Values
<proxy hostname/ip>   String. Up to 255 characters. MMS Proxy URL, or, IP address
<port>   Numeric. 1 to 65000. MMS Proxy Port number (1 to 65535)

Example

Commands	Possible Responses
AT$MMSPROXY="165.22.32.81",8080	OK
AT$MMSPROXY?	$MMSPROXY: "165.22.32.81",8080 OK *Note: MMS Proxy has been set*

3.3. MMSC URL: $MMSCURL

Description: This command sets the MMSC URL.

Command Syntax: AT$MMSCURL="<proxy hostname/ip>"

Command	Possible response(s)
AT$MMSCURL=?	$MMSCURL: "255" OK
AT$MMSCURL="<proxy hostname/ip>"	OK
AT$MMSCURL?	$MMSCURL: "<proxy hostname/ip>" OK

Defined Values
<proxy hostname/ip>   String. Up to 255 characters. MMS URL, or, IP address

Example

Commands	Possible Responses
AT$MMSCURL="http://mmsgw:8002/"	OK
AT$MMSPROXY?	$MMSCURL: http://mmsgw:8002/ OK

3.4. MMS Communication Mode: $MMSCOMMMODE

Description: This command sets the MMS communication mode.

Command Syntax: AT$MMSCOMMMODE=<mode>

Command	Possible response(s)
AT$MMSCOMMMODE=?	$MMSCOMMMODE: (2,3) OK
AT$MMSCOMMMODE=<mode>	OK
AT$MMSCOMMMODE?	$MMSCOMMMODE: <mode> OK

Defined Values
<mode>   2 = PROXY   (Connect to MMSC via a Proxy Server)
                         3 = DIRECT   (Connect to MMSC directly)

Example

Commands	Possible Responses
AT$MMSCOMMMODE=2	OK
AT$MMSCOMMMODE?	$MMSCOMMMODE: 2 OK

4. MMS Header Inbox

4.1. List MMS Headers: $MMSHL

Description: This command lists the MMS Headers from the MMS inbox.

Command Syntax: AT$MMSHL="<type>"

Command	Possible response(s)
AT$MMSHL=? *Note: Testing the command*	$MMSHL: ("READ","UNREAD","ALL","DOWNLOADED") OK *Note: Command is valid with the required parameters*
AT$MMSHL="<type>"	$MMSHL:<location>,"<frnum>","<type>",<dl>,"<date>","<time>","<size>" … $MMSHL:<location>,"<frnum>","<type>",<dl>,"<date>","<time>","<size>" OK

Defined Values

<type>	String. Case sensitive selection from: "READ","UNREAD","ALL","DOWNLOADED". **READ** – To list all MMS headers that are already being read by AT$MMSHL or AT$MMSHR. **UNREAD** – To list all MMS headers that are not being read by AT$MMSHL or AT$MMSHR. **DOWNLOADED** - To list all MMS headers that are being downloaded by AT$MMSHDRDWL. **ALL** - To list all MMS headers in the MMS inbox.
<location>	Numeric. 1 – 20. This field represents the current header in ascending order.
<frnum>	String. Phone number of sender.
<dl>	0 indicates current MMS message has not been downloaded 1 indicates current MMS message has been downloaded
<date>	String. Format: "DD/MM/YYYY"
<time>	String. Format: "hh:mm:ss"

Note: The <date> and <time> field states the date and time stamp of the received MMS from the MMSC.

<size>	total size of MMS message in Bytes

4.2. Delete MMS Header $MMSHD

Description: This command deletes the select MMS Headers from the MMS inbox.

Command Syntax: AT$MMSHD=<from>,[<to>]

Command	Possible response(s)
AT$MMSHD=? *Note: Testing the command*	$MMSHD: (1-20),(1-20) OK *Note: Command is valid with the required parameters*
AT$MMSHD=<from>,[<to>] *Note: To delete MMS header from location #1 to #4*	OK *Note: MMS header deleted successfully*
AT$MMSHD=<from> *Note: To delete MMS header in location #4*	OK *Note: MMS header deleted successfully*

Defined Values

<from>   Numeric. 1 to 20.
                        This field specifies the start/current index of the MMS Header that is to be deleted.
<to>   Numeric. 1 to 20.
                        This field specifies the end index of the MMS Header that is to be deleted.
                        This field is optional. If this field is absent, the command will only delete the index that is specified in the <from> field.

Example

Commands	Possible Responses
AT$MMSHD=1,4 *Note: To delete MMS header from location #1 to #4*	OK *Note: MMS header deleted successfully*
AT$MMSHD=4 *Note: To delete MMS header in location #4*	OK *Note: MMS header deleted successfully*
AT$MMSHD=5 *Note: To delete MMS header in location #5*	ERROR *Note: Location #5 is not filled with an MMS header*

4.3. Read MMS Header $MMSHR

Description: This command reads the selected MMS Header from the MMS inbox.

Command Syntax: AT$MMSHD=<from>,[<to>]

Command	Possible response(s)
AT$MMSHR=?	$MMSHR: (1-20) OK
AT$MMSHR?	$MMSHR: <location> OK

AT$MMSHR=<location> *Note: To read MMS header in location #1*	$MMSHR:<location>,"<frnum>","<type>",<dl>, "<date>","<time>","<size>" OK *Note: MMS header read successfully*

Defined Values
Please refer to the parameters list in AT$MMSHL command description.

Example

Commands	Possible Responses
AT$MMSHR?	$MMSHR: <location> OK
AT$MMSHR=1 *Note: To read MMS header in location #1*	$MMSHL:<location>,"<frnum>","<type>",<dl>,"<date>","<time>","<size>" OK *Note: MMS header read successfully*
AT$MMSHR=5 *Note: To read MMS header in location #5*	ERROR *Note: Location #5 is not filled with an MMS header*

5. MMS Compose

5.1. Set MMS Character Coding Set

Description: This command sets the Character Coding Set used in the entire MMS message session.

Command Syntax: AT$MMSW=0

Command	Possible response(s)
AT$MMSCS=<chset>	OK
AT$MMSCS=? *Note: Query available MMS character coding set*	+MMSCS: "DEF", "UCS2" OK
AT$MMSCS? *Note: Query selected character coding set*	+MMSCS: "DEF" OK
AT$MMSCS="UCS2"	OK *Note: MMS Character Coding set UCS2 has been successfully selected*

Defined Values

<chset>
"DEF"   8-bit ASCII character
"USC2"   16-bit Unicode character

5.2. Compose New MMS message $MMSW=0

Description: This command resets all MMS compose parameters to compose new MMS message.

Note: Maximum MMS message size allowed is 200Kbytes.

Command Syntax: AT$MMSW=0

Command	Possible response(s)
AT$MMSW=0 *Note: Resets all MMS compose parameters*	OK

5.3. Set MMS TO list $MMSW=1

Description: This command sets the targeted phone number into the MMS TO list.

Command Syntax: AT$MMSW=1,[<index>]

Command	Possible response(s)
AT$MMSW=1 *Note: To query all number in the TO list*	$MMSW: 1 <number> OK

Defined Values

<index>	Numeric. 0,1 If <index> is '0', <number> can be ignored and all number in the list will be flushed. If <index> is '1', <number> is set.
<number>	String. Up to 255 characters. This field specifies the targeted phone number and email address separated by a semicolon ';'.

Example

Commands	Possible Responses
AT$MMSW=1,1 >91111111; 92333446; hello@iwow.com.sg *Note: To set numbers into list*	OK *Note: Number written successfully*
AT$MMSW=1 *Note: To query all number in the list*	$MMSW: 1 91111111; 92333446; hello@iwow.com.sg OK
AT$MMSW=1,0 *Note: To flush all numbers in the list*	OK *Note: All numbers flushed successfully*

5.4. Set MMS CC list: $MMSW=2

Description: This command set the targeted phone number into the MMS CC list.

Command Syntax: AT$MMSW=2,[<index>]

Command	Possible response(s)
AT$MMSW=2	$MMSW: 2 <number> OK

Defined Values

<index>	Numeric. 0,1 If <index> is '0', <number> can be ignored and all number in the list will be flushed. If <index> is '1', <number> is set.

<number>	String. Up to 255 characters.
	This field specifies the targeted phone number and email address separated by a semicolon ';'.

Example

Commands	Possible Responses
AT$MMSW=2,1 >91111111; 92333446; hello@iwow.com.sg *Note: To set a number into the list #1*	OK *Note: Number written successfully*
AT$MMSW=2 *Note: To query all number in the CC list*	$MMSW: 2 91111111; 92333446; hello@iwow.com.sg OK
AT$MMSW=2,0 *Note: To flush all numbers in the list*	OK *Note: All numbers flushed successfully*

5.5. Set MMS BCC list: $MMSW=3

Description: This command set the targeted phone number into the MMS BCC list.

Command Syntax: AT$MMSW=3,[<index>]

Command	Possible response(s)
AT$MMSW=3	$MMSW: 3 <number> OK

Defined Values

<index>	Numeric. 0,1 to 5.
	This field specifies the index of the MMS Header that is to be read.
	If <index> is '0', <number> can be ignored and all number in the list will be flushed.
<number>	String. Up to 255 characters.
	This field specifies the targeted phone number and email address separated by a semicolon ';'.

Example

Commands	Possible Responses
AT$MMSW=3,1 >91111111; 92333446; hello@iwow.com.sg *Note: To set a numbers into the list*	OK *Note: Number written successfully*
AT$MMSW=3 *Note: To query all number in the list*	$MMSW: 3 <number> OK
AT$MMSW=3,0 *Note: To flush all numbers in the list*	OK *Note: All numbers flushed successfully*

5.6. Set MMS Subject: $MMSW=4

Description: This command sets MMS message subject.

Command Syntax: AT$MMSW=4,[<mode>]

Command	Possible response(s)
AT$MMSW=4,<mode> ><source>	OK
AT$MMSW=4	$MMSW: 4,1 <source> OK

Defined Values
<mode>   Numeric. 0,1
                         This field specifies the type of entry of the MMS Subject field.
                         If <mode> is '0', <source> can be ignored and the MMS subject will be
                         emptied.
<source>   String. Up to 255 characters.

Example

Commands	Possible Responses
AT$MMSW=4,1 >Hello How are you?<Ctrl+z> *Note: To set MMS subject directly with text*	OK *Note: MMS Subject is set by the given text*
AT$MMSW=4	$MMSW: 4,1 Hello How are you? OK
AT$MMSW=4,0 *Note: To empty MMS subject*	OK
AT$MMSW=4	$MMSW: 4,1 <source> OK

5.7. Set MMS Text Message: $MMSW=5

Description: This command sets MMS message text.

Command Syntax: AT$MMSW=5,[<page>],[<mode>]

Command	Possible response(s)
AT$MMSW=5,<page>,<mode> ><source> *Note: To set MMS Message Text with the contents in <source>*	OK *Note: MMS Message Text is retrieved from <source>*
AT$MMSW=5	$MMSW=5,<mode> <source> OK

Defined Values

<page>	Numeric. 0, 1 - 10. This field specifies the page number of the text message. If <page> is '0', all MMS message texts are removed.
<mode>	Numeric. 0,1,2 This field specifies the type of entry of the MMS message text field.
0	<source> can be ignored and the MMS message text will be emptied.
1	<source> is where MMS Message Text is directly set with text.
2	When set to this value, text file is attached to MMS Message. File Type supported is Text (.txt) in Unicode Encoding. Refer to Section 8.11 on how to save text file in Unicode.
<source>	String. Up to 255 characters. This field specifies the source of the Message Text.

Example

Command	Possible response(s)
AT$MMSW=5,1,1 >Hello How are you?<Ctrl+Z> *Note: To set MMS Message Text directly with text*	OK *Note: MMS Message Text is set buy the given text*
AT$MMSW=5	$MMSW: 5,1 Hello How are you? $MMSW: 5,2 … $MMSW: 5,10 OK
AT$MMSW=5,0 *Note: To empty MMS message text*	OK
AT$MMSW=5,1,2,"hello.txt" *Note: To set MMS Message Text as attached text file*	OK

For $MMSW=6, $MMSW=7, only file extension of type IMAGE / VIDEO/ SOUND is accepted. TEXT file not accepted. The following object combination (per page) is allowed:

- 1 IMAGE ONLY
- 1 IMAGE + 1 SOUND
- 1 SOUND ONLY
- 1 VIDEO ONLY

Any combinations of AT$MMSW=6 and AT$MMSW=7 other than the above stated will results in Error (Base on the file extension). So the user have to make sure that the file is in correct extension. This restriction is needed in order for the MMS recipient to display the MMS properly. The recipient of the MMS will treat file received as a "MEDIA" rather than a "FILE".

5.8. Set MMS Objects: $MMSW=6

Description: This command sets each MMS Object.

Command Syntax: AT$MMSW=6,[<page>],[<number>]

Command	Possible response(s)
AT$MMSW=6,<page>,"<filename>" *Note: To link first object <filename> into <page>*	OK *Note: Object is successfully set (linked)*
AT$MMSW=6 *Note: To query the list*	$MMSW: 6,1,"<filename>" $MMSW: 6,2,"<filename>" … $MMSW: 6,10,"<filename>" OK

Defined Values
<page>   Numeric. 0, 1 - 10.
                                This field specifies the page number of the object in the object list.
                                If <page> is '0', all objects links in the list is removed.
<filename>   String. Up to 8 characters.
                                This field specifies the source of the Message Object.

Example

Command	Possible response(s)
AT$MMSW=6,1,"pic1.jpg" *Note: To link "pic1.jpg" into Page 1*	OK *Note: Object is successfully set (linked)*
AT$MMSW=6,2,"vid1.mp4" *Note: To link "vid1.mp4" into Page 2*	OK *Note: Object is successfully set (linked)*
AT$MMSW=6 *Note: To query the list*	$MMSW: 6,1,"pic1.jpg" $MMSW: 6,2,"vid1.mp4" … $MMSW: 6,10,"" OK
AT$MMSW=6,0 *Note: To remove all object links in the list*	OK *Note: Object is successfully removed (unlinked)*

Command	Possible response(s)
AT$MMSW=6 *Note: To query the list*	$MMSW: 6,1,"" $MMSW: 6,2,"" … $MMSW: 6,10,"" OK
AT$MMSW=6,1,"pic1.jpg" *Note: To link "pic1.jpg" into Page 1*	OK *Note: Object is successfully set (linked)*

5.9. Set MMS Objects: $MMSW=7

Description: This command sets each MMS Object Text.

Command Syntax: AT$MMSW=7,<page>,"<filename>"

Command	Possible response(s)
AT$MMSW=7,<page>,"<filename>" *Note: To link first object <filename> into <page>*	OK *Note: Object is successfully set (linked)*
AT$MMSW=7 *Note: To query the list*	$MMSW: 7,1,"<filename>" $MMSW: 7,2,"<filename>" … $MMSW: 7,10,"<filename>" OK

Defined Values

<page>   Numeric. 0, 1 - 10.
             This field specifies the page number of the object in the object list.
             If <page> is '0', all objects links in the list is removed.
<filename>   String. Up to 8 characters.
             This field specifies the source of the Message Object.

Examples

Command	Possible response(s)
AT$MMSW=7,1,"pic2.jpg" *Note: To link "pic1.jpg" into Page 1*	OK *Note: Object is successfully set (linked)*
AT$MMSW=7,2,"vid2.mp4" *Note: To link "vid1.mp4" into Page 2*	OK *Note: Object is successfully set (linked)*
AT$MMSW=7 *Note: To query the list*	$MMSW: 7,1,"pic2.jpg" $MMSW: 7,2,"vid2.mp4" … $MMSW: 7,10,"" OK
AT$MMSW=7,0 *Note: To remove all object links in the list*	OK *Note: Object is successfully removed (unlinked)*

AT$MMSW=7 *Note: To query the list*	$MMSW: 6,1,"" $MMSW: 6,2,"" … $MMSW: 6,10,"" OK

5.10. Send MMS: $MMSSEND

Description: This command sends the MMS.

Command Syntax: AT$MMSSEND

Command	Possible response(s)
AT$MMSSEND=? *Note: Testing the command*	OK
AT$MMSSEND *Note: To start sending the composed MMS*	OK *Note: MMS is successfully sent*

6. MMS Downloaded Message

6.1. Get Objects: $MMSMGET

Description: This command gets each MMS Object Text.

Command Syntax: AT$MMSMGET=<hdr_index>

Command	Possible response(s)
AT$MMSMGET=? *Note: Testing the command*	OK
AT$MMSMGET=<hdr_index> *Note: To retrieve MMS from MMSC*	OK *Note: Successful*
	+MMSTRACE: 2,1 *Note: MMS received and stored at memory location #1*

Defined Values
<hdr_index>   Numeric. 1 - 20.
                     This field specifies the index of the MMS headers that is to be retrieved.

6.2. Downloaded MMS Message Command: $MMSM

Command	Possible response(s)
AT$MMSM=? *Note: Testing the command*	OK

6.3. Read MMS Sender Number: $MMSM=0

Description: This command queries the sender's phone number.

Command Syntax: AT$MMSM=0

Command	Possible response(s)
AT$MMSM=0 *Note: To query sender's phone number*	$MMSM: 0 <number> OK
AT$MMSM=0 *Note: To query sender's phone number*	$MMSM: 0 92222222 OK

Defined Values
<number>   String. Up to 255 characters.
                  This field specifies the targeted phone number and email addresses
                  separated by a semicolon ';'.

6.4. Read MMS TO list: $MMSM=1

Description: This command queries all targeted phone number into the MMS TO list.

Command Syntax: AT$MMSM=1

Command	Possible response(s)
AT$MMSM=1 *Note: To query all number in the TO list*	$MMSW: 1 <number> OK
AT$MMSM=1 *Note: To query all number in the TO list*	$MMSW: 1 92222288;hello@iwow.com.sg OK

Defined Values
<number>   String. Up to 255 characters.
                      This field specifies the targeted phone numbers and email addresses
                      separated by a semicolon ';'.

6.5. Read MMS CC list: $MMSM=2

Description: This command queries all targeted phone number into the MMS CC list.

Command Syntax: AT$MMSM=2

Command	Possible response(s)
AT$MMSM=2	$MMSW: 2 <number> OK
AT$MMSM=2 *Note: To query all number in the CC list*	$MMSW: 2 92222288;hello@iwow.com.sg OK

Defined Values
<number>   String. Up to 255 characters.
                      This field specifies the targeted phone numbers and email addresses
                      separated by a semicolon ';'.

6.6. Query MMS Subject: $MMSM=3

Description: This command queries MMS subject.

Command Syntax: AT$MMSM=3

Command	Possible response(s)
AT$MMSM=3	$MMSM: 3 <source> OK
AT$MMSM=3 *Note: To query MMS subject*	$MMSM: 3 TR-800 MMS-Demo OK *Note: MMS Subject is extracted*

Defined Values
<source>   String. Up to 255 characters.
                     This field specifies the target subject text.

6.7. Query MMS Text/Objects: $MMSM=4

Description: This command queries for the MMS messages text/objects.

Command Syntax: AT$MMSM=4

Command	Possible response(s)
AT$MMSM=4,[<index>],["<filename>"]	OK

Defined Values
<index>   Numeric. According to the number of MMS objects received
                     This field specifies the type of retrieval of the MMS message text.
<filename>   String. Up to 50 characters.
                     Support 8.4 file format with extension. This field specifies the target file to
                     save to.

Example

Command	Possible response(s)
AT$MMSM=4 *Note: Lists all text/objects in downloaded MMS message*	$MMSM: 4,1,1,"16820292.txt","text/plain",24 $MMSM: 4,2,1,"bmw.jpg","image/jpeg",12288 $MMSM: 4,3,1,"xmas.mid","audio/midi",1024 OK
AT$MMSM=4,1,"mytext" *Note: To save MMS Message Text into "mytext" file*	OK *Note: MMS Message Text file "16820292.txt" is saved into "mytext" file*
AT$MMSM=4,1 *Note: To get MMS Message Text directly*	Hello How are you? OK

6.8. MMS Event Trace

Description: This unsolicited response provides information on MMS activities.

Response Syntax: $MMSTRACE: <value>, [<loc>]

Defined Values
<value>

Event Activity

Value	Description
1	MMS message is successfully sent
2	MMS header is received and stored
3	MMS message is downloaded and stored

General Error Codes

Value	Description
1100	MMS Stack is currently busy (sending / receiving in progress)
1099	Other Error
1098	Inbox is Full. Incoming MMS header cannot be stored.
1097	Receive Error
1096	Server Reject
1095	Unsupported Content Type
1094	Invalid Data Received
1093	Restricted Media Type
1092	Max size reached
1091	Invalid Media Type
1090	Bearer Failure
1089	Message more than maximum allowable size
1088	Message does not exist
1087	No message downloaded
1086	Cannot recognize downloaded message
1085	File system full
1084	File system writing fail
1083	File already exists
1082	Invalid Filename
1081	Maximum number of files reached
1080	File Error
1079	Object Extract Fail
1078	Object Not Found
1077	Incorrect object type. Object is a text file
1061	TCP/IP occupying the GPRS bearer

Possible Error Codes during MMS Compose

Value	Description
1076	No Recipient Specified
1075	Subject Not Specified
1074	Invalid TO field
1073	Invalid CC field
1072	Invalid BCC field
1071	Invalid Text
1070	Invalid Media 1

1069	Invalid Media 2
1068	Encapsulating Error
1067	Error in Starting MMS Send
1066	Media Type not allowed
1065	File does not exist

Possible Error Codes during MMS Sending

Value	Description
1064	Network Timeout
1063	Network DNS resolved
1062	Other Network Errors

7. Audio Features

7.1. Set audio configuration AT$ACONFIG

Description: This specific command allows the setting of audio configurations. It allows for the selection of enabling/disabling of compression and of Voice Codec Rate.

Command Syntax: AT$ACONFIG=<compression>,<kbps>

Command	Possible response(s)
AT$ACONFIG=<compression>,<kbps> Note: To set Audio Configurations	OK
AT$ACONFIG=1,0 Note: Enable compression ON and Voice Codec Rate to 4.75kbps	OK
AT$ACONFIG=?	$ACONFIG: (0,1), (0-4) OK
AT$ACONFIG? Note: Query current audio configuration settings	$ACONFIG: 1,0 OK

Defined Values
<compression>
0   Enable compression (default)
1   Disable compression

<kbps> Voice Codec Rate
0   4.75kbps (default)
1   5.15kbps
2   5.90kbps
3   6.70kbps
4   7.40kbps
5   7.95kbps
6   10.2kbps
7   12.2kbps

7.2. Record Audio AT$AREC

Description: This command allows the voice/sound to be recorded into specified filename.
Note: The maximum allowed time for recording is 120 seconds.

Command Syntax: AT$AREC=<mode>[,<filename>]

Command	Possible response(s)
AT$AREC=<mode>[,<filename>] Note: To enable/disable recording	OK
AT$AREC=1,"melody.amr" Note: Enable audio recording and save into filename "melody.amr"	OK

AT$AREC=0	OK
Note: Stop audio recording	

Defined Values
 <mode>
0   Stop Voice Recording
1   Start voice Recording and save to <filename> in the UFS

| <filename> | String. Up to 50 characters. (According to UFS filename format with extension .AMR only) |
| | Support 8.4 file format with extension. This field specifies the target file to save to. *Only .amr file extension is supported.* |

7.3. Play Audio AT$APLAY

Description: This command plays audio previously saved in File System.

Command Syntax: AT$APLAY=<mode>[,<filename>]

Command	Possible response(s)
AT$APLAY=<mode>[,<filename>] *Note: To enable/disable audio playback*	OK
AT$APLAY=1,"melody.amr" *Note: Play audio file "melody.amr"*	OK
AT$APLAY=0 *Note: Stop audio file playback when file has not completed playing*	OK
	$ATRACE: 2 *Note: Unsolicited response when audio file playback has completed*

Defined Values
<mode>
0   Enable audio recording (Playback)
1   Disable audio recording

| <filename> | String. Up to 50 characters. (According to UFS filename format with extension .AMR only) |
| | Support 8.4 file format with extension. This field specifies the target file to save to. *Only .amr file extension is supported.* |

7.4. Audio Event Trace $ATRACE

Description: This unsolicited response provides information on Audio activities.

Syntax: $ATRACE: <value>

Parameters
<value>

Event Activity:

Value	Description
1	Memory Full
2	Audio Playback has been completed
3	Audio Playback Error
4	Audio Recording Completed (Timeout or terminated by user)
5	Audio Recording Error
6	Invalid Filename
7	Invalid File Extension
8	File I/O Error (File not exist or unable to open file)
9	File Already Exist
10	Audio Module is Busy
11	Invalid Operation (eg. to stop playback but it is not currently playback)
12	Unknown Error

8. Usage Example

Initial settings:
1. Setup MMS Configurations (Section 8.1)
2. Setup Files on Module (Section 8.2)

To send MMS message:
1. Reset MMS message compose parameters (Section 8.9) (Not required for 1st MMS message composed)
2. Compose MMS (Section 8.3)
3. Send MMS (Section 8.4)

To receive MMS message:
1. Receive MMS header (Section 8.5)
2. List MMS header (Section 8.6)
3. Download MMS message corresponding to the selected MMS header index (Section 8.7)

To read MMS message:
1. Read MMS message (Section 8.8)

8.1. Setup MMS configurations
Note: MMS configurations are set at the start of MMS sending/receiving. Refer to Section 4 for details.

<u>Setting MMS Bearer</u>
at$mmsbearer=?
$MMSBEARER: 1,"apn","userid","pw"

OK
at$mmsbearer=1,"miworld","65","user123"

OK
at$mmsbearer?
$MMSBEARER: 1,"miworld","65","user123"

OK

<u>Setting MMS Proxy</u>
at$mmsproxy="172.16.14.10",8080

OK

<u>Setting MMS Communication Mode</u>
at$mmscommmode=2

OK

<u>Setting MMSC URL</u>
at$mmscurl="http://mmsgw:8002/"

OK

8.2. Setup Files on module
Note: Files are uploaded to module for MMS compose and downloaded to PC from module. These sets of commands are used whenever selected files are required.
For details, please refer to Section 3 File Management.

```
at$ffld
$FFLD: 0,600000,600000,0

OK
at$fupl="bmw.jpg"
Ok_Info_FileUploadStarted
CCCC
Ok_Info_FileClose

OK
at$flst
$FLST: "bmw.jpg",12288

OK
at$fupl="mycar.jpg"
Ok_Info_FileUploadStarted
CCCCC
Ok_Info_FileClose

OK
at$flst
$FLST: "bmw.jpg",12288
$FLST: "mycar.jpg",185088

OK
at$fdel="mycar.jpg"

OK
at$flst
$FLST: "bmw.jpg",12288

OK
at$fdwl="bmw.jpg"
Ok_Info_FileDownloadStarted
Ok_Info_FileClose

OK
at$ffld
$FFLD: 12288,600000,587712,1

OK
at$fupl="baby.gif"
Ok_Info_FileUploadStarted
CCCCCC
Ok_Info_FileClose

OK
at$flst
$FLST: "baby.gif",23936
$FLST: "bmw.jpg",12288

OK
```

at$fupl="xmas.mid"
Ok_Info_FileUploadStarted
CCCCCCCCC⊥
Ok_Info_FileClose

OK
at$flst
$FLST: "baby.gif",23936
$FLST: "bmw.jpg",12288
$FLST: "xmas.mid",1024

OK

8.3. MMS message compose
Note: The following are recommended steps when composing MMS message.
at$mmscs="DEF"

OK

at$mmsw=1,1
> 98022222;90933333

OK
at$mmsw=2,1
> hello@iwow.com.sg

OK
at$mmsw=3,1
> hello@iwow.com.sg

OK
at$mmsw=4,1
> TR800 MMS Demo - 2 Pages

OK
at$mmsw=5,1,1
> Page 1. Text

OK
at$mmsw=6,1,"bmw.jpg"

OK
at$mmsw=7,1,"xmas.mid"

OK
at$mmsw=5,2,1
> Page 2. Text

OK
at$mmsw=6,2,"baby.gif"

OK

8.4. MMS Send
Note: This command is required for sending MMS message composed in the previous section (Section 8.3).

at$mmssend

OK
$MMSTRACE: 1

8.5. MMS Header Receive
Note: Incoming MMS headers will be automatically stored in the next available location.

$MMSTRACE: 2,1

OK

8.6. List MMS headers
Note: MMS headers are listed according to the specified location type in the commands below.

at$mmshl="UNREAD"
$MMSHL: 1,"+6590923194","UNREAD",0,"01/01/2000","00:25:19",30720
TR800 MMS Demo - 2 Pages

OK
at$mmshl="ALL"
$MMSHL: 1,"+6590923194","READ",0,"01/01/2000","00:25:19",30720
TR800 MMS Demo - 2 Pages

OK

8.7. Download MMS message
Note: MMS message can only be downloaded when MMS headers have been received. Downloading MMS message corresponding to the respective MMS headers will be stored directly into the next available location.

at$mmsmget=1

OK
$MMSTRACE: 3,1

OK

8.8. Read MMS message
Note: To read MMS message the following commands can be issued.

List all TO list
at$mmsm=1
$MMSM: 1
+6598053071;+6590923194

OK

List all CC number/email address
at$mmsm=2
$MMSM: 2
alexwow@iwow.com.sg

OK
List MMS subject
at$mmsm=3
$MMSM: 3
TR800 MMS Demo - 2 Pages

OK
List all MMS Objects/Text
at$mmsm=4
$MMSM: 4,1,1,"16820292.txt","text/plain",24
$MMSM: 4,2,1,"bmw.jpg","image/jpeg",12288
$MMSM: 4,3,1,"xmas.mid","audio/midi",1024
$MMSM: 4,4,2,"16821268.txt","text/plain",24
$MMSM: 4,5,2,"baby.gif","image/gif",23936

OK
Read MMS Text directly
at$mmsm=4,1
$MMSM: 4,1
Page 1. Text

OK
Copy Media into file
at$mmsm=4,2,"bmwcar2.jpg"

OK
List all files
at$flst
$FLST: "bmwcar2.jpg",12288
$FLST: "baby.gif",23936
$FLST: "bmw.jpg",12288
$FLST: "xmas.mid",1024

OK
Download file from module to PC
at$fdwl="bmwcar2.jpg"
Ok_Info_FileDownloadStarted
Ok_Info_FileClose

OK

8.9. Compose New MMS message
Note: To compose new MMS message. The command below is required to reset/clear the message before composing new message following the steps Section 8.3.

at$mmsw=0

OK

8.10. Example to send MMS in Chinese Characters using UCS2

The following are similar to Steps 8.3 to 8.9

Set character set to UCS2

at$mmscs="UCS2"

OK
at$mmsw=1,1
> hello@iwow.com.sg ; 90000071

OK
at$mmsw=2,1
> 90000194

OK
at$mmsw=4,1
> 738B51325A3659BB

OK
at$mmsw=5,1,1
>97399742738B513262C960F97D0D83326797548C51C6738B5983838E62C96C387D50540C5FC3
FF0162C960F97D0D83326797548C838E62C99031516D6B635F0F59275A5A

OK
at$mmsw=6,1,"m08.jpg"

OK
at$mmssend

OK
$MMSTRACE: 1
$MMSTRACE: 2,9

at$mmsmget=9

OK
$MMSTRACE: 3,9
at$mmsm=4

$MMSM: 4,1,1,"16822692.txt","text/plain",68
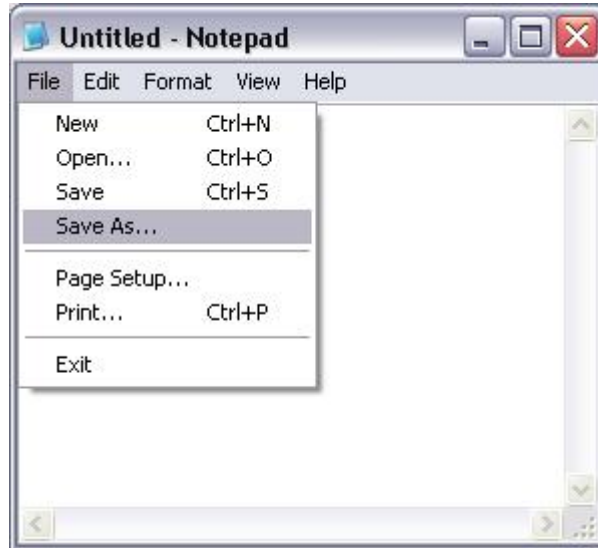$MMSM: 4,2,1,"m08.jpg","image/jpeg",15104

OK
at$mmsm=4,1,"test2.txt"

OK
at$flst

$FLST: "hello.txt",114
$FLST: "test2.txt",70

OK
at$fdwl="test2.txt"

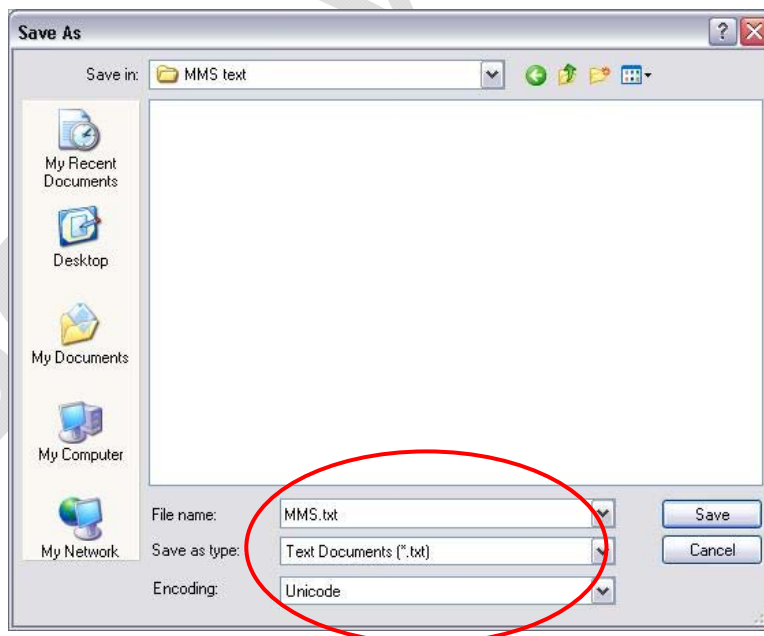Ok_Info_FileDownloadStarted
Ok_Info_FileClose

8.11. Example on how to save text file in Unicode Format (Windows)

1. In Windows Notepad, click " File > Save As "

2. Enter Filename (e.g. MMS)
3. Next, set the parameters as follows.

   Save As Type : Text Document (*.txt)
   Encoding: Unicode

4. Click "Save" to save text file into folder.

Note: Please refer to Section 8.2 to upload and download text files to/from module File System

9. Appendix

9.1. File Error Codes

The error codes and descriptions are listed in the following table:

File Error Code	Description
$FERR: 0	No error
$FERR: 4001	File already exist
$FERR: 4002	File not found
$FERR: 4003	Invalid Filename
$FERR: 4004	File is corrupted
$FERR: 4005	Not enough free space
$FERR: 4006	File Transfer Failed
$FERR: 4007	File Transfer Aborted
$FERR: 4008	Maximum number of files exceeded
$FERR: 4009	FS Not Ready
$FERR: 4010	Unknown Error (internal error)
Ok_Info_FileUploadStarted	Receiving File in Xmodem
Ok_Info_FileDownloadStarted	Transferring File in Xmodem
Ok_Info_FileClose	File transfer mode closed

9.2. Supported Media Types

The following table lists the media types supported:

Extension	Media Type/extension
Text Media	
.txt	text/plain
Image Media	
gif	image/gif
jpeg	image/gif
jpg	image/gif
jpe	image/gif
wbmp	image/vnd.wap.wbmp
bmp	image/bmp
png	image/x-png
tiff	image/tiff
tif	image/tiff
Audio Media	
wav	audio/wav
mid	audio/midi
mp3	audio/mp3
midi	audio/midi
amr	audio/amr
qcp	audio/vnd.qcelp
mp4	video/mp4
3gp	video/3gpp
3g2	video/3gpp2
mpg	video/mpeg

mpeg	video/mpeg
mpe	video/mpeg
wmv	video/wmv
dat	video/dat

10. Support

- ▪ For direct clients: contact iWOW FAE (Technical Support Department)

- ▪ For distributor clients: contact iWOW distributor FAE

- ▪ For distributors: contact iWOW FAE

- End of document -