

LISA-C200 & FW75-C200 AT commands examples u-blox CDMA 1xRTT wireless modules Application Note

Abstract

This document provides detailed examples of using the AT commands for u-blox LISA-C200 and FW75-C200 CDMA 1xRTT wireless modules.

Document Information

Title	LISA-C200 & FW75-C200 AT commands examples
Subtitle	u-blox CDMA 1xRTT wireless modules
Document type	Application Note
Document number	CDMA-CS-12000
Document status	Preliminary

Document status information

Objective Specification	This document contains target values. Revised and supplementary data will be published later.
Advance Information	This document contains data based on early testing. Revised and supplementary data will be published later.
Preliminary	This document contains data from product verification. Revised and supplementary data may be published later.
Released	This document contains the final product specification.

This document and the use of any information contained therein, is subject to the acceptance of the u-blox terms and conditions. They can be downloaded from www.u-blox.com.

u-blox makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice.

u-blox reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited. Copyright © 2012, u-blox AG.

Contents

Contents.....	3
1 Introduction.....	5
2 Service provisioning.....	5
2.1 Service provisioning in Verizon networks	5
2.1.1 Module activation	5
2.1.2 PRL Update.....	6
2.2 Service Provisioning in Sprint networks	6
2.2.1 Module Activation	6
2.2.2 Firmware Upgrade.....	7
2.2.3 PRL Update.....	10
3 Storing parameters	10
4 Network registration and Idle State	11
4.1 CDMA registration.....	11
4.1.1 Network Registration.....	11
4.1.2 Low Power Mode Registration	11
4.1.3 Power Down registration	12
5 TCP/IP AT commands.....	13
5.1 Socket Connect	13
5.2 Socket Write.....	13
5.2.1 Binary mode.....	13
5.2.2 Base syntax.....	14
5.2.3 CDMA network coverage lost.....	14
5.3 Socket operations with “Keep Alive” option.....	16
5.4 Socket Read.....	17
5.5 Socket Close.....	18
5.5.1 By the module.....	18
5.5.2 By the remote host.....	18
6 UDP/IP AT commands.....	19
6.1 Socket write (+USOST).....	19
6.1.1 Base syntax.....	19
6.1.2 Binary mode	19
6.2 Socket Read (+USORF)	20
6.3 Direct Link (+USODL)	20
6.3.1 Enter and exit from Direct Link Mode	20
6.3.2 Closing the Connection.....	21
7 FTP AT Commands.....	22

8	HTTP AT commands.....	25
9	GPIO AT commands.....	26
10	Multiplexer AT commands.....	26
11	File System AT commands	27
12	SMS AT Commands	28
12.1	Reading a single message	28
12.2	Listing all messages.....	28
12.3	Delete one single message or multiple messages.....	29
12.4	Deleting all messages.....	32
12.5	Write and/or send one single message	34
12.6	Storing an SMS message.....	34
12.7	Sending a Stored SMS message	35
	Appendix	37
A	List of Acronyms.....	37
B	Error Codes for Sprint’s OMADM.....	39
	Related documents.....	40
	Revision history	40
	Contact.....	41

1 Introduction

This document provides examples of using AT commands with u-blox LISA-C200 and FW75-C200 CDMA 1xRTT wireless modules. Refer to u-blox LISA-C200 and FW75-C200 AT Commands Manual [1] for the command descriptions. The following symbols are used to highlight important information within the document:



An index finger points out key information pertaining to integration and performance.



A warning symbol indicates actions that could negatively impact or damage the module.



This document applies to the following products:

- FW75-C200 series
- LISA-C200 series

These icons will be used to indicate applicability to the related products:



: FW75-C200 series



: LISA-C200 series

If the subchapter applies to a specific product the related icon will be provided there.

2 Service provisioning



2.1 Service provisioning in Verizon networks



Some logistic preparation is required prior to activating a module on Verizon Networks, we recommend that customers directly contact their Verizon Customer Representative to properly setup the wireless accounts. Once the lines have been provisioned, proceed with the activation steps as noted below.

2.1.1 Module activation

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT\$MDN?	0000002423	Review the actual MDN in the module, if the response is similar to the example, then the module isn't active yet.
AT+CDV=*22899	NO CARRIER	Starts the Over-The-Air activation process, use the code *22899 for module activation, make sure it has been provisioned by Verizon prior to this step, otherwise it will be unsuccessful. +UACTIND: 0 indicates a successful OTA provisioning session. If the response is +UACTIND: 1, the terminal is either not activated or the OTA session failed.
	+UACTIND: 0	
	OK	
AT\$MDN?	8584726201	Reviews the new MDN stored in the module
	OK	

Command	Response	Description
AT\$QCMIPGETP=0	Profile:0 Enabled NAI:8584726201@vzw3g.com Home Addr:0.0.0.0 Primary HA:255.255.255.255 Secondary HA:0.0.0.0 MN-AAA SPI:2 MN-HA SPI:300 Rev Tun:1 MN-AAA SS:Set MN-HA SS:Set OK	Allows seeing the MIP settings of the module, please note the NAI profile has been populated with the values of the new MDN.
AT+CDV="8588885623"	OK	Make a phone call to verify the cell line has been setup correctly
	NO CARRIER	Hung up call from the receiving party.

2.1.2 PRL Update

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT\$PRL?	57001	Checks the actual PRL name loaded into the module
	OK	
AT+CDV=*22891	NO CARRIER +UACTIND: 0 OK	Use AT+CDV to start an OTA call, use the code *22891 to update the PRL version of the module, it will take approximately 50 sec until the session ends, the "NO CARRIER" indicator and the +UACTIND: 0 URC will show after this time. If the response is +UACTIND: 1, the terminal is either not activated or the OTA session failed.
AT\$PRL?	52743 OK	Use this AT command again to verify that the new PRL has been loaded into the module.

2.2 Service Provisioning in Sprint networks



OMA Device Management is a device management protocol specified by the Open Mobile Alliance (OMA) Device Management (DM) Working Group and the Data Synchronization (DS) Working Group, this procedure is used by Sprint on their Over-The-Air Provisioning implementation to activate the modules.





The OMADM procedure is triggered after the module acquires Service within CDMA Sprint coverage, it is recommended to allow the module to complete this procedure to have it properly provisioned as this is an interactive protocol between the terminal and the Service Provider. The data that is updated in this procedure is:

- Configuration of the device (including first time use), enabling and disabling features
- Allow changes to settings and parameters of the device
- Provide for new PRL in case the loaded one is out-of-date
- Update the module's FirmWare

2.2.1 Module Activation

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages

Command	Response	Description
	+UOMASTAT:1,0,0 OK	Start of DC session. It should start with 15-20 seconds after the power up.
	+UOMASTAT:1,1,0 OK	End of DC session. Should take around 50 seconds.
	+UOMASTAT:1,0,0 OK	Start of PRL session. It should start within 20-30 seconds after the end of previous session.
	+UOMASTAT:1,1,0 OK	End of PRL session. Should take around 40 seconds.
	+UOMASTAT:1,0,0 OK	Start of FUMO session. It should start within 20-30 seconds after the end of previous session.
	+UOMASTAT:1,1,0 OK	End of FUMO session. Should take around 25 seconds.
		 This step occurs as there is no Firmware Upgrade available for this module  In case there is a new Firmware upgrade available, additional URC's will be shown (see next chapter for additional URC's)
AT\$MDN?	9132354027 OK	This command allows reading the new MDN programmed into the module
AT\$QCMIPGETP=1	Profile:1 Enabled NAI:customerequipmen39@sprint pcs.com Home Addr:0.0.0.0 Primary HA:255.255.255.255 Secondary HA:68.28.89.76 MN-AAA SPI:1234 MN-HA SPI:1234 Rev Tun:1 MN-AAA SS:Set MN-HA SS:Set OK	Allows seeing the new NAI values assigned to the module, in FW75/LISA-C modules, those values are populated and updated internally once they are provisioned by the service provider.

2.2.2 Firmware Upgrade



In this stage, take the same precautions as the Service Provisioning stage

2.2.2.1 Firmware Upgrade as part of the Module Activation Process






This step will be the continuation of the above process.






No user (client) interaction is needed

Command	Response	Description
	+UOMASTAT:2,0,0 OK	Start of Downloading session.





Command	Response	Description
	+UOMASTAT:2,1,0	End of Downloading session.
	OK	 At this moment, the module enters into "Download Mode" and is being programmed, it will come back to Service after the programming is finished  Most Terminal Emulators will disconnect the module once it enters into "Download Mode", so in order to see the additional incoming URC, it will be necessary to reconnect the module to the terminal emulator.
	+UOMASTAT:1,0,0	Start of session. Checks and reports new Firmware version to the server.
	OK	
	+UOMASTAT:1,1,0	End of reporting session.
	OK	
	+UOMASTAT:1,0,0	Start of session. Checks and reports the Firmware Version and checks if there is an update available.
	OK	
	+UOMASTAT:1,1,0	End of Session. Provided there is no more FW upgrade packages available.
	OK	 If there is additional packages available, then it will start a new process from the "Download Session" stage.

2.2.2.2 User-Initiated Firmware Upgrade





Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+FUMO=2	OK	This command starts a Firmware Upgrade Session, given, there is a new FW available to upgrade the module to.
	+UOMASTAT:1,0,0	Start of session. Checks and reports new Firmware version available.
	OK	
	+UOMASTAT:1,1,0	End of reporting session.
	OK	 If there is no package available, the session will end at this stage.
	+UOMASTAT:2,0,0	Start of Downloading session.
	OK	
	+UOMASTAT:2,1,0	End of Downloading session.
	OK	 At this moment, the module enters into "Download Mode" and is being programmed, it will come back to Service after the programming is finished  Most Terminal Emulators will disconnect the module once it enters into "Download Mode", so in order to see the additional incoming URC, it will be necessary to reconnect the module to the terminal emulator.
	+UOMASTAT:1,0,0	Start of session. Checks and reports new Firmware version to the server.
	OK	

Command	Response	Description
	+UOMASTAT:1,1,0 OK	End of reporting session.
	+UOMASTAT:1,0,0 OK	Start of session. Checks and reports the Firmware Version and checks if there is an update available.
	+UOMASTAT:1,1,0 OK	End of Session. Provided there is no more FW upgrade packages available.

2.2.2.3 Network initiated Firmware Upgrade

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages.  As the network update will come without notification, this step can be avoided.
	+UOMASTAT:1,0,0 OK	Start of session. Checks and reports new Firmware version available.
	+UOMASTAT:1,1,0 OK	End of reporting session.  If there is no additional packages available, the session will end at this stage.
	+UOMASTAT:2,0,0 OK	Start of Downloading session.
	+UOMASTAT:2,1,0 OK	End of Downloading session.  At this moment, the module enters into "Download Mode" and is being programmed, it will come back to Service after the programming is finished  Most Terminal Emulators will disconnect the module once it enters into "Download Mode", so in order to see the additional incoming URC, it will be necessary to reconnect the module to the terminal emulator.
	+UOMASTAT:1,0,0 OK	Start of session. Checks and reports new Firmware version to the server.
	+UOMASTAT:1,1,0 OK	End of reporting session.
	+UOMASTAT:1,0,0 OK	Start of session. Checks and reports the Firmware Version and checks if there is an update available.
	+UOMASTAT:1,1,0 OK	End of Session. Provided there is no more FW upgrade packages available.

2.2.3 PRL Update

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT\$PRL?	50587	This command will return the PRL ID that is currently in use by the module.
	OK	
AT+PRL=?	PRL update enabled	This command will notify whether or not it is possible to perform a PRL update using OMADM.
	OK	
AT+PRL=1	OK	 This command enables the PRL update using OMADM.  This command is the default mode.  This command enables the network initiated PRL update.  This command isn't necessary for AT+PRL=2 to apply.
AT+PRL=2	OK	User initiated PRL update session.
	+UOMASTAT:1,0,0	The URC indicates an OMADM session has started.
	OK	
	+UOMASTAT:1,1,0	URC that shows the PRL OMADM session has ended.
	OK	
AT\$PRL?	60780	Read the new PRL ID just loaded into the module.
	OK	

3 Storing parameters

FW-75

LISA-C

FW75 and LISA-C modules both have an internal algorithm that stores the CDMA RF internal parameters as they work in different scenarios. To facilitate this behavior, a proper Power down of the module is recommended, the values saved in this process are:

- Cristal Oscillator calibration
- Most Recently Used Channels
- Radio Frequency values of Power/Temperature performance



It is highly recommended to properly power down the module, as important RF data is stored in this process.

Command	Response	Description
AT+CPWROFF	OK	Switches off the module and saves current module settings.

4 Network registration and Idle State

FW-75

LISA-C

4.1 CDMA registration

The module initial registration in CDMA occurs automatically.

Idle State is defined as the stage in which the CDMA terminal goes into “sleeping mode”, this behavior helps for energy saving implementation. This will be treated as “Low Power Mode” in order to harmonize the definitions.




The module needs 30 s from the time it was powered up to allow proper registration.



The application should wait until this process is successfully finished before sending AT commands that may interrupt the process.

4.1.1 Network Registration


Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CREG=1	OK	Turns on the unsolicited registration messages.  This step will help visualize any type of registration performed by the module.
	+CREG: 4, 54, 1 OK	This URC confirms the module has registered with the operator.
AT+CREG?	+CREG: 1, 4, 54, 1 OK	Reports the operator in which the module has registered (4).
	+CREG: 4, 54, 0 OK	Module loses CDMA service and reports the URC.
	+CREG: 4, 54, 1 OK	The module re-acquires CDMA service and reports another URC


4.1.2 Low Power Mode Registration

FW-75

LISA-C

Forcing the module to work in Low Power Mode, will require it to send a registration to the network, this registration communicates to the network that the module isn't in service and that all incoming messages should be kept until the module returns to service again.

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CREG=1	OK	Turns on the unsolicited registration messages.  This step will help visualize any type of registration performed by the module.
AT+CREG?	+CREG: 1, 4, 54, 1 OK	Returns the System Identification number in which the module has registered, the last digit reports a registration in its “Home” system

Command	Response	Description
AT+CFUN=2	OK +CREG: 4, 54, 0 OK	Sends the module into Low Power Mode. The reported message specifies the module is now in Low Power Mode.  The last digit reports the module is "Not registered," and requests that all incoming messages should be kept within the network until the module registers back as in "Normal Operation."
AT+CFUN=0	OK +CREG: 4, 54, 1 OK	Sends the module back into "Normal Operation." Automatically, the module will register back into the network. It will return a new URC registration message.

4.1.3 Power Down registration

FW-75


LISA-C



The CDMA standard defines a "Power Down" registration as a normal procedure to allow the module to go off the network and disconnect itself. This procedure also requires a new registration in which the terminal reports to the network that is going out of service, and therefore, all messaging directed to this device should be kept within the network.



Allow at least 10 s from the time the +CPWROFF command was sent to disconnect the power source to the module.

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CREG=1	OK	Enables the Unsolicited Registration Message.
AT+CREG?	+CREG: 1, 4, 54, 1 OK	Reports back the registration status of the device.
AT+CPWROFF	OK	Switches off the module.  Allow at least 10 s before disconnecting the power supply.

5 TCP/IP AT commands

FW-75

LISA-C

The CDMA cellular device activation procedure performs some automatic changes to the Non-Volatile Items of the device. These changes are programmed and stored in the module for use while interacting with the Cellular carrier. As part of the update of the values, some IP settings are also updated at the same time, these IP settings become the Identification values the terminal uses while accessing Data services. There is no need for any additional steps.

5.1 Socket Connect

Command	Response	Description
AT+CMEEE=2	OK	Set verbose error messages
AT+USOCR=6	+USOCR:18 OK	TCP socket creation. In this example Socket #18 is created. The command response returns the created socket identifier (in this case #18). If a new socket is created (without closing the already existent), a new socket identifier will be returned.
AT+USOCO=18,"195.34.89.241",7	OK	Connect socket #18 to port 7 of a remote host with IP address 195.34.89.241. The connection is now uniquely associated to the socket. Socket is now ready for read/write operations.
AT+USOCL=18	OK	Closes the TCP socket number 18.


5.2 Socket Write

For TCP connectivity, creating a socket connection is required before proceeding to write a TCP Socket. Follow the steps in section 5.1 to create a TCP Connection.

5.2.1 Binary mode

Command	Response	Description
AT+USOWR=18,2	@	Requests writing 2 data bytes into socket #18. Wait "@" symbol indicating the data prompt is now open (AT commands are not allowed in data prompt).
hi	+USOWR: 18,2 OK	Write data bytes. It will not be possible to write fewer bytes than the number specified by the AT+USOWR command. If more bytes are written than the threshold, the remaining bytes will be truncated. The interface is blocked until all bytes are written. If the command response is returned, then the data is sent to lower level of protocol stack. This is not an acknowledgment received from the remote host confirming the data was received.

5.2.2 Base syntax

Command	Response	Description
AT+USOWR=18,2,"hi"	+USOWR:18,2 OK	Writes 2 data bytes into socket #18, the data should be written within quotations. If the command response is returned then the data is sent to a lower level of the protocol stack. This is not a notification of an acknowledgment received from the remote host data bytes have been sent to.
		 Some characters are not allowed in base syntax mode. Check the u-blox AT command manual [1] for the allowed characters.

5.2.3 CDMA network coverage lost

First scenario: Network coverage lost after AT+USOWR command, base syntax

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CREG=1	OK	Enables the URC for registration.
AT+USOCR=6	+USOCR:19 OK	Creates a TCP socket, the created ID socket is 19.
AT+USOCO=19,"195.34.89.241",7	OK	Creates a connection between Socket ID 19 and Port 7 of the IP Address 195.34.89.241.
AT+USOWR=19,25,"qwerty01223456poiuyt15969"	+USOWR:19,25 OK	Writing 25 bytes of data into socket ID 19.
	+CREG:4,54,0 OK	Registration URC reporting the module is no longer in cellular coverage.
	+CREG:4,54,1 OK	Registration URC reporting the module is back into CDMA cellular coverage.
AT+USOWR=19,30,"zxcvb01234lkjhg45698rtyui32145"<CR>	+CREG:4,54,0 OK	In this case, the module lost again CDMA coverage whilst typing the message, no response was possible Again, the module lost CDMA coverage.
	+CREG:4,54,1 OK	Registration URC reporting the module has recovered CDMA coverage
	+USOWR:19,30 OK	URC for the previous AT command prior to loose CDMA coverage, the data was saved into the module and sent to the network after it re-acquired CDMA service.

Second scenario: Network coverage lost after AT+USOWR command, binary mode

Command	Response	Description
AT+CMEER=2	OK	Set verbose error messages
AT+CREG=1	OK	+CREG=1 enables the URC notification for terminal registration
AT+USOCR=6	+USOCR:18 OK	+USOCR=6 creates a TCP socket, the response is that a Socket 18 was created.
at+usoco=18,"108.217.247.74", 1505	OK	Connect socket 18 to the port 1505 of the IP address 108.217.247.74
AT+USOWR=18,15	@	Request to write 15 bytes of information into socket 18, the @ prompt sign is returned allowing the user to enter the characters.
Test number 001		After the @ sign, the user can start typing the message, the message will be truncated at the length specified at the +USOWR command.
	+CREG:4145,7,0 OK	The +CREG URC is reported with the last digit showing the terminal isn't registered to the current network
	+CREG:4145,7,1 OK	A new +CREG URC is reported back, showing the terminal has re-acquired CDMA coverage and is now back in service.
	+USOWR:18,15 OK	The new +USOWR URC is reported back, this time showing the 15 earlier characters were successfully written into TCP Socket 18.

Third scenario: Network coverage lost during AT+USOWR command, binary mode

Command	Response	Description
AT+CMEER=2	OK	Set verbose error messages
AT+CREG=1	OK	+CREG=1 enables the URC notification for terminal registration
AT+USOCR=6	+USOCR:19 OK	+USOCR=6 creates a TCP socket, the response is a Socket 19 was created.
at+usoco=19,"108.217.247.74", 1505	OK	Connect socket 19 to the port 1505 of the IP address 108.217.247.74
AT+USOWR=19,120	@	Request to write 120 bytes of information into socket 19, the @ prompt sign is returned allowing the user to enter the characters.
qwertyqwertyqwertyqwertyqwer tqwertyqwertyqwertyqwertyqwe rtqwertyqwerty	+CREG:4145,7,0 OK	After the @ prompt sign, the user can start typing the message. The +CREG URC is reported with the last digit showing the terminal isn't registered to the current network
qwertyqwertyqwertyqwertyqwer tqwertyqwertyqwertyqwerty	+CREG:4145,7,1 OK	The user can still keep writing the message into the terminal emulator. The message will be truncated at the length specified in the +USOWR command. A new +CREG URC is reported back, showing the terminal has re-acquired CDMA coverage and is now back into CDMA service.
	+USOWR:19,120 OK	The new +USOWR URC is reported back, this time showing the total amount of characters were successfully written into TCP Socket 19.

5.3 Socket operations with “Keep Alive” option



In “Keep Alive” mode, the module periodically sends dummy TCP packets to prevent the network from closing the inactive context.

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+USOCR=6	+USOCR: 78 OK	Creates a TCP socket, the return was that a socket number 78 was created.
AT+USOSO=78, 65535, 8, 1	OK	This step enables the “Keep Alive” mode for the TCP socket: <ul style="list-style-type: none"> • 78: Socket number • 65535: Specifies the chosen mode will be set at Socket level • 8: Specifies the mode selected was “Keep Alive” • 1: Enabled the selected mode (in this case “Keep Alive”).
AT+USOSO=78, 6, 2, 5000	OK	This step configures the inactivity timeout after which the module will start to send “Keep Alive” packets: <ul style="list-style-type: none"> • 78: Socket number • 6: Settings at TCP Protocol level • 2: Chooses the “Keep Alive” option • 5000: Timeout in milliseconds configured in the “Keep Alive” mode

5.4 Socket Read

First scenario

Command	Response	Description
	+UUSORD: 33,5	Remote host sends the module 5 data bytes. The module notifies via URC that there are 5 bytes of data information stored for socket ID 33.
AT+USORD=33,5	+USORD: 33,5,"hello" OK	Retrieves the total amount of data received.

Second scenario

Command	Response	Description
	+UUSORD: 48,32	Remote host sends the module 32 data bytes. The module notifies via URC that there are 32 bytes of data information stored for socket ID 48.
AT+USORD=48,15	+USORD: 48,15,"u-blox AG TCP/U" OK	With this command, the device is retrieving only 15 out of the 32 bytes of data originally reported for Socket ID 48.
	+UUSORD: 48,17	Remote host sends another URC indicating there is still 17 bytes of data pending to be retrieved for Socket ID 48.
AT+USORD=48,17	+USORD: 48,17,"DP test service" OK	This command will retrieve the remaining 17 bytes of data still pending in the host server. No additional URC has been received after reading all remaining data, therefore all data has been recovered.

Third scenario

Command	Response	Description
	+UUSORD: 63,15	Remote host sends the module 15 data bytes. The module notifies via URC that there are 15 bytes of data information stored for socket ID 63.
AT+USORD=63,5	+USORD: 63,5,"good " OK	This command requests to read only 5 out of the 15 bytes of data stored in host server.
	+UUSORD: 63,10	Remote host sends the module the URC that there are still 10 bytes of data pending to be read for socket ID 63.
AT+USORD=63,5	+USORD: 63,5,"morni" OK	This command requests to read only 5 out of the 10 bytes of data stored in host server.
	+UUSORD: 63,20	A new URC notifies the host server has increased the amount of data stored for this Socket ID, from the remaining 5 to a new size of 20 bytes of data available.
AT+USORD=63,20	+USORD: 63,20,"ng tostill warm an" OK	With this command, the module is requesting the host server to send all the 20 remaining bytes of data to the Socket ID 63. No additional URC has been received after reading all remaining data, therefore all data has been recovered.

5.5 Socket Close

5.5.1 By the module

Command	Response	Description
AT+USOCL=18	OK	Socket closed by the module (socket #18).
		 No URC notification is returned.

5.5.2 By the remote host

Command	Response	Description
	+UUSOCL: 18	URC notifying the user that socket number 18 has been disconnected by the remote host.
		 At this point, user has to close the socket.
at+usocl=18	OK	User closes socket number 18 as a consequence of the previous URC.


6 UDP/IP AT commands

FW75

LISA-C

6.1 Socket write (+USOST)

6.1.1 Base syntax

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+USOCR=17	+USOCR: 18 OK	UDP socket creation. In this example Socket #18 is created. The response returns the new socket identifier (in this example #18). If a new socket is created, a new socket identifier will be returned.
AT+USOST=18,"108.217.247.74", 1500,15,"0123456789qwert"	OK	Request to write 15 bytes of data into socket #18 specifying IP address and UDP port of the remote host UDP packet has to be sent to. It is necessary to specify the length of data to be written and the data to be written.  If more bytes are written with respect to the threshold, the remaining data will be truncated. The interface is blocked until all data is written. The command response is returned. This means the data is sent to lower level of protocol stack. This is not an acknowledgment, UDP is a connectionless protocol.

6.1.2 Binary mode

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+USOCR=17	+USOCR: 108 OK	UDP socket creation. In this example Socket #108 is created. The response returns the new socket identifier (in this example #108). If a new socket is created, a new socket identifier will be returned.
at+usost=108,"108.217.47.74", 1500,4	@	Create the UDP connection to "108.217.247.74" on port 1500 Prompt @ is waiting for data to be entered

Command	Response	Description
main	+USOST: 108,4 OK	Write data bytes. It is not possible to write fewer bytes than the number specified with AT+USOWR. If more bytes are written than specified in the threshold, the remaining bytes will be truncated. The interface is blocked until all bytes are written. If the command response is returned, then the data is sent to lower level of protocol stack. This is not an acknowledgment received from the remote host confirming the data was received.
at+usocl=108	 OK	Closing the socket.

6.2 Socket Read (+USORF)

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+USOCR=17	+USOCR:18 OK	A UDP socket has been created (#18)
	+UUSORF: 18,15	The URC +UUSORF notifies that there is a packet of 15 bytes ready to be read in socket #18.
AT+USORF=18,15	+USORF: 18,"108.217.247.74",220,15,"0 123456789qwerty" OK	A request to read 15 characters of data to socket #18 is sent. The command response indicates: <ul style="list-style-type: none"> • Read socket identifier (#18) • Remote IP address • Remote UDP port • Number of read data bytes • Read data bytes (between quotation marks)
AT+USOCL=18	OK	Closing the UDP socket, terminal goes back to idle state




For UDP Socket implementation it is highly recommended to use AT commands +USOST and +USORF instead of +USOCO, +USOWR and +USORD.

6.3 Direct Link (+USODL)

6.3.1 Enter and exit from Direct Link Mode

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+USOCR=17	+USOCR:18 OK	A UDP socket has been created (#18)
AT+USOCO=18,"108.217.247.74",1500	OK	A socket connection is made to the IP Address 108.217.247.74 port 1500
AT+USODL=18	CONNECT	With this command, a Direct Link Socket connection is established, the URC confirms the connection.
1234567890 qwerty	1234567890 qwerty	The prompt stays idle waiting for information, in this case, the user entered characters and the terminal emulator showed the characters back.

Command	Response	Description
+++	DISCONNECT	<p>The '+++' command line instructs the device to disconnect the Direct Link connection.</p> <p>The terminal emulator shows the URC confirming the disconnection of the link.</p> <p> This command line will not disconnect the UDP connection.</p>
AT+USODL=18	CONNECT	Using the same command to re-establish the connection.
1234567890qwerty	1234567890qwerty	User enters new set of characters after the prompt is shown.

6.3.2 Closing the Connection

Command	Response	Description
+++	DISCONNECT	New command line to disconnect the link, UDP connection is not closed.
AT+USOCL=18	OK	Closing Socket # 18, which was the UDP Socket number the connection was associated to.

7 FTP AT Commands

FW75

LISA-C

CDMA Data configuration doesn't need a preamble to start using the AT commands. Thus, FTP commands can be used without prior setup.



The following FTP profile parameters aren't saved in the Non-Volatile Memory

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+UFTP=0, "108.217.247.74"	OK	Stores the FTP "IP Address" AT+UFTP=0 and AT+UFTP=1 are mutually exclusive, therefore, the last command will overwrite the previous value and will be stored as part of the profile.
AT+UFTP=1, "FTP.FUSIONWIRELESS CORP.COM"	OK	Stores the "Server Name" AT+UFTP=0 and AT+UFTP=1 are mutually exclusive, therefore, the last command will overwrite the previous value and will be stored as part of the profile.
AT+UFTP=2, "guest"	OK	Stores the "Username"
AT+UFTP=3, "password"	OK	Stores the user "Password"
AT+UFTPC=1	OK +UUFTPCR: 1,1 OK	Requests a Login to the already specified FTP server using the credential above.
AT+UFTPC=13	OK +UUFTPCD: 13,127, "drwxr-xr-x 1 ftp ftp 0 Jul 02 14:42 2.3.13 -rw-r--r-- 1 ftp ftp 20814745 Jul 02 14:42 ETS- 8.5.17 tool.zip " OK +UUFTPCR: 13,1 OK	Requests the file list on the root directory on the server. Note that the list of files in the directory is followed by the URC confirmation.
AT+UFTPC=10, "PRUEBAS"	OK +UUFTPCR: 10,1 OK	Requests the creation of a directory, in this example, a directory called "PRUEBAS" was created. +UUFTPCR responds with the confirmation of the directory creation.
AT+UFTPC=10, "TESTEO"	OK +UUFTPCR: 10,1 OK	Requests the creation of a directory, in this example, a directory called "TESTEO" was created. +UUFTPCR responds with the confirmation of the directory creation.
AT+UFTPC=8, "PRUEBAS"	OK +UUFTPCR: 8,1 OK	Changes the working directory from the root directory to the newly created "PRUEBAS".

Command	Response	Description
AT+UFTPC=13	OK +UUFTPCD: 13,57,"-rw-r--r-- 1 ftp ftp 260 Jul 16 17:03 10.key " OK +UUFTPCR: 13,1 OK	A new request for a list of files in the new "PRUEBAS" directory. Note the list of files in the directory is followed by the URC confirmation.
AT+UFTPC=8,".."	OK +UUFTPCR: 8,1 OK	Sends the working directory from "PRUEBAS" back into the root directory
at+uftpc=11,"TESTEO"	OK +UUFTPCR: 11,1 OK	Deletes a directory called "TESTEO" from the root directory.
AT+UFTPC=8,"PRUEBAS"	OK +UUFTPCR: 8,1 OK	Returns to the "PRUEBAS" directory.
AT+UFTPC=3,"10.key","tEN.key"	OK +UUFTPCR: 3,1 OK	Changes the name of the "10.key" file to the new name "tEN.key".
AT+UFTPC=13	OK +UUFTPCD: 13,58,"-rw-r--r-- 1 ftp ftp 260 Jul 16 17:03 tEN.key " OK +UUFTPCR: 13,1 OK	A new request for a list of files within the "PRUEBAS" directory is made, this time the new "tEN.key" file is shown.
AT+UFTPC=14	OK +UUFTPCD: 14,9,"tEN.key " OK +UUFTPCR: 14,1 OK	Lists the files in the current working directory, no additional information other than the names is provided.
AT+UFTPC=2,"tEN.key"	OK +UUFTPCR: 2,1 OK	A request to delete the "tEN.key" file is submitted, the URC is sent back with the confirmation.

Command	Response	Description
AT+UFTPC=14	OK +UUFTPCR: 14,1 OK	Shows no file in the current "PRUEBAS" directory.
AT+UFTPC=13	OK +UUFTPCR: 13,1 OK	Shows no file in the current "PRUEBAS" directory.
AT+UFTPC=8, ".."	OK +UUFTPCR: 8,1 OK	Sends the working directory from "PRUEBAS" back into the root directory
AT+UFTPC=11, "PRUEBAS"	OK +UUFTPCR: 11,1 OK	Removes the "PRUEBAS" directory from the root directory.
AT+UFTPC=0	OK +UUFTPCR: 0,1 OK	Logging Off from the FTP server

8 HTTP AT commands

FW75

LISA-C

CDMA terminal configuration, allows an HTTP session to start straight from idle state, no need to preconfigure the device prior to start a Data session.



HTTP parameters are not saved in the non-volatile memory, therefore it will be erased at power down.


Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+UHTTP=0	OK	Reset HTTP profile #0
AT+UHTTP=0,1,"WWW.MODERNDYNAM IC.COM"	OK	Set the server domain
AT+UHTTP=0,1	+UHTTP: 0,1,WWW.MODERNDYNAMIC.COM	Returns the values set for HTTP server name for profile #0
AT+UHTTPC=0,0,"/", "HEAD.TXT"	OK +UUHTTPCR: 0,0,1 OK	Sending the command HEAD to the HTTP server. The first "OK" response is a confirmation the command has been delivered. The +UUHTTPCR is the URC coming from the server, in this case, confirming the command "0" from profile "0" has been successfully.
AT+UHTTPC=0,1,"/UBLOX/GET.PHP", "GET.TXT"	OK +UUHTTPCR: 0,1,1 OK	Sending the command GET to the HTTP server, the URC confirms the success of the request.
AT+UHTTPC=0,2,"/UBLOX/DELETE.PHP", "DELETE.TXT"	OK +UUHTTPCR: 0,2,1 OK	Sending the command DELETE to the HTTP server, the URC confirms the success of the request.
AT+UHTTPC=0,5,"/UBLOX/POST.PHP", "POST.TXT", "NAME=acr&LASTNAME=b",0	OK +UUHTTPCR: 0,5,1 OK	Sending the command POST to the HTTP server, the URC confirms the success of the request.
AT+ULSTFILE="ALL"	+ULSTFILE: "DELETE.TXT", "GET.TXT", "HEAD.TXT", "POST.TXT" OK	Lists all the files stored in the system file of the module as consequence of the above requests.

9 GPIO AT commands

FW75

LISA-C

For more details about GPIO pin mapping please refer to Lisa-C/FW75 System Integration Manual.




Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+UGPIOR=?	+UGPIOR: (20,21,23,24,51)	List of GPIO PIN numbers
	OK	
AT+UGPIOC=23,0,0	OK	Set the GPIO input/output mode: <ul style="list-style-type: none"> PIN 23 set as output with default value 0 (LOW) PIN 51 set in input mode (No default value)
AT+UGPIOC=51,1	OK	
AT+UGPIOR=23	+UGPIOR: 23,0	Read the GPIO status of the PINs 23 and 51
	OK	
AT+UGPIOR=51	+UGPIOR: 51,0	
	OK	
AT+UGPIOW=23,1	OK	Write (Set) the GPIO status  Only GPIO configured in output mode can be written.
AT+UGPIOC?	20,0 21,0 23,0 24,0 51,1	Provides GPIO status, in this example: <ul style="list-style-type: none"> GPIOs 20, 21, 23, and 24 are configured as Outputs GPIO 51 is configured as Input
	OK	

10 Multiplexer AT commands

FW75

LISA-C

The virtual channels for the multiplexer are configured for the following functionalities:

-  Channel 0: Control channel
-  Channel 1: AT commands
-  Channel 2: Data connection

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CMUX?	+CMUX: 0, 0, 0, 32	Request for the actual configuration of the MUX Channel 0
	OK	
AT+CMUX=0,0,0,255	OK	Set the MUX Channel 0 to the frame size of 255
AT+CMUX?	+CMUX: 0, 0, 0, 255	Request to read the actual configuration of the MUX Channel 0 recently modified.
	OK	


11 File System AT commands

FW75

LISA-C



Commands in this chapter refer to the local file system on the module. The size of the file system is limited by the available memory. Refer to u-blox AT Commands Manual [1].


Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+ULSTFILE="all"	+ULSTFILE: "Test5.ebf"	Lists "All" the files in the "file" system.
	OK	
AT+ULSTFILE=1	+ULSTFILE: 940544	The parameter 1 at this command, shows the space that is free for files in the "file" system.
	OK	
AT+ULSTFILE=2,"Test5.ebf"	+ULSTFILE: 106496	Gets the size of the "Test5.ebf" file
	OK	
AT+ULSTFILE=2,"no-name"	+ULSTFILE: 0	"no-name" is a non-existing file in the "file" system, therefore their size value is 0.
	OK	
AT+UDWNFILE="SD_New_001",14	>	Requests the creation of a new file on the "file" system, it is necessary to specify the name and file size. The ">" prompt symbol indicates the terminal is open (No commands will be allowed).
Good Morning	OK	The characters written will be sent to the port.  The interface is blocked until all bytes are written. Once all characters are written, the module exits from the prompt, an OK response is shown and the device is back into AT Commands mode.
AT+ULSTFILE="all"	+ULSTFILE: "SD_New_001","Test5.ebf"	Lists again all the files in the "file" system, the new added file is shown.
	OK	
AT+ULSTFILE=2,"SD_New_001"	+ULSTFILE: 14	Request the size of the new file created.
	OK	
AT+URDFILE="SD_New_001"	+URDFILE: SD_NEW_001,14,"Good Morning"	Read the newly created file "SD_New_001"
	OK	
AT+UDELF="SD_New_001"	OK	Deleting the new created "SD_New_001" file.
AT+ULSTFILE="all"	+ULSTFILE: "Test5.ebf"	Listing all the files in the "file" system, the newly created file, deleted previously is absent.
	OK	

12 SMS AT Commands

FW75

LISA-C

12.1 Reading a single message

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CNMI=1,1	OK	Enables the URC to the DTE when an incoming SMS is received by the MT.
AT+CNMI?	+CNMI: 1,1,0 OK	Checking the above parameters are set and; the URC will be forwarded to the TE, and SMS deliver is stored in ME and indication of memory Location is sent to TE
	+CMTI: "ME",1	URC that a new SMS has just arrived, has been stored in memory location 1
AT+CMGR=1	+CMGR: "REC UNREAD","8585596895","12/06/15,15:58:25+00",,129,15 Test Number One OK	Allows reading the message stored in memory index 1, receipt shows it was unread, originating address is "8585596895", date stamp reflects June 15 th of 2012 @ 15:58:25 Pacific Time, Type of Address is 129 (octet), 15 characters of message, and message itself is "Test Number One".
AT+CMGR=1	+CMGR: "REC READ","8585596895","12/06/15,15:58:25+00",,129,15 Test Number One OK	Allows reading the message stored in memory index 1, receipt shows it was read, originating address is "8585596895", date stamp reflects June 15 th of 2012 @ 15:58:25 Pacific Time, Type of Address is 129 (octet), 15 characters of message, and message itself is "Test Number One".  This step is optional, it helps verify the change of status of the message from "unread" to "read".

12.2 Listing all messages



The use of AT+CMGL only lists the messages stores in the memory indexes, it doesn't write the memory flag as message "read".



Default value will list only "Rec Unread" (Received Unread) messages.


Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CNMI?	+CNMI: 0,0,0 OK	Checks the status of the URC to the DTE when a SMS is received from the MT.
AT+CNMI=1,1	OK	Sets module SMS parameters to: <ul style="list-style-type: none"> Forward the result codes to TE SMS deliver is stored in ME and indication of memory location I ssent to TE: +CMTI: "ME",<index>
AT+CNMI?	+CNMI: 1,1,0 OK	Confirms the settings to receive URC for incoming SMS.

Command	Response	Description
	+CMTI: "ME",0	URC that notifies the TE of a new SMS received, the message is located in memory index 0.
	+CMTI: "ME",1	URC that notifies the TE of a new SMS received, the message is located in memory index 1.
AT+CMGL	+CMGL: 2,"REC UNREAD","8582286247","12/06/1 5,17:01:08+00",,129,15 Test number two OK	Lists all of the messages stored in memory, in this case, 1 message is in memory index 2, the originating address is "8582286247", dated on June 12 th of 2012, timestamp of the received message, the octet representing the type of address, 15 characters is the length of the message, and the message itself is followed "Test number two".  Default value for AT+CMGL is "Rec Unread".
AT+CMGL="REC READ"	+CMGL: 0,"REC READ","8584494198","12/06/12, 15:19:19+00",,129,9 Response. +CMGL: 1,"REC READ","8582286247","12/06/15, 15:58:25+00",,129,15 Test number one OK	Lists all the "Read" messages stored in the TE.
AT+CMGL="REC UNREAD"	+CMGL: 2,"REC UNREAD","8582286247","12/06/1 5,17:01:08+00",,129,15 Test number two OK	As the default command setting, this AT value, will list all "Unread" messages stored in the TE.
AT+CMGL="ALL"	+CMGL: 0,"REC READ","8584494198","12/06/12, 15:19:19+00",,129,9 Response. +CMGL: 1,"REC READ","8582286247","12/06/15, 15:58:25+00",,129,15 Test number one +CMGL: 2,"REC UNREAD","8582286247","12/06/1 5,17:01:08+00",,129,15 Test number two OK	The value "ALL" in this AT command, will list all stored messages at all memory indexes populated.

12.3 Delete one single message or multiple messages

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages

Command	Response	Description
AT+CMGL="all"	+CMGL: 0,"REC READ","8584494198","12/06/12, 15:19:19+00",,129,9 Response. +CMGL: 1,"REC READ","8582212345","12/06/15, 15:58:25+00",,129,15 Test numero uno +CMGL: 11,"REC READ","9132354027","12/06/21, 12:16:12+00",,129,35 Test Number 3 Lisa-C to FW75 June21 +CMGL: 2,"REC UNREAD","8582212345","12/06/1 5,17:01:08+00",,129,15 Test numero dos +CMGL: 12,"REC UNREAD","9132354027","12/06/2 1,12:18:24+00",,129,42 Test number 4 Lisa-C to FW75 June21 midday +CMGL: 13,"REC UNREAD","9132354027","12/06/2 1,13:43:34+00",,129,59 Test number 6 Lisa to FW, lets chack @ 1345 on June21 +CMGL: 14,"REC UNREAD","9132354027","12/06/2 1,13:44:44+00",,129,47 TEst bnumber sdlksdoiu @June21 sdjshjkds 12245 +CMGL: 15,"REC UNREAD","9132354027","12/06/2 1,13:52:48+00",,129,69 TEst number 234 from Lisa to FW CNMI On and MTSMS there, Jun21 @ 1352	+CMGL="all" shows all messages stored in all module's memory allocations.
AT+CMGD=?	+CMGD: (0,1,2,11,12,13,14,15), (0-4)	+CMGD reports back the available memory allocations which this same command can be applied to.
AT+CMGD=11	OK	Deleting message from memory allocation (index) 11.


Command	Response	Description
AT+CMGL="all"	+CMGL: 0,"REC READ","8584494198","12/06/12, 15:19:19+00",,129,9 Response. +CMGL: 1,"REC READ","8582286247","12/06/15, 15:58:25+00",,129,15 Test numero uno +CMGL: 2,"REC UNREAD","8582286247","12/06/1 5,17:01:08+00",,129,15 Test numero dos +CMGL: 12,"REC UNREAD","9132354027","12/06/2 1,12:18:24+00",,129,42 Test number 4 Lisa-C to FW75 June21 midday +CMGL: 13,"REC UNREAD","9132354027","12/06/2 1,13:43:34+00",,129,59 Test number 6 Lisa to FW, lets chack @ 1345 on June21 +CMGL: 14,"REC UNREAD","9132354027","12/06/2 1,13:44:44+00",,129,47 TEst bnumber sdlksdoiu @June21 sdjshjkds 12245 +CMGL: 15,"REC UNREAD","9132354027","12/06/2 1,13:52:48+00",,129,69 TEst number 234 from Lisa to FW CNMI On and MTSMS there, Jun21 @ 1352	A new reading using the +CMGL command, shows the message in memory allocation (index) 11 has been deleted.
AT+CMGD=?	+CMGD: (0,1,2,12,13,14,15), (0-4) OK	+CMGD=? reports back the indexes of memory allocations available to use this same command. Since the message stored in memory index 11 was deleted, it doesn't appear in the response of this command.
AT+CMGD=1,1	OK	+CMGD=1,1 erases all "read" messages (indexes 0 and 1 from previous example), leaving unread messages and stored mobile originated messages (whether sent or not) untouched.  Since the deletion flag option was used in this command, the index number was ignored. Please refer to the AT Commands Manual [1] for additional deletion flags information.

Command	Response	Description
AT+CMGL="all"	+CMGL: 2,"REC UNREAD","8582286247","12/06/1 5,17:01:08+00",,129,15 Test numero dos +CMGL: 12,"REC UNREAD","9132354027","12/06/2 1,12:18:24+00",,129,42 Test number 4 Lisa-C to FW75 June21 midday +CMGL: 13,"REC UNREAD","9132354027","12/06/2 1,13:43:34+00",,129,59 Test number 6 Lisa to FW, lets chack @ 1345 on June21 +CMGL: 14,"REC UNREAD","9132354027","12/06/2 1,13:44:44+00",,129,47 TEst bnumber sdlksdoiuj @June21 sdjshjkds 12245 +CMGL: 15,"REC UNREAD","9132354027","12/06/2 1,13:52:48+00",,129,69 TESt number 234 from Lisa to FW CNMI On and MTSMS there, Jun21 @ 1352	Shows that all "Read" messages has been erased from the memory of the module.
AT+CMGD=?	+CMGD: +CMGD: (2,12,13,14,15), (0-4)	+CMGD shows the indexes of available memory allocations that are currently storing messages.
	OK	

12.4 Deleting all messages

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CMGL="all"	+CMGL: 0,"REC UNREAD","9132354027","12/06/2 8,15:25:25+00",,129 ,14 test number 42 +CMGL: 1,"REC UNREAD","9132354027","12/06/2 9,10:50:28+00",,129 ,29 test number 634 June29 @ 1050 +CMGL: 2,"REC UNREAD","8582286247","12/06/1 5,17:01:08+00",,129 ,15 Test numero dos +CMGL: 12,"REC UNREAD","9132354027","12/06/2 1,12:18:24+00",,12 9,42 Test number 4 Lisa-C to FW75 June21 midday +CMGL: 13,"REC UNREAD","9132354027","12/06/2 1,13:43:34+00",,12 9,59 Test number 6 Lisa to FW, lets chack @ 1345 on June21 +CMGL: 14,"REC UNREAD","9132354027","12/06/2 1,13:44:44+00",,12 9,47 TEst bnumber sdlksdoiuj @June21 sdjshjkds 12245 +CMGL: 15,"REC UNREAD","9132354027","12/06/2 1,13:52:48+00",,12 9,69	List all the SMS Messages stored in the memory of the module.

Command	Response	Description
	<pre> TEst number 234 from Lisa to FW CNMI On and MTSMS there, Jun21 @ 1352 +CMGL: 16,"REC UNREAD","9132354027","12/06/2 1,13:56:39+00",,12 9,52 Test number 567 Lia to FW MO on Lisa @ jun21 on 1400 +CMGL: 17,"REC UNREAD","9132354027","12/06/2 1,15:23:10+00",,12 9,44 TEst number 098 from Lisa to FW Jun21 @ 1525 +CMGL: 18,"REC UNREAD","8584726201","12/06/2 1,16:50:23+00",,12 9,40 Test for self messaging 002 Jun21 @ 1650 +CMGL: 19,"REC UNREAD","9132354027","12/06/2 5,15:46:55+00",,12 9,35 test return number one Jun25 1600 +CMGL: 20,"REC UNREAD","9132354027","12/06/2 5,15:48:01+00",,12 9,33 tset return number two Jun25 1601 +CMGL: 21,"REC UNREAD","9132354027","12/06/2 7,17:38:22+00",,12 9,29 test number 5254 Jun27 @ 1755 +CMGL: 5,"STO SENT","8582286247","00/00/00, 00:00:00+00",,129,8 8 People packing, seems a trip is on the way Weather should improve this weekend +CMGL: 7,"STO SENT","8582286247","00/00/00, 00:00:00+00",,129,6 2 ANOTHER MESSAGE BEING SAVED FOR TESTING PURPOSES +CMGL: 3,"STO UNSENT","8582286247","00/00/0 0,00:00:00+00",,129 ,45 Good Morning San Diego It is Friday +CMGL: 4,"STO UNSENT","8582286247","00/00/0 0,00:00:00+00",,129 ,59 Traffic is heavy in Sunny SD Just wait til it gets better +CMGL: 6,"STO UNSENT","8582286247","00/00/0 0,00:00:00+00",,129 ,70 SAVING MESSAGE IN THE MEMORY ALLOCATION 100, INDEX 7 +CMGL: 8,"STO UNSENT","8582286247","00/00/0 0,00:00:00+00",,129 ,98 This test will contain a message stored in the module memory w ith no destination address on it +CMGL: 9,"STO UNSENT","111111111111", "00/00 </pre>	

Command	Response	Description
	<pre>/00,00:00:00+00",,1 29,18 TEST NUMBER 111111 +CMGL: 10,"STO UNSENT", "111111111111", "00/00 /00,00:00:00+00",, 129,27 TEST NUMBER 22222222 333333 OK</pre>	
At+CMGD=?	<pre>+CMGD: (0,1,2,3,4,5,6,7,8,9,10,12,13 ,14,15,16,17,18,19,20,21), (0-4)</pre>	Lists all the messages indexes that are available and the related "delete" actions to be performed.
AT+CMGD=0,4	OK	<p>Deletes all stored messages in the module's memory, regardless whether the messages were read or not.</p> <p> The syntax in this command specifies that a "flag" will have priority over the index, so for this case, a memory index of any value will have no effect over a deletion "flag" 4.</p>
AT+CMGL="all"	OK	Listing again all the available messages stored, just to confirm all of them have been erased.

12.5 Write and/or send one single message


Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CMGS="8582286247"<CR>	>	Enter the AT command +CMGS followed by the Destination address within quotation marks, afterwards press the <Enter> key. The sign ">" should prompt to start entering the text message
TEST NUMBER 10045<Ctrl-Z>	+CMGS: 1 OK	Once entered the text message, enter <Ctrl-Z> to send it.

12.6 Storing an SMS message

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CMGW="8582586248"<CR>	>	Stores an SMS message into the module's memory, the Destination Address (Phone number) has to be within quotations, and a prompt sign should come up fairly quick. In this example, the destination address is "8582586248"
SAVING MESSAGE IN THE MEMORY ALLOCATION 100, INDEX 7<Ctrl-Z>	+CMGW: 6 OK	Type in a message and after finishing it, press <Ctrl-Z> The response will specify the memory index allocation of the stored message.
AT+CMGW="8582586248"<CR>	>	Same as above, new message created.
ANOTHER MESSAGE BEING SAVED FOR TESTING PURPOSES<Ctrl-Z>	+CMGW: 7 OK	Same as previous testing, this time the memory allocation reported back is 7.

Command	Response	Description
AT+CMGW<CR>	>	By typing this command without Destination Address (Phone number), it will save it without reference of it.
This test will contain a message stored in the module memory with no destination address on it<Ctrl-Z>	+CMGW: 8 OK	After the prompt, type in the message and save it after pressing <Ctrl-Z>, it will return a message with the memory allocation, in this case, memory allocation number 8.

12.7 Sending a Stored SMS message

Command	Response	Description
AT+CMEE=2	OK	Set verbose error messages
AT+CMGL	+CMGL: 2,"REC UNREAD","8582586248","12/06/15,17:01:08+00",,129,15 Test number two OK	Lists the SMS messages stored in the module's memory, the default parameter is to show all the Received Unread messages
AT+CMGL="ALL"	+CMGL: 0,"REC READ","8582512345","12/06/12,15:19:19+00",,129,9 Response. +CMGL: 1,"REC READ","8582512345","12/06/15,15:58:25+00",,129,15 Test number one +CMGL: 2,"REC UNREAD","8582512345","12/06/15,17:01:08+00",,129,15 Test number two +CMGL: 3,"STO UNSENT","8582512345","00/00/00,00:00:00+00",,129,45 Good Morning San Diego It is Friday +CMGL: 4,"STO UNSENT","8582512345","00/00/00,00:00:00+00",,129,59 Traffic is heavy in Sunny SD Just wait til it gets better +CMGL: 5,"STO UNSENT","8582512345","00/00/00,00:00:00+00",,129,88 People packing, seems a trip is on the way Weather should improve this weekend +CMGL: 6,"STO UNSENT","8582512345","00/00/00,00:00:00+00",,129,70 SAVING MESSAGE IN THE MEMORY ALLOCATION 100, INDEX 7 +CMGL: 7,"STO UNSENT","8582512345","00/00/00,00:00:00+00",,129,62 ANOTHER MESSAGE BEING SAVED FOR TESTING PURPOSES OK	<p>Lists the messages stored in the module's memory, as long as the "ALL" parameter is indicated.</p> <p>Shows the memory index within the module, the ones titled "STO UNSENT" are the ones pending to be sent.</p> <p> The time stamp is populated with "0" when there is still pending to be sent.</p>
AT+CMSS=5	+CMSS: 4 OK	Sends the message in memory allocation index 5, the destination address has been already stored in the original message.

Command	Response	Description
AT+CMGL="ALL"	<pre> +CMGL: 0,"REC READ","8582512345","12/06/12, 15:19:19+00",,129,9 Response. +CMGL: 1,"REC READ","8582512345","12/06/15, 15:58:25+00",,129,15 Test number one +CMGL: 2,"REC UNREAD","8582512345","12/06/1 5,17:01:08+00",,129,15 Test number two +CMGL: 3,"STO UNSENT","8582512345","00/00/0 0,00:00:00+00",,129,45 Good Morning San Diego It is Friday +CMGL: 4,"STO UNSENT","8582512345","00/00/0 0,00:00:00+00",,129,59 Traffic is heavy in Sunny SD Just wait til it gets better +CMGL: 5,"STO SENT","8582212345","00/00/00, 00:00:00+00",,129,88 People packing, seems a trip is on the way +CMGL: 6,"STO UNSENT","8582512345","00/00/0 0,00:00:00+00",,129,70 SAVING MESSAGE IN THE MEMORY ALLOCATION 100, INDEX 7 +CMGL: 7,"STO UNSENT","8582512345","00/00/0 0,00:00:00+00",,129,62 ANOTHER MESSAGE BEING SAVED FOR TESTING PURPOSES OK </pre>	<p>A new reading with the +CMGL="all" command shows the message stored in memory index allocation 5 has changed to "STO SENT".</p>

Appendix

A List of Acronyms

Abbreviation / Term	Explanation / Definition
3GPP	3rd Generation Partnership Project
ADC	Analog to Digital Converter
APN	Access Point Name
AT	AT Command Interpreter Software Subsystem, or attention
BC	Band Class
CDMA	Code Division Multiple Access
CI	Cell Identity
CLIP	Calling Line Identification Presentation
CTS	Clear To Send
DLC	Data Link Connection
DNS	Domain Name System
DTE	Data Terminal Equipment
DUT	Device Under Test
EDGE	Enhanced Data rates for GSM Evolution
ESN	Electronic Serial Number
FOTA	Firmware Over-The-Air
FTP	File Transfer Protocol
GPIO	General Purpose Input Output
GPRS	General Packet Radio Service
GPS	Global Positioning System
GSM	Global System for Mobile Communication
HA	Home Agent
HSDPA	High Speed Downlink Packet Access
HTTP	Hyper Text Transfer Protocol
I ² C	Inter-Integrated Circuit
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Station Identity
IP	Internet Protocol
LAC	Location Area Code
MCC	Mobile Country Code
MDN	Mobile Directory Number
MEID	Mobile Equipment Identifier
MIP	Mobile Internet Protocol
MNC	Mobile Network Code
MT	Mobile Terminal

Abbreviation / Term	Explanation / Definition
NAI	Network Access Identifier
NAM	Number Assignment Module
NID	Network IDentification
NVM	Non Volatile Memory
OMA	Open Mobile Alliance
OMA-DM	Open Mobile Alliance Device Management
OTA	Over-The-Air
PDP	Parallel Data Processing
PIN	Personal Identification Number
PRL	Preferred Roaming List
RAT	Radio Access Technology
RTS	Request To Send
SAT	SIM Application Toolkit
SID	System IDentification
SIM	Subscriber Identification Module
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SV	Satellite in View
TA	Timing Advance
TCP	Transmission Control Protocol
TTF	Time To First Fix
UDP	User Datagram Protocol
UMTS	Universal Mobile Telecommunications System
URC	Unsolicited Result Code
URL	Uniform Resource Locator
WCDMA	Wideband CODE Division Multiple Access

B Error Codes for Sprint's OMADM

Code / Error Number	Explanation / Definition
0	Success
16	Unspecified error
17	Memory error
18	Routine called when not allowed or bad parameters
24576	Supplied buffer is too small
24577	Badly formatted input
24586	Client aborted
24591	Persistent storage read error
24592	Persistent storage write error
24593	Authentication failure
24598	Tree open error
24599	Tree commit error
25346	General fatal transport error
25347	General non-fatal transport error
25604	User Cancelled update or download
25605	Couldn't initiate update client

Related documents

- [1] u-blox LISA-C200 & FW75-C200 AT Commands Manual, Docu No CDMA-2X-11002 available on our homepage (<http://www.u-blox.com>)
- [2] 3GPP TS 27.010 - Terminal Equipment to User Equipment (TE-UE) multiplexer protocol (Release 1999)
- [3] 3GPP TS 11.11 - Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) Interface (Release 1999)
- [4] 3GPP TS 11.14 - Specification of the SIM Application Toolkit (SAT) for the Subscriber Identity Module - Mobile Equipment (SIM-ME) Interface (Release 1999)
- [5] ISO/IEC 7816-3 - Identification cards - Integrated circuit cards Part 3: Cards with contacts: Electronic signals and transmission protocols



For regular updates to u-blox documentation and to receive product change notifications please register on our homepage.

Revision history

Revision	Date	Name	Status / Comments
-	Jun. 06, 2012	acub	Initial release

Contact

For complete contact information visit us at www.u-blox.com

u-blox Offices

North, Central and South America

u-blox America, Inc.

Phone: +1 703 483 3180
E-mail: info_us@u-blox.com

Regional Office West Coast:

Phone: +1 408 573 3640
E-mail: info_us@u-blox.com

Technical Support:

Phone: +1 703 483 3185
E-mail: support_us@u-blox.com

Headquarters Europe, Middle East, Africa

u-blox AG

Phone: +41 44 722 74 44
E-mail: info@u-blox.com
Support: support@u-blox.com

Asia, Australia, Pacific

u-blox Singapore Pte. Ltd.

Phone: +65 6734 3811
E-mail: info_ap@u-blox.com
Support: support_ap@u-blox.com

Regional Office China (Beijing):

Phone: +86 10 68 133 545
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com

Regional Office China (Shenzhen):

Phone: +86 755 8627 1083
E-mail: info_cn@u-blox.com
Support: support_cn@u-blox.com

Regional Office India:

Phone: +91 959 1302 450
E-mail: info_in@u-blox.com
Support: support_in@u-blox.com

Regional Office Japan:

Phone: +81 3 5775 3850
E-mail: info_jp@u-blox.com
Support: support_jp@u-blox.com

Regional Office Korea:

Phone: +82 2 542 0861
E-mail: info_kr@u-blox.com
Support: support_kr@u-blox.com

Regional Office Taiwan:

Phone: +886 2 2657 1090
E-mail: info_tw@u-blox.com
Support: support_tw@u-blox.com