

Read Command <b>AT+QSIMSTAT?</b>	Response <b>+QSIMSTAT: &lt;enable&gt;,&lt;inserted_status&gt;</b>  <b>OK</b>
Write Command <b>AT+QSIMSTAT=&lt;enable&gt;</b>	Response <b>OK</b> <b>ERROR</b>
Maximum Response Time	300ms

## Parameter

<b>&lt;enable&gt;</b>	Enable or disable (U)SIM card insertion status report. If it is enabled, when (U)SIM card is removed or inserted, the URC <b>+QSIMSTAT: &lt;enable&gt;,&lt;insertedstatus&gt;</b> will be reported. 0     Disable 1     Enable
<b>&lt;insertedstatus&gt;</b>	(U)SIM card is inserted or removed. This argument is not allowed to be set. 0     Removed 1     Inserted 2     Unknown, before (U)SIM initialization

## Example

```

AT+QSIMSTAT?           //Query (U)SIM card insertion status
+QSIMSTAT: 0,1

OK
AT+QSIMDET=1,0
OK
AT+QSIMSTAT=1         //Enable (U)SIM card insertion status report
OK
AT+QSIMSTAT?
+QSIMSTAT: 1,1

OK
<Remove (U)SIM card>
+QSIMSTAT : 1,0          //Report of (U)SIM card insertion status, removed

+CPIN: NOT READY
AT+QSIMSTAT?
+QSIMSTAT: 1,0
  
```

OK

<Insert (U)SIM card>

+QSIMSTAT: 1,1                      //Report of (U)SIM card insertion status, inserted

+CPIN: READY

# 6 Network Service Commands

## 6.1. AT+COPS Operator Selection

The command returns the current operators and their status, and allows setting automatic or manual network selection.

AT+COPS Operator Selection	
<p>Test Command <b>AT+COPS=?</b></p>	<p>Response</p> <p>TA returns a set of five parameters, each representing an operator presenting in the network. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in the order of: home network, networks referenced in (U)SIM and other networks.</p> <p><b>+COPS:</b> (list of supported <b>&lt;stat&gt;</b>, long alphanumeric <b>&lt;oper&gt;</b>, short alphanumeric <b>&lt;oper&gt;</b>, numeric <b>&lt;oper&gt;</b>s)[<b>&lt;Act&gt;</b>]]s] [, (list of supported <b>&lt;mode&gt;</b>s), (list of supported <b>&lt;format&gt;</b>s)]</p> <p><b>OK</b></p> <p>If there is any error related to ME functionality: <b>+CME ERROR: &lt;err&gt;</b></p>
<p>Read Command <b>AT+COPS?</b></p>	<p>Response</p> <p>TA returns the current mode and the currently selected operator. If no operator is selected, <b>&lt;format&gt;</b>, <b>&lt;oper&gt;</b> and <b>&lt;Act&gt;</b> are omitted.</p> <p><b>+COPS:</b> <b>&lt;mode&gt;</b>[<b>&lt;format&gt;</b>][<b>&lt;oper&gt;</b>][<b>&lt;Act&gt;</b>]]</p> <p><b>OK</b></p> <p>If there is any error related to ME functionality: <b>+CME ERROR: &lt;err&gt;</b></p>
<p>Write Command <b>AT+COPS=&lt;mode&gt;[,&lt;format&gt;[,&lt;oper&gt;[,&lt;Act&gt;]]]</b></p>	<p>Response</p> <p>TA forces an attempt to select and register the GSM/UMTS network operator. If the selected operator is not available, no other operator shall be selected (except <b>&lt;mode&gt;=4</b>). The format of selected operator name shall apply to further Read</p>

	Command ( <b>AT+COPS?</b> ).
	<b>OK</b>
	If there is any error related to ME functionality: <b>+CME ERROR: &lt;err&gt;</b>
Maximum Response Time	180s, determined by network.
Reference	
3GPP TS 27.007	

## Parameter

<b>&lt;stat&gt;</b>	0	Unknown
	1	Operator available
	2	Current operator
	3	Operator forbidden
<b>&lt;oper&gt;</b>	Operator in format as per <b>&lt;mode&gt;</b>	
<b>&lt;mode&gt;</b>	0	Automatic mode. <b>&lt;oper&gt;</b> field is ignored
	1	Manual operator selection. <b>&lt;oper&gt;</b> field shall be present and <b>&lt;Act&gt;</b> optionally
	2	Manually deregister from network
	3	Set only <b>&lt;format&gt;</b> (for <b>AT+COPS?</b> Read Command), and do not attempt registration/deregistration ( <b>&lt;oper&gt;</b> and <b>&lt;Act&gt;</b> fields are ignored). This value is invalid in the response of Read Command.
	4	Manual/automatic selection. <b>&lt;oper&gt;</b> field shall be presented. If manual selection fails, automatic mode ( <b>&lt;mode&gt;</b> =0) is entered
<b>&lt;format&gt;</b>	0	Long format alphanumeric <b>&lt;oper&gt;</b> which can be up to 16 characters long
	1	Short format alphanumeric <b>&lt;oper&gt;</b>
	2	Numeric <b>&lt;oper&gt;</b> . GSM location area identification number
<b>&lt;Act&gt;</b>	Access technology selected. Values 3, 4, 5 and 6 occur only in the response of Read Command while MS is in data service state and is not intended for the <b>AT+COPS</b> Write Command.	
	0	GSM
	2	UTRAN
	3	GSM W/EGPRS
	4	UTRAN W/HSDPA
	5	UTRAN W/HSUPA
	6	UTRAN W/HSDPA and HSUPA
	7	E-UTRAN
	100	CDMA

## Example

```

AT+COPS=?                                     //List all current network operators
+COPS:
(1,"CHN-UNICOM","UNICOM","46001",2),(1,"CHN-UNICOM","UNICOM","46001",0),(2,"CHN-UNICOM",
"UNICOM","46001",7),(1,"46011","46011","46011",7),(3,"CHINA
MOBILE","CMCC","46000",0),(0,1,2,3,4),(0,1,2)

OK
AT+COPS?                                     //Query the currently selected network operator
+COPS: 0,0,"CHN-UNICOM",7

OK

```

## 6.2. AT+CREG Network Registration

The Read Command returns the network registration status. The write command sets whether or not to present URC.

AT+CREG Network Registration Status	
Test Command <b>AT+CREG=?</b>	<p>Response</p> <p><b>+CREG:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p>
Read Command <b>AT+CREG?</b>	<p>Response</p> <p>TA returns the status of result code presentation and an integer &lt;stat&gt; which shows whether the network has currently indicated the registration of the ME. Location information elements &lt;lac&gt; and &lt;ci&gt; are returned only when &lt;n&gt;=2 and ME is registered on the network.</p> <p><b>+CREG:</b> &lt;n&gt;,&lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;[,&lt;Act&gt;]]</p> <p><b>OK</b></p> <p>If there is any error related to ME functionality:</p> <p><b>+CME ERROR:</b> &lt;err&gt;</p>
Write Command <b>AT+CREG[=&lt;n&gt;]</b>	<p>Response</p> <p>TA controls the presentation of an unsolicited result code <b>+CREG:</b> &lt;stat&gt; when &lt;n&gt;=1 and there is a change in the ME network registration status.</p> <p><b>OK</b></p>
Maximum Response Time	300ms

Reference  
3GPP TS 27.007

## Parameter

<n>	0	Disable network registration unsolicited result code
	1	Enable network registration unsolicited result code: <b>+CREG: &lt;stat&gt;</b>
	2	Enable network registration unsolicited result code with location information: <b>+CREG: &lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;[,&lt;Act&gt;]]</b>
<stat>	0	Not registered. ME is not currently searching a new operator to register to
	1	Registered, home network
	2	Not registered, but ME is currently searching a new operator to register to
	3	Registration denied
	4	Unknown
	5	Registered, roaming
<lac>	String type. Two bytes location area code in hexadecimal format	
<ci>	String type. 16-bit (GSM) or 28-bit (UMTS/LTE) cell ID in hexadecimal format	
<Act>	Access technology selected	
	0	GSM
	2	UTRAN
	3	GSM W/EGPRS
	4	UTRAN W/HSDPA
	5	UTRAN W/HSUPA
	6	UTRAN W/HSDPA and HSUPA
	7	E-UTRAN

## Example

**AT+CREG=1**

OK

**+CREG: 1**

//URC reports that ME has registered on network

**AT+CREG=2**

//Activate extended URC mode

OK

**+CREG: 1,"D509","80D413D",7**

//URC reports that operator has found location area code and cell ID

## 6.3. AT+CSQ Signal Quality Report

The command indicates the received signal strength **<rss>** and the channel bit error rate **<ber>**.

AT+CSQ Signal Quality Report	
Test Command <b>AT+CSQ=?</b>	Response The Test Command returns values supported by the TA. <b>+CSQ:</b> (list of supported <b>&lt;rss&gt;</b> s),(list of supported <b>&lt;ber&gt;</b> s)  <b>OK</b>
Execution Command <b>AT+CSQ</b>	Response The Execution Command returns received signal strength indication <b>&lt;rss&gt;</b> and channel bit error rate <b>&lt;ber&gt;</b> from the ME. <b>+CSQ:</b> <b>&lt;rss&gt;</b> , <b>&lt;ber&gt;</b>  <b>OK</b> <b>+CME ERROR:</b> <b>&lt;err&gt;</b>
Maximum Response Time	300ms
Reference 3GPP TS 27.007	

### Parameter

<b>&lt;rss&gt;</b>	0	-113dBm or less
	1	-111dBm
	2...30	-109dBm... -53dBm
	31	-51dBm or greater
	99	Not known or not detectable
	100	-116dBm or less
	101	-115dBm
	102...190	-114dBm...-26dBm
	191	-25dBm or greater
	199	Not known or not detectable
	100~199	Extended to be used in TD-SCDMA indicating received signal code power (RSCP)
<b>&lt;ber&gt;</b>	Channel bit error rate (in percent)	
	0...7	As RXQUAL values in the table in 3GPP TS 45.008 <b>subclause 8.2.4</b>
	99	Not known or not detectable

### Example

```
AT+CSQ=?
+CSQ: (0-31,99),(0-7,99)

OK
AT+CSQ
+CSQ: 28,99           //The current signal strength indication is 28 and channel bit error rate is 99

OK
```

#### NOTE

After using network related commands such as **AT+CCWA** and **AT+CCFC**, users are advised to wait for 3s before entering **AT+CSQ**. This is recommended to ensure that any network access required for the preceding command has been finished.

## 6.4. AT+CPOL Preferred Operator List

The command edits and queries the list of preferred operators.

### AT+CPOL Preferred Operator List

Test Command <b>AT+CPOL=?</b>	Response <b>+CPOL:</b> (list of supported <index>s),(list of supported <format>s)  <b>OK</b>
Read Command <b>AT+CPOL?</b>	Response Query the list of preferred operators: <b>+CPOL:</b> <index>,<format>,<oper>[,<GSM>,<GSM_compact>,<UTRAN>,<E-UTRAN>] <index>,<format>,<oper>[,<GSM>,<GSM_compact>,<UTRAN>,<E-UTRAN>] [...]  <b>OK</b>
Write Command <b>AT+CPOL=&lt;index&gt;[,&lt;format&gt;[,&lt;oper&gt;[&lt;GSM&gt;,&lt;GSM_compact&gt;,&lt;UTRAN&gt;,&lt;E-UTRAN&gt;]]]</b>	Response Edit the list of preferred operators:  <b>OK</b> <b>ERROR</b>



	If the <b>&lt;index&gt;</b> is given but the <b>&lt;operator&gt;</b> is left out, the entry is deleted.
Maximum Response Time	300ms
Reference	3GPP TS 27.007

## Parameter

<b>&lt;index&gt;</b>	Integer type. The order number of operator in the (U)SIM preferred operator list
<b>&lt;format&gt;</b>	0 Long format alphanumeric <b>&lt;oper&gt;</b> 1 Short format alphanumeric <b>&lt;oper&gt;</b> 2 Numeric <b>&lt;oper&gt;</b>
<b>&lt;oper&gt;</b>	String type. <b>&lt;format&gt;</b> indicates the format is alphanumeric or numeric (see <b>AT+COPS</b> )
<b>&lt;GSM&gt;</b>	GSM access technology 0 Access technology is not selected 1 Access technology is selected
<b>&lt;GSM_compact&gt;</b>	GSM compact access technology 0 Access technology is not selected 1 Access technology is selected
<b>&lt;UTRAN&gt;</b>	UTRAN access technology 0 Access technology is not selected 1 Access technology is selected
<b>&lt;E-UTRAN&gt;</b>	E-UTRAN access technology 0 Access technology is not selected 1 Access technology is selected

### NOTE

The access technology selection parameters **<GSM>**, **<GSM\_compact>**, **<UTRAN>** and **<E-UTRAN>** are required for SIM cards or UICC's containing PLMN selector with access technology.

## 6.5. AT+COPN Read Operator Names

The command returns the list of operator names from the ME. Each operator code **<numeric>** that has an alphanumeric equivalent **<alpha>** in the ME memory is returned.

AT+COPN Read Operator Names	
Test Command <b>AT+COPN=?</b>	Response <b>OK</b>
Execution Command <b>AT+COPN</b>	Response <b>+COPN: &lt;numeric1&gt;,&lt;alpha1&gt;</b> <b>[+COPN: &lt;numeric2&gt;,&lt;alpha2&gt;</b> <b>[...]]</b>  <b>OK</b> <b>+CME ERROR: &lt;err&gt;</b>
Maximum Response Time	Depends on the number of operator names.
Reference 3GPP TS 27.007	

### Parameter

<b>&lt;numeric&gt;</b>	String type. Operator in numeric format (see <b>AT+COPS</b> )
<b>&lt;alpha&gt;</b>	String type. Operator in long alphanumeric format (see <b>AT+COPS</b> )

## 6.6. AT+CTZU Automatic Time Zone Update

The Write Command enables and disables automatic time zone update via NITZ. The configuration is stored to NV automatically.

AT+CTZU Automatic Time Zone Update	
Test Command <b>AT+CTZU=?</b>	Response <b>+CTZU: (0,1,3)</b>  <b>OK</b>
Write Command <b>AT+CTZU=&lt;onoff&gt;</b>	Response <b>OK</b> <b>ERROR</b>
Read Command <b>AT+CTZU?</b>	Response <b>+CTZU: &lt;onoff&gt;</b>

	OK
Maximum Response Time	300ms
Reference	3GPP TS 27.007

## Parameter

<onoff>	Integer type. The mode of automatic time zone update.
0	Disable automatic time zone update via NITZ.
1	Enable automatic time zone update via NITZ
3	Enable automatic time zone update via NITZ and update LOCAL time to RTC

## Example

```

AT+CTZU?
+CTZU: 0

OK
AT+CTZU=?
+CTZU: (0,1,3)

OK
AT+CTZU=1
OK
AT+CTZU?
+CTZU: 1

OK

```

## 6.7. AT+CTZR Time Zone Reporting

This command controls the time zone reporting of changed event. If reporting is enabled, the MT returns the unsolicited result code **+CTZV: <tz>** or **+CTZE: <tz>,<dst>,<time>** whenever the time zone is changed. The configuration is stored to NV automatically.

### AT+CTZR Time Zone Reporting

Test Command	Response
AT+CTZR=?	+CTZR: (0-2)
	OK

Write Command <b>AT+CTZR=&lt;reporting&gt;</b>	Response <b>OK</b> <b>ERROR</b>
Read Command <b>AT+CTZR?</b>	Response <b>+CTZR: &lt;reporting&gt;</b>  <b>OK</b>
Maximum Response Time	300ms
Reference 3GPP TS 27.007	

## Parameter

<b>&lt;reporting&gt;</b>	Integer type. The mode of time zone reporting <u>0</u> Disable time zone reporting of changed event 1 Enable time zone reporting of changed event by unsolicited result code: <b>+CTZV: &lt;tz&gt;</b> 2 Enable extended time zone reporting by unsolicited result code: <b>+CTZE: &lt;tz&gt;,&lt;dst&gt;,&lt;time&gt;</b>
<b>&lt;tz&gt;</b>	String type. The sum of the local time zone (difference between the local time and GMT is expressed in quarters of an hour) plus daylight saving time. The format is “±zz”, expressed as a fixed width, two-digit integer with the range -48 ... +56. To maintain a fixed width, numbers in the range -9 ... +9 are expressed with a leading zero, e.g. “-09”, “+00” and “+09”.
<b>&lt;dst&gt;</b>	Integer type. Indicates whether <b>&lt;tz&gt;</b> includes daylight savings adjustment 0 <b>&lt;tz&gt;</b> includes no adjustment for daylight saving time 1 <b>&lt;tz&gt;</b> includes +1 hour (equals 4 quarters in <b>&lt;tz&gt;</b> ) adjustment for daylight saving time 2 <b>&lt;tz&gt;</b> includes +2 hours (equals 8 quarters in <b>&lt;tz&gt;</b> ) adjustment for daylight saving time
<b>&lt;time&gt;</b>	String type. The local time. The format is “YYYY/MM/DD,hh:mm:ss”, expressed as integers representing year (YYYY), month (MM), date (DD), hour (hh), minute (mm) and second (ss). This parameter can be provided by the network when delivering time zone information and will be presented in the unsolicited result code of extended time zone reporting if provided by the network.

## Example

```
AT+CTZR=2
OK
AT+CTZR?
+CTZR: 2
```

OK

+CTZE: "+32",0,"2017/11/04,06:51:13" //<reporting> is 2

## 6.8. AT+QLTS Obtain the Latest Time Synchronized Through Network

The command is used to obtain the latest time synchronized through network.

### AT+QLTS Obtain the Latest Time Synchronized Through Network

Test Command <b>AT+QLTS=?</b>	Response <b>+QLTS:</b> list of supported <mode>s <b>OK</b>
Execution Command <b>AT+QLTS</b>	Response Execution Command returns the latest time that has been synchronized through network: <b>+QLTS: &lt;time&gt;,&lt;dst&gt;</b> <b>OK</b>
Write Command <b>AT+QLTS=&lt;mode&gt;</b>	Response <b>+QLTS: &lt;time&gt;,&lt;dst&gt;</b>  <b>OK</b> <b>ERROR</b>  If error is related to ME functionality <b>+CME ERROR: &lt;err&gt;</b>
Maximum Response Time	300ms

#### Parameter

<b>&lt;mode&gt;</b>	Query network time mode 0 Query the latest time that has been synchronized through network 1 Query the current GMT time calculated from the latest time that has been synchronized through network 2 Query the current LOCAL time calculated from the latest time that has been synchronized through network
<b>&lt;time&gt;</b>	String type value. Format is "yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -48...+48). E.g. 6th of May 2004, 22:10:00 GMT+2 hours equals to "04/05/06,22:10:00+08"
<b>&lt;dst&gt;</b>	Daylight saving time.

#### NOTE

If the time has not been synchronized through network, the command will return a null time string: **+QLTS:**  
""

#### Example

```
AT+QLTS=?           //Query supported network time modes
+QLTS: (0-2)

OK
AT+QLTS             //Query the latest time synchronized through network
+QLTS: "2017/10/13,03:40:48+32,0"
OK
AT+QLTS=0           //Query the latest time synchronized through network. It offers the same
                    //function as Execution Command AT+QLTS.
+QLTS: "2017/10/13,03:40:48+32,0"

OK
AT+QLTS=1           //Query the current GMT time calculated from the latest time that has been
                    //synchronized through network
+QLTS: "2017/10/13,03:41:22+32,0"

OK
AT+QLTS=2           //Query the current LOCAL time calculated from the latest time that has been
                    //synchronized through network
+QLTS: "2017/01/13,11:41:23+32,0"

OK
```

## 6.9. AT+QNWINFO Query Network Information

The command indicates network information such as access technology selected, the operator and the band selected.

### AT+QNWINFO Query Network Information

Test Command <b>AT+QNWINFO=?</b>	Response <b>OK</b>
Execution Command <b>AT+QNWINFO</b>	Response <b>+QNWINFO: &lt;Act&gt;,&lt;oper&gt;,&lt;band&gt;,&lt;channel&gt;</b>

	OK
Maximum Response Time	300ms

## Parameter

<b>&lt;Act&gt;</b>	String type. The access technology selected "NONE" "CDMA1X" "CDMA1X AND HDR" "CDMA1X AND EHRPD" "HDR" "HDR-EHRPD" "GSM" "GPRS" "EDGE" "WCDMA" "HSDPA" "HSUPA" "HSPA+" "TDSCDMA" "TDD LTE" "FDD LTE"
<b>&lt;oper&gt;</b>	String type. The operator in numeric format
<b>&lt;band&gt;</b>	String type. The band selected "CDMA BC0" – "CDMA BC19" "GSM 450" "GSM 480" "GSM 750" "GSM 850" "GSM 900" "GSM 1800" "GSM 1900" "WCDMA 2100" "WCDMA 1900" "WCDMA 1800" "WCDMA 1700 US" "WCDMA 850" "WCDMA 800" "WCDMA 2600" "WCDMA 900" "WCDMA 1700 JAPAN" "WCDMA 1500"