



# SIM800 Series\_ NTP\_Application Note

GPRS Module

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# About Document

## Version History

Version	Date	Owner	What is new
1.00	2013-10-29	Jumping	Original
1.01	2014-06-30	Jumping	Chapter Scope, Add projects Chapter 3.1,Modify network time synchronizati--on Add note.
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## Scope

This document presents the AT command of NTP operation and application examples. This document can apply to SIM800 series modules with NTP function.

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# 1 Introduction

## 1.1 Purpose of the document

Based on module AT command manual, this document will introduce NTP application process.

Developers could understand and develop application quickly and efficiently based on this document.

## 1.2 Related documents

[1] SIM800 Series\_AT Command Manual

## 1.3 Conventions and abbreviations

Abbreviations	Description
EVB	Evaluation Board
NTP	Network Time Protocol
TE	Terminal Equipment
TA	Terminal Adapter
DTE	Data Terminal Equipment or plainly “the application” which is running on an embedded system
DCE	Data Communication Equipment or facsimile DCE(FAX modem, FAX board)
ME	Mobile Equipment
MS	Mobile Station

## 2 NTP Introduction

### 2.1 NTP Function

Network Time Protocol (NTP) is used to make computer time synchronization protocol, which allows the computer to its server or clock source (such as quartz, GPS, etc.) do synchronization, it can provide high-precision time correction (LAN with standard deviation of less than 1 millisecond between, WAN tens of milliseconds), and can be accessed by way of confirmation encryption protocol to prevent malicious attacks

### 2.2 SNTP Function

SNTP: Simple Network Time Protocol.

SNTPV4 adapted from the NTP is mainly used to synchronize computer clocks in the Internet. SNTP for NTP function without full use of the situation. Compare previous NTP and SNTP versions, SNTPV4 introduction does not change the original NTP specification and implementation process, it is a further improvement of NTP support in a simple, stateless remote procedure calls to perform accurate and reliable mode of operation, which is similar to in the UDP / TIME protocol.

Currently SIM800 series modules only support SNTP function module.

## 3 AT Command

SIM800 series modules provide NTP AT command as follows:

AT Command	Description
<b>AT+CNTPCID</b>	Set GPRS bearer profile's ID
<b>AT+CNTP</b>	Synchronize network time

### 3.1 AT+CNTPCID Set GPRS Bearer Profile's ID

AT+CNTPCID Set GPRS Bearer Profile's ID	
Test Command <b>AT+CNTPCID=?</b>	Response <b>+CNTPCID:</b> (range of supported <cid>s)  <b>OK</b> Parameters See Write Command
Read Command <b>AT+CNTPCID?</b>	Response <b>+CNTPCID:</b> <cid>  <b>OK</b> Parameters See Write Command
Set Command <b>AT+CNTPCID=&lt;cid&gt;</b>	Response <b>OK</b> If error is related to ME functionality: <b>ERROR</b> Parameters <b>&lt;cid&gt;</b> Bearer profile identifier, refer to AT+SAPBR
Reference	Note

### 3.2 AT+CNTP Synchronize Network Time

AT+CNTP Synchronize Network Time	
Test Command <b>AT+CNTP=?</b>	Response <b>+CNTP:</b> (length of <b>&lt;ntp server&gt;</b> ,range of <b>&lt;time zone&gt;</b> )  <b>OK</b> Parameter See Write Command
Read Command <b>AT+CNTP?</b>	Response <b>+CNTP:</b> <b>&lt;ntp sever&gt;</b> , <b>&lt;time zone&gt;</b>  <b>OK</b> Parameter See Write Command
Write Command <b>AT+CNTP=&lt;ntp server&gt;[,&lt;time zone&gt;]</b>	Response <b>OK</b> Parameter <b>&lt;ntp server&gt;</b> NTP server's url <b>&lt;time zone&gt;</b> Local time zone, the range is (-47 to 48), in fact, time zone range (-12 to 12), but taking into account that some countries and regions will use half time zone, or even fourth time zone, so the entire extended four time zones X, so that when the time zone of the input integers are used, without the need for decimal. Time zone in front of the West if it is a negative number indicates the time zone.
Execution command <b>AT+CNTP</b>	Response <b>OK</b>  <b>+CNTP: &lt;code&gt;</b> Parameter <b>&lt;code&gt;</b> <ul style="list-style-type: none"> <li>1     Network time synchronization is successful</li> <li>61    Network Error</li> <li>62    DNS resolution error</li> <li>63    Connection Erro</li> <li>64    Service response error</li> <li>65    Service Response Timeout</li> </ul>
Reference	Note After successful synchronization time, you can use AT+CCLK to query local time.

## 4 NTP Examples

### 4.1 Network Time Synchronize

//Example of Network Time Synchronize

**AT+SAPBR=3,1,"Contype","GPRS"**

// Configure bearer profile 1

OK

**AT+SAPBR=3,1,"APN","CMNET"**

OK

**AT+SAPBR=1,1**

// To open a GPRS context.

OK

**AT+CNTPCID=1**

// Set NTP Use bear profile 1

OK

**AT+CNTP="202.120.2.101",32**

// Set NTP service url and local time zone

*Note: Here's 32 actually represent  $32/4=8$ , which means that eight East region, Beijing.*

OK

**AT+CNTP**

// Start Sync Network Time

OK

+CNTP: 1

**AT+CCLK?**

// Query local time

+CCLK: "13/09/11,20:23:25+32"

// Here's time zone may different with that in CNTP setting.

OK