



# Test server configuration

**Test server for cellular data modules**

Application note

## **Abstract**

This document describes how to test TCP and UDP connections with an IP based test server operated by u-blox.

# Document information

<b>Title</b>	<b>Test server configuration</b>	
<b>Subtitle</b>	Test server for cellular data modules	
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This document applies to the following products:

<b>Product name</b>
LARA-R2 series
LARA-R6 series
LARA-L6 series
LENA-R8 series
LEXI-R10 series
LEXI-R422
LEXI-R520
SARA-G4 series
SARA-N3 series
SARA-R4 series
SARA-R5 series
SARA-U2 series
TOBY-L2 series
TOBY-R2 series

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# 1 Introduction

## 1.1 Scope

This document describes an IP-based test server operated by u-blox, for testing TCP and UDP based connections.

## 1.2 Purpose

The test server provides a way to execute simple tests and operations using the TCP/IP and UDP/IP AT commands of u-blox's cellular data modules on an IPv4 or IPv6 network. Usually, test steps are the following:

1. Set up a data connection.
2. Create one or more sockets (UDP or TCP).
3. Connect the created socket or multiple sockets.
4. Read / write operations on the socket (plain text).
5. Close the socket.

## 2 Test server services

### 2.1 Service Level

The service operates on a “best efforts” basis. Contact [support@u-blox.com](mailto:support@u-blox.com), if the service is unavailable.

### 2.2 Access

All access is anonymous. No logins, passwords or any other credentials required.

### 2.3 Privacy


u-blox reserves the right to log data that is being sent back and forth between the server and a connecting device, as well as meta information (time of connection, connecting IP number). If this is unacceptable for your purposes, do not use this service.

### 2.4 Services

Two different services, both on UDP and TCP protocols, are available:

- Echo (on port 7) – a simple service that returns whatever is being sent to it.
- Daytime (on port 13) – a service that returns the current time at the server.

The services available follow the Internet standards for echo (RFC 862) and daytime (RFC 867).

 The AT command sequences in the following section are given as examples and apply to LARA-R211-02B, SARA-R510M8S-00B and LEXI-R10 products. See the corresponding AT commands manual [1] for detailed command descriptions and product applicability.

## 2.4.1 Echo service configuration

Item	Value	Comments
Protocol	TCP, UDP, IPv4, IPv6	
Server name	echo.u-blox.com	Do not use IP addresses, always perform DNS lookups.
Port	7	

### 2.4.1.1 IPv6 TCP echo service example

**Function:** An initial greeting message is sent from the server. After that, it echoes data received upon detection of a newline character.

Command	Response	Description
AT+USOCR=6	+USOCR: 0 OK	Create a TCP socket.
AT+UDNSRN=0,"echo.u-blox.com"	+UDNSRN: "2a0b:ad40:1:2000::89" OK	DNS resolution of the URL.
AT+USOCO=0,"2a0b:ad40:1:2000::89",7	OK +UUSORD: 0,28	Connect to server.
AT+USORD=0,28	+USORD: 0,28,"u-blox TCP/UDP test service" OK	Greeting message is received.
AT+USOWR=0,4,"Test"	+USOWR: 0,4 OK +UUSORD: 0,4	Write 4 characters.
AT+USORD=0,4	+USORD: 0,4,"Test" OK	Read 4 echoed characters.
		The TCP connection shall be properly terminated by the client.

### 2.4.1.2 IPv4 UDP echo service example

**Function:** All the UDP packets received by the server will be returned to the sender.

Command	Response	Description
		The module is already registered on the network, and a data connection is active.
AT+USOCR=17	+USOCR: 0 OK	Create a UDP socket.
AT+UDNSRN=0,"echo.u-blox.com"	+UDNSRN: "195.34.89.241" OK	DNS resolution of the URL.
AT+USOST=0,"195.34.89.241",7,5,"Hello"	+USOST: 0,5 OK +UUSORD: 0,5	Write 5 characters to server.
AT+USORF=0,5	+USORF: 0,"195.34.89.241",7,5,"Hello" OK	Read 5 echoed characters.

## 2.4.2 Daytime service configuration

Item	Value	Comments
Protocol	TCP, UDP, IPv4, IPv6	
Server name	echo.u-blox.com	Do not use IP addresses, always perform DNS lookups.
Port	13	

### 2.4.2.1 IPv4 TCP daytime service example

**Function:** with this example it is possible to send an initial greeting message. After that, the current local time of the server is returned (in ASCII format) and the connection is terminated by the server.

Command	Response	Description
		The module is already registered on the network, and a data connection is active.
AT+USOCR=6	+USOCR: 1 OK	Create a TCP socket.
AT+UDNSRN=0,"echo.u-blox.com"	+UDNSRN: "195.34.89.241" OK	DNS resolution of the URL.
AT+USOCO=1,"195.34.89.241",13	OK	Connect to server.
	+UUSORD: 1,28	
AT+USORD=1,28	+USORD: 1,28,"u-blox TCP/UDP test service" OK	Greeting message is received.
	+UUSORD: 1,27	
AT+USORD=1,27	+USORD: 1,27,"25 JUN 2014 10:42:41 CEST" OK	Local server time received.
	+UUSOCL: 1	Remote socket closure is notified.


### 2.4.2.2 IPv6 UDP daytime service example

**Function:** Each receipt of a UDP packet is followed by a reply with the current local time of the server (in ASCII format).

Command	Response	Description
		The module is already registered on the network, and a data connection is active.
AT+USOCR=17	+USOCR: 0 OK	Create a UDP socket.
AT+UDNSRN=0,"echo.u-blox.com"	+UDNSRN: "2a0b:ad40:1:2000::89" OK	DNS resolution of the URL.
AT+USOST=0,"2a0b:ad40:1:2000:: 89",13,5,"Hello"	+USOST: 0,5 OK	Write 5 characters to the server.
	+UUSORD: 0,27	
AT+USORF=0,27	+USORF: 0,"2a0b:ad40:1:2000::89 ",13,27,"16 APR 2021 15:00:27 CEST" OK	Local server time received.

## Related documentation

- [1] u-blox AT commands manual, [UBX-13002752](#)
- [2] u-blox SARA-R5 / LEXI-R5 series AT commands manual, [UBX-19047455](#)
- [3] u-blox LEXI-R4 / SARA-R4 series AT commands manual, [UBX-17003787](#)
- [4] u-blox LARA-L6 / LARA-R6 series AT commands manual, [UBX-21064719](#)
- [5] u-blox LEXI-R10 series AT commands manual, [UBXDOC-686885345-1786](#)

 For product change notifications and regular updates of u-blox documentation, register on our website, [www.u-blox.com](http://www.u-blox.com).

## Revision history

Revision	Date	Name	Comments
R01	02-Dec-2009	fmad	Initial release (Last revision with old doc number, GSM.G1-CS-09012)
R02	25-Jul-2014	mace	Document applicability extended.
R03	17-May-2021	mreb	Document applicability extended to cellular modules and IPv6 protocol
R04	22-Oct-2024	mreb	Document applicability extended to new LEXI cellular modules

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