CELLULAR

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.

www.u-blox.com

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Document Information		
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Document status explanation	
Objective Specification	Document contains target values. Revised and supplementary data will be published later.
Advance Information	Document contains data based on early testing. Revised and supplementary data will be published later.
Early Production Information	Document contains data from product verification. Revised and supplementary data may be published later.
Production Information	Document contains the final product specification.

This document applies to the following products:

Name
LEON-G1 series
LEON-G2 series
LISA-U1 series
LISA-U2 series
LISA-C2 series
SARA-G340 series
SARA-G350 series
SARA-U2 series

Preface

u-blox Technical Documentation

As part of our commitment to customer support, u-blox maintains an extensive volume of technical documentation for our products. In addition to our product-specific technical data sheets, the following manuals are available to assist u-blox customers in product design and development.

- **AT Commands Manual**: This document provides the description of the AT commands supported by u-blox cellular modules.
- **System Integration Manual**: This document describes u-blox cellular modules from the hardware and the software point of view. It provides hardware design guidelines for the optimal integration of the cellular module in the application device and it provides information on how to set up production and final product tests on application devices integrating the cellular module.
- **Application Notes**: These documents provide guidelines and information on specific hardware and/or software topics on u-blox cellular modules. See Related documents for a list of application notes related to your cellular module.

How to use this Application Note

This application note describes how to use the GNSS interface and control functionalities and aiding clients in u-blox cellular modules.

The following symbols highlight important information within the application note:


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


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

Questions

If you have any questions about u-blox cellular modules, please:

- Read this application note and the available technical documentation carefully.
- Contact our information service on the homepage http://www.u-blox.com.

Technical Support

Worldwide Web

Our website (www.u-blox.com) is a rich pool of information. Product information and technical documents can be accessed 24h a day.

By E-mail

If you have technical problems or cannot find the required information in the provided documents, contact the closest Technical Support office. To ensure that we process your request as soon as possible, use our service pool email addresses rather than personal staff email addresses. Contact details are at the end of the document.

Helpful Information when Contacting Technical Support

When contacting Technical Support please have the following information ready:

- Module type (e.g. LISA-U200) and firmware version
- Module configuration
- Clear description of your question or the problem
- A short description of the application
- Your complete contact details

Contents

Preface **3**

Contents **4**

1 Introduction **5**

1.1 Scope 5

1.2 Purpose 5

2 Test server services **6**

2.1 Service Level 6

2.2 Access 6

2.3 Privacy 6

2.4 Services 6

2.4.1 Echo service configuration 7

2.4.2 Daytime service configuration 8

Related documents **9**

Revision history **9**

Contact **10**

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

- Set up a GPRS connection
- Create one or more sockets (UDP or TCP)
- Connect the created socket or multiple sockets
- Read / write operations on the socket (plain text)
- Close the socket

2 Test server services

2.1 Service Level

The service is operated on a "best efforts" basis. If the service is unavailable, contact support@u-blox.com.

2.2 Access

All access is anonymous. No logins, passwords or any other form of credentials need to be provided.

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, please refrain from using this service.

2.4 Services

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

- Echo – a simple service that returns whatever is being sent to it
- Daytime – 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 just as an example and apply to LEON-G100-08S, SARA-U270-00S products. See the u-blox AT Commands Manual [1] for detailed commands description and product applicability.

2.4.1 Echo service configuration

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

2.4.1.1 TCP echo service example

Function: with this example it is possible to send an initial greeting message. After that, it echoes data received upon detection of a newline character

Command	Response	Description
AT+USOCR=6	+USOCR: 0 OK	Create TCP socket
AT+UDNSRN=0,"echo.u-blox.com"	+UDNSRN: "195.34.89.241" OK	DNS resolution of the URL
AT+USOCO=0,"195.34.89.241",7	OK +UUSORD: 0,32	Connect to server
AT+USORD=0,32	+USORD: 0,32,"u-blox AG 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 needs to be properly terminated by the client

2.4.1.2 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 GPRS 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	
Server name	echo.u-blox.com	Do not use IP addresses, always perform DNS lookups
Port	13	

2.4.2.1 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 GPRS 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 +UUSORD: 1,32	Connect to server
AT+USORD=1,32	+USORD: 1,32,"u-blox AG TCP/UDP test service" OK +UUSORD: 1,27	Greeting message is received
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 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 GPRS 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",13,5,"Hello"	+USOST: 0,5 OK +UUSORD: 0,27	Write 5 characters to the server
AT+USORF=0,27	+USORF: 0,"195.34.89.241",13,27,"27 JUN 2014 11:57:31 CEST" OK	Local server time received

Related documents

[1] u-blox AT Commands Manual, Docu No UBX-13002752

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

Revision history

Revision	Date	Name	Status / Comments
-	02-Dec-2009	fmad	Initial release (Last revision with old doc number, GSM.G1-CS-09012)
R02	25-Jul-2014	mace	Document applicability extended to all cellular modules

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