



Technical Document

GSM PROTOCOL STACK

GPF

TCGEN – TEST CASE GENERATOR

DEVELOPER DESCRIPTION

Document Number:	06-03-32-SLL-003
Version:	0.3
Status:	Draft
Approval Authority:	
Creation Date:	2002-May-13
Last changed:	2015-Mar-08 by Ronny Kiessling
File Name:	tcgen_description.doc

Important Notice

Texas Instruments Incorporated and/or its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products, software and services at any time and to discontinue any product, software or service without notice. Customers should obtain the latest relevant information during product design and before placing orders and should verify that such information is current and complete.

All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment. TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI products, software and/or services. To minimize the risks associated with customer products and applications, customers should provide adequate design, testing and operating safeguards.

Any access to and/or use of TI software described in this document is subject to Customers entering into formal license agreements and payment of associated license fees. TI software may solely be used and/or copied subject to and strictly in accordance with all the terms of such license agreements.

Customer acknowledges and agrees that TI products and/or software may be based on or implement industry recognized standards and that certain third parties may claim intellectual property rights therein. The supply of products and/or the licensing of software does not convey a license from TI to any third party intellectual property rights and TI expressly disclaims liability for infringement of third party intellectual property rights.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products, software or services are used.

Information published by TI regarding third-party products, software or services does not constitute a license from TI to use such products, software or services or a warranty, endorsement thereof or statement regarding their availability. Use of such information, products, software or services may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

No part of this document may be reproduced or transmitted in any form or by any means, electronically or mechanically, including photocopying and recording, for any purpose without the express written permission of TI.

Table of Contents

0	Document Control	4
0.1	Change History	4
0.2	List of Figures and Tables	4
0.3	List of References	4
0.4	Abbreviations	5
0.5	Terms	5
1	Introduction:	6
2	Solution	7
2.1	General Procedure	7
2.1.1	Environment	7
2.1.2	Build process	7
2.2	Detailed Descriptions - under construction -	7
2.2.1	The Generator	7
2.3	Test.....	7
3	Interface specifications	8
3.1	... - under construction -	8
4	Known problems and future tasks	9
4.1	Known bugs.....	9
4.2	„Soon implemented“	9
4.3	„Nice to have “	9

0 Document Control

0.1 Change History

Date	Changed by	Approved by	Version	Status	Notes
2002-May-13	RK et al.		0.1		1
2003-May-20	XINTEGRA		0.2	Draft	
2003-Aug-18	RK		0.3	Draft	2

Notes:

1. Initial version
2. New Document ID introduced

0.2 List of Figures and Tables

0.3 List of References

[GSM 2.30]	ETS 300 511: July 1995 (GSM 02.30 version 4.13.0) Man-Machine Interface (MMI) of the Mobile Station (MS), ETSI
[PCO2_UG]	06-03-35-UDO, PCO2 – Tracing Environment (pco_userguide.doc)
[PCO2_D]	06-03-35-SLL, PCO2 – Tracing Environment (pco_description.doc)
[TCGEN_UG]	06-03-32-UDO, TCGen – TestCase Generator (tcgen_userguide.doc)
[TCGEN_I]	TCGen – Introduction (tcgen_intro.pps)
[TCGEN_DIPL]	TCGen – Diploma Thesis (tcgen_diploma_thesis.pdf)
[XM]	06-03-55-UDO, XM –GUI-frontend for GPF m.bat (xm_userguide.doc)
[MOAN]	06-03-53-UDO, MoanBtn – Instant GUI-problem Informer (mbtn_userguide.doc)

0.4 Abbreviations

ACI	Application Control Interface (AT Commands)
G23	The Condat implementation of Layers 2 and 3 of the GSM Protocol Stack
G23 Target System	Hardware which executes G23
LCD	Liquid Crystal Display
MM	Mobility Management
MMI	Man Machine Interface
MOC	Mobile Originated Call
MTC	Mobile Terminated Call
PC	Personal Computer
PCO	Point of Control and Observation
PIN	Personal Identification Number
RS232	Serial Communication Standard
Target System	Shortened form of 'G23 Target System'
TCGEN	TestCase Generator

0.5 Terms

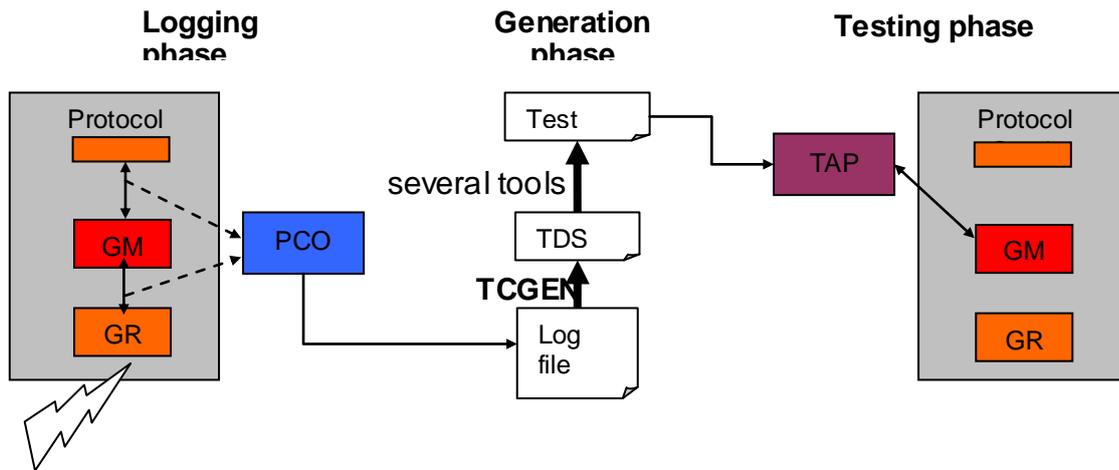
Entity	Program which executes the functions of a layer
Message	A message is a data unit which is transferred between the entities of the same layer (peer-to-peer) of the mobile and infrastructure side. Message is used as a synonym to protocol data unit (PDU). A message may contain several information elements.
Primitive	A primitive is a data unit which is transferred between layers on one component (mobile station or infrastructure). The primitive has an operation code which identifies the primitive and its parameters.
Service Access Point	A Service Access Point is a data interface between two layers on one component (mobile station or infrastructure).

1 Introduction:

With the tool PCO2 (see [PCO2_UG] and [PCO2_D]) it is possible to log traffic of primitives inside a running protocol stack, especially during a field test. On the other hand the tool TAP (see [TAP]) can send and receive specified primitives to/from a PS and therefore simulate a specific test situation.

TCGen is a tool for automatically test case generation from PCO log files. It can be used to e.g. rerun field tests within a debugging environment on a PC. It parses a log file containing all crucial primitives sent from/to the entities under test and creates a TDS-file which can be transformed to a test case DLL-file in the usual way.

The following graphic gives an overview about the general process:



This documentation is dedicated to interested developers. For user/customer specific documentation see [TCGEN_UG].

See [TCGEN_DIPL] for another detailed description of the internals of TCGen.

2 Solution

2.1 General Procedure

2.1.1 Environment

To use TCGen some environmental constraints have to be taken into account.

For use under Windows:

At first you'll have to make sure that several DLL/EXE-files are available to the system. In the Condat development directory structure you can find them in „<View>/GPF/Bin“ :

- Frame-DLLs (frame.dll, tif.dll, misc.dll)
- CCD-DLLs (ccddata_load.dll, ccddata-DLL)
- VCMS-DLL (CMS.dll)
- Testinterface of the Frame (tst.exe)

So just make sure „<View>/GPF/Bin“ is in your PATH-variable.

That means if you start “tcgen.exe” from „<View>/GPF/Bin“ everything will be fine.

2.1.2 Build process

MS Developer Studio 5.0 must be installed and it's bin-directory has to be in the PATH. (CONDAT internal you should use /GPF/initvars.bat)

ClearCase : make sure all project dependencies are solved by your config spec (see /GPF/assist/readme_tcgen.txt)

no ClearCase : make sure that you get all files on which tcgen depends (see /GPF/assist/readme_tcgen.txt)

Change to tcgen directory and call 'gnumake' (or 'gnumake help' for more options).

Hint: remove error.log before running make if you want to track current ClearCase errors.

2.2 Detailed Descriptions - under construction -

2.2.1 The Generator

2.3 Test

To run several default tests use “mall -test”.

3 Interface specifications

The next paragraphs contain specific informations about used and provided interfaces.

3.1 ... - under construction -

4 Known problems and future tasks

This paragraph is meant to show which bugs are already found (but not removed yet) and to provide an impression of future plans concerning this product.

4.1 Known bugs

-

4.2 „Soon implemented“

-

4.3 „Nice to have “

-

Appendices

A. Acronyms

DS-WCDMA Direct Sequence/Spread Wideband Code Division Multiple Access

B. Glossary

International Mobile Telecommunication 2000 (IMT-2000/ITU-2000) Formerly referred to as FPLMTS (Future Public Land-Mobile Telephone System), this is the ITU's specification/family of standards for 3G. This initiative provides a global infrastructure through both satellite and terrestrial systems, for fixed and mobile phone users. The family of standards is a framework comprising a mix/blend of systems providing global roaming. <URL: <http://www.imt-2000.org/>>