Product Introduction

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MX702500B Log to Scenario Converter

MX702500B Log to Scenario Converter (LSC) Product Introduction

Version 1.2

Anritsu Corporation

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Anritsu UE Test Solutions



Market Background of Field Tests (FT)

- Modern mobile networks have complex wireless systems and services, as well as more FT faults
- UE troubleshooting is:
 - Inefficient at finding faults from UE logs, and
 - Unable to reproduce FT faults easily



What if field faults could be reproduced easily at the lab bench?

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General Introduction

- The LSC is a tool for converting UE logs (Layer-3 messages) captured in real network environment to a file format for reproducing FT faults at the BTS simulator
- The LSC tool reproduces UE software faults at field tests



Benefits of LSC

- Improves efficiency of FT fault analysis
 - Cuts UE software evaluation time and costs
 - Cuts troubleshooting downtime by up to 85% (with user evaluation results)
 - □ Supports parallel replay using multiple evaluation UEs
 - Generates scenario files that run on all signalling testers with one license
 - Finds infrequent errors
 - Improves quality through repeated tests



Benefits of LSC

- Improves efficiency of FT fault analysis
 - Excellent operability
 - Easy and convenient operation using GUI
 - Easy reproduction of software faults based on QXDM log
 - □ Log Importing for QXDM (MX702500B-011)^{*1}
 - Graphical setting of downlink power control^{*2}
 - LSC Format Creator (MX702500B-010)*3
 - Excellent flexibility
 - **Easily change generated reproduction scenarios**
 - Layer 3 message modification at fault isolation

*1: Log importing function for QXDM by format to LFC.

*2: Does not reproduce propagation environment, such as downlink power and fading status, in actual FT.

*3: The tool converts the UE log format to LSC log format with GUI setting of downlink signal power control and modified Layer 3 messages.



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How to Convert from UE Log to Test Scenario



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How to Convert from UE Log to Test Scenario

Step 1: Load UE log into LFC

- Select format change engine
- Load UE log into LFC to create protocol sequence on LFC GUI
- 'Log Importing for QXDM' loads QXDM logs



3 message).



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How to Convert from UE Log to Test Scenario Step 2: Edit with LFC GUI

Philes Data Technic and Ac Feb: tagge Feb:	(Easy to modify Layer 3 messag	je)
COCCE systemic formatorial (in parts)	🐵 00033 rrcConnectionSetup	
ODD3 Inclane: Inclanes ODD3 Inclanes ODD3 Inclanes ODD3 Inclanes ODD3 Inclanes ODD3 Inclanes ODD3 OD3 ODD3 OD3 OD3	Hex Dunna 30 E7 20 00 00 00 20 02 01 01 01 01 8C 26 E2 49 83 03 49 D3 E2 84 F8 EA 30 00 14 61 67 95 2 E6 8A C2 E7 4F 92 13 E5 A9 40 00 52 8A 13 A7 CD 09 F3 D4 E0 00 29 C7 09 D3 E8 84 FA 6A 90 0 Type C Hex Bit C C(0x)	0 B4 0 15 9 14
		•
	TransferMode Unacknowledged	-
	RbIdentity 0 EN Time 14:55:54.00	
	MessageName proconnectionSetup	
Click [Decode] to open Layer 3 Message Editing screen.	<pre>Comment #Decoded by LFC str Ver:3,0,5,0 DL-CCCH-Message ::= SEQUENCE [0] +-integrityCheckInfo ::= SEQUENCE OPTIONAL:Omit +-message ::= CHOICE [rrcConnectionSetup] +-rrcConnectionSetup ::= CHOICE [r3] +-r3 ::= SEQUENCE [0] +-rrcConnectionSetup-r3 ::= SEQUENCE [0011100111] +-initialUE-Identity ::= CHOICE [tmsi-and-LAI] +-tmsi-and-LAI ::= SEQUENCE +-tmsi ::= BIT STRING SIZE(32) [000000000000000000000000000000000000</pre>	
	Add Re	2
		-

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How to Convert from UE log to Test Scenario

Step 2: Edit with LFC GUI (Easy to control downlink power)



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How to Convert from UE Log to Test Scenario

BCCH

Information

Log

Sequence

Log

Step 3: Save LSC format log

 Save BCCH information and protocol sequence separately as LCS format log



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How to Convert from UE Log to Test Scenario



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How to Convert from UE Log to Test Scenario

Step 4: Load LSC format log into LSC

 Load BCCH information and protocol sequence saved in LFC

A MY702500 P. Log to Secondia Convertor	Log
Eile Tool Window Help Input Output	Sequence
BTS1: BTS2: BTS3: GSM:	Log
SEQUENCE File Path	
	File
CELL CONFIGURATION CONFIG:	<u>Start</u>



BCCH

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How to Convert from UE Log to Test Scenario

Step 5: Edit CellConfig.lsc file (if required)

social new production with the product of the produ	MX702 <u>File</u> Tool Input <u>Ed</u> C:¥Program F <u>Eile</u>	500B Log to Scenar Window Help it Cell Config	rio Conver	ter				Change most par such as MCC, MN Authentication Ko These parameters overwritten in C s	ameters IC, ey, etc. s are scenario.
	Section COMMON UTRANCeII1 UTRANCeII2 UTRANCeII3 CELL_GSM_1	Name px_JNSIDef px_AUTH px_AISTONS_IP px_AISTONS_IP px_CS_TE_Connect_Flag px_USCrCode_Correct px_RadioBearerActTime px_RadioBearerActTime px_RadioBearerActTime px_BabererActTime px_AM_CONF_ITMER px_ULScrConfig.CattTime px_AM_CONF_ITMER px_ULNFcrconfig.ActTime px_AM_CONF_ITMER px_ULNFcrconfig.ActTime px_AM_CONF_ITMER px_ULNFcrconfig.TIMER px_ULNFStreqActTime px_AUMPreconfig.ActIme px_AuthProcedure_Add px_AuthProcedure_Add px_ReadTMSI px_GsmStartingTime px_GsmCodingScheme px_GemMultisletfClase	IYPE HEXSTRING HEXSTRING HEXSTRING HEXSTRING HEXSTRING CHARSTRING OCTETSTRING CHARSTRING OCTETSTRING OCTETSTRING OCTETSTRING OCTETSTRING OCTETSTRING DOLEAN BOOLEAN	Value 000000123456789 FALSE 00112233445566778899aabbccddeeff 00112233445566778899aabbccddeeff 33993530332399353033239935303323932 2170377675F45BBA09F8BFFEFD7CD332 2170377675F45BBA09F8BFFEFD7CD332 101030001 01030002 01030001 01030003 1 1 FALSE FALSE 50 150 150 150 150 150 150 150	comment default IMSI Fixed RAND and AUT Fixed Authentication IA Authentication Rey Tele Ciphering Key (32 byte Packet service type. II) BTS JP (Hex) ex: 01030 MS JP (Hex) ex: 01030 IstDNS JP (Hex) ex: 01030 IstDNS JP (Hex) ex: 01030 IstDNS JP (Hex) ex: 01030 IstDNS JP (Hex) ex: 0 2ndDNS JP (Hex) ex: 0 2ndDN	H Gey [16 byte] Ster Rand (32.) Por PPP or 10001 -> 1.301 10002 -> 1.302 100003 -> 1030003 -> Not dify ce "px_AuthK Authentica length: 32 default: 000 Please inp 1011223344 OK	1. Cha 1. Cha	ue byte] ers. i778899aabbccddeeff. G value bbbccddeeff Default	32 characters. Cancel

How to Convert from UE Log to Test Scenario

Step 6: Generate C scenario



Supported Features

• W-CDMA/HSDPA/HSUPA

- Supported Number of Cells
 Three BTS (MD8480C) max
 - □ Two BTS (MD8470A) max
- Supported Services
 - Voice Call
 - Video Telephony
 - Packet Communication

 - Muiti-call
- Others
 - □ State Transition
 - □ Handover
 - Cell Reselection and more

- GSM/GPRS
 - Supported Number of Cells
 - Two BTS max
 - Supported Services
 - Voice Call
 - Packet Communication
 - Others
 - □ Handover
 - □ Cell Reselection
 - Cell Change Order and more
- InterRAT (W/G)
 - InterRAT Handover
 - InterRAT Cell Reselection and more



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Product Configuration

- Main Frame
 - ♦ MX702500B
 - MX702500B-010

Log to Scenario Converter

LSC Format Creator

- MX702500B-011 Log Importing for QXDM
- Wireless System Software
 - ◆ MX702500B-020 L
 - MX702500B-021
 - MX702500B-022
 - MX702500B-030
 - MX702500B-040

LSC InterRAT Package

- LSC InterRAT Upgrade from WCDMA
- LSC InterRAT Upgrade from GSM
- LSC WCDMA Package
- LSC GSM Package
- Support Service
 MX702500B-TS110 1-Year Technical Support Service

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Summary

- The LSC tool reproduces UE software faults at field tests
- The tool converts the UE log file (Layer 3 message) captured at the FT to the signalling tester file format
 - More efficient FT fault troubleshooting
 - Easy and flexible
 - Simple and easy GUI and log importing function for QXDM
 - Generates flexible C scenarios when troubleshooting faults
 - Cuts UE software evaluation time and cost
 - Cuts troubleshooting downtime by up to 85%
 - Finds infrequent errors
 - Improves quality through repeated tests



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Appendix: System Requirements

Item	Content				
PC	IBM-PC/AT or compatible machine				
CPU	1 GHz or faster Intel Pentium Processor				
Memory	≥256 MB				
Display	1024 x 768 pixels or more, and high-color or better				
Drive	CD-ROM				
OS	Microsoft Windows 2000 Professional SP4 or later or Microsoft Windows XP Professional SP2 or later				
HDD	≥20 MB of free space				
Keyboard/Mouse	1 port (USB version 1.1/2.0)				
Signalling Tester	MD8480B/C Ver. 5.30 or later MD8470A Ver. 3.00 or later				



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Appendix: Technical Support



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Note

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