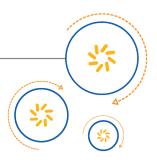


Qualcomm Technologies, Inc.



QMI WDS 1.91 for MPSS.JO.1.0

QMI Wireless Data Service Spec

80-NV300-5 A

March 24, 2015

Confidential and Proprietary - Qualcomm Technologies, Inc.

© 2015 Qualcomm Technologies, Inc.and/or its affiliated companies. All rights reserved.

NO PUBLIC DISCLOSURE PERMITTED: Please report postings of this document on public servers or websites to: DocCtrlAgent@qualcomm.com.

Not to be used, copied, reproduced, or modified in whole or in part, nor its contents revealed in any manner to others without the express written permission of Qualcomm Technologies, Inc.

MSM is a product of Qualcomm Technologies, Inc. Other Qualcomm products referenced herein are products of Qualcomm Technologies, Inc. or its subsidiaries.

Restricted Distribution. Not to be distributed to anyone who is not an employee of either Qualcomm Technologies, Inc. or its affiliated companies without the express approval of Qualcomm Configuration Management.

Qualcomm and MSM are trademarks of Qualcomm Incorporated, registered in the United States and other countries. All Qualcomm Incorporated trademarks are used with permission. CDMA2000 is a registered certification mark of the Telecommunications Industry Association, used under license. Other product and brand names may be trademarks or registered trademarks of their respective owners.

This technical data may be subject to U.S. and international export, re-export, or transfer ("export") laws. Diversion contrary to U.S. and international law is strictly prohibited.

Qualcomm Technologies, Inc. 5775 Morehouse Drive San Diego, CA 92121 U.S.A.

2016-05-1800:06:31.BDT.IN

Revision History

Revision	Date	Description
A	Mar 2015	Initial release. Created from 80-NH952-5 AD.
		Updates to this revision include minor version 80 through minor version 91.
		Moved reference documents and acronyms to an appendix.
		Added Appendix E Deprecated QMI_Messages.
		Updated:
		• Appendix B (Tables B-3, B-4, B-5, and B-6)
		• Sections 3.5.3, 3.8.3, 3.11.2, 3.98.2, and 3.106.2
		Updated optional TLVs:
		• Report Reverse IP Transport Filter Setup (Deprecated) (Section 3.5.1)
		• Report Uplink Throughput Information (name change) (Section 3.5.1)
		Added optional TLVs:
		• Report Downlink Throughput Information (Section 3.5.1)
		• Report eMBMS Content Description Control (Section 3.5.1)
		• Report Policy Ready (Section 3.5.1)
		• Report APN Parameter Change Information (Section 3.5.1)
		• APN Type Enum (Section 3.8.1)
		 XLAT Capability (Secton 3.11.1) Advanced Encryption Standard Mode (Section 3.94.2)
		Handoff Event Information (Section 3.106.1)
		O Lee
		Added new messages:
		• QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND_FREQ (Section 3.128)
		QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND (Section 3.129)
		• QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_PARAMS
		(Section 3.130)
		QMI_WDS_EMBMS_CONTENT_DESC_UPDATE (Section 3.131)
		• QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND (Section 3.132)
		• QMI_WDS_POLICY_REFRESH (Section 3.133)
		• QMI_WDS_POLICY_REFRESH_RESULT_IND (Section 3.134)
		• QMI_WDS_POLICY_READY_IND (Section 3.135)
		• QMI_WDS_APN_PARAM_INFO_CHANGE_IND (Section 3.136)
		QMI_WDS_SET_SILENT_REDIAL (Section 3.137)

Contents

1	Intro	duction		18
	1.1	Purpose	9	18
	1.2	Scope		18
	1.3		tions	19
	1.4	Technic	al Assistance	19
2	Theo	ry of Op	eration	20
	2.1		lized QMI Service Compliance	20
	2.2		ervice Type	
	2.3	Messag	e Definition Template	20
		2.3.1	Response Message Result TLV	20
	2.4	QMI_W	DS Fundamental Concepts	21
		2.4.1	DS Fundamental Concepts	21
		2.4.2	Data Session Handle	21
		2.4.3	Data Connection Status	21
		2.4.4	QMI_WDS Profile	21
	2.5	Service	State Variables	22
		2.5.1	Shared State Variables	22
		2.5.2	State Variables Per Control Point	22
3	QMI_	WDS Me	ssages	24
3	QMI _3.1		ssages DS_RESET	24 31
3				31
3		QMI_W	DS_RESET	31
3		QMI_W 3.1.1	DS_RESET	31 31
3		QMI_W 3.1.1 3.1.2 3.1.3	DS_RESET	31 31 31
3	3.1	QMI_W 3.1.1 3.1.2 3.1.3	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ	31 31 31 32
3	3.1	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP	31 31 31 32 33
3	3.1	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP	31 31 32 33 33 37 37
3	3.1	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT_REQ/RESP DS_SET_EVENT_REPORT_IND	31 31 32 33 33 37 37 38
3	3.1	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND	31 31 32 33 33 37 37 38 38
3	3.1	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3 QMI_W 3.3.1 3.3.2	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND Description of QMI_WDS_SET_EVENT_REPORT_IND	31 31 32 33 37 37 38 49
3	3.1	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3 QMI_W 3.3.1 3.3.2 QMI_W	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND Description of QMI_WDS_SET_EVENT_REPORT_IND DS_ABORT	31 31 31 32 33 37 37 38 49 51
3	3.1 3.2	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3 QMI_W 3.3.1 3.3.2 QMI_W	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND Description of QMI_WDS_SET_EVENT_REPORT_IND DS_ABORT Request - QMI_WDS_ABORT_REQ	311 311 322 333 377 388 499 511
3	3.1 3.2	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3 QMI_W 3.3.1 3.3.2 QMI_W 3.4.1 3.4.2	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND Description of QMI_WDS_SET_EVENT_REPORT_IND DS_ABORT Request - QMI_WDS_ABORT_REQ Response - QMI_WDS_ABORT_RESP	31 31 32 33 37 37 38 49 51 51
3	3.1 3.2	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3 QMI_W 3.3.1 3.3.2 QMI_W 3.4.1 3.4.2 3.4.3	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND Description of QMI_WDS_SET_EVENT_REPORT_IND DS_ABORT Request - QMI_WDS_ABORT_REQ Response - QMI_WDS_ABORT_RESP Description of QMI_WDS_ABORT_RESP	31 31 31 32 33 37 37 38 49 51 51 51
3	3.1 3.2	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3 QMI_W 3.3.1 3.3.2 QMI_W 3.4.1 3.4.2 3.4.3 QMI_W	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND Description of QMI_WDS_SET_EVENT_REPORT_IND DS_ABORT Request - QMI_WDS_ABORT_REQ Response - QMI_WDS_ABORT_RESP Description of QMI_WDS_ABORT_RESP Description of QMI_WDS_ABORT_RESP Description of QMI_WDS_ABORT_REQ/RESP DS_INDICATION_REGISTER	31 31 31 32 33 37 37 38 49 51 51 51 52 53
3	3.1 3.2 3.3 3.4	QMI_W 3.1.1 3.1.2 3.1.3 QMI_W 3.2.1 3.2.2 3.2.3 QMI_W 3.3.1 3.3.2 QMI_W 3.4.1 3.4.2 3.4.3	DS_RESET Request - QMI_WDS_RESET_REQ Response - QMI_WDS_RESET_RESP Description of QMI_WDS_RESET REQ/RESP DS_SET_EVENT_REPORT Request - QMI_WDS_SET_EVENT_REPORT_REQ Response - QMI_WDS_SET_EVENT_REPORT_RESP Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP DS_SET_EVENT_REPORT_IND Indication - QMI_WDS_EVENT_REPORT_IND Description of QMI_WDS_SET_EVENT_REPORT_IND DS_ABORT Request - QMI_WDS_ABORT_REQ Response - QMI_WDS_ABORT_RESP Description of QMI_WDS_ABORT_RESP	31 31 31 32 33 37 37 38 49 51 51 51

	3.5.3 Description of QMI_WDS_INDICATION_REGISTER REQ/RESP	
3.6	QMI_WDS_GET_SUPPORTED_MSGS	
	3.6.1 Request - QMI_WDS_GET_SUPPORTED_MSGS_REQ	
	3.6.2 Response - QMI_WDS_GET_SUPPORTED_MSGS_RESP	58
	3.6.3 Description of QMI_WDS_GET_SUPPORTED_MSGS REQ/RESP	59
3.7	QMI_WDS_GET_SUPPORTED_FIELDS	60
	3.7.1 Request - QMI_WDS_GET_SUPPORTED_FIELDS_REQ	. 60
	3.7.2 Response - QMI_WDS_GET_SUPPORTED_FIELDS_RESP	. 60
	3.7.3 Description of QMI_WDS_GET_SUPPORTED_FIELDS REQ/RESP	. 62
3.8	QMI_WDS_START_NETWORK_INTERFACE	. 64
	3.8.1 Request - QMI_WDS_START_NETWORK_INTERFACE_REQ	. 64
	3.8.2 Response - QMI_WDS_START_NETWORK_INTERFACE_RESP	
	3.8.3 Description of QMI_WDS_START_NETWORK_INTERFACE REQ/RESP	72
3.9	QMI_WDS_STOP_NETWORK_INTERFACE	
	3.9.1 Request - QMI_WDS_STOP_NETWORK_INTERFACE_REQ	
	3.9.2 Response - QMI_WDS_STOP_NETWORK_INTERFACE_RESP	
	3.9.3 Description of QMI_WDS_STOP_NETWORK_INTERFACE REQ/RESP	
3.10	QMI WDS GET PKT SRVC STATUS	
	3.10.1 Request - QMI_WDS_GET_PKT_SRVC_STATUS_REQ	
	3.10.2 Response - QMI_WDS_GET_PKT_SRVC_STATUS_RESP	
	3.10.3 Description of QMI_WDS_GET_PKT_SRVC_STATUS_REQ/RESP	
3.11	QMI WDS GET PKT SRVC STATUS IND	
0	3.11.1 Indication - QMI_WDS_PKT_SRVC_STATUS_IND	
	3.11.2 Description of QMI_WDS_GET_PKT_SRVC_STATUS_IND	81
3.12	QMI WDS GET CURRENT CHANNEL RATE	
0	3.12.1 Request - QMI_WDS_GET_CURRENT_CHANNEL_RATE_REQ	
	3.12.2 Response - QMI_WDS_GET_CURRENT_CHANNEL_RATE_RESP	
	3.12.3 Description of QMI_WDS_GET_CURRENT_CHANNEL_RATE REQ/RESP	
3.13	QMI WDS GET PKT STATISTICS	
0.10	3.13.1 Request - QMI_WDS_GET_PKT_STATISTICS_REQ	
	3.13.2 Response - QMI_WDS_GET_PKT_STATISTICS_RESP	
	3.13.3 Description of QMI_WDS_GET_PKT_STATISTICS REQ/RESP	
3.14		
5.14	3.14.1 Request - QMI_WDS_GO_DORMANT_REQ	
	3.14.2 Response - QMI WDS GO DORMANT RESP	
	3.14.3 Description of QMI_WDS_GO_DORMANT REQ/RESP	
3.15	QMI WDS GO ACTIVE	
5.15	3.15.1 Request - QMI_WDS_GO_ACTIVE_REQ	
	3.15.2 Response - QMI_WDS_GO_ACTIVE_RESP	
	3.15.3 Description of QMI_WDS_GO_ACTIVE REQ/RESP	
3.16	QMI WDS CREATE PROFILE	
3.10	3.16.1 Request - QMI_WDS_CREATE_PROFILE_REQ	
0.47	3.16.3 Description of QMI_WDS_CREATE_PROFILE REQ/RESP	
3.17	QMI_WDS_MODIFY_PROFILE_SETTINGS	
	3.17.1 Request - QMI_WDS_MODIFY_PROFILE_SETTINGS_REQ	
	3.17.2 Response - QMI_WDS_MODIFY_PROFILE_SETTINGS_RESP	
0.40	3.17.3 Description of QMI_WDS_MODIFY_PROFILE_SETTINGS REQ/RESP	
3.18	QMI_WDS_DELETE_PROFILE	
	3.18.1 Request - QMI_WDS_DELETE_PROFILE_REQ	150

	3.18.2	Response - QMI_WDS_DELETE_PROFILE_RESP	
	3.18.3	Description of QMI_WDS_DELETE_PROFILE REQ/RESP	152
3.	19 QMI_W	/DS_GET_PROFILE_LIST	153
	3.19.1	Request - QMI_WDS_GET_PROFILE_LIST_REQ	153
	3.19.2	Response - QMI_WDS_GET_PROFILE_LIST_RESP	154
	3.19.3	Description of QMI_WDS_GET_PROFILE_LIST REQ/RESP	
3.2	20 QMI W	/DS_GET_PROFILE_SETTINGS	
•	3.20.1	Request - QMI_WDS_GET_PROFILE_SETTINGS_REQ	
	3.20.2	Response - QMI_WDS_GET_PROFILE_SETTINGS_RESP	
	3.20.3	Description of QMI_WDS_GET_PROFILE_SETTINGS_REQ/RESP	
3.2		/DS_GET_DEFAULT_SETTINGS	
0.2	3.21.1	Request - QMI_WDS_GET_DEFAULT_SETTINGS_REQ	
	3.21.2	Response - QMI_WDS_GET_DEFAULT_SETTINGS_RESP	
	3.21.3	Description of QMI_WDS_GET_DEFAULT_SETTINGS REQ/RESP	
2 (/DS_GET_RUNTIME_SETTINGS	
3.4	3.22.1	Request - QMI_WDS_GET_RUNTIME_SETTINGS_REQ	
	3.22.2	Response - QMI_WDS_GET_RUNTIME_SETTINGS_RESP	
0.4	3.22.3	Description of QMI_WDS_GET_RUNTIME_SETTINGS REQ/RESP	
3.2		/DS_SET_MIP_MODE	
	3.23.1	Request - QMI_WDS_SET_MIP_MODE_REQ	
	3.23.2	Response - QMI_WDS_SET_MIP_MODE_RESP	
	3.23.3	Description of QMI_WDS_SET_MIP_MODE REQ/RESP	
3.2		'DS_GET_MIP_MODE	
	3.24.1	Request - QMI_WDS_GET_MIP_MODE_REQ	
	3.24.2	Response - QMI_WDS_GET_MIP_MODE_RESP	
	3.24.3	Description of QMI_WDS_GET_MIP_MODE REQ/RESP	
3.2	_	DS_GET_DORMANCY_STATUS	
	3.25.1	Request - QMI_WDS_GET_DORMANCY_STATUS_REQ	
	3.25.2	Response - QMI_WDS_GET_DORMANCY_STATUS_RESP	
	3.25.3	Description of QMI_WDS_GET_DORMANCY_STATUS REQ/RESP	
3.2	26 QMI_W	DS_GET_AUTOCONNECT_SETTING	228
	3.26.1	Request - QMI_WDS_GET_AUTOCONNECT_SETTING_REQ	228
	3.26.2	Response - QMI_WDS_GET_AUTOCONNECT_SETTING_RESP	228
	3.26.3	Description of QMI_WDS_GET_AUTOCONNECT_SETTING REQ/RESP	230
3.2		DS_GET_CALL_DURATION	
	3.27.1	Request - QMI_WDS_GET_CALL_DURATION_REQ	231
	3.27.2	Response - QMI_WDS_GET_CALL_DURATION_RESP	
	3.27.3	Description of QMI_WDS_GET_CALL_DURATION REQ/RESP	
3.2		DS GET DATA BEARER TECHNOLOGY	
	3.28.1	Request - QMI WDS GET DATA BEARER TECHNOLOGY REQ	
	3.28.2	Response - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_RESP	
	3.28.3	Description of QMI_WDS_GET_DATA_BEARER_TECHNOLOGY REQ/RESP	
3 :		DS_GET_DUN_CALL_INFO	
0.7	3.29.1	Request - QMI_WDS_GET_DUN_CALL_INFO_REQ	
	3.29.2	Response - QMI_WDS_GET_DUN_CALL_INFO_RESP	
	3.29.2	Description of QMI_WDS_GET_DUN_CALL_INFO_RESP	
9 (
3.3		/DS_DUN_CALL_INFO_IND	
	3.30.1		
0.4	3.30.2	Description of QMI_WDS_DUN_CALL_INFO_IND	
_ ქ.,	or Wivii vv	UO GEL ACTIVE WIF FROFILE	

	3.31.1 Request - QMI_WDS_GET_ACTIVE_MIP_PROFILE_REQ	
	3.31.2 Response - QMI_WDS_GET_ACTIVE_MIP_PROFILE_RESP	248
	3.31.3 Description of QMI_WDS_GET_ACTIVE_MIP_PROFILE REQ/RESP .	249
3.32	QMI_WDS_SET_ACTIVE_MIP_PROFILE	250
	3.32.1 Request - QMI_WDS_SET_ACTIVE_MIP_PROFILE_REQ	250
	3.32.2 Response - QMI_WDS_SET_ACTIVE_MIP_PROFILE_RESP	
	3.32.3 Description of QMI_WDS_SET_ACTIVE_MIP_PROFILE REQ/RESP	
3.33	QMI_WDS_READ_MIP_PROFILE	
0.00	3.33.1 Request - QMI_WDS_READ_MIP_PROFILE_REQ	
	3.33.2 Response - QMI_WDS_READ_MIP_PROFILE_RESP	
	3.33.3 Description of QMI_WDS_READ_MIP_PROFILE REQ/RESP	
3.34	QMI_WDS_MODIFY_MIP_PROFILE	
0.01	3.34.1 Request - QMI_WDS_MODIFY_MIP_PROFILE_REQ	
	3.34.2 Response - QMI_WDS_MODIFY_MIP_PROFILE_RESP	
	3.34.3 Description of QMI_WDS_MODIFY_MIP_PROFILE REQ/RESP	
3.35	QMI_WDS_GET_MIP_SETTINGS	
3.33	3.35.1 Request - QMI_WDS_GET_MIP_SETTINGS_REQ	
0.00	3.35.3 Description of QMI_WDS_GET_MIP_SETTINGS REQ/RESP	
3.36	QMI_WDS_SET_MIP_SETTINGS	
	3.36.1 Request - QMI_WDS_SET_MIP_SETTINGS_REQ	
	3.36.2 Response - QMI_WDS_SET_MIP_SETTINGS_RESP	
	3.36.3 Description of QMI_WDS_SET_MIP_SETTINGS REQ/RESP	
3.37	QMI_WDS_GET_LAST_MIP_STATUS	
	3.37.1 Request - QMI_WDS_GET_LAST_MIP_STATUS_REQ	
	3.37.2 Response - QMI_WDS_GET_LAST_MIP_STATUS_RESP	
	3.37.3 Description of QMI_WDS_GET_LAST_MIP_STATUS REQ/RESP	
3.38	QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOLOGY	
	3.38.1 Request - QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOLOG	Y_REQ268
	3.38.2 Response - QMI_WDS_GET_CURRENT_DATA_BEARER	
	TECHNOLOGY_RESP	
	3.38.3 Description of QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOL	
	REQ/RESP	
3.39	QMI_WDS_CALL_HISTORY_LIST	274
	3.39.1 Request - QMI_WDS_CALL_HISTORY_LIST_REQ	274
	3.39.2 Response - QMI_WDS_CALL_HISTORY_LIST_RESP	274
	3.39.3 Description of QMI_WDS_CALL_HISTORY_LIST REQ/RESP	27 7
3.40	QMI_WDS_CALL_HISTORY_READ	278
	3.40.1 Request - QMI_WDS_CALL_HISTORY_READ_REQ	278
	3.40.2 Response - QMI_WDS_CALL_HISTORY_READ_RESP	279
	3.40.3 Description of QMI_WDS_CALL_HISTORY_READ REQ/RESP	280
3.41	QMI_WDS_CALL_HISTORY_DELETE	<mark>28</mark> 1
	3.41.1 Request - QMI_WDS_CALL_HISTORY_DELETE_REQ	
	3.41.2 Response - QMI_WDS_CALL_HISTORY_DELETE_RESP	
	3.41.3 Description of QMI_WDS_CALL_HISTORY_DELETE REQ/RESP	
3.42	QMI_WDS_CALL_HISTORY_MAX_SIZE	
J	3.42.1 Request - QMI_WDS_CALL_HISTORY_MAX_SIZE_REQ	
	3.42.2 Response - QMI_WDS_CALL_HISTORY_MAX_SIZE_RESP	
	3.42.3 Description of QMI_WDS_CALL_HISTORY_MAX_SIZE REQ/RESP	
3 43	QMI WDS GET DEFAULT PROFILE NUM	

	3.43.1	Request - QMI_WDS_GET_DEFAULT_PROFILE_NUM_REQ	. 285
	3.43.2	Response - QMI_WDS_GET_DEFAULT_PROFILE_NUM_RESP	. 286
	3.43.3	Description of QMI_WDS_GET_DEFAULT_PROFILE_NUM REQ/RESP	. 287
3.44	QMI_W	DS_SET_DEFAULT_PROFILE_NUM	. 288
	3.44.1	Request - QMI_WDS_SET_DEFAULT_PROFILE_NUM_REQ	. 288
	3.44.2	Response - QMI_WDS_SET_DEFAULT_PROFILE_NUM_RESP	. 289
	3.44.3	Description of QMI_WDS_SET_DEFAULT_PROFILE_NUM REQ/RESP	. 290
3.45	QMI W	DS RESET PROFILE TO DEFAULT	
	3.45.1	Request - QMI_WDS_RESET_PROFILE_TO_DEFAULT_REQ	. 291
	3.45.2	Response - QMI_WDS_RESET_PROFILE_TO_DEFAULT_RESP	
	3.45.3	Description of QMI_WDS_RESET_PROFILE_TO_DEFAULT REQ/RESP	
3.46	QMI_W	DS_RESET_PROFILE_PARAM_TO_INVALID	. 293
	3.46.1	Request - QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID_REQ	. 293
	3.46.2	Response - QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID_RESP	
	3.46.3	Description of QMI WDS RESET PROFILE PARAM TO INVALID	
		REQ/RESP	. 295
3.47	QMI W	DS_SET_CLIENT_IP_FAMILY_PREF	. 296
	3.47.1		
	3.47.2	Response - QMI WDS SET CLIENT IP FAMILY PREF RESP	
	3.47.3	Description of QMI WDS SET CLIENT IP FAMILY PREF REQ/RESP	. 297
3.48	QMI W	DS_FMC_SET_TUNNEL_PARAMS	. 298
	3.48.1	Request - QMI WDS FMC SET TUNNEL PARAMS REQ	
	3.48.2	Response - QMI WDS FMC SET TUNNEL PARAMS RESP	
	3.48.3	Description of QMI_WDS_FMC_SET_TUNNEL_PARAMS REQ/RESP	
3.49	QMI W	DS_FMC_CLEAR_TUNNEL_PARAMS	
	3.49.1	Request - QMI_WDS_FMC_CLEAR_TUNNEL_PARAMS_REQ	
	3.49.2	Response - QMI WDS FMC CLEAR TUNNEL PARAMS RESP	
	3.49.3	Description of QMI_WDS_FMC_CLEAR_TUNNEL_PARAMS REQ/RESP	
3.50	QMI W	DS_FMC_GET_TUNNEL_PARAMS	
	3.50.1	Request - QMI WDS FMC GET TUNNEL PARAMS REQ	
	3.50.2	Response - QMI WDS FMC GET TUNNEL PARAMS RESP	. 303
	3.50.3	Description of QMI_WDS_FMC_GET_TUNNEL_PARAMS REQ/RESP	. 304
3.51	QMI W	DS SET AUTOCONNECT SETTINGS	
	3.51.1	Request - QMI_WDS_SET_AUTOCONNECT_SETTINGS_REQ	. 305
	3.51.2	Response - QMI_WDS_SET_AUTOCONNECT_SETTINGS_RESP	
	3.51.3	Description of QMI_WDS_SET_AUTOCONNECT_SETTINGS REQ/RESP .	. 307
3.52	QMI W	DS GET DNS SETTINGS	. 308
	3.52.1	Request - QMI WDS GET DNS SETTINGS REQ	. 308
	3.52.2	Response - QMI_WDS_GET_DNS_SETTINGS_RESP	. 308
	3.52.3	Description of QMI_WDS_GET_DNS_SETTINGS REQ/RESP	. 310
3.53	QMI_W	DS_SET_DNS_SETTINGS	
	3.53.1	Request - QMI_WDS_SET_DNS_SETTINGS_REQ	. 311
	3.53.2	Response - QMI_WDS_SET_DNS_SETTINGS_RESP	. 312
	3.53.3	Description of QMI_WDS_SET_DNS_SETTINGS REQ/RESP	. 313
3.54	QMI W	DS GET PRE DORMANCY CDMA SETTINGS	
	3.54.1	Request - QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS_REQ .	
	3.54.2	Response - QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS_RESP	
	3.54.3	Description of QMI_WDS_GET_PRE_DORMANCY_CDMA	
		SETTINGS REQ/RESP	. 316
3 55	OMI W	DS SET CAM TIMER	

	3.55.1	Request - QMI_WDS_SET_CAM_TIMER_REQ	
	3.55.2	Response - QMI_WDS_SET_CAM_TIMER_RESP	. 317
	3.55.3	Description of QMI_WDS_SET_CAM_TIMER REQ/RESP	318
3.56	QMI_W	DS_GET_CAM_TIMER	319
	3.56.1	Request - QMI_WDS_GET_CAM_TIMER_REQ	
	3.56.2	Response - QMI_WDS_GET_CAM_TIMER_RESP	
	3.56.3	Description of QMI_WDS_GET_CAM_TIMER REQ/RESP	
3.57		DS_SET_SCRM	
	3.57.1	Request - QMI_WDS_SET_SCRM_REQ	
	3.57.2	Response - QMI_WDS_SET_SCRM_RESP	
	3.57.3	Description of QMI_WDS_SET_SCRM REQ/RESP	
3.58		DS_GET_SCRM	
	3.58.1	Request - QMI_WDS_GET_SCRM_REQ	
	3.58.2	Response - QMI_WDS_GET_SCRM_RESP	323
	3.58.3	Description of QMI_WDS_GET_SCRM REQ/RESP	
3.59		DS_SET_RDUD	
	3.59.1	Request - QMI_WDS_SET_RDUD_REQ	325
	3.59.2	Response - QMI_WDS_SET_RDUD_RESP	
	3.59.3	Description of QMI_WDS_SET_RDUD REQ/RESP	
3.60		DS_GET_RDUD	
	3.60.1	Request - QMI_WDS_GET_RDUD_REQ	327
	3.60.2	Response - QMI_WDS_GET_RDUD_RESP	
	3.60.3	Description of QMI_WDS_GET_RDUD REQ/RESP	
3.61		DS_GET_SIP_MIP_CALL_TYPE	
	3.61.1	Request - QMI_WDS_GET_SIP_MIP_CALL_TYPE_REQ	
	3.61.2	Response - QMI_WDS_GET_SIP_MIP_CALL_TYPE_RESP	
	3.61.3	Description of QMI_WDS_GET_SIP_MIP_CALL_TYPE REQ/RESP	
3.62		DS_SET_EVDO_PAGE_MONITOR_PERIOD	
	3.62.1	Request - QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD_REQ	
	3.62.2	Response - QMI WDS SET EVDO PAGE MONITOR PERIOD RESP	
	3.62.3	Description of QMI WDS SET EVDO PAGE MONITOR PERIOD REQ/RES	
3.63	QMI W	DS EVDO PAGE MONITOR PERIOD RESULT IND	
		Indication - QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND	
		Description of QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND	
3.64		DS_SET_EVDO_FORCE_LONG_SLEEP	
	3.64.1	Request - QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP_REQ	
	3.64.2	Response - QMI WDS SET EVDO FORCE LONG SLEEP RESP	
	3.64.3	Description of QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP REQ/RESP	
3.65	QMI W	DS GET EVDO PAGE MONITOR PERIOD	
	3.65.1	Request - QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD_REQ	
	3.65.2	Response - QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD_RESP	
	3.65.3	Description of QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD REQ/RES	
3.66	QMI W	DS_GET_CALL_THROTTLE_INFO	
	3.66.1	Request - QMI_WDS_GET_CALL_THROTTLE_INFO_REQ	
	3.66.2	Response - QMI_WDS_GET_CALL_THROTTLE_INFO_RESP	
	3.66.3	Description of QMI_WDS_GET_CALL_THROTTLE_INFO REQ/RESP	
3.67		DS GET NSAPI	
	3.67.1	Request - QMI WDS GET NSAPI REQ	
	3.67.2	Response - QMI_WDS_GET_NSAPI_RESP	
		Description of QMI_WDS_GET_NSAPI_REQ/RESP	

3.68	QMI_WDS_SET_DUN_CTRL_PREF	. 343
	3.68.1 Request - QMI_WDS_SET_DUN_CTRL_PREF_REQ	. 343
	3.68.2 Response - QMI_WDS_SET_DUN_CTRL_PREF_RESP	. 344
	3.68.3 Description of QMI_WDS_SET_DUN_CTRL_PREF REQ/RESP	. 345
3.69	QMI_WDS_GET_DUN_CTRL_INFO	
	3.69.1 Request - QMI_WDS_GET_DUN_CTRL_INFO_REQ	. 346
	3.69.2 Response - QMI_WDS_GET_DUN_CTRL_INFO_RESP	. 346
	3.69.3 Description of QMI_WDS_GET_DUN_CTRL_INFO REQ/RESP	. 348
3.70	QMI_WDS_SET_DUN_CTRL_EVENT_REPORT	. 349
	3.70.1 Request - QMI_WDS_SET_DUN_CTRL_EVENT_REPORT_REQ	. 349
	3.70.2 Response - QMI_WDS_SET_DUN_CTRL_EVENT_REPORT_RESP	. 350
	3.70.3 Description of QMI_WDS_SET_DUN_CTRL_EVENT_REPORT REQ/RESP	. 351
3.71	QMI_WDS_DUN_CTRL_EVENT_REPORT_IND	. 352
	3.71.1 Indication - QMI_WDS_DUN_CTRL_EVENT_REPORT_IND	. 352
	3.71.2 Description of QMI_WDS_DUN_CTRL_EVENT_REPORT_IND	. 354
3.72	QMI_WDS_CONTROL_PENDING_DUN_CALL	. 355
	3.72.1 Request - QMI_WDS_CONTROL_PENDING_DUN_CALL_REQ	. 355
	3.72.2 Response - QMI_WDS_CONTROL_PENDING_DUN_CALL_RESP	. 356
	3.72.3 Description of QMI_WDS_CONTROL_PENDING_DUN_CALL REQ/RESP .	. 356
3.73	QMI_WDS_EMBMS_TMGI_ACTIVATE	. 357
	3.73.1 Request - QMI_WDS_EMBMS_TMGI_ACTIVATE_REQ	. 357
	3.73.2 Response - QMI_WDS_EMBMS_TMGI_ACTIVATE_RESP	. 359
	3.73.3 Description of QMI_WDS_EMBMS_TMGI_ACTIVATE REQ/RESP	. 360
3.74	QMI_WDS_EMBMS_TMGI_ACTIVATE_IND	. 361
	3.74.1 Indication - QMI_WDS_EMBMS_TMGI_ACTIVATE_IND	. 361
	3.74.2 Description of QMI_WDS_EMBMS_TMGI_ACTIVATE_IND	. 363
3.75	QMI_WDS_EMBMS_TMGI_DEACTIVATE	. 364
	3.75.1 Request - QMI_WDS_EMBMS_TMGI_DEACTIVATE_REQ	
	3.75.2 Response - QMI_WDS_EMBMS_TMGI_DEACTIVATE_RESP	
	3.75.3 Description of QMI_WDS_EMBMS_TMGI_DEACTIVATE REQ/RESP	. 366
3.76	QMI_WDS_EMBMS_TMGI_DEACTIVATE_IND	
	3.76.1 Indication - QMI_WDS_EMBMS_TMGI_DEACTIVATE_IND	. 367
	3.76.2 Description of QMI_WDS_EMBMS_TMGI_DEACTIVATE_IND	
3.77	QMI_WDS_EMBMS_TMGI_LIST_QUERY	. 369
	3.77.1 Request - QMI_WDS_EMBMS_TMGI_LIST_QUERY_REQ	
	3.77.2 Response - QMI_WDS_EMBMS_TMGI_LIST_QUERY_RESP	
	3.77.3 Description of QMI_WDS_EMBMS_TMGI_LIST_QUERY REQ/RESP	
3.78	QMI_WDS_EMBMS_TMGI_LIST_IND	
	3.78.1 Indication - QMI_WDS_EMBMS_TMGI_LIST_IND	
	3.78.2 Description of QMI_WDS_EMBMS_TMGI_LIST_IND	
3.79	QMI_WDS_GET_PREFERRED_DATA_SYSTEM	
	3.79.1 Request - QMI_WDS_GET_PREFERRED_DATA_SYSTEM_REQ	
	3.79.2 Response - QMI_WDS_GET_PREFERRED_DATA_SYSTEM_RESP	
	3.79.3 Description of QMI_WDS_GET_PREFERRED_DATA_SYSTEM REQ/RESP	
3.80	QMI_WDS_GET_LAST_DATA_CALL_STATUS	
	3.80.1 Request - QMI_WDS_GET_LAST_DATA_CALL_STATUS_REQ	
	3.80.2 Response - QMI_WDS_GET_LAST_DATA_CALL_STATUS_RESP	
	3.80.3 Description of QMI_WDS_GET_LAST_DATA_CALL_STATUS REQ/RESP	
3.81	QMI_WDS_GET_CURRENT_DATA_SYSTEM_STATUS	
	3.81.1 Request - QMI_WDS_GET_CURRENT_SYSTEM_STATUS_REQ	. 378

	3.81.2	Response - QMI_WDS_GET_CURRENT_SYSTEM_STATUS_RESP	378
	3.81.3	Description of QMI_WDS_GET_CURRENT_DATA_SYSTEM	
		STATUS REQ/RESP	380
3.82	QMI_W	DS_GET_PDN_THROTTLE_INFO	381
	3.82.1	Request - QMI_WDS_GET_PDN_THROTTLE_INFO_REQ	381
	3.82.2	Response - QMI_WDS_GET_PDN_THROTTLE_INFO_RESP	381
	3.82.3	Description of QMI_WDS_GET_PDN_THROTTLE_INFO REQ/RESP	383
3.83	QMI_W	DS_GET_LTE_ATTACH_PARAMS	384
	3.83.1	Request - QMI WDS GET LTE ATTACH PARAMS REQ	
	3.83.2	Response - QMI WDS GET LTE ATTACH PARAMS RESP	
	3.83.3	Description of QMI_WDS_GET_LTE_ATTACH_PARAMS REQ/RESP	385
3.84		DS_RESET_PKT_STATISTICS	
	3.84.1	Request - QMI_WDS_RESET_PKT_STATISTICS_REQ	
	3.84.2	Response - QMI WDS RESET PKT STATISTICS RESP	
	3.84.3	Description of QMI_WDS_RESET_PKT_STATISTICS REQ/RESP	
3.85		DS_GET_FLOW_CONTROL_STATUS	
	3.85.1	Request - QMI_WDS_GET_FLOW_CONTROL_STATUS_REQ	
	3.85.2	Response - QMI WDS GET FLOW CONTROL STATUS RESP	
	3.85.3	Description of QMI_WDS_GET_FLOW_CONTROL_STATUS REQ/RESP	
3.86		DS_EMBMS_TMGI_ACT_DEACT	
0.00	3.86.1	Request - QMI_WDS_EMBMS_TMGI_ACT_DEACT_REQ	
	3.86.2	Response - QMI WDS EMBMS TMGI ACT DEACT RESP	
	3.86.3	Description of QMI_WDS_EMBMS_TMGI_ACT_DEACT_REQ/RESP	
3.87		DS_EMBMS_TMGI_ACT_DEACT_IND	
3.07	3.87.1	Indication - QMI_WDS_EMBMS_TMGI_ACT_DEACT_IND	
	3.87.2	Description of QMI_WDS_EMBMS_TMGI_ACT_DEACT_IND	
3.88		DS BIND DATA PORT	
3.00	3.88.1	Request - QMI_WDS_BIND_DATA_PORT_REQ	
	3.88.2	Response - QMI_WDS_BIND_DATA_PORT_RESP	
	3.88.3	Description of QMI_WDS_BIND_DATA_PORT_REQ/RESP	
2.00			
3.89		DS_SET_ADDITIONAL_PDN_FILTER	
	3.89.1	Request - QMI_WDS_SET_ADDITIONAL_PDN_FILTER_REQ	
	3.89.2	Response - QMI_WDS_SET_ADDITIONAL_PDN_FILTER_RESP	
0.00	3.89.3	Description of QMI_WDS_SET_ADDITIONAL_PDN_FILTER REQ/RESP	
3.90	_	DS_REMOVE_ADDITIONAL_PDN_FILTER	
	3.90.1	Request - QMI_WDS_REMOVE_ADDITIONAL_PDN_FILTER_REQ	
	3.90.2	Response - QMI_WDS_REMOVE_ADDITIONAL_PDN_FILTER_RESP	
	3.90.3	Description of QMI_WDS_REMOVE_ADDITIONAL_PDN_FILTER REQ/RESP	
3.91	_	DS_EXTENDED_IP_CONFIG_IND	
	3.91.1	Indication - QMI_WDS_EXTENDED_IP_CONFIG_IND	
	3.91.2	Description of QMI_WDS_EXTENDED_IP_CONFIG_IND	
3.92		DS_REVERSE_IP_TRANSPORT_CONNECTION_IND_REGISTRATION	407
	3.92.1	Request - QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION	
		IND_REGISTRATION_REQ	407
	3.92.2	Response - QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION	
		IND_REGISTRATION_RESP	408
	3.92.3	Description of QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION	
		IND_REGISTRATION REQ/RESP	
3.93	_	DS_REVERSE_IP_TRANSPORT_CONNECTION_IND	
	3 93 1	Indication - OMI WDS REVERSE IP TRANSPORT CONNECTION IND	409

	3.93.2 Description of QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND	411
3.94	QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG	
	3.94.1 Request - QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG_REQ	412
		412
	3.94.3 Description of QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG REQ/RESP	422
3.95	QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG_COMPLETE	423
	3.95.1 Request - QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG	
	COMPLETE_REQ	423
	3.95.2 Response - QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG	720
	COMPLETE RESP	424
	3.95.3 Description of QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG	424
		424
2.00	QMI WDS GET DATA BEARER TECHNOLOGY EX	
3.96		
	3.96.1 Request - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_EX_REQ	
	3.96.2 Response - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_EX_RESP	426
	3.96.3 Description of QMI_WDS_GET_DATA_BEARER_TECHNOLOGY	
	EX REQ/RESP	431
3.97	QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM	
		432
	3.97.2 Response - QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM_RESP	432
	3.97.3 Description of QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM REQ/RESP .	433
3.98		434
	3.98.1 Request - QMI_WDS_SET_LTE_ATTACH_PDN_LIST_REQ	
	3.98.2 Response - QMI_WDS_SET_LTE_ATTACH_PDN_LIST_RESP	435
	3.98.3 Description of QMI_WDS_SET_LTE_ATTACH_PDN_LIST REQ/RESP	435
3.99		437
	3.99.1 Request - QMI_WDS_GET_LTE_ATTACH_PDN_LIST_REQ	437
	3.99.2 Response - QMI_WDS_GET_LTE_ATTACH_PDN_LIST_RESP	437
	3.99.3 Description of QMI_WDS_GET_LTE_ATTACH_PDN_LIST REQ/RESP	438
3.100	QMI_WDS_LTE_ATTACH_PDN_LIST_IND	439
	3.100.1 Indication - QMI_WDS_LTE_ATTACH_PDN_LIST_IND	439
	3.100.2 Description of QMI_WDS_LTE_ATTACH_PDN_LIST_IND	440
3.101	QMI_WDS_SET_LTE_DATA_RETRY	441
	3.101.1 Request - QMI_WDS_SET_LTE_DATA_RETRY_REQ	441
	3.101.2 Response - QMI WDS SET LTE DATA RETRY RESP	
	3.101.3 Description of QMI WDS SET LTE DATA RETRY REQ/RESP	442
3.102	QMI_WDS_GET_LTE_DATA_RETRY	443
	3.102.1 Request - QMI_WDS_GET_LTE_DATA_RETRY_REQ	
	3.102.2 Response - QMI_WDS_GET_LTE_DATA_RETRY_RESP	
	3.102.3 Description of QMI_WDS_GET_LTE_DATA_RETRY REQ/RESP	
3.103	QMI_WDS_SET_LTE_ATTACH_TYPE	
	3.103.1 Request - QMI_WDS_SET_LTE_ATTACH_TYPE_REQ	
	3.103.2 Response - QMI_WDS_SET_LTE_ATTACH_TYPE_RESP	
	3.103.3 Description of QMI_WDS_SET_LTE_ATTACH_TYPE REQ/RESP	
3 104	QMI_WDS_GET_LTE_ATTACH_TYPE	
0.104	3.104.1 Request - QMI_WDS_GET_LTE_ATTACH_TYPE_REQ	
	3.104.2 Response - QMI_WDS_GET_LTE_ATTACH_TYPE_RESP	
	3.104.3 Description of QMI_WDS_GET_LTE_ATTACH_TYPE REQ/RESP	
3 105	QMI_WDS_REVERSE_IP_TRANSPORT_FILTER_SETUP_IND	
0.100	3.105.1 Indication - QMI_WDS_REVERSE_IP_TRANSPORT_FILTER_SETUP_IND	
	CAROCA INGIGATION CHILIPPOLITE VEHICLE II _ ITI/INOTOTTI_I TELETI OETOT IND .	770

	3.105.2 Description of QMI_WDS_REVERSE_IP_TRANSPORT_FILTER_SETUP_IND	
3.106	QMI_WDS_HANDOFF_INFORMATION_IND	
	3.106.1 Indication - QMI_WDS_HANDOFF_INFORMATION_IND	451
	3.106.2 Description of QMI_WDS_HANDOFF_INFORMATION_IND	453
3.107	QMI_WDS_SET_DATA_PATH	
	3.107.1 Request - QMI WDS SET DATA PATH REQ	
	3.107.2 Response - QMI_WDS_SET_DATA_PATH_RESP	
	3.107.3 Description of QMI_WDS_SET_DATA_PATH REQ/RESP	
3 108	QMI_WDS_GET_DATA_PATH	
0.100	3.108.1 Request - QMI_WDS_GET_DATA_PATH_REQ	
	3.108.2 Response - QMI_WDS_GET_DATA_PATH_RESP	
	3.108.3 Description of QMI_WDS_GET_DATA_PATH REQ/RESP	
3 100	QMI_WDS_UPDATE_LTE_ATTACH_PDN_LIST_PROFILES	
3.109	3.109.1 Request - QMI_WDS_UPDATE_LTE_ATTACH_PDN_LIST_PROFILES_REQ	
	3.109.2 Response - QMI_WDS_UPDATE_LTE_ATTACH_PDN_LIST_PROFILES_RESP	
	3.109.3 Description of QMI WDS_OPDATE_LTE_ATTACH_PDN_LIST_PROFILES_NESP	458
		400
0.440	PROFILES REQ/RESP	400
3.110		
	3.110.1 Request - QMI_WDS_EMBMS_SAI_LIST_QUERY_REQ	
	3.110.2 Response - QMI_WDS_EMBMS_SAI_LIST_QUERY_RESP	
	3.110.3 Description of QMI_WDS_EMBMS_SAI_LIST_QUERY REQ/RESP	
3.111	QMI_WDS_EMBMS_SAI_LIST_IND	
	3.111.1 Indication - QMI_WDS_EMBMS_SAI_LIST_IND	
	3.111.2 Description of QMI_WDS_EMBMS_SAI_LIST_IND	
3.112	QMI_WDS_BIND_MUX_DATA_PORT	
	3.112.1 Request - QMI_WDS_BIND_MUX_DATA_PORT_REQ	
	3.112.2 Response - QMI_WDS_BIND_MUX_DATA_PORT_RESP	
	3.112.3 Description of QMI_WDS_BIND_MUX_DATA_PORT REQ/RESP	
3.113	QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ	
	3.113.1 Request - QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ_REQ	469
	3.113.2 Response - QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ_RESP	469
	3.113.3 Description of QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ REQ/RESF	470
3.114	QMI_WDS_GET_LAST_THROUGHPUT_INFO	471
	3.114.1 Request - QMI_WDS_GET_LAST_THROUGHPUT_INFO_REQ	471
	3.114.2 Response - QMI_WDS_GET_LAST_THROUGHPUT_INFO_RESP	
	3.114.3 Description of QMI_WDS_GET_LAST_THROUGHPUT_INFO REQ/RESP	
3.115	QMI_WDS_THROUGHPUT_INFO_IND	
	3.115.1 Indication - QMI_WDS_THROUGHPUT_INFO_IND	
	3.115.2 Description of QMI_WDS_THROUGHPUT_INFO_IND	
3 116	QMI_WDS_INITIATE_ESP_REKEY	
0.110	3.116.1 Request - QMI_WDS_INITIATE_ESP_REKEY_REQ	
	3.116.2 Response - QMI_WDS_INITIATE_ESP_REKEY_RESP	
	3.116.3 Description of QMI_WDS_INITIATE_ESP_REKEY REQ/RESP	
2 117	QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST	
0.117	3.117.1 Request - QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST_REQ	
	3.117.2 Response - QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST_RESP	
0.440	3.117.3 Description of QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST REQ/RESP	
J.118	QMI_WDS_PROFILE_CHANGED_IND	
	3.118.1 Indication - QMI_WDS_PROFILE_EVENT_REGISTER_IND	
	3.118.2 Description of QMI_WDS_PROFILE_CHANGED_IND	486

3.119	QMI_WDS_GET_CAPABILITIES	487
	3.119.1 Request - QMI_WDS_GET_CAPABILITIES_REQ	487
	3.119.2 Response - QMI_WDS_GET_CAPABILITIES_RESP	488
	3.119.3 Description of QMI_WDS_GET_CAPABILITIES REQ/RESP	488
3.120	QMI_WDS_GET_ROAMING_INFO	489
	3.120.1 Request - QMI_WDS_GET_ROAMING_INFO_REQ	489
	3.120.2 Response - QMI_WDS_GET_ROAMING_INFO_RESP	489
	3.120.3 Description of QMI_WDS_GET_ROAMING_INFO REQ/RESP	490
3.121	QMI_WDS_ROAMING_INFO_IND	491
	3.121.1 Indication - QMI_WDS_ROAMING_INFO_IND	491
	3.121.2 Description of QMI_WDS_ROAMING_INFO_IND	492
3.122	QMI_WDS_GET_DELEGATED_IPV6_PREFIX	493
	3.122.1 Request - QMI_WDS_GET_DELEGATED_IPV6_PREFIX_REQ	493
	3.122.2 Response - QMI_WDS_GET_DELEGATED_IPV6_PREFIX_RESP	494
	3.122.3 Description of QMI_WDS_GET_DELEGATED_IPV6_PREFIX REQ/RESP	495
3.123	QMI_WDS_REMOVE_DELEGATED_IPV6_PREFIX	
	3.123.1 Request - QMI_WDS_REMOVE_DELEGATED_IPV6_PREFIX_REQ	496
	3.123.2 Response - QMI_WDS_REMOVE_DELEGATED_IPV6_PREFIX_RESP	497
	3.123.3 Description of QMI_WDS_REMOVE_DELEGATED_IPV6_PREFIX REQ/RESP	497
3.124	QMI_WDS_ABORT_GO_DORMANT	
	3.124.1 Request - QMI_WDS_ABORT_GO_DORMANT_REQ	
	3.124.2 Response - QMI_WDS_ABORT_GO_DORMANT_RESP	
	3.124.3 Description of QMI_WDS_ABORT_GO_DORMANT REQ/RESP	499
3.125	QMI_WDS_BIND_SUBSCRIPTION	
	3.125.1 Request - QMI_WDS_BIND_SUBSCRIPTION_REQ	
	3.125.2 Response - QMI_WDS_BIND_SUBSCRIPTION_RESP	
	3.125.3 Description of QMI_WDS_BIND_SUBSCRIPTION REQ/RESP	
3.126	QMI_WDS_GET_BIND_SUBSCRIPTION	
	3.126.1 Request - QMI_WDS_GET_BIND_SUBSCRIPTION_REQ	
	3.126.2 Response - QMI_WDS_GET_BIND_SUBSCRIPTION_RESP	
	3.126.3 Description of QMI_WDS_GET_BIND_SUBSCRIPTION REQ/RESP	
3.127	QMI_WDS_SET_LTE_DATA_CALL_TYPE	
	3.127.1 Request - QMI_WDS_SET_LTE_DATA_CALL_TYPE_REQ	
	3.127.2 Response - QMI_WDS_SET_LTE_DATA_CALL_TYPE_RESP	
	3.127.3 Description of QMI_WDS_SET_LTE_DATA_CALL_TYPE REQ/RESP	
3.128	QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND_FREQ	506
	3.128.1 Request - QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND	
	FREQ_REQ	506
	3.128.2 Response - QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND	
	FREQ_RESP	507
	3.128.3 Description of QMI_WDS_SET_DOWNLINK_THROUGHPUT	
	INFO_IND_FREQ REQ/RESP	
3.129	QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND	
	3.129.1 Indication - QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND	
	3.129.2 Description of QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND	
3.130	QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_PARAMS	510
	3.130.1 Request - QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO	
	PARAMS_REQ	510
	3.130.2 Response - QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO	-
	PARAMS_RESP	510

3.130.3 Description of QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_PARAI		
REQ/RESP		
3.131 QMI_WDS_EMBMS_CONTENT_DESC_UPDATE		512
3.131.1 Request - QMI_WDS_EMBMS_CONTENT_DESC_UPDATE_REQ		
3.131.2 Response - QMI_WDS_EMBMS_CONTENT_DESC_UPDATE_RESP		515
3.131.3 Description of QMI_WDS_EMBMS_CONTENT_DESC_UPDATE REQ/RES	Ρ.	515
3.132 QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND		516
3.132.1 Indication - QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND		516
3.132.2 Description of QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND .		
3.133 QMI_WDS_POLICY_REFRESH		518
3.133.1 Request - QMI_WDS_POLICY_REFRESH_REQ		518
3.133.2 Response - QMI_WDS_POLICY_REFRESH_RESP		519
3.133.3 Description of QMI_WDS_POLICY_REFRESH REQ/RESP		
3.134 QMI_WDS_POLICY_REFRESH_RESULT_IND		520
3.134.1 Indication - QMI WDS POLICY REFRESH RESULT IND		
3.134.2 Description of QMI WDS POLICY REFRESH RESULT IND		521
3.135 QMI_WDS_POLICY_READY_IND		522
3.135.1 Indication - QMI_WDS_POLICY_READY_IND		
3.135.2 Description of QMI_WDS_POLICY_READY_IND		
3.136 QMI_WDS_APN_PARAM_INFO_CHANGE_IND		
3.136.1 Indication - QMI_WDS_APN_PARAM_INFO_CHANGE_IND		
3.136.2 Description of QMI_WDS_APN_PARAM_INFO_CHANGE_IND		
3.137 QMI_WDS_SET_SILENT_REDIAL		
3.137.1 Request - QMI WDS SET SILENT REDIAL REQ		
3.137.2 Response - QMI_WDS_SET_SILENT_REDIAL_RESP		
3.137.3 Description of QMI_WDS_SET_SILENT_REDIAL REQ/RESP		
3.138 QMI WDS REFRESH DHCP CONFIG INFO		
3.138.1 Request - QMI_WDS_REFRESH_DHCP_CONFIG_INFO_REQ		
3.138.2 Response - QMI_WDS_REFRESH_DHCP_CONFIG_INFO_RESP		
3.138.3 Description of QMI_WDS_REFRESH_DHCP_CONFIG_INFO REQ/RESP		
3.139 QMI WDS SET INTERNAL RUNTIME SETTINGS		
3.139.1 Request - QMI_WDS_SET_INTERNAL_RUNTIME_SETTINGS_REQ		530
3.139.2 Response - QMI_WDS_SET_INTERNAL_RUNTIME_SETTINGS_RESP .		
3.139.3 Description of QMI_WDS_SET_INTERNAL_RUNTIME_SETTINGS REQ/RI		
3.140 QMI WDS GET INTERNAL RUNTIME SETTINGS		
3.140.1 Request - QMI_WDS_GET_INTERNAL_RUNTIME_SETTINGS_REQ		534
3.140.2 Response - QMI_WDS_GET_INTERNAL_RUNTIME_SETTINGS_RESP .		
3.140.3 Description of QMI WDS GET INTERNAL RUNTIME SETTINGS REQ/R		
3.141 QMI WDS INTERNAL IFACE EV REGISTER		
3.141.1 Request - QMI WDS INTERNAL IFACE EV REGISTER REQ		
3.141.2 Response - QMI_WDS_INTERNAL_IFACE_EV_REGISTER_RESP		544
3.141.3 Description of QMI_WDS_INTERNAL_IFACE_EV_REGISTER REQ/RESP		
3.142 QMI_WDS_INTERNAL_IFACE_EV_IND		
3.142.1 Indication - QMI_WDS_INTERNAL_IFACE_EV_IND		545
3.142.2 Description of QMI_WDS_INTERNAL_IFACE_EV_IND		
Call End Reasons		552
Verbose Call End Reasons		556

A

С	DS Profile Extended Error Codes	592
D	IPSec Cryptographic Algorithms	594
E	Deprecated QMI_WDS Messages	595
F	References	596
	F.1 Related Documents	596
	F2 Acronyms and Terms	596



List of Tables

3-1	QMI_WDS messages
A-1	Technology-agnostic call end reasons
A-2	CDMA call end reasons
A-3	WCDMA/GSM call end reasons
A-4	1xEV-DO call end reasons
B-1	Call end reason type
B-2	Mobile IP call end reasons (Type = 1)
B-3	Internal call end reasons (Type = 2)
B-4	Call Manager defined call end reasons (Type = 3)
B-5	3GPP specification defined call end reasons (Type = 6)
B-6	PPP call end reasons (Type = 7)
B-7	3GPP specification defined call end reasons (Type = 8)
B-8	IPv6 call end reasons (Type = 9)
C-1	DS profile extended error codes
D-1	IPSec cryptographic algorithms
E-1	Deprecated QMI_WDS messages
	Deprecated QMI_WDS messages

1 Introduction

1.1 Purpose

This specification documents Major Version 1 of the Qualcomm Messaging Interface (QMI) Wireless Data Service (QMI_WDS).

The QMI_WDS provides a command set to interface to a wireless mobile station, providing IP connectivity and related value-added services. The QMI_WDS provides the following applications running on a host PC with commands related to IP data service over wireless radio networks:

- · Data call setup and teardown
- · Network registration and attach
- · Packet transmission statistics
- Data bearer rate
- Data session profile management

It is expected that user-level applications, for example, connection managers and device drivers on the Terminal Equipment (TE), use QMI_WDS to access this functionality on the MSMTM device.

QMI WDS is a QMI native service that conforms to the generalized behavior defined for QMI services.

1.2 Scope

This document is intended for software developers who are developing code to interact with the Qualcomm MSMTM device from a Host processor for IP connectivity-related operations.

This document provides the following details about QMI_WDS:

- Theory of operation Chapter 2 provides the theory of operation of QMI_WDS. The chapter includes messaging conventions, assigned QMI service type, fundamental service concepts, and state variables related to the service.
- Message formats, syntax, and semantics Chapter 3 provides the specific syntax and semantics of messages included in this version of the QMI WDS specification.
- Additional information Appendix A through Appendix E provide information on call end reasons, verbose call reasons, DS profile extended error codes, IPSec cryptographic algorithms, and a list of deprecated messages.

1.3 Conventions

Function declarations, function names, type declarations, and code samples appear in a different font, for example, #include.

1.4 Technical Assistance

For assistance or clarification on information in this document, submit a case to Qualcomm Technologies at https://support.cdmatech.com.

If you do not have access to the CDMATech Support website, register for access or send email to support.cdmatech@qti.qualcomm.com.

2 Theory of Operation

2.1 Generalized QMI Service Compliance

The QMI_WDS service complies with the generalized QMI service specification, including rules for messages, indications and responses, byte ordering, arbitration, constants, result, and error code values. Extensions to the generalized QMI service theory of operation are noted in subsequent sections of this chapter.

2.2 WDS Service Type

WDS is assigned QMI service type 0x01.

2.3 Message Definition Template

2.3.1 Response Message Result TLV

This Type-Length-Value (TLV) is present in all Response messages defined in this document. It is not present in the Indication messages.

Name	Version introduced	Version last modified
Result Code	Corresponding	Corresponding
	response's Version	response's Version
	introduced	last modified

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x02			1	Result Code
Length	4			2	
Value	\rightarrow	uint16	qmi_result	2	Result code
					• QMI_RESULT_SUCCESS
					 QMI_RESULT_FAILURE
		uint16	qmi_error	2	Error code – Possible error code values
					are described in the error codes section
					of each message definition

2.4 QMI_WDS Fundamental Concepts

All data session related messages apply to RmNet only unless explicitly specified for DUN.

2.4.1 Data Session

A wireless MSM device supporting QMI_WDS provides packet data (Internet Protocol) service through a wireless network. This service provides APIs to start and end the wireless data session. Multiple control points may need to use the packet data session. If at least one control point has requested it, the wireless device attempts to establish the packet data session. If multiple control points request a wireless data session, the session is maintained by the device until all requesting control points release the data session.

2.4.2 Data Session Handle

A packet data handle is an opaque identifier that represents an active wireless data connection. When the control point starts a data session, the service assigns a pkt_data_handle to the control point. It is provided back to the service in the message issued by the control point to release its use of IP services.

2.4.3 Data Connection Status

The wireless data service can report a variety of state information about the wireless data connection. The fundamental status reported to all control points is the connectivity status, or Packet_data_connection_state. This is a primary sequencing signal for the TE to begin using, i.e., start IPv4 address configuration, or discontinue use of IPv4 service. Other state information that is exposed by the WDS service includes packet statistics, channel rate, and radio technology serving the data session. The control point can obtain this information via a polling interface (request/response messages) or by configuring the device to asynchronously report changes in other state information via indication messages.

2.4.4 QMI_WDS Profile

A QMI_WDS profile is a collection of configurable data session-related settings stored on the MSM device in persistent storage. When a data session is established using QMI_WDS, a profile may be referenced as the basis of the data session-related settings negotiated with the serving network. When a configured profile is referenced in this case, the device attempts to negotiate the preferred settings defined in the profile. The network may assign different settings to the device, however. The device may support storage of one or more QMI_WDS profiles. Each profile is uniquely identified by a profile index. A control point may add, modify, or delete a profile, and may refer to the profile when starting a data session. As of WDS version 1.1, profile parameters are defined only for 3GPP devices. To date, only primary PDP profiles are supported.

2.5 Service State Variables

2.5.1 Shared State Variables

Name	Description	Possible	Default	Arbitration
		values	value	
packet_data_ connection_ state	 Indicates whether a network connection has been established Value of authenticating indicates authentication started but not connected Value of suspended indicates when the radio interface is in use by other services, e.g.,voice and data transfer are suspended temporarily 	• Connected • Not connected • Authenticating • Suspended	Not connected when the device is initialized unless autoconnect is enabled and proper state conditions are met	Connectivity attempted when at least one control point requests data service or enables autoconnect Disconnected when all control points no longer require data service and autoconnect is disabled

2.5.2 State Variables Per Control Point

Name	Description	Possible	Default
25	7	values	value
report_channel_rate	Whether change in data channel	• FALSE	FALSE
	Rx or Tx rate is reported to	• TRUE	
	control point		
pkt_stats_report_period	Period in seconds between	• 0 – Do	0
	transfer statistic reports	not report	
		• 1 to 255	
		(sec)	
pkt_stats_report_mask	Which packet statistics to be	0x00 to	0x00
	reported (bitmask)	0x3F	
report_data_bearer_tech	Whether change in data bearer	• FALSE	FALSE
	technology is reported to control	• TRUE	
	point		
report_dormancy_status	Whether change in traffic-channel	• FALSE	FALSE
	state is reported to control point	• TRUE	
report_mip_status	Whether change in MIP status is	• FALSE	FALSE
	reported to control point	• TRUE	
report_current_data_ bearer_tech	Whether change in current data	• FALSE	FALSE
	bearer technology is reported to	• TRUE	
	control point		

Name	Description	Possible	Default
		values	value
report_evdo_page_	Whether EV-DO page monitor	• FALSE	FALSE
monitor_period_change	period change event is reported to	• TRUE	
	control point		
report_data_call_status	Whether change in data call status	• FALSE	FALSE
	is reported to control point	• TRUE	
report_preferred_data_ system	Whether change in preferred data	• FALSE	FALSE
	system is reported to control point	• TRUE	
report_data_system_status	Whether change in data system	• FALSE	FALSE
	status is reported to control point	• TRUE	
report_data_bearer_tech_ex	Whether change in data bearer	• FALSE	FALSE
	technology extended is reported to	• TRUE	
	control point		
report_embms_tmgi_list	Whether to report the eMBMS	• FALSE	FALSE
	TMGI list	• TRUE	
suppress_pkt_srvc_ind	Whether to suppress the packet	• FALSE	FALSE
	service status indication	• TRUE	
report_extended_ip_config_change	Whether change in extended IP	• FALSE	FALSE
	configuration is reported to	• TRUE	
	control point		
report_lte_attach_pdn_list_change	Whether change in LTE attach	• FALSE	FALSE
	PDN list is reported to control	• TRUE	
	point		
report_reverse_ip_transport_filter_	Whether to report a reverse IP	• FALSE	FALSE
setup	transport filter setup	• TRUE	
report_handoff_information	Whether to report handoff	• FALSE	FALSE
20	information	• TRUE	

3 QMI_WDS Messages

Table 3-1 QMI_WDS messages

Command	ID	Description
QMI_WDS_RESET	0x0000	Resets the WDS service state variables
		of the requesting control point.
QMI_WDS_SET_EVENT_REPORT	0x0001	Sets the wireless data connection state
	60	reporting conditions for the requesting
		control point.
QMI_WDS_SET_EVENT_REPORT_IND	0x0001	Indicates the WDS connection related
		state change.
QMI_WDS_ABORT	0x0002	Aborts a previously issued QMI_WDS
		command.
QMI_WDS_INDICATION_REGISTER	0x0003	Sets the registration state for different
	9. our.	QMI_WDS indications for the
	2. 4.	requesting control point.
QMI_WDS_GET_SUPPORTED_MSGS	0x001E	Queries the set of messages
	0	implemented by the currently running
C.O. name		software.
QMI_WDS_GET_SUPPORTED_FIELDS	0x001F	Queries the fields supported for a single
2,50		command as implemented by the
0		currently running software.
QMI_WDS_START_NETWORK_INTERFACE	0x0020	Activates a packet data session (if not
		already started) on behalf of the
		requesting control point.
QMI_WDS_STOP_NETWORK_INTERFACE	0x0021	Deactivates a packet data session
		(unless in use by other control points)
		on behalf of the requesting control
		point.
QMI_WDS_GET_PKT_SRVC_STATUS	0x0022	Queries the current packet data
		connection status.
QMI_WDS_GET_PKT_SRVC_STATUS_IND	0x0022	Indicates a change in the current packet
		data connection status.
QMI_WDS_GET_CURRENT_CHANNEL_	0x0023	Queries the current bit rate of the packet
RATE		data connection.
QMI_WDS_GET_PKT_STATISTICS	0x0024	Queries the packet data transfer
		statistics from the start of the current
		packet data session.
QMI_WDS_GO_DORMANT	0x0025	Forces the device to immediately drop
		the traffic channel on the serving radio
		interface.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
QMI_WDS_GO_ACTIVE	0x0026	Forces the device to immediately reestablish the traffic channel on the
		serving radio interface.
QMI_WDS_CREATE_PROFILE	0x0027	Creates a configured profile with
		specified settings.
QMI_WDS_MODIFY_PROFILE_SETTINGS	0x0028	Changes the settings in a configured profile.
QMI_WDS_DELETE_PROFILE	0x0029	Deletes a configured profile.
QMI_WDS_GET_PROFILE_LIST	0x002A	Retrieves a list of configured profiles present on the wireless device.
QMI_WDS_GET_PROFILE_SETTINGS	0x002B	Retrieves the settings from a configured profile
QMI_WDS_GET_DEFAULT_SETTINGS	0x002C	Retrieves the default data session settings.
QMI_WDS_GET_RUNTIME_SETTINGS	0x002D	Retrieves the packet data session settings currently in use.
QMI_WDS_SET_MIP_MODE	0x002E	Sets the current Mobile IP mode setting for the device.
QMI_WDS_GET_MIP_MODE	0x002F	Queries the provisioned Mobile IP
QMI_WDS_GET_DORMANCY_STATUS	0x0030	mode setting from the device. Queries the current traffic channel
QMI_WDS_GET_AUTOCONNECT_SETTING	0x0034	Status. Queries autoconnect settings.
QMI_WDS_GET_CALL_DURATION	0x0035	Queries the duration of the current call.
QMI_WDS_GET_DATA_BEARER_	0x0037	Queries the current data bearer
TECHNOLOGY	0.0020	technology. (Deprecated)
QMI_WDS_GET_DUN_CALL_INFO	0x0038	Queries the current modem connection status. (Deprecated)
QMI_WDS_DUN_CALL_INFO_IND	0x0038	Indicates a change in the DUN data connection status.
QMI_WDS_GET_ACTIVE_MIP_PROFILE	0x003C	Queries the current Mobile IP mode profile index from the devices.
QMI_WDS_SET_ACTIVE_MIP_PROFILE	0x003D	Sets the Mobile IP mode setting for the active profile of the device.
QMI_WDS_READ_MIP_PROFILE	0x003E	Queries a mobile IP profile from the device.
QMI_WDS_MODIFY_MIP_PROFILE	0x003F	Modifies a mobile IP profile on the device.
QMI_WDS_GET_MIP_SETTINGS	0x0040	Queries the mobile IP settings from the device.
QMI_WDS_SET_MIP_SETTINGS	0x0041	Sets the current mobile IP setting for the device.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
QMI_WDS_GET_LAST_MIP_STATUS	0x0042	Queries the last mobile IP status from
		the device.
QMI_WDS_GET_CURRENT_DATA_BEARER_	0x0044	Queries the current data bearer
TECHNOLOGY		technology.
QMI_WDS_CALL_HISTORY_LIST	0x0045	Queries a list of call history records
		from the device. (Deprecated)
QMI_WDS_CALL_HISTORY_READ	0x0046	Queries a call history record from the
		device. (Deprecated)
QMI_WDS_CALL_HISTORY_DELETE	0x0047	Clears the call history records from the
		device. (Deprecated)
QMI_WDS_CALL_HISTORY_MAX_SIZE	0x0048	Requests the maximum number of call
		history records that can be stored in the
	0.5	device. (Deprecated)
QMI_WDS_GET_DEFAULT_PROFILE_NUM	0x0049	Retrieves the default profile number
		configured on the wireless device for
		the specified technology.
QMI_WDS_SET_DEFAULT_PROFILE_NUM	0x004A	Sets the default profile number on the
		wireless device for the specified
	V	technology.
QMI_WDS_RESET_PROFILE_TO_DEFAULT	0x004B	Resets all the parameters of the
	2.0 4.0	specified profile and technology to
		default values.
QMI_WDS_RESET_PROFILE_PARAM_TO_	0x004C	Resets the specified profile parameter
INVALID		type for the specified technology to
70 11		invalid.
QMI_WDS_SET_CLIENT_IP_FAMILY_PREF	0x004D	Sets the control point IP preference.
QMI_WDS_FMC_SET_TUNNEL_PARAMS	0x004E	Sets the tunnel parameters for FMC.
	ONOUTE	(Deprecated)
QMI_WDS_FMC_CLEAR_TUNNEL_PARAMS	0x004F	Clears the tunnel parameters for FMC.
	0/100 11	(Deprecated)
QMI_WDS_FMC_GET_TUNNEL_PARAMS	0x0050	Queries the FMC tunnel parameters
		from the device. (Deprecated)
QMI_WDS_SET_AUTOCONNECT_SETTINGS	0x0051	Sets the autoconnect settings.
OMI WDS GET DNS SETTINGS	0.0052	Quarias the augment DNS settings for the
QMI_WDS_GET_DNS_SETTINGS	0x0052	Queries the current DNS settings for the device. (Deprecated)
OMI WDC CET DNC CETTINGS	0x0053	1 · · · · · · · · · · · · · · · · · · ·
QMI_WDS_SET_DNS_SETTINGS	UXUUSS	Sets the current DNS settings for the
QMI_WDS_GET_PRE_DORMANCY_CDMA_	0x0054	device. (Deprecated) Retrieves the packet data session
SETTINGS	0.000.54	information before dormancy.
QMI_WDS_SET_CAM_TIMER	0x0055	Sets the Chatty App Manager timer
Aut apponing and an appropriate the second s	0.00033	value.
QMI_WDS_GET_CAM_TIMER	0x0056	Queries the Chatty App Manager timer
VIII_IIDO_ODI_O/III_IIIIDK	UNUUJU	value.
		Turue.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
QMI_WDS_SET_SCRM	0x0057	Disables/enables the Supplemental Channel Request Message (SCRM).
QMI_WDS_GET_SCRM	0x0058	Retrieves whether SCRM support is enabled or disabled.
QMI_WDS_SET_RDUD	0x0059	Enables or disables reduced dormancy followed by unsolicited data.
QMI_WDS_GET_RDUD	0x005A	Retrieves whether reduced dormancy followed by unsolicited data is enabled or disabled.
QMI_WDS_GET_SIP_MIP_CALL_TYPE	0x005B	Queries the SIP/MIP call type.
QMI_WDS_SET_EVDO_PAGE_MONITOR_ PERIOD	0x005C	Sets the EV-DO slot cycle index.
QMI_WDS_EVDO_PAGE_MONITOR_ PERIOD_RESULT_IND	0x005C	Indicates the result of the attempt to change the EV-DO slot cycle.
QMI_WDS_SET_EVDO_FORCE_LONG_ SLEEP	0x005D	Enables or disables the EV-DO force long sleep feature.
QMI_WDS_GET_EVDO_PAGE_MONITOR_ PERIOD	0x005E	Retrieves details about the EV-DO page monitoring period.
QMI_WDS_GET_CALL_THROTTLE_INFO	0x005F	Queries whether the system is call throttled and returns the remaining throttled delay.
QMI_WDS_GET_NSAPI	0x0060	Retrieves the Network Service Access Point Identifier (NSAPI), based on the access point name.
QMI_WDS_SET_DUN_CTRL_PREF	0x0061	Sets the control point's preference to control the Dial-Up Networking (DUN) call requests received by the modem.
QMI_WDS_GET_DUN_CTRL_INFO	0x0062	Queries the status of the DUN call control on the modem.
QMI_WDS_SET_DUN_CTRL_EVENT_ REPORT	0x0063	Sets the DUN control event report preference for the control point.
QMI_WDS_DUN_CTRL_EVENT_REPORT_ IND	0x0063	Indicates an event related to a pending DUN call request on the modem.
QMI_WDS_CONTROL_PENDING_DUN_ CALL	0x0064	Allows or disallows a pending DUN call request.
QMI_WDS_EMBMS_TMGI_ACTIVATE	0x0065	Activates the eMBMS Temporary Mobile Group Identity (TMGI).
QMI_WDS_EMBMS_TMGI_ACTIVATE_IND	0x0065	Indicates the result of the TMGI activate request.
QMI_WDS_EMBMS_TMGI_DEACTIVATE	0x0066	Deactivates an eMBMS TMGI.
QMI_WDS_EMBMS_TMGI_DEACTIVATE_ IND	0x0066	Indicates the result of the TMGI deactivate request.
QMI_WDS_EMBMS_TMGI_LIST_QUERY	0x0067	Queries the TMGI list.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
QMI_WDS_EMBMS_TMGI_LIST_IND	0x0068	Indicates the currently active or
		available TMGI list.
QMI_WDS_GET_PREFERRED_DATA_	0x0069	Queries the preferred data system.
SYSTEM	0.1000)	(Deprecated)
QMI_WDS_GET_LAST_DATA_CALL_	0x006A	Queries the last reported data call status.
STATUS	OAGGGI I	Queries the last reported data can status.
QMI_WDS_GET_CURRENT_DATA_	0x006B	Queries the current data system status.
SYSTEM STATUS	OXOOOD	Queries the current data system status.
QMI_WDS_GET_PDN_THROTTLE_INFO	0x006C	Queries the PDN throttle information.
QMI_WDS_GET_IDIV_TIIKGTTEE_IIVIO	UNUUUC	Queries the 1 Div throttle information.
QMI_WDS_GET_LTE_ATTACH_PARAMS	0x0085	Queries LTE attach PDN parameters.
QMI_WDS_GET_LTE_ATTACH_FARAMS	000003	Queries LTE attach PDN parameters.
OMI WING DECET DUT CTATICTICS	00006	Description market data transfer statistics
QMI_WDS_RESET_PKT_STATISTICS	0x0086	Resets the packet data transfer statistics.
OMI WDG GET FLOW CONTROL GTATUG	0.0007	0 1 1 110
QMI_WDS_GET_FLOW_CONTROL_STATUS	0x0087	Queries the current data call flow
	0.0000	control status
QMI_WDS_EMBMS_TMGI_ACT_DEACT	0x0088	Activates and deactivates TMGIs.
	(Qo)	
QMI_WDS_EMBMS_TMGI_ACT_DEACT_	0x0088	Indicates the result of the TMGI
IND	indication	activation and deactivation request.
QMI_WDS_BIND_DATA_PORT	0x0089	Binds a control point to an SIO data
.90	The same of the sa	port.
QMI_WDS_SET_ADDITIONAL_PDN_FILTER	0x008A	Sets the filter to allow multiple PDNs to
0, 440		be shared on the same data port.
10. 1111		(Deprecated)
QMI_WDS_REMOVE_ADDITIONAL_PDN_	0x008B	Removes the filter that was set to allow
FILTER		additional PDNs to be shared on a
		single port. (Deprecated)
QMI_WDS_EXTENDED_IP_CONFIG_IND	0x008C	Indicates a change in any of the IP
		configuration of the data session.
QMI_WDS_REVERSE_IP_TRANSPORT_	0x008D	Registration mechanism for indications
CONNECTION_IND_REGISTRATION		relevant to reverse IP transport
		connections.
QMI_WDS_REVERSE_IP_TRANSPORT_	0x008E	Indicates a change in the current reverse
CONNECTION_IND		IP transport connection status.
QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG	0x008F	Retrieves IPSec static Security
		Associations (SA) for the ePDG call.
QMI_WDS_REVERSE_IP_TRANSPORT_	0x0090	Sends notification that reverse IP
CONFIG_COMPLETE		transport configuration is complete on
		the Application Processor (AP) side.
QMI_WDS_GET_DATA_BEARER_	0x0091	Queries the data bearer technology.
TECHNOLOGY_EX	0.1.0071	Question and data octator toolinology.
QMI_WDS_GET_LTE_MAX_ATTACH_PDN_	0x0092	Queries the maximum number of
NUM	UNUUJ2	attached PDNs supported.
QMI_WDS_SET_LTE_ATTACH_PDN_LIST	0x0093	Sets the LTE attach PDN list.
Zim_wps_sel_ele_allacti_lbit_els1	UNUUJJ	Sets the LTL attach I DIV list.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
QMI_WDS_GET_LTE_ATTACH_PDN_LIST	0x0094	Queries the attach PDN list.
QMI_WDS_LTE_ATTACH_PDN_LIST_IND	0x0095	Indicates a change in the list of LTE attach PDNs.
QMI_WDS_SET_LTE_DATA_RETRY	0x0096	Enables or disables retrying an LTE data attach.
QMI_WDS_GET_LTE_DATA_RETRY	0x0097	Retrieves the current LTE data retry setting.
QMI_WDS_SET_LTE_ATTACH_TYPE	0x0098	Sets whether the attach to be performed is initial or handoff.
QMI_WDS_GET_LTE_ATTACH_TYPE	0x0099	Retrieves the current LTE attach type.
QMI_WDS_REVERSE_IP_TRANSPORT_ FILTER_SETUP_IND	0x009A	Indicates that a reverse IP transport filter must be set up. (Deprecated)
QMI_WDS_HANDOFF_INFORMATION_IND	0x009B	Indicates that a handoff is in progress or has been completed.
QMI_WDS_SET_DATA_PATH	0x009C	Sets the client data path.
QMI_WDS_GET_DATA_PATH	0x009D	Queries the current modem data path.
QMI_WDS_UPDATE_LTE_ATTACH_PDN_ LIST_PROFILES	0x009F	Triggers the modem to update the profile parameters.
QMI_WDS_EMBMS_SAI_LIST_QUERY	0x00A0	Queries the Service Area Identity (SAI) list.
QMI_WDS_EMBMS_SAI_LIST_IND	0x00A1	Indicates the currently available SAI list.
QMI_WDS_BIND_MUX_DATA_PORT	0x00A2	Binds a control point to a muxed data port.
QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ	0x00A3	Sets the timer for generating a throughput information indication.
QMI_WDS_GET_LAST_THROUGHPUT_INFO	0x00A4	Queries for the last reported throughput information.
QMI_WDS_THROUGHPUT_INFO_IND	0x00A5	Indicates throughput information.
QMI_WDS_INITIATE_ESP_REKEY	0x00A6	Initiates an ESP rekey.
QMI_WDS_CONFIGURE_PROFILE_EVENT_ LIST	0x00A7	Registers for profile change events.
QMI_WDS_PROFILE_CHANGED_IND	0x00A8	Indicates a change in the profile configured for reporting of change events.
QMI_WDS_GET_CAPABILITIES	0x00A9	Queries the modem capabilites.
QMI_WDS_GET_ROAMING_INFO	0x00AA	Retrieves APN names during roaming.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
		-
QMI_WDS_ROAMING_INFO_IND	0x00AB	Indicates APN names during roaming.
QMI_WDS_GET_DELEGATED_IPV6_PREFIX	0x00AC	Queries the delegated IPv6 prefix.
QMI_WDS_REMOVE_DELEGATED_IPV6_ PREFIX	0x00AD	Removes the delegated IPv6 prefix.
QMI_WDS_ABORT_GO_DORMANT	0x00AE	Aborts the previously issued OMI WDS GO DORMANT
OM WING DIND GUIDGODIDEION	0.0045	command.
QMI_WDS_BIND_SUBSCRIPTION	0x00AF	Binds the control point to the specified subscription.
QMI_WDS_GET_BIND_SUBSCRIPTION	0x00B0	Queries for the current subscription of the control point.
QMI_WDS_SET_LTE_DATA_CALL_TYPE	0x00B1	Sets the data call type for an active LTE call.
QMI_WDS_SET_DOWNLINK_ THROUGHPUT_INFO_IND_FREQ	0x00B2	Sets the timer for generating the QMI_WDS_DOWNLINK_
	801	THROUGHPUT_INFO_IND indication.
QMI_WDS_DOWNLINK_THROUGHPUT_	0x00B3	
INFO_IND	00,700	Indicates downlink throughput information.
QMI_WDS_GET_DOWNLINK_ THROUGHPUT_INFO_PARAMS	0x00B4	Queries for the downlink throughout information parameters.
QMI_WDS_EMBMS_CONTENT_DESC_ UPDATE	0x00B5	Updates eMBMS content description parameters.
QMI_WDS_EMBMS_CONTENT_DESC_	0x00B6	Indicates eMBMS content description
CONTROL_IND		settings.
QMI_WDS_POLICY_REFRESH	0x00B7	Refreshes the specified policy.
QMI_WDS_POLICY_REFRESH_RESULT_IND	0x00B7	Indicates the result of the attempt to refresh the policy.
QMI_WDS_POLICY_READY_IND	0x00B8	Indicates that a policy file is ready.
QMI_WDS_APN_PARAM_INFO_CHANGE_	0x00B9	Indicates old and new APN parameter
IND	0.007:	information for an active data call.
QMI_WDS_SET_SILENT_REDIAL	0x00BA	Notifies the modem to perform silent redial.
QMI_WDS_REFRESH_DHCP_CONFIG_INFO	0xFFFB	Refreshes the DHCP configuration information.
QMI_WDS_SET_INTERNAL_RUNTIME_ SETTINGS	0xFFFC	Sets/modifies internal packet data session settings.
QMI_WDS_GET_INTERNAL_RUNTIME_ SETTINGS	0xFFFD	Retrieves internal packet data session settings currently in use.
QMI_WDS_INTERNAL_IFACE_EV_ REGISTER	0xFFFE	Registers for IFACE events.
QMI_WDS_INTERNAL_IFACE_EV_IND	0xFFFE	Indicates the occurrence of IFACE events.

3.1 QMI WDS RESET

Resets the WDS service state variables of the requesting control point.

WDS message ID

0x0000

Version introduced

Major - 1, Minor - 0

3.1.1 Request - QMI_WDS_RESET_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.1.2 Response - QMI_WDS_RESET_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission

3.1.3 Description of QMI_WDS_RESET REQ/RESP

This command resets the issuing control point state kept by the service.

Each shared state variable may change as a result according to its arbitration policy (see Section 2.5.1).

This is equivalent to closing the service and reopening it again, although it is performed as one operation and, hence, the client ID of the requesting control point does not change.

The control point state variables change to their default values before the response is issued.



3.2 QMI WDS SET EVENT REPORT

Sets the wireless data connection state reporting conditions for the requesting control point.

WDS message ID

0x0001

Version introduced

Major - 1, Minor - 0

Request - QMI_WDS_SET_EVENT_REPORT_REQ 3.2.1

Message type

Optional TLVs

Request						
Sender						
Control point						
Mandatory TLVs						
None	op, con					
Mandatory TLVs None Optional TLVs						
Name	Version introduced	Version last modified				
Current Channel Rate Indicator	1.0	1.0				
Transfer Statistics Indicator	Unknown	1.24				
Data Bearer Technology Indicator	1.4	1.22 (Deprecated)				
Dormancy Status indicator	1.3	1.3				
MIP Status Indicator	Unknown	1.12				
Current Data Bearer Technology Indicator	Unknown	1.4				
Data Call Status Change Indicator	Unknown	1.16				
Current Preferred Data System Indicator	Unknown	1.16				
EV-DO Page Monitor Period Change Indicator	Unknown	1.14				
Data System Status Change Indicator	Unknown	1.18				
Uplink Flow Control Indicator 1.26 1.26						
Limited Data System Status Change Indicator 1.34 1.34						
Additional PDN Filters Removal Indicator 1.36 1.36						
Data Bearer Technology Extended Indicator	1.41	1.41				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Current Channel Rate Indicator
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type	. 1 1	(byte)	X7.1
Value	\rightarrow	boolean	report_channel_rate	1	Values:
					• 0 – Do not report
_	0.11			1	• 1 – Report channel rate when it changes
Туре	0x11			1	Transfer Statistics Indicator
Length	5			2	
Value	\rightarrow	uint8	stats_period	1	Period between transfer statistics reports.
					Values:
					• 0 – Do not report
					• Other – Period between reports (in
					seconds)
		mask32	stats_mask	4	Requested statistic bitmask. Values:
					• 0x00000001 – Tx packets OK
					• 0x00000002 – Rx packets OK
					• 0x00000004 – Tx packet errors
					• 0x00000008 – Rx packet errors
					• $0x00000010 - Tx$ overflows
					• 0x00000020 – Rx overflows
					• 0x00000040 – Tx bytes OK
				60	• 0x00000080 – Rx bytes OK
				3	• 0x00000100 – Tx packets dropped
			.0	0. 00	• 0x00000200 – Rx packets dropped
			60.	E. 1.	Each bit set causes the corresponding
		1	No. 24		optional TLV to be sent in
			5 36		QMI_WDS_EVENT_REPORT_IND.
			6. Wall		All unlisted bits are reserved for future
			07.73		use and must be set to zero.
Туре	0x12		100	1	Data Bearer Technology Indicator
			<i>y</i>		(Deprecated)
Length	1			2	
Value	\rightarrow	boolean	report_data_bearer_tech	1	Values:
					• 0 – Do not report
					• 1 – Report radio interface used for data
					transfer when it changes
Туре	0x13			1	Dormancy Status indicator
Length	1			2	
Value	\rightarrow	boolean	report_dormancy_status	1	Values:
					• 0 – Do not report
					• 1 – Report traffic channel state of
					interface used for data connection
Туре	0x14			1	MIP Status Indicator
Length	1			2	
Value	\rightarrow	boolean	report_mip_status	1	Values:
-			1 = 1 = ···		• 0 – Do not report
					• 1 – Report MIP status
Туре	0x15			1	Current Data Bearer Technology
- , , , ,	0.110			•	Indicator
Length	1			2	1110101101

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	boolean	report_current_data_	1	Values:
			bearer_tech		• 0 – Do not report
					• 1 – Report current data bearer
					technology when it changes
Туре	0x17			1	Data Call Status Change Indicator
Length	1			2	
Value	\rightarrow	boolean	report_data_call_status_	1	Values:
			change		• 0 – Do not report
					• 1 – Report data call status change when
					it changes
Туре	0x18			1	Current Preferred Data System Indicator
Length	1			2	
Value	\rightarrow	boolean	report_preferred_data_	1	Values:
			system		• 0 – Do not report
					• 1 – Report preferred data system when
				7	it changes
Туре	0x19			1	EV-DO Page Monitor Period Change
				_	Indicator
Length	1			20	A.
Value	\rightarrow	boolean	report_evdo_page_	31	Values:
			monitor_period_change	0. 0//	• 0 – Do not report
			00.	E.J.	• 1 – Report EV-DO page monitor period
		1	1º 01º		change event
Туре	0x1A		5 55	1	Data System Status Change Indicator
Length	1		16' Ma	2	
Value	\rightarrow	boolean	report_data_system_status	1	Values:
			750		• 0 – Do not report
					• 1 – Report data system status change
					event
Туре	0x1B			1	Uplink Flow Control Indicator
Length	1			2	
Value	\rightarrow	boolean	report_uplink_flow_control	1	Values:
					• 0 – Do not report
					• 1 – Report uplink flow control change
					event
Туре	0x1C			1	Limited Data System Status Change
					Indicator
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	boolean	limited_data_system_status	1	Values:
					• 0 – Do not report limited data system
					status
					• 1 – Report interfamily transition of data
					system status
				- 1	Indications for transition between RATs belonging to two different families are reported. Control points are expected to deregister from Data System Status Change Indicator reporting (using TLV 0x1A) and register for the Limited Data System Status Change Indicator (to only
					get QMI_WDS_EVENT_REPORT_IND
					with the Data System Status TLV (0x24)
					for interfamily system status changes).
			, (WCDMA family:
				6	• WCDMA • HSDPA
				~ 67	• HSUPA
				3	• HSDPA+
			0:0	3.00	• DC_HSDPA+
			30 3	2	• 64_QAM
			2016-05-18-00:5		GSM family
			1,0 1,1		• GPRS
			S. 9501.		• EDGE
					LTE family
					• LTE
					TDGGDMA C 1
					TDSCDMA family • TDSCDMA
Туре	0x1D			1	Additional PDN Filters Removal
Type	UNID			1	Indicator
Length	1			2	
Value	\rightarrow	boolean	report_additional_pdn_	1	Values:
			filters_removal		• 0 – Do not report
					• 1 – Report additional PDN filters
					removal event
Туре	0x1E			1	Data Bearer Technology Extended Indicator
Length	1			2	
Value	\rightarrow	boolean	report_data_bearer_	1	Values:
			tech_ex		• 0 – Do not report
					• 1 – Report data bearer technology
					extended when it changes

3.2.2 Response - QMI_WDS_SET_EVENT_REPORT_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request

3.2.3 Description of QMI_WDS_SET_EVENT_REPORT REQ/RESP

The control point event reporting state variables are modified to reflect the settings indicated in the TLVs that are present in the request message. The service maintains a set of state variables for each control point. See Section 2.5.2 for a list of state variables and their explanations.

Relevant wireless data connection state changes are communicated to the registered WDS control point via the QMI_WDS_EVENT_REPORT_IND indication.

The AT command equivalents to this command are AT+CMER, AT+CIND, and AT+CIEV (refer to 3GPP TS 27.007).

3.3 QMI_WDS_SET_EVENT_REPORT_IND

Indicates the WDS connection related state change.

WDS message ID

0x0001

Version introduced

Major - 1, Minor - 0

3.3.1 Indication - QMI_WDS_EVENT_REPORT_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Name	Version introduced	Version last modified
Tx Packets OK	1.0	1.0
Rx Packets OK	1.0	1.0
Tx Packet Errors	1.0	1.0
Rx Packet Errors	1.0	1.0
Tx Overflows	1.0	1.0
Rx Overflows	1.0	1.0
Channel Rate	1.0	1.0
Data Bearer Technology	1.0	1.30 (Deprecated)
Dormancy Status	Unknown	1.3
Tx Bytes OK	Unknown	1.10
Rx Bytes OK	Unknown	1.10
MIP Status	Unknown	1.12
Current Data Bearer Technology	1.10	1.24
Data Call Status Change	Unknown	1.16
Current Preferred Data System	1.16	1.22
Data Call Type	Unknown	1.19
EV-DO Page Monitor Period Change	Unknown	1.14

Name	Version introduced	Version last modified
Data System Status	1.18	1.23
Tx Packets Dropped	1.24	1.24
Rx Packets Dropped	1.24	1.24
Uplink Flow Control	1.26	1.26
Data Call Address Family	1.29	1.29
Additional PDN Filters Removed	1.36	1.36
Data Bearer Technology Extended	1.41	1.70
Uplink Flow Control Sequence Number	1.50	1.50

(3)

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Tx Packets OK
Length	4			2	
Value	\rightarrow	uint32	tx_ok_count	4	Number of packets transmitted without
					error.
Туре	0x11			1	Rx Packets OK
Length	4			2	
Value	\rightarrow	uint32	rx_ok_count	4 <	Number of packets received without
				60	error.
Туре	0x12			31 3	Tx Packet Errors
Length	4		0.	5. 22.	
Value	\rightarrow	uint32	tx_err_count	£ 4	Number of outgoing packets with
			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		framing errors.
Туре	0x13		5,79	1	Rx Packet Errors
Length	4		6, 11,51	2	
Value	\rightarrow	uint32	rx_err_count	4	Number of incoming packets with
			750		framing errors.
Туре	0x14			1	Tx Overflows
Length	4			2	
Value	\rightarrow	uint32	tx_ofl_count	4	Number of packets dropped because Tx
					buffer overflowed (out of memory).
Туре	0x15			1	Rx Overflows
Length	4			2	
Value	\rightarrow	uint32	rx_ofl_count	4	Number of packets dropped because Rx
					buffer overflowed (out of memory).
Туре	0x16			1	Channel Rate
Length	8			2	
Value	\rightarrow	uint32	current_channel_tx_rate	4	Max channel Tx rate in bits per second.
		uint32	current_channel_rx_rate	4	Max channel Rx rate in bits per second.
Туре	0x17			1	Data Bearer Technology (Deprecated)
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	data_bearer_tech	1	Values:
					• 0x01 – cdma2000 [®] 1X
					• 0x02 – cdma2000 [®] HRPD (1xEV-DO)
					$\bullet 0x03 - GSM$
					• 0x04 – UMTS
					• 0x05 – cdma2000 [®] HRPD (1xEV-DO
					RevA)
					• 0x06 – EDGE
					• 0x07 – HSDPA and WCDMA
					• 0x08 – WCDMA and HSUPA
					• 0x09 – HSDPA and HSUPA
					• 0x0A – LTE
					• 0x0B – cdma2000® EHRPD
			, and		• 0x0C – HSDPA+ and WCDMA
					 0x0D – HSDPA+ and HSUPA 0x0E – DC_HSDPA+ and WCDMA
				1	• 0x0E – DC_HSDAP+ and HSUPA
			, 0	1	• 0x10 – HSDPA+ and 64QAM
				6	• 0x11 – HSDPA+, 64QAM and HSUPA
				~ ~ ~ ~	• 0x12 – TDSCDMA
				3	• 0x13 – TDSCDMA and HSDPA
			0:0	3.00	• 0x14 – TDSCDMA and HSUPA
			80%	200	• -1 – Unknown
Туре	0x18		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	1	Dormancy Status
Length	1		C.O. Value	2	
Value	\rightarrow	enum8	dormancy_status	1	Values:
			7,00		• 1 – Traffic channel dormant
			0		• 2 – Traffic channel active
Туре	0x19			1	Tx Bytes OK
Length	8			2	
Value	\rightarrow	uint64	tx_ok_bytes_count	8	Number of bytes transmitted without
					error
Туре	0x1A			1	Rx Bytes OK
Length	8			2	
Value	\rightarrow	uint64	rx_ok_bytes_count	8	Number of bytes received without error
Туре	0x1B			1	MIP Status
Length	1	•	• , ,	2	Control 1 (1977)
Value	\rightarrow	uint8	mip_status	1	Status of the last MIP call (or attempt).
					Values:
					• 0x00 – Success
					• 0 – Error code (as defined in RFC 2002)
Type	0x1D			1	· · · · · · · · · · · · · · · · · · ·
Type				2	Current Data Bearer Technology
Length	9				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	current_nw	1	Current network type of data bearer.
					Values:
					• WDS_CURRENT_NETWORK_
					UNKNOWN (0x00) – Unknown
					• WDS_CURRENT_NETWORK_3GPP2
					(0x01) - 3GPP2
					• WDS_CURRENT_NETWORK_3GPP
					(0x02) - 3GPP
		uint32	rat_mask	4	RAT mask to indicate the type of
					technology. A RAT mask value of zero
					indicates that this field is ignored.
					Values:
					• 0x00 – DONT_CARE
					• 0x8000 – NULL_BEARER
					CDMA RAT mask:
				3	$\bullet 0x01 - CDMA_1X$
				_<	• 0x02 – EVDO_REV0
				60	• 0x04 – EVDO_REVA
				3	• 0x08 – EVDO_REVB
			0.	0. 50%	• $0x10 - EHRPD$
			00.	E.J.	• 0x20 – FMC
			2016.05.12.00.25 2016.05.12.00.25		LIDATEG DATE 1
			5 10		UMTS RAT mask:
		,	6.61		• 0x01 – WCDMA
			20, 20,		• $0x02 - GPRS$
			200		• 0x04 – HSDPA
					• 0x08 – HSUPA
					• 0x10 – EDGE
					• 0x20 – LTE
					• 0x40 – HSDPA+
					• 0x80 – DC_HSDPA+
					• 0x100 – 64_QAM
					• 0x200 – TDSCDMA

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	so_mask	4	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					CDMA 1X SO mask:
					• 0x01 – CDMA_1X_IS95
					• 0x02 – CDMA_1X_IS2000
					• 0x04 – CDMA_1X_IS2000_REL_A
					CDMA EV-DO Rev 0 SO mask:
				9	• 0x01 – DPA
					• OXOI – DFA
					CDMA EV-DO Rev A SO mask:
				"	• 0x01 – DPA
					• 0x02 – MFPA
					• 0x04 – EMPA
				0	• 0x08 – EMPA_EHRPD
				3	7,
			0.	0. 600.	CDMA EV-DO Rev B SO mask:
			00.	E.J.	• 0x01 – DPA
			Nº 645		• 0x02 – MFPA
			5 19		• 0x04 – EMPA
			6. hai		• 0x08 – EMPA_EHRPD • 0x10 – MMPA
			30, 20.		
Tymo	0x1F		200	1	• 0x20 – MMPA_EHRPD Data Call Status Change
Type Length	1			2	Data Call Status Change
Value	\rightarrow	enum8	data_call_status	1	Values:
value	,	chamo	data_can_status	_	• 0x01 – Data call activated
					• 0x02 – Data call terminated
Туре	0x20			1	Current Preferred Data System
Length	4			2	- Constitution of the control of the
Value	\rightarrow	enum	current_sys	4	Values:
			-		• 0x00 – Unknown
					• 0x01 – CMDA_1X
					• 0x02 – EVDO
					• 0x03 – GPRS
					• 0x04 – WCDMA
					• 0x05 – LTE
					• 0x06 – TDSCDMA
Туре	0x22			1	Data Call Type
Length	2			2	
Value	\rightarrow	enum8	data_call_type	1	Values:
					• 0x01 – Embedded call (application)
					• 0x02 – Tethered call
					• 0x03 – Modem embedded call

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	tethered_call_type	1	Values:
					• 0x00 – Non-tethered call
					• 0x01 – RmNet call
					• 0x02 – DUN call
Туре	0x23			1	EV-DO Page Monitor Period Change
Length	2			2	
Value	\rightarrow	enum8	evdo_page_monitor_	1	EV-DO slot cycle and long sleep info.
			period_change		
		boolean	evdo_force_long_sleep	1	Set to 1 if EV-DO is forced to ignore the
					slot cycle setting and instead sleep for
					long periods, potentially missing pages
Туре	0x24			1	Data System Status
Length	Var			2	
Value	\rightarrow	enum8	preferred_network	1	Values:
					• 0 – 3GPP
					• 1 – 3GPP2
		uint8	network_info_len	1	Number of sets of the following
				_	elements:
				80	• network
				3	• rat_mask
			0.	o. Oz.	• so_mask
		enum8	network	e 1	Values:
		1	18 mg		• 0 – 3GPP
			5 10		• 1 – 3GPP2

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	rat_mask	4	RAT mask to indicate the type of
					technology.
					A RAT mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					• 0x8000 – NULL_BEARER
					CDMA RAT mask:
					• $0x01 - CDMA_1X$
					• 0x02 – EVDO_REV0
					• 0x04 – EVDO_REVA
					• 0x08 – EVDO_REVB
					• 0x10 – EHRPD
				800	• 0x20 – FMC
			4	30	UMTS RAT mask:
					• 0x01 – WCDMA
				,	• 0x02 – GPRS
				- 6Ô	• 0x04 – HSDPA
				2	• 0x08 – HSUPA
				5.3.0°C	• 0x10 – EDGE
			20:0	24.0	• 0x20 – LTE
			3 3	-	• 0x40 – HSDPA+
			~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		• 0x80 – DC_HSDPA+
			0, 3119		$\bullet 0x100 - 64_QAM$
			10 111		• 0x200 – TDSCDMA
•	. '		1,960		

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	so_mask	4	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					CDMA 1X SO mask:
					• 0x01 – CDMA_1X_IS95
					• 0x02 – CDMA_1X_IS2000
					• 0x04 – CDMA_1X_IS2000_REL_A
					CDMA EV-DO Rev 0 SO mask:
					$\bullet 0x01 - DPA$
					CDMA EV-DO Rev A SO mask:
			4	3-	• 0x01 – DPA
					• 0x02 – MFPA
				/	• 0x04 – EMPA
				00	• 0x08 – EMPA_EHRPD
				27 "	gh.
				5. M	CDMA EV-DO Rev B SO mask:
			20:0	34.	• 0x01 – DPA
			4 3		• 0x02 – MFPA
			7.7. °C.		• 0x04 – EMPA
		1	C.O. Wallis		• 0x08 – EMPA_EHRPD
			010 11		• 0x10 – MMPA
			2,00		• 0x20 – MMPA_EHRPD
Туре	0x25		5	1	Tx Packets Dropped
Length	4			2	
Value	\rightarrow	uint32	tx_dropped_count	4	Number of outgoing packets dropped.
Туре	0x26			1	Rx Packets Dropped
Length	4			2	
Value	\rightarrow	uint32	rx_dropped_count	4	Number of incoming packets dropped.
Туре	0x27			1	Uplink Flow Control
Length	1			2	
Value	\rightarrow	boolean	uplink_flow_control	1	Uplink flow control status. Values:
					• 0 – Not flow controlled
					• 1 – Flow controlled
Туре	0x28			1	Data Call Address Family
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Value	\rightarrow	enum	data_call_addr_family	4	Data call address family. This TLV is
					sent in conjunction with the Data Call
					Status Change TLV (0x1F) to indicate
					the IP family type of the call activated or
					terminated.
					• 0 – Unknown
					• 4 – IPv4
					• 6 – IPv6
					Note: For legacy control points that do
					not bind to an IP type or do not specify
					the IP type when bringing up a call,
					unknown is returned if the call fails.
Туре	0x29			1	Additional PDN Filters Removed
Length	Var			2	
Value	\rightarrow	uint8	removed_filter_handles_	1	Number of sets of the following
			len	"	elements:
				r	• removed_filter_handles
		uint32	removed_filter_handles	Var	Removed filter handles. This TLV
				0	contains the list of all removed filters that
				27 3	were set by the client on the RmNet port.
				0. '01.	Each filter is identified by a filter handle.
Type	0x2A		00.	T/S	Data Bearer Technology Extended
Length	16		\$ 0.45°	2	
Value	\rightarrow	enum	technology	4	Technology type. Values:
			technology		• WDS_BEARER_TECH_NETWORK_
			20,00		3GPP (0) – 3GPP
			750.		• WDS_BEARER_TECH_NETWORK_
			<u> </u>		3GPP2 (1) – 3GPP2

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
		enum	rat_value	4	RAT value. Values:
					• WDS_BEARER_TECH_RAT_EX_
					NULL_BEARER (0x00) – NULL bearer
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP_WCDMA(0x01) - 3GPP$
					WCDMA
					• WDS_BEARER_TECH_RAT_EX_
					3GPP_GERAN (0x02) – 3GPP GERAN
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP_LTE(0x03) - 3GPPLTE$
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP_TDSCDMA (0x04) - 3GPP$
					TDSCDMA
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP_WLAN (0x05) - 3GPP WLAN$
				"	• WDS_BEARER_TECH_RAT_EX_
					3GPP_MAX (0x64) – 3GPP maximum
				_	• WDS_BEARER_TECH_RAT_EX_
				00	3GPP2_1X (0x65) – 3GPP2 1X
				2	• WDS_BEARER_TECH_RAT_EX_
				0. '01.	3GPP2_HRPD (0x66) – 3GPP2 HRPD
			00.	24:	• WDS_BEARER_TECH_RAT_EX_
			19 AS		3GPP2_EHRPD (0x67) – 3GPP2
			5 3		EHRPD
		1	6.0 halls		• WDS_BEARER_TECH_RAT_EX_
			2016-05-18-00-54 2016-05-18-00-54		3GPP2_WLAN (0x68) – 3GPP2 WLAN
			780		• WDS_BEARER_TECH_RAT_EX_
			· ·		$3GPP2_MAX (0xC8) - 3GPP2$
					maximum

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		mask	so_mask	8	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – SO mask unspecified
					3GPP SO mask:
					• 0x01 – WCDMA
					• 0x02 – HSDPA
					• 0x04 – HSUPA
					• 0x08 – HSDPAPLUS
					• 0x10 – DC HSDPAPLUS
					• 0x20 – 64 QAM
					• 0x40 – HSPA
					• 0x80 – GPRS
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• 0x100 – EDGE
					• 0x200 – GSM
				_	• 0x400 – S2B
				00	• 0x800 – LTE limited service
				2	• 0x1000 – LTE FDD
				0.00	• 0x2000 – LTE TDD
			00.	and.	• 0x4000 – TDSCDMA
			2016-05-18-00-85		• 0x8000 – DC HSUPA
			05, 410		3GPP2 SO mask:
			76, The		• 0x01000000 – 1X IS95
			30,00		• 0x02000000 – 1X IS2000
			95		• 0x04000000 – 1X IS2000 REL A
					• 0x08000000 – HDR REV0 DPA
					• 0x10000000 – HDR REVA DPA
					• 0x20000000 – HDR REVB DPA
					• 0x40000000 – HDR REVA MPA
					• 0x80000000 – HDR REVB MPA
					• 0x100000000 – HDR REVA EMPA
					• 0x200000000 – HDR REVB EMPA
					• 0x400000000 – HDR REVB MMPA
					• 0x800000000 – HDR EVDO FMC
Туре	0x2B			1	Uplink Flow Control Sequence Number
Length	2			2	
Value	\rightarrow	uint16	uplink_fc_seq_num	2	Sequence number of each flow enable
					and disable event. This TLV is sent with
					the Uplink Flow Control TLV. Each time
					the flow is disabled (flow controlled), the
					sequence number is increased. It can be
					used in conjunction with the QMAP
					in-band flow control sequence number to
					determine the validity of the message
					received by the control point.

3.3.2 Description of QMI_WDS_SET_EVENT_REPORT_IND

This unsolicited command is sent by the service to relevant control points when the device state corresponds to any TLV changes. Relevant control points are those that previously registered for the corresponding state to be reported, using the QMI_WDS_SET_EVENT_REPORT_REQ command.

The data transfer statistic TLVs included in the indication are based on the control point pkt_stats_report_mask state variable. The indication command is sent each pkt_stats_report_period seconds.

When a control point report_data_bearer_tech state variable is set, an indication command, including the data bearer technology TLV, is sent when the data bearer changes. This TLV is deprecated from QMI WDS version 1.4. The TLV is retained for backward compatibility, but no additional functionality is added to it. The data bearer technology is reported in the new format using the current data bearer technology TLV.

When a control point report_current data_bearer_tech state variable is set, an indication command, including the current data bearer technology TLV, is sent when the current data bearer technology changes.

When a control point report_channel_rate state variable is set, an indication command including the channel rate TLV, is sent when the channel rates change. The Channel Rate TLV indicates the maximum channel rates that are supported for the current serving radio interface.

When a control point report_dormancy_status variable is set, the Dormancy Status TLV is included if the traffic channel state has changed since an indication was last sent to the control point.

When a control point report_mip_error variable is set, the MIP Status TLV is included if a MIP error is received from the network. Such errors do not mean the data connection request has failed and the current state must be queried using the QMI_WDS_GET_PKT_SRVC_STATUS request (see Section 3.12.3).

When a control point report_evdo_page_monitor_period_change state variable is set, an indication command is sent when the EV-DO slot cycle changes. The EV-DO slot cycle can be changed by the network, by a QMI_WDS control point, or autonomously by the modem for example, EV-DO session close.

When a control point report_data_call_status_change variable is set, an indication command including the Data Call Status Change TLV is sent when there is a data call status change, that is, a new packet data call is established or a packet data call is terminated. Additional TLVs might be present based on the version (Data Call Type TLV in revision 1.19 and newer, Data Call Address Family TLV in revision 1.29 and newer). These TLVs provide additional information about the packet data call status.

When a control point report_preferred_data_system variable is set, an indication command including the Preferred Data System TLV is sent when the preferred data system changes. The Preferred Data System TLV provides the preferred data system specified by the current state of the modem. The preferred data system indicates the cellular packet data system that is the preferred system among multiple potentially available data systems for providing data services.

When a control point report_data_system_status state variable is set, an indication is sent when the system status changes (for example, during handoff process). The indication has the system status information about the preferred network and the RAT and SO mask for all the networks.

When a control point limited_data_system_status state variable is set, an indication is sent when the system status changes between interfamily RATs (for example, during the handoff process between RATs belonging to two different families). The indication has the system status information about the preferred network and the RAT and SO mask for all the networks. If both limited_data_system_status and report_data_system_status state variables are set, an indication is sent for all data system status changes (that is., inter and intra family RAT changes).

When a control point report_uplink_flow_control state variable is set, an indication is sent when the uplink flow control status changes. The Uplink Flow Control TLV and Uplink Flow Control Sequence Number TLV indicate whether the current data call is flow controlled on the uplink.

When a control point report_additional_pdn_filters_removal variable is set, an indication is sent when the additional PDN filters are removed on the device. The filters are removed when the packet data session that was used by the additional PDN is ended. The indication contains the Additional PDN Filters Removed TLV, which holds the list of filter handles that were removed.

The AT command equivalents of this command are AT+CMER, AT+CIND, and AT+CIEV defined in 3GPP TS 27.007.



3.4 QMI WDS ABORT

Aborts a previously issued QMI_WDS command.

WDS message ID

0x0002

Version introduced

Major - 1, Minor - 0

3.4.1 Request - QMI_WDS_ABORT_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

	Name	Version introduced	Version last modified
TX_ID		Unknown	1.0

Field	Field	Field	Parameter	Size	Description
	value	type	1,00	(byte)	
Туре	0x01			1	TX_ID
Length	2			2	
Value	\rightarrow	uint16	tx_id	2	Transaction ID of the request to be
					aborted.

Optional TLVs

None

3.4.2 Response - QMI_WDS_ABORT_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_INVALID_TX_ID	TX_ID supplied in the request does not match any pending
A	transaction in WDS, that is, either the transaction was not
	received or it has already been executed by the device
QMI_ERR_UNABORTABLE_	Transaction cannot be aborted
TRANSACTION	.00, '00,
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.4.3 Description of QMI_WDS_ABORT REQ/RESP

This command aborts a previously issued QMI_WDS command. It is useful for requests that take a long time to execute, in the case where the user is no longer interested in the result.

The following QMI_WDS message can be aborted:

• QMI_WDS_START_NETWORK_INTERFACE_REQ

3.5 QMI WDS INDICATION REGISTER

Sets the registration state for different QMI_WDS indications for the requesting control point.

WDS message ID

0x0003

Version introduced

Major - 1, Minor - 17

Request - QMI_WDS_INDICATION_REGISTER_REQ

Message type

Message type								
Request								
Sender								
Control point	Control point							
Mandatory TLVs	3 Think							
None	00,00							
Optional TLVs	OG 3 LOTTIN							
Name	Version introduced	Version last modified						
eMBMS TMGI List	1.17	1.17						
Suppress Packet Service Status Indication	1.35	1.35						
Extended IP Configuration Change	1.37	1.37						
Changed LTE Attach PDN List	1.43	1.43						
Report Reverse IP Transport Filter Setup	1.44	1.85 (Deprecated)						
Report Handoff Information	1.44	1.44						
Report eMBMS SAI List Changes	1.49	1.49						
Report Uplink Throughput Information	1.55	1.55						
Report Profile Changes	1.60	1.60						
Report APN List in Roaming	1.63	1.63						
Report Downlink Throughput Information	1.80	1.80						
Report Downlink Throughput Information Report eMBMS Content Description Control	1.80 1.88	1.80 1.88						

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	eMBMS TMGI List
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	boolean	report_embms_tmgi_list	1	Values:
					• 0 – Do not report
					• 1 – Report eMBMS TMGI list
Туре	0x11			1	Suppress Packet Service Status
					Indication
Length	1			2	
Value	\rightarrow	boolean	suppress_pkt_srvc_ind	1	Whether to suppress the packet service
					status indication. Values:
					• 0 – Do not suppress
					• 1 – Suppress
					QMI_WDS_PKT_SRVC_STATUS_IND
Туре	0x12			1	Extended IP Configuration Change
Length	1			2	
Value	\rightarrow	boolean	report_extended_ip_	1	Values:
			config_change		• 0 – Do not report
					• 1 – Report extended IP configuration
					information change
Туре	0x13			1	Changed LTE Attach PDN List
Length	1			2	
Value	\rightarrow	boolean	report_lte_attach_pdn_	31,	Whether to report a changed LTE attach
			list_change	64.0W	PDN list. Values:
			000	073	• 0 – Do not report
			N° 62		• 1 – Report changed LTE attach PDN
_	0-14	1	0, 40	1	list IP To a factor of File Section
Туре	0x14		10. Mg	1	Report Reverse IP Transport Filter Setup
1	1		2000	2	(Deprecated)
Length	1	1 1	9.0	1	To I' and a solution of a second of the ID
Value	\rightarrow	boolean	report_reverse_ip_	1	Indicates whether to report a reverse IP transport filter setup. Values:
			transport_filter_setup		• 0 – Do not report
					• 1 – Report reverse IP transport filter
					setup
Туре	0x15			1	Report Handoff Information
Length	1			2	report Handon Information
Value	$\stackrel{1}{\longrightarrow}$	boolean	report_handoff_	1	Whether to report handoff information.
Value	,	boolean	information	1	Values:
					• 0 – Do not report
					• 1 – Report handoff information
					TLV 0x16 is reserved.
Туре	0x17			1	Report eMBMS SAI List Changes
Length	1			2	
			report_embms_sai_list	1	Whether to report an eMBMS SAI list
Value	\rightarrow	boolean	report_emoms_sar_nst		
Value	\rightarrow	boolean	report_emonis_sar_nst		change. Values:
Value	\rightarrow	boolean	report_emoms_sar_nst		-
Value	\rightarrow	boolean	report_emonis_sai_nst		change. Values:
Value	→ 0x18	boolean	report_emonis_sai_nst	1	change. Values: • 0 – Do not report

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	boolean	report_throughput	1	Values:
					• 0 – Do not report
					• 1 – Report uplink throughput
					information
Туре	0x19			1	Report Profile Changes
Length	1			2	
Value	\rightarrow	boolean	report_profile_changed_	1	Values:
			events		• 0 – Do not report
					• 1 – Report profile changed events
Туре	0x1A			1	Report APN List in Roaming
Length	1			2	
Value	\rightarrow	boolean	report_roaming_apn_list	1 @	Values:
					• 0 – Do not report
					• 1 – Report the list of APNs in Roaming
					mode
Туре	0x1B			1	Report Downlink Throughput
				3	Information
Length	1			2 <	
Value	\rightarrow	boolean	report_dl_throughput	1¢°	Values:
				3	• 0 – Do not report
			.0	0.50/	• 1 – Report downlink throughput
			00.	E.J.	information
Туре	0x1C		5° 65	1	Report eMBMS Content Description
			5 19		Control
Length	1		16 Mai	2	
Value	\rightarrow	boolean	report_embms_content_	1	Values:
			desc_control		• 0 – Do not report
					• 1 – Report eMBMS content description
					control
Туре	0x1D			1	Report Policy Ready
Length	1			2	
Value	\rightarrow	boolean	report_policy_ready	1	Values:
					• 0 – Do not report
					• 1 – Report policy ready
Туре	0x1E			1	Report APN Parameter Change
					Information
Length	1			2	
Value	\rightarrow	boolean	report_apn_param_change_	1	Report APN parameter change
			info		information.

3.5.2 Response - QMI_WDS_INDICATION_REGISTER_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.5.3 Description of QMI WDS INDICATION REGISTER REQ/RESP

This command is used by a control point to register/deregister for different QMI_WDS indications. The control point's event reporting state variables are modified according to the settings specified in the TLVs included in the request message.

If report_embms_tmgi_list is enabled, the control point learns of the eMBMS TMGI list indication via the QMI_WDS_EMBMS_TMGI_LIST_IND indication.

If suppress_pkt_srvc_ind is enabled, the control point does not receive a QMI_WDS_PKT_SRVC_STATUS_IND indication.

If report_extended_ip_config_change is enabled, the control point learns about change notifications in the extended IP configuration of the packet data session via the QMI_WDS_EXTENDED_IP_CONFIG_IND indication.

If report_lte_attach_pdn_list_change is enabled, the control point learns about the changes in the attach PDN list on the device. By default, report_lte_attach_pdn_list_change is disabled.

If report_reverse_ip_transport_filter_setup is enabled, the control point learns about the filter that must be set up to route packets to the modem via the

QMI_WDS_REVERSE_IP_TRANSPORT_FILTER_SETUP_IND indication. This TLV is deprecated. The control point can use filter messages in QMI_DFS instead.

If report_handoff_information is enabled, the control point learns about a handoff occurring for an existing data call on the modem via the QMI_WDS_HANDOFF_INFORMATION_IND indication.

By default, report_embms_sai_list is disabled. If report_embms_sai_list is enabled, the control point learns about the changes in the SAI list via the QMI_WDS_EMBMS_SAI_LIST_IND indication.

If report_throughput is enabled, the control point learns about the changes in the throughput information via the QMI_WDS_THOUGHPUT_INFO_IND indication.

If report_profile_changed_events is enabled, the control point learns about the changes in profiles for which it had registered via the QMI_WDS_PROFILE_CHANGED_IND indication.

If report_roaming_apn_list is enabled, the control point learns about the list of APNs that are in Roaming mode via the QMI_WDS_ROAMING_INFO_IND indication.

If report_dl_throughput is enabled, the control point learns about the changes in the downlink throughput information via the WDS_DOWNLINK_THROUGHPUT_INFO_IND indication.

If report_embms_content_desc_control is enabled, the control point learns about the eMBMS content description control settings from the service via the QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND indication.

If report_policy_ready is enabled, the control point learns if a policy is ready via the QMI_WDS_POLICY_READY_IND indication.

If report_apn_param_change_info is enabled, the control point learns about the changed APN parameter information via the QMI_WDS_APN_PARAM_INFO_CHANGE_IND indication.

3.6 QMI WDS GET SUPPORTED MSGS

Queries the set of messages implemented by the currently running software.

WDS message ID

0x001E

Version introduced

Major - 1, Minor - 38

3.6.1 Request - QMI_WDS_GET_SUPPORTED_MSGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.6.2 Response - QMI_WDS_GET_SUPPORTED_MSGS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Common version introduced	Common version last modified
Result Code	1.6	1.7

Optional TLVs

Name	Common version	Common version
	introduced	last modified
List of Supported Messages	1.6	1.6

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	List of Supported Messages
Length	Var			2	(b)
Value	\rightarrow	uint16	supported_msgs_len	2	Number of sets of the following
					elements:
					• supported_msgs
		uint8	supported_msgs	Var	This array of uint8 is a bitmask where
					each bit represents a message ID, i.e.,
					starting with the LSB, bit 0 represents
				"	message ID 0, bit 1 represents message
					ID 1, etc.
				_	The bit is set to 1 if the message is
				×60	supported; otherwise, it is set to zero.
				37	For example, if a service supports
			0.0	10,	exactly four messages with IDs 0, 1, 30,
			00,	54	and 31 (decimal), the array (in
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•	hexadecimal) is 4 bytes [03 00 00 c0].

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INFO_UNAVAILABLE	Information is not available

3.6.3 Description of QMI_WDS_GET_SUPPORTED_MSGS REQ/RESP

This command queries the set of messages implemented by the currently running software. This may be a subset of the messages defined in this revision of the service.

QMI WDS GET SUPPORTED FIELDS 3.7

Queries the fields supported for a single command as implemented by the currently running software.

WDS message ID

0x001F

Version introduced

Major - 1, Minor - 38

Request - QMI_WDS_GET_SUPPORTED_FIELDS_REQ 3.7.1

Message type

Mandatory TLVs

Request		N					
Sender	60,						
Control point							
Mandatory TLVs		06.37 L. I.M					
	Name	Common version	Common version				
	\$ 62	introduced	last modified				
Service Message ID	6,49	1.6	1.6				

Field	Field	Field	Parameter	Size	Description
	value	type	0	(byte)	
Туре	0x01			1	Service Message ID
Length	2			2	
Value	\rightarrow	uint16	msg_id	2	ID of the command for which the
					supported fields are requested.

Optional TLVs

None

Response - QMI_WDS_GET_SUPPORTED_FIELDS_RESP 3.7.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Common version introduced	Common version last modified
Result Code	1.6	1.7

Name	Common version	Common version
	introduced	last modified
List of Supported Request Fields	1.6	1.6
List of Supported Response Fields	1.6	1.6
List of Supported Indication Fields	1.6	1.6

Field	Field	Field	Parameter	Size	Description
	value	type	.0	(byte)	
Туре	0x10		00,	ē ³ 1	List of Supported Request Fields
Length	Var		100 mb	2	
Value	\rightarrow	uint8	request_fields_len	1	Number of sets of the following
			16 1ha		elements:
			20,00		• request_fields
		uint8	request_fields	Var	This field describes which optional field
					IDs are supported in the QMI request.
					The array of uint8 is a bitmask where
					each bit represents a field (TLV) ID.
					Because fields 0 to 15 (decimal) are
					mandatory by definition, the first bit
					represents field ID 16. Starting with the
					LSB, bit 0 represents field ID 16, bit 1
					represents field ID 17, etc.
					The bit is set to 1 if the field ID is
					supported; otherwise, it is set to zero.
					For example, if a service supports
					exactly four fields with IDs 16, 17, 30,
					and 31 (decimal), the array (in
					hexadecimal) is 2 bytes [03 c0].
Туре	0x11			1	List of Supported Response Fields
Length	Var			2	
Value	\rightarrow	uint8	response_fields_len	1	Number of sets of the following
					elements:
					• response_fields

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint8	response_fields	Var	This field describes which optional field
					IDs are supported in the QMI response.
					Its format is the same as request_fields.
Туре	0x12			1	List of Supported Indication Fields
Length	Var			2	
Value	\rightarrow	uint8	indication_fields_len	1	Number of sets of the following
					elements:
					• indication_fields
		uint8	indication_fields	Var	This field describes which optional field
					IDs are supported in the QMI indication.
					Its format is the same as request_fields.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_REQUESTED_NUM_	Requested message ID is not supported by the currently
UNSUPPORTED	running software
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_INFO_UNAVAILABLE	Information is not available

3.7.3 Description of QMI_WDS_GET_SUPPORTED_FIELDS REQ/RESP

This command queries the fields supported for a single command as implemented by the currently running software.

If the request, response, or indication is supported for the given message ID, the corresponding optional array is included in QMI_WDS_GET_SUPPORTED_FIELDS_RESP, even if the message does not contain any optional fields. This enables the client to distinguish this case from one where the service does not support the request, response, or indication.

Examples are:

- If the specified message ID is not supported by the service, the response has qmi_result = QMI_RESULT_FAILURE and qmi_error = QMI_ERR_REQUESTED_NUM_UNSUPPORTED.
- If the specified message ID is an empty message, the response has qmi_result =
 QMI_RESULT_SUCCESS and qmi_error = QMI_ERR_NONE. None of the optional arrays are
 included.
- If the specified message ID supports the request with 0 optional fields, the response with 3 optional fields (16, 17, and 18 decimal), and does not support an indication, the response has the following:
 - qmi result = QMI RESULT SUCCESS
 - qmi_error = QMI_ERR_NONE
 - request_fields array is included with length zero

- response_fields array is included with length 1 value [07]
- indication_fields array is not included

Trailing zero bytes are omitted from the response. For example, if the message defines 20 different fields but the response only contains 16 bits, the client is to assume the last four fields are not supported.



QMI WDS START NETWORK INTERFACE 3.8

Activates a packet data session (if not already started) on behalf of the requesting control point.

WDS message ID

0x0020

Version introduced

Major - 1, Minor - 0

Request - QMI_WDS_START_NETWORK_INTERFACE_REQ 3.8.1

Message type

message type							
Request							
Sender							
Control point							
Mandatory TLVs	23 18 m						
None	.00, CO.						
Optional TLVs	Version introduced						
Name	Version introduced	Version last modified					
Primary DNS Address Preference	Unknown	1.1					
Secondary DNS Address Preference	Unknown	1.1					
Primary NetBIOS Name Server Address	Unknown	1.1					
Preference							
Secondary NBNS Address Preference	Unknown	1.1					
Context Access Point Node Name	Unknown	1.1					
IP Address Preference	Unknown	1.1					
Authentication Preference	Unknown	1.1					
Username	Unknown	1.1					
Password	Unknown	1.1					
IP Family Preference	Unknown	1.7					
Technology Preference	Unknown	1.1					
3GPP Configured Profile Identifier	Unknown	1.1					
3GPP2 Configured Profile Identifier	Unknown	1.6					
Enable Autoconnect	Unknown	1.12					
Extended Technology Preference	Unknown	1.25					
Call Type Identifier	Unknown	1.8					
Handoff Context	1.44	1.44					
IP Stream ID	1.45	1.45					
APN Type Enum	1.84	1.84					

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Primary DNS Address Preference
Length	4			2	
Value	\rightarrow	uint32	primary_DNS_IPv4_ address_preference	4	Used as a preference during negotiation with the network; if not specified, the
					wireless device attempts to obtain the DNS address automatically from the
					network. The negotiated value is provided to the host via DHCP.
Туре	0x11			1	Secondary DNS Address Preference
Length	4			2	
Value	\rightarrow	uint32	secondary_DNS_IPv4_ address_preference	4	Used as a preference during negotiation with the network; if not specified, the
					wireless device attempts to obtain the DNS address automatically from the
					network. The negotiated value is provided to the host via DHCP.
Туре	0x12			1	Primary NetBIOS Name Server (NBNS) Address Preference
Length	4			20	A
Value	\rightarrow	uint32	primary_nbns_address_	34	The primary NBNS address. The
			pref	54.0L	specified IPv4 address is requested as the primary NBNS server during data
			primary_nbns_address_ pref		session establishment. If it is not provided, the primary NBNS server address is obtained automatically from
			2010 III		the network. The result of negotiation (the assigned address) is provided to the
			800		host via DHCP
Туре	0x13			1	Secondary NBNS Address Preference
Length	4			2	,
Value	\rightarrow	uint32	secondary_nbns_address_ pref	4	The secondary NetBIOS name server address. The specified IPv4 address is
					requested as the secondary NBNS server during data session establishment. If not
					provided, the secondary NBNS server address is obtained automatically from
					the network. The result of negotiation (the assigned address) is provided to the
					host via DHCP.
Туре	0x14			1	Context Access Point Node (APN) Name
Length	Var			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	string	apn_name	Var	String parameter that is a logical name used to select the GGSN and external packet data network. If the value is NULL or omitted, the subscription default value is requested. QMI_ERR_ARG_TOO_LONG is returned if the APN name is too long. This TLV is ignored if the 3GPP-configured profile TLV is present, that is, the APN name cannot be overridden.
Туре	0x15			1 _	IP Address Preference
Length	4			2	
Value	\rightarrow	uint32	ipv4_address_pref	4	The preferred IPv4 address to be assigned to the TE. The actual assigned address is negotiated with the network and may differ from this value. If not specified, the IPv4 Address is obtained automatically from the network. The assigned value is provided to the host via DHCP.
Туре	0x16		20:	N/I	Authentication Preference
Length	1		3 3	2	
Value	\rightarrow	mask8	authentication_preference	1	A bit map that indicates the authentication algorithm preference. Values: Bit 0 – PAP preference: • 0 – PAP is never performed • 1 – PAP may be performed Bit 1 – CHAP preference: • 0 – CHAP is never performed • 1 – CHAP may be performed All other bits are reserved and ignored even if they are set in the request. If more than one bit is set, the device decides which authentication procedure is performed while setting up the data session. For example, the device may have a policy to select the most secure authentication mechanism.
Туре	0x17			1	Username
	Var			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Value	\rightarrow	string	username	Var	The username to be used during data network authentication. QMI_ERR_ARG_TOO_LONG is returned if the storage on the wireless
					device is insufficient in size to hold the value.
Туре	0x18			1	Password
Length	Var			2	
Value	\rightarrow	string	password	Var	Password used during data network authentication. QMI_ERR_ARG_TOO_LONG is returned if the storage on the wireless device is insufficient in size to hold the value.
Туре	0x19			1	IP Family Preference
Length	1			2	,
Value	\rightarrow	enum8	ip_family_preference	1	If this TLV is absent, the device attempts to bring up a call on default IP preference (currently IPv4, to maintain current behavioral backward
			05.75 00:0	er Cour	compatability). Values: • 4 – IPv4 • 6 – IPv6 • 8 – Unspecified
Туре	0x30		10, My.	1	Technology Preference
Length	1	1.0	20,00	2	Die dei Perdelle
Value	\rightarrow	mask8	technology_preference	1	Bitmap that indicates the technology preference. A single connection is attempted using the following specified technology preferences: • Bit 0 – 3GPP • Bit 1 – 3GPP2 All other bits are reserved and ignored even if they are set in the request. If a single value of the technology preference bitmask is set, the device attempts to use that technology. If two or more bits in the technology preference bitmask are set, the device determines which technology to use from those specified. If this TLV is absent, the device assumes all supported technologies are acceptable.
Туре	0x31			1	3GPP Configured Profile Identifier
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	·
Value	\rightarrow	uint8	profile_index	1	The index of the configured profile on
					which data call parameters are based
					(other TLVs present override the profile
					settings). If this TLV is not present, the
					data call parameters are based on device
					default settings for each parameter.
Туре	0x32			1	3GPP2 Configured Profile Identifier
Length	1			2	
Value	\rightarrow	uint8	profile_index_3gpp2	1	Index of the configured profile on which
					data call parameters are based (other
					TLVs present override the profile
					settings). If this TLV is not present, data
					call parameters are based on device
					default settings for each parameter.
Туре	0x33			1	Enable Autoconnect
Length	1			2	
Value	\rightarrow	boolean	enable_autoconnect	1	If set to 1 (TRUE), the device attempts to
			_	/	bring up a call automatically. The default
				00	is FALSE. Note: When this TLV is used,
				27 "	the override parameters passed in other
				0. Or	TLVs in this message are ignored by the
			0:	34.	device.
Туре	0x34		, & .S	1	Extended Technology Preference
Length	2			2	
Value	\rightarrow	enum16	ext_technology_preference	2	The technology preference used while
					attempting a packet data connection.
			200		Values:
			O.		• -32767 – CDMA
					• -32764 – UMTS
					• -30590 – eMBMS
					• -30584 – Modem Link Local
					Modem Link Local is an interface for
					transferring data between entities on the
					AP and modem.
Туре	0x35			1	Call Type Identifier
Length	1			2	• •
Value	\rightarrow	enum8	call_type	1	Type of call to be originated. Values:
-		-	- 71		• 0 – LAPTOP CALL
					• 1 – EMBEDDED CALL
					If this TLV is not present, by default the
					call is considered to be a laptop call.
Туре	0x36			1	Handoff Context
					Context information needed if the TE is
					handing off a call to the modem.
Length	21			2	5
Value	\rightarrow	uint32	ipv4_addr	4	PDN's IPv4 address.
	'	uint8	ipv6_address	16	PDN's IPv6 address.
I	ı (r		

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	bearer_ip_type	1	Type of bearer IP. Values:
					• WDS_IP_SUPPORT_TYPE_IPV4
					(0x00) - IPv4
					• WDS_IP_SUPPORT_TYPE_IPV6
					(0x01) - IPv6
					• WDS_IP_SUPPORT_TYPE_IPV4V6
					(0x02) - IPv4v6
Туре	0x37			1	IP Stream ID
Length	1			2	9
Value	\rightarrow	uint8	ips_id	1	IP stream ID associated with the data
					call.
Туре	0x38			1	APN Type Enum
Length	4			2	
Value	\rightarrow	enum	apn_type	4	Values:
					 WDS_APN_TYPE_UNSPECIFIED
					(0) – APN type unspecified
				:	• WDS_APN_TYPE_INTERNET (1) -
				_	APN type for internet traffic
				0	• WDS_APN_TYPE_IMS (2) – APN
				3	type for IMS

3.8.2 Response - QMI_WDS_START_NETWORK_INTERFACE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Packet Data Handle	Unknown	1.0

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Packet Data Handle
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint32	pkt_data_handle	4	The handle identifying the call instance
					providing packet service.
					The packet data handle must be retained
					by the control point and specified in the
					STOP_NETWORK_INTERFACE
					message issued when the control point is
					finished with the packet data session.

Name	Version introduced	Version last modified
Call End Reason	Unknown	1.3
Verbose Call End Reason	1.8	1.26
Peripheral End Point ID	1.54	1.77
Mux ID	1.54	1.54
2016-05-18-00°	SKEY COM IN	

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)	•	
Туре	0x10			1	Call End Reason	
Length	2			2		
Value	\rightarrow	enum16	call_end_reason	2	Reason the call ended; see Appendix A	
					for the definition of these values.	
Туре	0x11			1	Verbose Call End Reason	
Length	4			2		
Value	\rightarrow	enum16	call_end_reason_type	2	Call end reason type. Values:	
					• 0 – Unspecified	
					• 1 – Mobile IP	
					• 2 – Internal	
					• 3 – Call Manager defined	
					• 6 – 3GPP Specification defined	
					• 7 – PPP	
					• 8 – EHRPD	
					• 9 – IPv6	
		uint16	call_end_reason	2	Reason the call ended (verbose); see	
					Appendix B for the definition of these	
				_	values.	
Туре	0x12			100	Peripheral End Point ID	
			1	27 3	The peripheral end point of the RmNet	
				0. '0//	instance where a data call is already	
			00.	en.	present.	
Length	8	1	19 00g	2		
Value	\rightarrow	enum	ep_type	4	Peripheral end point type. Values:	
			6. Hall		• DATA_EP_TYPE_RESERVED (0x00)	
			20,000		– Reserved	
			200		• DATA_EP_TYPE_HSIC (0x01) –	
					HSIC	
					• DATA_EP_TYPE_HSUSB (0x02) –	
					HSUSB	
					• DATA_EP_TYPE_PCIE (0x03) – PCIE	
					 DATA_EP_TYPE_EMBEDDED 	
					(0x04) – Embedded	
					• DATA_EP_TYPE_BAM_DMUX	
					(0x05) – BAM DMUX	
					All other values are reserved and are	
					ignored by service or clients.	
		uint32	iface_id	4	Peripheral interface number.	
Туре	0x13			1	Mux ID	
Length	1			2		
Value	\rightarrow	uint8	mux_id	1	Mux ID of the RmNet instance where a	
					data call is already present.	

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_ARG_TOO_LONG	Argument passed in a TLV is larger than the available
	storage in the device
QMI_ERR_INVALID_PROFILE	Specified configured profile index does not exist
QMI_ERR_NO_EFFECT	Control point has already started the network interface
QMI_ERR_CALL_FAILED	Data call failed
QMI_ERR_INVALID_TECH_PREF	Invalid technology preference
QMI_ERR_INVALID_PDP_TYPE	Invalid PDP type
QMI_ERR_ACCESS_DENIED	Autoconnect feature is unavailable at this time
QMI_ERR_INVALID_IP_FAMILY_	Invalid IP family preference
PREF	

3.8.3 Description of QMI_WDS_START_NETWORK_INTERFACE REQ/RESP

This command is used by a control point to request packet data service. The wireless device starts a packet data session if one is not already in progress. By issuing this command, the control point registers its interest in (binds itself to) the WWAN data connection. The data session remains connected while at least one control point is bound to the WWAN data connection.

The call is established either using the default call parameters (if a configured profile TLV is not present in the request) or using parameters from a stored profile (if a configured profile TLV is present in the request). The default call parameters are defined outside the scope of this document.

The optional Autoconnect TLV causes the session to automatically reconnect if the packet data session is disconnected and persists over device power cycles. This support has been deprecated. Clients must use QMI_WDS_SET_AUTOCONNECT_SETTING (see Section 3.51.3) to modify autoconnect settings. Optional TLVs 0x10 through 0x18, included in the START_NETWORK_INTERFACE request command, supercede (override) the call parameters (default or configured profile) selected.

The technology preference value included in the optional Extended Technology Preference TLV 0x34 in the START_NETWORK_INTERFACE request command supercedes the value in the technology preference optional TLV 0x30. Qualcomm recommends that all clients use the newer Extended Technology Preference TLV, as the older TLV is planned to be deprecated over time.

The optional Handoff Context TLV is included if the TE wants to hand off an existing call to the modem and must convey some context information. For a dual IP PDN, the TLV must include both the IPv4 and IPv6 address, with bearer_ip_type set to WDS_IP_SUPPORT_TYPE_IPV4V6. Also, the same TLV is to be present on both the QMI_WDS_START_NETWORK_INTERFACE_REQ messages from the IPv4 client and IPv6 client.

The optional APN Type Enum TLV specifies the type of APN on which the call is being attempted. In the absence of this TLV, the APN type default is WDS_APN_TYPE_UNSPECIFIED.

The QMI_WDS_START_NETWORK_INTERFACE_RESP command is returned only when the packet

data session is established, or sooner if an error occurs. After the response is sent, the tethered device can perform IP address configuration.

A successful QMI_WDS_START_NETWORK_INTERFACE_REQ modifies the packet_data_connection_state shared state variable described in Section 2.5.1.

If the Result TLV indicates failure and the qmi_error field is set to QMI_ERR_CALL_FAILED, the Call End Reason and Verbose Call End Reason optional TLVs are included with the response conveying the additional call failure reason. Call End Reasons are defined in Appendix A. Verbose call end reasons are defined in Appendex B. The Call End Reason TLV is kept for backward-compatibility, and all new QMI clients must use the newer Verbose Call End Reason TLV. Any new Call End Reason is added only to the new TLV.

If the Verbose Call End Reason TLV indicates that a data call with the same policy is already present on another RmNet instance (internal CALL_ALREADY_PRESENT error), the optional Peripheral End Point ID and Mux ID TLVs are included to identify the RmNet instance where the data call is present.

The AT command equivalents of this command are ATD and AT+CGACT defined in 3GPP TS 27.007, 3GPP2 C.S0017-003-A, and TIA/EIA/IS-131.

3.9 QMI_WDS_STOP_NETWORK_INTERFACE

Deactivates a packet data session (unless in use by other control points) on behalf of the requesting control point.

WDS message ID

0x0021

Version introduced

Major - 1, Minor - 0

3.9.1 Request - QMI_WDS_STOP_NETWORK_INTERFACE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	Version introduced	Version last modified
Packet Data Handle	5 0	Unknown	1.0

Field	Field	Field	Parameter	Size	Description
	value	type	<u> </u>	(byte)	
Туре	0x01			1	Packet Data Handle
Length	4			2	
Value	\rightarrow	uint32	pkt_data_handle	4	Handle identifying the call instance from which to unbind the control point. The value must be the handle previously returned by QMI_WDS_START_NETWORK_INTERFACE_REQ.

Optional TLVs

Name	Version introduced	Version last modified
Disable Autoconnect	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Disable Autoconnect
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	boolean	disable_autoconnect	1	If set to 1 (TRUE), the device disables
					autoconnect, that is, the calls need to be
					made manually until the setting is
					enabled again. The default is FALSE.
					Note: When this TLV is present, the
					client must use a global handle
					(0xFFFFFFFF) in the Packet Data
					Handle TLV above.

3.9.2 Response - QMI_WDS_STOP_NETWORK_INTERFACE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_INVALID_HANDLE	Packet_data_handle provided in the request is not valid, that
	is, it is not assigned to the control point

3.9.3 Description of QMI WDS STOP NETWORK INTERFACE REQ/RESP

This command is used by a control point to end packet data service. By issuing this command, the control point releases its interest in (unbinds itself from) the WWAN data connection. The wireless device ends the current packet data session when all control points release their binding using this message.

The control point considers that the packet_data_connection_state (see Section 2.5.1) is unchanged until notified of the state change via the QMI_WDS_PKT_SRVC_STATUS_IND indication.

Requests using the global packet data handle (0xFFFFFFF) and a nonzero value for the optional Disable Autoconnect TLV disables the autoconnect of the device. This support is deprecated. Clients must use QMI_WDS_SET_AUTOCONNECT_SETTING (see Section 3.51.3) to modify autoconnect settings.

The AT command equivalents of this command are ATD and AT+CGACT defined in 3GPP TS 27.007, 3GPP2 C.S0017-003-A, and TIA/EIA/IS-131.

2016-05-18-00:06:31 PiDTIN

3.10 QMI WDS GET PKT SRVC STATUS

Queries the current packet data connection status.

WDS message ID

0x0022

Version introduced

Major - 1, Minor - 0

3.10.1 Request - QMI_WDS_GET_PKT_SRVC_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.10.2 Response - QMI_WDS_GET_PKT_SRVC_STATUS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Connection status.	Unknown	1.0

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Connection status.
Length	1			2	
Value	\rightarrow	enum8	connection_status	1	Current link status. Values:
					• 1 – DISCONNECTED
					• 2 – CONNECTED
					• 3 – SUSPENDED
					• 4 – AUTHENTICATING

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.10.3 Description of QMI_WDS_GET_PKT_SRVC_STATUS REQ/RESP

This command queries the state of the packet data connection provided by the wireless device. It returns the current value of Packet data connection state value, as described in Section 2.5.1.

A data connection being established does not imply that the IP address has been assigned to the host. This is simply an indication that address configuration can commence.

The QMI_WDS_PKT_DATA_AUTHENTICATING connection status is not always supported. In such cases, the device directly transitions to the connected state without entering the authenticating state.

The AT command equivalents of this command are ATD and AT+CGACT, defined in 3GPP TS 27.007, 3GPP2 C.S0017-003-A, and TIA/EIA/IS-131.

3.11 QMI_WDS_GET_PKT_SRVC_STATUS_IND

Indicates a change in the current packet data connection status.

WDS message ID

0x0022

Version introduced

Major - 1, Minor - 0

3.11.1 Indication - QMI_WDS_PKT_SRVC_STATUS_IND

Message type

Indication

Sender

Service

Scope

Unicast

Mandatory TLVs

Name	Version introduced	Version last modified
Packet Service Status	Unknown	1.0

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Packet Service Status
Length	2			2	
Value	\rightarrow	enum8	connection_status	1	Current link status. Values:
					• 1 – DISCONNECTED
					• 2 – CONNECTED
					• 3 – SUSPENDED
					• 4 – AUTHENTICATING
		boolean	reconfiguration_required	1	Indicates whether the network interface
					on the host must be reconfigured. Values:
					• 0 – No need to reconfigure
					• 1 – Reconfiguration required

Name	Version introduced	Version last modified
Call End Reason	Unknown	1.3
Verbose Call End Reason	1.8	1.26
IP Family	Unknown	1.9
Technology Name	Unknown	1.25
Bearer ID	1.50	1.50
XLAT Capability	1.87	1.87

(3)

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1 @	Call End Reason
Length	2			2	
Value	\rightarrow	enum16	call_end_reason	2	See Appendix A for the definition of
					these values.
Туре	0x11			1	Verbose Call End Reason
Length	4			2	
Value	\rightarrow	enum16	call_end_reason_type	2 <	Call end reason type. Values:
				80	• 0 – Unspecified
			016-05-18-00:05	3	• 1 – Mobile IP
			.0.	0.50%	• 2 – Internal
			00.	E.J.	• 3 – Call Manager defined
			1º 015		• 6 – 3GPP Specification defined
			5 10		• 7 – PPP
			16 Thai		• 8 – EHRPD
			20, 20,		• 9 – IPv6
		uint16	call_end_reason	2	Reason the call ended (verbose); see
					Appendix B for the definition of these
					values.
Туре	0x12			1	IP Family
Length	1			2	
Value	\rightarrow	enum8	ip_family	1	IP family of the packet data connection.
					Values:
					• 4 – IPv4
					• 6 – IPv6
Туре	0x13			1	Technology Name
Length	2			2	

Field	Field	Field	Param	eter	Size	Description
	value	type			(byte)	
Value	\rightarrow	enum16	tech_name		2	Technology name of the packet data
						connection. Values:
						• -32767 – CDMA
						• -32764 – UMTS
						• -30592 – EPC
						• -30590 – EMBMS
						• -30584 – Modem Link Local
						EPC is a logical interface to support
						LTE/eHRPD handoff. It is returned if the
						device supports IP session continuity.
						Modem Link Local is an interface for
						transferring data between entities on the
						AP and modem.
Туре	0x14				1	Bearer ID
Length	1				2	
Value	\rightarrow	uint8	bearer_id		1	Bearer ID (3GPP) or RLP ID (3GPP2) of
						the packet data connection.
Туре	0x15				1 <	XLAT Capability
Length	1				2_{\circ}	A
Value	\rightarrow	boolean	xlat_capable		34 3	Indicates XLAT capability of the data
				0.	0. 0//	session. Values:
				00.	et.	• 0 – XLAT not capable
				8 035		• 1 – XLAT capable

3.11.2 Description of QMI_WDS_GET_PKT_SRVC_STATUS_IND

This indication communicates changes in the Packet_data_connection_state value, as described in Section 2.5.1.

When the IP address assigned to the host is no longer valid, the reconfiguration required value is set to one.

If the indication is sent because of a disconnected state change, the Call End Reason and Verbose Call End Reason optional TLVs are included and contain the reason the call was terminated. These include network and user-generated reasons. The Call End Reasons are defined in Appendix A. The Verbose Call End Reasons are defined in Appendix B. The Call End Reason TLV is kept for backwards compatibility, and all new QMI clients must use the newer Verbose Call End Reason TLV. Any new Call End Reason is added only to the new TLV.

The QMI_WDS_PKT_DATA_AUTHENTICATING connection status is not always supported. In such cases, the device directly transitions to the connected state without entering the authenticating state.

The optional IP Family TLV indicates the IP type of the packet data connection.

The optional XLAT Capability TLV indicates whether the packet data session is XLAT capable.

For QMI_WDS revision 1.35 and newer, this indication has been changed from broadcast to unicast. By default, the indication is sent to all control points on the QMI link that have a packet data connection status change. If a control point is bound to an IP family type using

QMI_WDS_SET_CLIENT_IP_FAMILY_PREF, it does not receive the packet data connection status indication for a different IP type. Control points can also suppress the indication by using the

QMI_WDS_INDICATION_REGISTER command.



3.12 QMI_WDS_GET_CURRENT_CHANNEL_RATE

Queries the current bit rate of the packet data connection.

WDS message ID

0x0023

Version introduced

Major - 1, Minor - 0

3.12.1 Request - QMI_WDS_GET_CURRENT_CHANNEL_RATE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.12.2 Response - QMI_WDS_GET_CURRENT_CHANNEL_RATE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Channel Rate	Unknown	1.0

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Channel Rate
Length	16			2	
Value	\rightarrow	uint32	current_channel_tx_rate	4	Instantaneous channel Tx rate in bits per second.
		uint32	current_channel_rx_rate	4	Instantaneous channel Rx rate in bits per second.
		uint32	max_channel_tx_rate	4	Maximum Tx rate that can be assigned to the device by the serving system in bits per second.
		uint32	max_channel_rx_rate	4	Maximum Rx rate that can be assigned to the device by the serving system in bits per second.

Error codes

	bits per second.
Optional TLVs	
None	
Error codes	L EDT
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
20,08	subscription of the current data session (incompatible
No.	subscription)

3.12.3 Description of QMI_WDS_GET_CURRENT_CHANNEL_RATE **REQ/RESP**

This command is used to obtain the current and maximum possible (for the current serving radio interface) Tx and Rx channel rates. If this request is issued when a network connection is not yet started, only the maximum channel rates are returned and the current channel rates are set to zero. If this request is issued when a network connection is in progress, but the current channel rates are not available from the device, a value of 0xFFFFFFF is returned.

The AT command is roughly based on AT+CHSC, defined in 3GPP2 C.S0017-003-A. It also applies to packet data service rather than circuit-switched data.

3.13 QMI WDS GET PKT STATISTICS

Queries the packet data transfer statistics from the start of the current packet data session.

WDS message ID

0x0024

Version introduced

Major - 1, Minor - 0

Request - QMI_WDS_GET_PKT_STATISTICS_REQ 3.13.1

Mandatory TLVs

Name	00	Version introduced	Version last modified
Packet Statistics Mask	9 20	Unknown	1.24

Message type							
Request	Request						
Sender							
Control 1	point			, of			
Mandato	ory TLVs	•		632m	3h		
		Na	ime	Version	n introduced	Version last modified	
Packet	Statistic	s Mask	2° 2°	J	Jnknown	1.24	
			6.05 hands				
Field	Field	Field	Parameter	Size		Description	
	value	type	200	(byte)			
Type	0x01			1	Packet Statistics	s Mask	
Length	4			2			
Value	\rightarrow	mask32	stats_mask	4	Values:	T 1 . OY	
						Tx packets OK	
						- Rx packets OK	
						Tx packet errors	
						- Rx packet errors	
					• 0x00000010 -		
					• 0x00000020 -		
					• 0x00000040 -	•	
					• 0x00000080 -	•	
						- Tx packets dropped - Rx packets dropped	
						s are reserved for future	
						e set to zero unless	
					recognized by i		
					recognized by I	osuci.	

None

3.13.2 Response - QMI_WDS_GET_PKT_STATISTICS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Tx Packets OK	Unknown	1.0
Rx Packets OK	Unknown	1.0
Tx Packet Errors	Unknown	1.0
Rx Packet Errors	Unknown	1.0
Tx Overflows	Unknown	1.0
Rx Overflows	Unknown	1.0
Tx Bytes OK	Unknown	1.10
Rx Bytes OK	Unknown	1.10
Last Call Tx Bytes OK	Unknown	1.12
Last Call Rx Bytes OK	Unknown	1.12
Tx Packets Dropped	1.24	1.24
Rx Packets Dropped	1.24	1.24

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Tx Packets OK
Length	4			2	
Value	\rightarrow	uint32	tx_ok_count	4	Number of packets transmitted without
					error.
Туре	0x11			1	Rx Packets OK
Length	4			2	
Value	\rightarrow	uint32	rx_ok_count	4	Number of packets received without
					error.
Туре	0x12			1	Tx Packet Errors
Length	4			2	
Value	\rightarrow	uint32	tx_err_count	4	Number of outgoing packets with
					framing errors.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x13			1	Rx Packet Errors
Length	4			2	
Value	\rightarrow	uint32	rx_err_count	4	Number of incoming packets with
					framing errors.
Туре	0x14			1	Tx Overflows
Length	4			2	
Value	\rightarrow	uint32	tx_ofl_count	4	Number of packets dropped because Tx
					buffer overflowed (out of memory).
Туре	0x15			1	Rx Overflows
Length	4			2	
Value	\rightarrow	uint32	rx_ofl_count	4	Number of packets dropped because Rx
				- 0	buffer overflowed (out of memory).
Туре	0x19			1	Tx Bytes OK
Length	8			2	
Value	\rightarrow	uint64	tx_ok_bytes_count	8	Number of bytes transmitted without
					error.
Туре	0x1A			1	Rx Bytes OK
Length	8			2	
Value	\rightarrow	uint64	rx_ok_bytes_count	8	Number of bytes received without error.
Туре	0x1B			$\beta 1 \%$	Last Call Tx Bytes OK
Length	8		0.0	2	
Value	\rightarrow	uint64	last_call_tx_ok_bytes_ count	8	Number of bytes transmitted without
			count		error during the last data call (0 if no call
		1	0, 340		was made earlier). Returned only if not
			70 1/11		in a call, and when the previous call was
			2, 000		made using RmNet (for any devices that
			0,0		support
T	010				QMI_WDS_GET_DUN_CALL_INFO).
Туре	0x1C			2	Last Call Rx Bytes OK
Length	8	:461	look call we als barkes	8	Number of history and side out owner
Value	\rightarrow	uint64	last_call_rx_ok_bytes_	8	Number of bytes received without error
			count		during the last data call (0 if no call was
					made earlier). Returned only if not in a call, and when the previous call was
					made using RmNet (for any devices that
					support
					QMI_WDS_GET_DUN_CALL_INFO).
Туре	0x1D			1	Tx Packets Dropped
Length	4			2	TA Tuesco Diopped
Value	ightarrow	uint32	tx_dropped_count	4	Number of outgoing packets dropped.
Туре	0x1E	unit/2	ar_dropped_count	1	Rx Packets Dropped
Length	4			2	Terracio Diopped
Value	\rightarrow	uint32	rx_dropped_count	4	Number of incoming packets dropped.
value	-7	umtsz	17_dropped_count		rumoer of meoning packets dropped.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.13.3 Description of QMI_WDS_GET_PKT_STATISTICS REQ/RESP

This command queries the current packet transfer counter values from the device.

It can also be used to identify transfer errors on the local link, as the difference between the returned value and a local (host) count.

Tx and Rx directions are from the perspective of the host.

The Packet Statistic TLVs returned in the response are included, as requested in the bitmask provided in the QMI_WDS_GET_PKT_STATISTICS_REQ command (if available from the device). If it is not available from the device, a value of 0xFFFFFFFF is returned (QMI WDS Version 1.2 onward).

If the error code is QMI_ERR_OUT_OF_CALL, the statistics for the previous call are returned in TLVs 0x1B and 0x1C if the most recent call made was an RmNet call (only for devices that support QMI_WDS_GET_CALL_INFO).

QMI WDS GO DORMANT 3.14

Forces the device to immediately drop the traffic channel on the serving radio interface.

WDS message ID

0x0025

Version introduced

Major - 1, Minor - 3

Request - QMI_WDS_GO_DORMANT_REQ 3.14.1

Message type

Optional TLVs

O .	
632/10/19	
20,10,	
, ,	
Version introduced	Version last modified
1.71	1.71

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Delay Time in Milliseconds
Length	4			2	
Value	\rightarrow	uint32	delay_timer	4	Delay time, in milliseconds.

Response - QMI_WDS_GO_DORMANT_RESP 3.14.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the client or the
	message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	3.65
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.14.3 Description of QMI_WDS_GO_DORMANT REQ/RESP

This command can force the device to drop the traffic channel. This request is honored only when there is no active data transfer.

The control point specifies the delay time value in the request via the Delay Time in Milliseconds TLV. The service delays the traffic channel's drop by the specified delay time. The same control point can abort this request within the delay time value via the QMI_WDS_ABORT_GO_DORMANT_REQ request.

The channel can be reactivated as soon as data is sent over the network interface. The channel does not remain dormant for any guaranteed period.

3.15 QMI_WDS_GO_ACTIVE

Forces the device to immediately reestablish the traffic channel on the serving radio interface.

WDS message ID

0x0026

Version introduced

Major - 1, Minor - 8

3.15.1 Request - QMI_WDS_GO_ACTIVE_REQ

Message type

Request

Sender

Control Point

Mandatory TLVs

None

Optional TLVs

None

3.15.2 Response - QMI_WDS_GO_ACTIVE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the client or the
	message was corrupted during transmission
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_OP_DEVICE_	Operation is not supported
UNSUPPORTED	
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.15.3 Description of QMI_WDS_GO_ACTIVE REQ/RESP

This command forces the device to reestablish a dormant traffic channel. The channel can go dormant any time after it has been reactivated. There is no assurance that the channel remains active for any guaranteed period.

The issuer does not need to start the network interface.

3.16 QMI WDS CREATE PROFILE

Creates a configured profile with specified settings.

WDS message ID

0x0027

Version introduced

Major - 1, Minor - 1

Request - QMI_WDS_CREATE_PROFILE_REQ 3.16.1

Mandatory TLVs

	Name	Vei	rsion introduced	Version last modified
Profile Type		20 m25	1.13	1.59

3.16.1	3.16.1 Request - QMI_WDS_CREATE_PROFILE_REQ								
Message	Message type								
Request	Request								
Sender	Sender								
Control j	point			Ó					
Mandato	Mandatory TLVs								
		Na	ame	Version	on introduced	Version last modified			
Profile	Type		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	35	1.13	1.59			
			5.05 Hands						
Field	Field	Field	Parameter	Size		Description			
	value	type	750,	(byte)					
Туре	0x01		~	1	Profile Type				
Length	1			2					
Value	\rightarrow	enum8	profile_type	1		chnology type of the			
					profile. Values:				
					• WDS_PROFI	LE_TYPE_3GPP (0x00)			
					- 3GPP				
					_	LE_TYPE_3GPP2			
					(0x01) - 3GPP2				
						LE_TYPE_EPC (0x02) -			
					EPC				

Optional TLVs

Name	Version introduced	Version last modified
Profile Name **	Unknown	1.1
PDP Type **	Unknown	1.11
PDP Header Compression Type **	Unknown	1.11
PDP Data Compression Type To Use **	Unknown	1.11
Context Access Point Node Name **	Unknown	1.1
Primary DNS IPv4 Address Preference **	Unknown	1.1

Name	Version introduced	Version last modified
Secondary DNS IPv4 Address Preference **	Unknown	1.1
UMTS Requested QoS **	Unknown	1.1
UMTS Minimum QoS **	Unknown	1.1
GPRS Requested QoS **	Unknown	1.1
GRPS Minimum QoS **	Unknown	1.1
Username **	Unknown	1.1
Password **	Unknown	1.1
Authentication Preference **	Unknown	1.1
IPv4 Address Preference **	Unknown	1.1
PCSCF Address Using PCO Flag **	Unknown	1.3
PDP Access Control Flag **	Unknown	1.11
PCSCF Address Using DHCP **	Unknown	1.11
IM CN flag **	Unknown	1.11
Traffic Flow Template ID1 Parameters **	Unknown	1.11
TFT ID2 Parameters **	Unknown	1.11
PDP Context Number **	Unknown	1.11
PDP Context Secondary Flag **	Unknown	1.11
PDP Context Primary ID **	Unknown	1.11
IPv6 Address Preference **	Unknown	1.11
UMTS Requested QoS with Signaling Indication	Unknown	1.11
Flag **	3	
UMTS Minimum QoS with Signaling Indication **	Unknown	1.11
Primary DNS IPv6 Address Preference **	Unknown	1.11
Secondary DNS IPv6 Address Preference **	Unknown	1.11
DHCP/NAS Preference **	Unknown	1.11
3GPP LTE QoS Parameters **	Unknown	1.11
APN Disabled Flag **	Unknown	1.13
PDN Inactivity Timeout **	Unknown	1.13
APN Class **	1.13	1.13
APN Bearer **	1.26	1.26
Support Emergency Calls **	1.31	1.31
Operator Reserved PCO ID **	1.37	1.37
Mobile Country Code **	1.37	1.37
Mobile Network Code **	1.37	1.37
Max PDN Connections Per Time Block **	1.46	1.46
Max PDN Connections Timer **	1.46	1.46
PDN Request Wait Timer **	1.46	1.46
3GPP Application User Data **	1.57	1.57
Roaming Disallow Flag **	1.63	1.63
PDN Disconnect Wait Timer **	1.63	1.63
DNS Address Using DHCP **	1.74	1.74
Common PCSCF Address Using DHCP ** *	1.74	1.74
Common DNS Address Using DHCP ** *	1.74	1.74
Common PDP Type ** *	1.65	1.67
Common Application User Data **	1.59	1.59
Common Mobile Network Code ***	1.59	1.59
	1,	107

Name	Version introduced	Version last modified
Common Mobile Country Code ***	1.59	1.59
Common Operator Reserved PCO ID **	1.59	1.59
Common Authentication Password ***	1.59	1.59
Common User ID ***	1.59	1.59
Common Authentication Protocol ***	1.59	1.59
Common PCSCF Address Using PCO Flag ***	1.59	1.59
Common Allow/Disallow Lingering of Interface ***	1.59	1.59
Common Secondary DNS IPv6 Address Preference ***	1.59	1.59
Common Primary DNS IPv6 Address Preference ***	1.59	1.59
Common Secondary DNS IPv4 Address Preference ***	1.59	1.59
Common Primary DNS Address Preference ***	1.59	1.59
Common APN Class ***	1.59	1.59
Common APN Disabled Flag ***	1.59	1.59
Profile Persistence Flag * **	Unknown	1.13
Negotiate DNS Server Preference *	Unknown	1.13
PPP Session Close Timer for DO *	Unknown	1.13
PPP Session Close Timer for 1X *	Unknown	1.13
Allow/Disallow Lingering of Interface *	Unknown	1.13
LCP ACK Timeout *	Unknown	1.13
IPCP ACK Timeout *	Unknown	1.13
AUTH Timeout *	Unknown	1.13
LCP Configuration Request Retry Count Value *	Unknown	1.13
IPCP Configuration Request Retry Count *	Unknown	1.13
AUTH Retry *	Unknown	1.13
Authentication Protocol *	Unknown	1.33
User ID *	Unknown	1.13
Authentication Password *	Unknown	1.13
Data Rate *	Unknown	1.13
Application Type *	Unknown	1.13
Data Mode *	Unknown	1.13
Application Priority *	Unknown	1.13
APN String *	Unknown	1.13
PDN Type *	Unknown	1.13
Is PCSCF Address Needed *	Unknown	1.13
IPv4 Primary DNS Address *	Unknown	1.13
IPv4 Secondary DNS Address *	Unknown	1.13
Primary IPv6 DNS Address *	Unknown	1.13
Secondary IPv6 DNS Address *	Unknown	1.13
RAT Type *	Unknown	1.13
APN Enabled *	Unknown	1.13
PDN Inactivity Timeout *	Unknown	1.13
APN Class *	1.13	1.13
PDN Level Auth Protocol *	Unknown	1.34

Name	Version introduced	Version last modified
PDN Level User ID *	Unknown	1.19
PDN Level Auth Password *	Unknown	1.19
PDN Label *	Unknown	1.19
Operator Reserved PCO ID *	1.37	1.37
Mobile Country Code *	1.37	1.37
Mobile Network Code *	1.37	1.37
PDN Throttling Timer 1-6 *	1.42	1.42
PDN Disallow Timer 1-6 *	1.42	1.42
3GPP2 Application User Data *	1.57	1.57
PCSCF Address Using DHCP 3GPP2 *	1.74	1.74
DNS Address Using DHCP *	1.74	1.74
IPv6 Prefix Delegation Flag * **	1.66	1.66

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Name **
Length	Var			2	
Value	\rightarrow	string	profile_name	Var	One or more bytes describing the profile.
				60	The description can be a user-defined
				3	name for the profile.
			0.	0. 00	QMI_ERR_ARG_TOO_LONG is
			00.	E.J.	returned if the profile_name is too long.
Туре	0x11		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1	PDP Type **
Length	1		5,0	2	
Value	\rightarrow	enum8	pdp_type	1	Packet Data Protocol (PDP) type
			20, 20,		specifies the type of data payload
			750		exchanged over the airlink when the
					packet data session is established with
					this profile. Values:
					• 0 – PDP-IP (IPv4)
					• 1 – PDP-PPP
					• 2 – PDP-IPv6
					• 3 – PDP-IPv4v6
Туре	0x12			1	PDP Header Compression Type **
Length	1			2	
Value	\rightarrow	enum8	pdp_hdr_compression_	1	Values:
			type		• 0 – PDP header compression is off
					• 1 – Manufacturer preferred
					compression
					• 2 – PDP header compression based on
					RFC 1144
					• 3 – PDP header compression based on
					RFC 2507
					• 4 – PDP header compression based on
					RFC 3095
Туре	0x13			1	PDP Data Compression Type To Use **
Length	1			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	enum8	pdp_data_compression_	1	Values:
			type		• 0 – PDP data compression is off
					• 1 – Manufacturer preferred
					compression
					• 2 – V.42BIS data compression
					• 3 – V.44 data compression
Туре	0x14			1	Context Access Point Node (APN)
					Name **
Length	Var			2	⊕
Value	\rightarrow	string	apn_name	Var	String parameter that is a logical name used to select the GGSN and external
					packet data network.
				-	If the value is NULL or omitted, the
					subscription default value is requested.
					This value is applicable to 3GPP and
					EPC Profile types.
					QMI_ERR_ARG_TOO_LONG is
					returned if the APN name is too long.
Туре	0x15		. 0.	10	Primary DNS IPv4 Address Preference **
Length	4			2	
Value	\rightarrow	uint32	primary_DNS_IPv4_	4	Used as a preference during negotiation
			address_preference	-	with the network; if not specified, the
			5 25		wireless device attempts to obtain the
			6 Hall		DNS address automatically from the
			20,00		network. The negotiated value is
			address_preference		provided to the host via DHCP.
Туре	0x16		~	1	Secondary DNS IPv4 Address
					Preference **
Length	4			2	
Value	\rightarrow	uint32	secondary_DNS_IPv4_	4	Used as a preference during negotiation
			address_preference		with the network; if not specified, the
					wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via DHCP.
Туре	0x17			1	UMTS Requested QoS **
Length	33		, CC 1	2	TD CC 1 X/1
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming • 3 – Interactive
		uint32	may unlink hitroto	4	• 4 – Background Maximum unlink hit rate in hits per
		uiiit32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
		uiiit32	max_uowiiiiik_oitrate	4	_
					second.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	Consequents of continuous hits man
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_ bitrate	4	Guaranteed downlink bit rate in bits per second.
		enum8	qos_delivery_order	1	Values:
		•1101110	400_0011,019_01001	_	• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
		•1101110	SGG_G11 61_14416	_	or detected as erroneous. Values:
					• 0 – Subscribe
				1	• $1 - 1 \times 10^2$
				900	• $2 - 7 \times 10^3$
					• $3 - 1 \times 10^3$
					• $4 - 1 \times 10^4$
					• $5 - 1 \times 10^5$
				r	• $6 - 1 \times 10^6$
				-0	• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	. 1 ×	Target value for the undetected bit error
		CHAINO		3 0	ratio in the delivered SDUs. Values:
			0.0	100	• 0 – Subscribe
			800	000	• $1 - 5x10^2$
			, N. 62		• $2 - 1 \times 10^2$
		1	2016-05-18-00-05 2016-05-18-00-05		• $3 - 5 \times 10^3$
			10. Tue		• $4 - 4 \times 10^3$
			2000		$\bullet 5 - 1 \times 10^3$
			800		• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					$\bullet 9 - 6 \times 10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
					whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
Туре	0x18			1	UMTS Minimum QoS **
Length	33			2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
				3-	second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
					second.
		uint32	guaranteed_uplink_bitrate	40	Guaranteed uplink bit rate in bits per
				27 "	second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
			bitrate	a. A.	second.
		enum8	qos_delivery_order	1	Values:
			() () () () () () () () () ()		• 0 – Subscribe
		1	C.O. Walley		• 1 – Delivery order on
			010 11.		• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
					• 0 – Subscribe
					• $1 - 1 \times 10^2$
					• $2 - 7x10^3$
					• $3 - 1 \times 10^3$
					• $4 - 1x10^4$
					• $5 - 1 \times 10^5$
					• $6 - 1 \times 10^6$
					• $7 - 1 \times 10^{1}$

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	·
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					• $2 - 1 \times 10^2$
					• $3 - 5x10^3$
					• $4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1x10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
					whether SDUs detected as erroneous are
					delivered or not. Values:
			4		• 0 – Subscribe
					• 1 – No detection
				,	• 2 – Erroneous SDU is delivered
				00	• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
				5. N	targeted time between a request to
			20:0	34.	transfer an SDU at one SAP to its
			28 25		delivery at the other SAP, in
			7.7. C.		milliseconds; if the parameter is set to 0,
		1	C.O. Value		the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
			S. 50		relative importance for handling of
			0.		SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
Туре	0x19			1	GPRS Requested QoS **
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1A			1	GRPS Minimum QoS **
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1B			1	Username **
Length	Var			2	
Longin	7 411				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	string	username	Var	Username used during data network authentication. QMI_ERR_ARG_TOO_LONG is returned if the storage on the wireless device is insufficient in size to hold the
					value.
Туре	0x1C			1	Password **
Length	Var			2	
Value	\rightarrow	string	password	Var	Password used during data network authentication. QMI_ERR_ARG_TOO_LONG is returned if the storage on the wireless device is insufficient in size to hold the value.
Tuno	0x1D			1	Authentication Preference **
Type Length	1		4	2	Audichication Fictorice
Value	\rightarrow	mask8	authentication_preference	1	A bit map that indicates the
		Шаяко	audicinealisti_preterence	S. Coll.	authentication algorithm preference. Values: Bit 0 – PAP preference: 0 – PAP is never performed 1 – PAP can be performed 1 – CHAP preference: 0 – CHAP is never performed 1 – CHAP can be performed All other bits are reserved and ignored. They must be set to zero by the client. If more than one bit is set, the device decides which authentication procedure is performed while setting up the data session, for example, the device can have a policy to select the most secure authentication mechanism.
Туре	0x1E			1	IPv4 Address Preference **
Length	4			2	
Value	\rightarrow	uint32	ipv4_address_preference	4	Preferred IPv4 address assigned to the TE. The actual assigned address is negotiated with the network and can differ from this value. If not specified, the IPv4 address is obtained automatically from the network. The assigned value is provided to the host via DHCP.
Туре	0x1F			1	PCSCF Address Using PCO Flag **
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
Value	\rightarrow	boolean	pcscf_addr_using_pco	1	Values:
			. – – 5–1		• 1 – TRUE – Request PCSCF address
					using PCO
					• 0 – FALSE – Do not request
					By default the value is 0.
Туре	0x20			1	PDP Access Control Flag **
Length	1			2	-
Value	\rightarrow	enum8	pdp_access_control_flag	1	Values:
					• 0 – PDP access control none
					• 1 – PDP access control reject
					• 2 – PDP access control permission
Туре	0x21			1 _	PCSCF Address Using DHCP **
Length	1			2	
Value	\rightarrow	boolean	pcscf_addr_using_dhcp	1	Values:
					• 1 – TRUE – Request PCSCF address
				7	using DHCP
					• 0 – FALSE – Do not request
				_	By default the value is 0.
Туре	0x22			100	IM CN flag **
Length	1			2	
Value	\rightarrow	boolean	im_cn_flag	o. 100	Values:
			00.	E. J.	• 1 – TRUE – Request IM CN flag for
			Nº 645		this profile
			5 ,08		• 0 – FALSE – Do not request IM CN
			6 Mail		flag for this profile
Туре	0x23		20, 20,	1	Traffic Flow Template (TFT) ID1
			823		Parameters **
Length	39			2	
Value	\rightarrow	uint8	filter_id	1	Filter identifier.
		uint8	eval_id	1	Evaluation precedence index.
		enum8	ip_version	1	IP version number. Values:
					• 4 – IPv4
					• 6 – IPv6
		uint8	source_ip	16	Values:
					• IPv4 – Fill the first 4 bytes
					• IPv6 – Fill all the 16 bytes
		uint8	source_ip_mask	1	Mask value for the source address.
		uint8	next_header	1	Next header/protocol value.
		uint16	dest_port_range_start	2	Start value for the destination port range.
		uint16	dest_port_range_end	2	End value for the destination port range.
		uint16	src_port_range_start	2	Start value for the source port range.
		uint16	src_port_range_end	2 4	End value for the source port range.
		uint32	ipsec_spi	2	IPSec security parameter index. TOS mask (traffic class for IPv6).
		uint16	tos_mask		Flow label.
Trens	024	uint32	flow_label	4	
Type	0x24			1	TFT ID2 Parameters **
Length	39			2	

Field	Field	Parameter	Size	Description
value	type		(byte)	
\rightarrow	uint8	filter_id	1	Filter identifier.
	uint8	eval_id	1	Evaluation precedence index.
	enum8	ip_version	1	IP version number. Values:
				• 4 – IPv4
				• 6 – IPv6
	uint8	source_ip	16	Values:
				• IPv4 – Fill the first 4 bytes
				• IPv6 – Fill all the 16 bytes
		_	1	Mask value for the source address.
				Next header/protocol value.
				Start value for the destination port range.
				End value for the destination port range.
		1	400	Start value for the source port range.
		~ ~		End value for the source port range.
				IPSec security parameter index.
-				TOS mask (traffic class for IPv6).
0.25	uint32	now_label	g.	Flow label.
				PDP Context Number **
	0			DDD 1 1
	uint8	pdp_context		PDP Context number
		.0'	E	PDP Context Secondary Flag **
	1 1	1 0	V '	X7.1
\rightarrow	boolean	secondary_flag	1	Values:
	1	05 1110		• 1 – TRUE – This is secondary profile
		16. The		• 0 – FALSE – This is not secondary
027		20,000	1	PDP Context Primary ID **
		9k		PDP Context Primary ID ***
	uintQ	primary id		PDP context number primary ID.
	uiiito	primary_id		IPv6 Address Preference **
				If vo Address Fleterence
	uintQ	inv6 address preference		Preferred IPv6 address assigned to the
7	umto	ipvo_address_preference	10	TE. The actual assigned address is
				negotiated with the network and can
				differ from this value; if not specified,
				the IPv6 address is obtained
				automatically from the network.
0x29			1	UMTS Requested QoS with Signaling
OAZ			1	Indication Flag **
34			2	
\rightarrow	enum8	traffic class	1	Traffic class. Values:
•				• 0 – Subscribed
				• 1 – Conversational
			1	
				• 2 – Streaming
				• 2 – Streaming • 3 – Interactive
	$\begin{array}{c} \textbf{value} \\ \rightarrow \\ \hline \\ 0x25 \\ \hline 1 \\ \rightarrow \\ \hline \\ 0x26 \\ \hline 1 \\ \rightarrow \\ \hline \\ 0x28 \\ \hline \\ 16 \\ \rightarrow \\ \hline \\ 0x29 \\ \hline \\ 34 \\ \hline \end{array}$	value type → uint8 uint8 uint8 uint8 uint16 uint16 uint16 uint16 uint32 uint16 uint32 0x25 1 → uint8 0x26 1 → boolean 0x27 1 → uint8 0x28 16 → uint8 0x29 34	value type uint8 filter_id uint8 eval_id enum8 ip_version uint8 source_ip uint8 source_ip_mask uint8 next_header uint16 dest_port_range_start uint16 src_port_range_end uint32 ipsec_spi uint16 tos_mask uint32 flow_label 0x25 1 → uint8 pdp_context 0x26 1 → boolean secondary_flag 0x27 1 → uint8 primary_id 0x28 16 → uint8 ipv6_address_preference 0x29 34	value type (byte) uint8 filter_id 1 uint8 eval_id 1 enum8 ip_version 1 uint8 source_ip 16 uint8 source_ip_mask 1 uint8 next_header 1 uint16 dest_port_range_start 2 uint16 src_port_range_end 2 uint32 ipsec_spi 4 uint32 ipsec_spi 4 uint32 flow_label 4 0x25 1 2 1 2 1 0x26 1 1 2 1 2 3 boolean secondary_flag 1 0x27 1 2 3 1 2 3 1 2 4 1 2 4 1 2 4 1 2 4 1 1

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
		umtsz	max_dowmmk_ourate	_	second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per
			8		second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
			bitrate		second.
		enum8	qos_delivery_order	1	Values:
					• 0 – Subscribe
					• 1 – Delivery order on
				_	• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
					• 0 – Subscribe
				7	• $1 - 1 \times 10^2$
				_	• $2 - 7 \times 10^3$
				80	• $3 - 1 \times 10^3$
				3	• $4 - 1 \times 10^4$
			.0.	0. 50%	• $5 - 1 \times 10^5$
			00.	E.J.	• 6 – 1x10 ⁶
		0	3	1	• 7 – 1x101
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values:
			16. Mai		• 0 – Subscribe
			30, 20.		• $1 - 5x10^2$
			90°		$\bullet 1 - 3x10$ $\bullet 2 - 1x10^2$
					• $3 - 5 \times 10^3$
					• $4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
		chamo		_	whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
		1 1		1	subscribed value is requested.
		boolean	sig_ind	1	Signaling indication flag. Values:
					• 0 – Signaling indication off
Tuno	0x2A			1	• 1 – Signaling indication on UMTS Minimum QoS with Signaling
Туре	UXZA			1	Indication **
Length	34			2	indication
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
14.45	,		********	900	• 0 – Subscribed
					• 1 – Conversational
				3"	• 2 – Streaming
					• 3 – Interactive
				_	• 4 – Background
		uint32	max_uplink_bitrate	4,0	Maximum uplink bit rate in bits per
				37 3	second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
			00.	E.J.	second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
		ume 2	bitrate	·	second.
		enum8	qos_delivery_order	1	Values:
			1 - 1		• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
					• 0 – Subscribe
					$\bullet 1 - 1 \times 10^2$
					$\bullet 2 - 7 \times 10^3$
					• 4 - 1x10 ⁴ • 5 - 1x10 ⁵
					$\bullet 6 - 1 \times 10^6$
					• 7 – 1x10° • 7 – 1x10 ¹
					▼ / - 1X1U

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					• $2 - 1 \times 10^2$
					$\bullet 3 - 5 \times 10^3$
					• $4 - 4 \times 10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
		Ciluino	delivery_enolicous_SDOs	4	whether SDUs detected as erroneous are
			, and	1	delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
				_	• 2 – Erroneous SDU is delivered
		22		00	• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	34 3	Transfer delay (ms). Indicates the
			.0.	0. 50%	targeted time between a request to
			00.	5. J.	transfer an SDU at one SAP to its
			Nº 015		delivery at the other SAP, in
			5,00		milliseconds; if the parameter is set to 0,
			C. Wall		the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
			750		relative importance for handling of
			~		SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
		boolean	sig_ind	1	Signaling indication flag. Values:
					• 0 – Signaling indication off
					• 1 – Signaling indication on
Туре	0x2B			1	Primary DNS IPv6 Address Preference **
Length	16			2	
Value	\rightarrow	uint8	primary_dns_ipv6_	16	The value can be used as a preference
			address_preference		during negotiation with the network; if
					not specified, the wireless device
					attempts to obtain the DNS address
					automatically from the network. The
					negotiated value is provided to the host
					via the DHCP
Туре	0x2C			1	Secondary DNS IPv6 Address
,,,					Preference **
Length	16			2	
Longui	10				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	secodnary_dns_ipv6_ address_preference	16	The value can be used as a preference during negotiation with the network; if not specified, the wireless device
					attempts to obtain the DNS address
					automatically from the network. The
					negotiated value is provided to the host via the DHCP
Туре	0x2D			1	DHCP/NAS Preference **
Length	1			2	
Value	\rightarrow	enum8	addr_allocation_preference	1	This enumerated value can be used to
					indicate the address allocation
					preference. Values:
					• 0 – NAS signaling is used for address
					allocation
					• 1 – DHCP is used for address allocation
Туре	0x2E			1	3GPP LTE QoS Parameters **
Length	17			2	
Value	\rightarrow	uint8	qci	1 _<	For LTE, the requested QoS must be
				80	specified using the QoS Class Identifier
				3	(QoS). Values:
			2016-05-18-00-06 10-05-18-00-06	0. 50%	• QCI value 0 – Requests the network to
			00.	E. J.	assign the appropriate QCI value
			5° 25°		• QCI values 1-4 – Associated with
			65 110°		guaranteed bit rates
			16 Mai		• QCI values 5-9 – Associated with
			20, 20.		nonguaranteed bit rates, the values
			750		specified as guaranteed and maximum
		uint32	g_dl_bit_rate	4	Guaranteed DL bit rate.
		uint32	max_dl_bit_rate	4	Maximum DL bit rate.
		uint32	g_ul_bit_rate	4	Guaranteed UL bit rate.
	0.07	uint32	max_ul_bit_rate	4	Maximum UL bit rate.
Туре	0x2F			1	APN Disabled Flag **
Length	1	1 1	1, 11 1 0	2	Di 11 di cari
Value	\rightarrow	boolean	apn_disabled_flag	1	Disables the use of this profile for
					making data calls. Any data call with
					this profile fails locally. Values:
					• 0 – FALSE (default)
_	0.22			1	• 1 – TRUE
Туре	0x30			1	PDN Inactivity Timeout **
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint32	pdn_inactivity_timeout	4	Duration of the inactivity timer in
					seconds. If a PDP context/PDN
					connection is inactive (that is, no data
					Rx/Tx) for this duration of time, the PDP
					context/PDN connection is disconnected.
					The default setting of zero is treated as
					an infinite value.
Туре	0x31			1	APN Class **
Length	1			2	(b)
Value	\rightarrow	uint8	apn_class	1	An opaque, numeric identifier
					representing the APN in the profile. The
					APN class can be transparently set for
					any profile and queried later.
Туре	0x35			1	APN Bearer **
Length	8			2	
Value	\rightarrow	mask	apn_bearer	8	APN bearer mask. Specifies whether a
					data call is allowed on specific RAT
					types. Values:
				60	• 0x0000000000000001 – GSM
				3	• 0x00000000000000000000000000000000000
			0.	0. 00	• 0x0000000000000004 – LTE
			00.	E. 1.	• 0x8000000000000000 – Any
Туре	0x36		No 045	1	Support Emergency Calls **
Length	1		5 5	2	
Value	\rightarrow	boolean	support_emergency_calls	1	When this flag is set, the user can make
			20,20		emergency calls using this profile.
			200		Values:
					• 0 – FALSE (default)
					• 1 – TRUE
Туре	0x37			1	Operator Reserved PCO ID **
Length	2			2	
Value	\rightarrow	uint16	op_pco_id	2	Container ID of this PCO. If op_pco_id
					is configured, the UE sends the operator
					PCO with the container ID that is
					configured. Once configured, the profile
					cannot be unconfigured.
Туре	0x38			1	Mobile Country Code **
Length	2			2	
Value	\rightarrow	uint16	pco_mcc	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
Туре	0x39			1	Mobile Network Code **
Length	3			2	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC.
					Range: 0 to 999.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length of the corresponding MNC reported in
					the TLVs. Values: • TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Туре	0x3A			1	Max PDN Connections Per Time Block **
Length	2			2	
Value	\rightarrow	uint16	max_pdn_conn_per_block	2	Specifies the maximum number of PDN connections that the UE is allowed to
			/(D,	perform with the network in a specified time block. The time block size is
				ľ	defined by a configuration item. The
				_	default value is 1023.
	0.00			NO.	Range: 0 to 1023.
Туре	0x3B			31 3	Max PDN Connections Timer **
Length	2			2	
Value	\rightarrow	uint16	max_pdn_conn_timer	2	Specifies the time duration (in seconds) during which the UE counts the PDN connections already made. The default
		1	C.O. Value		value is 300.
			010 711		Range: 0 to 3600 sec.
Туре	0x3C		N 200	1	PDN Request Wait Timer **
Length	2		0	2	
Value	\rightarrow	uint16	pdn_req_wait_interval	2	Specifies the minimum time interval (in
					seconds) between the new PDN
					connection request and the last
					successful UE initiated PDN
					disconnection. The default value is 0.
					Range: 0 to 1023 sec.
Туре	0x3D			1	3GPP Application User Data **
Length	4			2	
Value	\rightarrow	uint32	app_user_data_3gpp	4	An opaque, numeric identifier representing the user data in the profile. This can be transparently set for any profile and queried later.
Туре	0x3E			1	Roaming Disallow Flag **
Length	1			2	
Value	\rightarrow	boolean	roaming_disallowed	1	Specifies whether the UE is allowed to
valuo	,		rounning_uisuno wed	1	connect to the APN specified by the profile while roaming.
Туре	0x3F			1	PDN Disconnect Wait Timer **
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	pdn_discon_wait_timer	1	Indicates the delay that the control point
					expects to be available for successful
					deregistration with the network before
					the modem disconnects the PDN(s).
					When the default value of zero is
					specified, the modem disconnects the
					PDN immediately upon moving to the
					roaming network, without waiting for the
					control point. Range: 0-255 minutes.
Туре	0x40			1	DNS Address Using DHCP **
Length	1			2	
Value	\rightarrow	boolean	dns_addr_using_dhcp	1 -	Values:
Value	,	boolean	uns_udur_usmg_unep	1	• 1 – TRUE – Request DNS address
				900	using the DHCP
					• 0 – FALSE – Do not request (default)
	0x7D				•
Туре	UX/D			<u> </u>	Common PCSCF Address Using DHCP ***
	1			2	***
Length	1	1 1	6 11	2	***
Value	\rightarrow	boolean	common_pcscf_addr_	100	Values:
			using_dhcp	3	• 1 – TRUE – Request PCSCF address
			.0.	0. 50,	using the DHCP
			00.	E	• 0 – FALSE – Do not request (default)
Туре	0x7E		5-1-0 @nes	1	Common DNS Address Using DHCP ** *
Length	1		6, 1,21	2	
Value	\rightarrow	boolean	common_dns_addr_using_	1	Values:
			dhep		• 1 – TRUE – Request DNS address
			0		using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0x7F			1	Common PDP Type ** *
Length	4			2	- State of the sta
Value	\rightarrow	enum	common_pdp_type	4	Specifies the type of data payload
	′	CHUIII		'	exchanged over the airlink when the
					packet data session is established with
					this profile. Values:
					• 0 – PDP-IP (IPv4)
					` /
					• 1 – PDP-IPv6
	0.00				• 2 – PDP-IPv4v6
Туре	0x80			1	Common Application User Data **
Length	4			2	
Value	\rightarrow	uint32	common_app_user_data	4	An opaque, numeric identifier
					representing the user data in the profile.
					This can be transparently set for any
					profile and queried later.
Туре	0x81			1	Common Mobile Network Code ***
Length	3			2	

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)		
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC. Range: 0 to 999.	
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length of the corresponding MNC reported in the TLVs. Values:	
					 TRUE – MNC is a three-digit value; for example, a reported value of 90 corresponds to an MNC value of 090 FALSE – MNC is a two-digit value; for example, a reported value of 90 	
					corresponds to an MNC value of 90	
Туре	0x82			1	Common Mobile Country Code ***	
Length	2			2		
Value	\rightarrow	uint16	common_pco_mcc	2	A 16-bit integer representation of MCC. Range: 0 to 999.	
Туре	0x83		4	1	Common Operator Reserved PCO ID **	
Length	2			2	_	
Value	\rightarrow	uint16	common_op_pco_id	2 <	Container ID of this PCO. If op_pco_id	
			. 0.1	2760	is configured, the UE sends the operator PCO with the container ID that is	
				6. 00	configured. Once configured, the profile	
			20:0	34.	cannot be unconfigured.	
Туре	0x84		19 19	1	Common Authentication Password ***	
Length	Var		5/10	2		
Value	\rightarrow	string	common_auth_password	Var	Password used during data network	
			-07017		authentication; maximum length allowed	
			720		is 127 bytes.	
			0		QMI_ERR_ARG_TOO_LONG is	
					returned if the storage on the wireless	
					device is insufficient in size to hold the	
					value.	
Туре	0x85			1	Common User ID ***	
Length	Var			2		
Value	\rightarrow	string	common_user_id	Var	User ID used during data network	
					authentication; maximum length allowed	
					is 127 bytes.	
					QMI_ERR_ARG_TOO_LONG is	
					returned if the storage on the wireless	
					device is insufficient in size to hold the	
					value.	
Туре	0x86			1	Common Authentication Protocol ***	
Length	1			2		
Value	\rightarrow	enum8	common_auth_protocol	1	Values:	
			_		• 0 – None	
					• 1 – PAP	
					• 2 – CHAP	
					• 3 – PAP or CHAP	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x87			1	Common PCSCF Address Using PCO Flag ***
Length	1			2	
Value	\rightarrow	boolean	common_is_pcscf_ address_ needed	1	Values: • 1 – TRUE – Request PCSCF address using PCO • 0 – FALSE – Do not request By default the value is 0.
Туре	0x88			1	Common Allow/Disallow Lingering of Interface ***
Length	3			2	9-1
Value	\rightarrow	boolean	common_allow_linger	1	Values: • 1 – TRUE – Allow lingering • 0 – FALSE – Do not allow lingering
Trens	0x89	uint16	common_linger_timeout	2	Value of linger timeout in milliseconds. Common Secondary DNS IPv6 Address
Туре					Preference ***
Length	16			2	
Value	\rightarrow	uint8	common_secodnary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8A		Olo Thai	1	Common Primary DNS IPv6 Address Preference ***
Length	16		780	2	
Value	\rightarrow	uint8	common_primary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8B			1	Common Secondary DNS IPv4 Address Preference ***
Length	4			2	
Value	\rightarrow	uint32	common_secondary_DNS_ IPv4_address_preference	4	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8C			1	Common Primary DNS Address Preference ***
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint32	common_primary_DNS_	4	Used as a preference during negotiation
			IPv4_address_preference		with the network. If not specified, the
					wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via the DHCP.
Туре	0x8D			1	Common APN Class ***
Length	1			2	
Value	\rightarrow	uint8	common_apn_class	1	An opaque, numeric identifier
					representing the APN in the profile. The
					APN class can be transparently set for
				-	any profile and queried later.
Туре	0x8E			1	Common APN Disabled Flag ***
Length	1			2	
Value	\rightarrow	boolean	common_apn_disabled_	1	Setting this flag disables the use of this
			flag	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	profile for making data calls. Any data
					call with this profile fails locally. Values:
					• 0 – FALSE (default)
				00	• 1 – TRUE
Туре	0x8F			21.	Profile Persistence Flag * **
Length	1			2	
Value	\rightarrow	boolean	persistent	ē ³ 1	Boolean value used to control whether
			\$ 0.55		the profile to be created is persistent or
			5 36		not. The default is persistent. Values:
			S. C. Mall		• 1 – TRUE – Profile is persistent
			07.07		• 0 – FALSE – Profile is not persistent
Туре	0x90		100	1	Negotiate DNS Server Preference *
Length	1		~	2	-
Value	\rightarrow	boolean	negotiate_dns_server_	1	The default value is TRUE. Values:
			preference		• 1 – TRUE – Request DNS address
					from the PDSN
					• 0 – FALSE – Do not request DNS
					address from the PDSN
Туре	0x91			1	PPP Session Close Timer for DO *
Length	4			2	
Value	\rightarrow	uint32	ppp_session_close_timer_	4	Timer value (in seconds) on DO
			DO		indicating how long the PPP session
					must linger before closing down.
Туре	0x92			1	PPP Session Close Timer for 1X *
Length	4			2	
Value	\rightarrow	uint32	ppp_session_close_timer_	4	Timer value (in seconds) on 1X
	,	G1111.5.2	1x		indicating how long the PPP session
			1/1		must linger before closing down.
Туре	0x93			1	Allow/Disallow Lingering of Interface *
Length	1			2	7 Mow/Distance Enigering of Interface
Lengui	1				

Field	Field value	Field type	Parameter	Size (byte)	Description	
Value	\rightarrow	boolean	allow_linger	1	Values:	
					• 1 – TRUE – Allow lingering	
					• 0 – FALSE – Do not allow lingering	
Туре	0x94			1	LCP ACK Timeout *	
Length	2			2		
Value	\rightarrow	uint16	lcp_ack_timeout	2	Value of LCP ACK timeout in	
			•		milliseconds.	
Туре	0x95			1	IPCP ACK Timeout *	
Length	2			2	(b)	
Value	\rightarrow	uint16	ipcp_ack_timeout	2	Value of IPCP ACK timeout in	
10.00	,	631111 0	ipop_usii_uiiioout	_	milliseconds.	
Туре	0x96			1	AUTH Timeout *	
Length	2			2	TIO III TIMEOUL	
Value	\rightarrow	uint16	auth_timeout	2	Value of authentication timeout in	
value	\rightarrow	umino	auti_timeout	2	milliseconds.	
Tumo	0x97			1	LCP Configuration Request Retry Count	
Туре	0X97			1	Value *	
l	1			2	value ·	
Length	1		lan and natural source	2	I CD and annual an annual action and	
Value	\rightarrow	uint8	lcp_creq_retry_count	10	LCP configuration request retry count	
_	0.00			3	value.	
Туре	0x98		0:0	o, To,	IPCP Configuration Request Retry	
				0,	Count *	
Length	1		N 68	2		
Value	\rightarrow	uint8	ipcp_creq_retry_count	1	IPCP configuration request retry count	
			16. The		value.	
Туре	0x99		20,00	1	AUTH Retry *	
Length	1		200	2		
Value	\rightarrow	uint8	auth_retry_count	1	Authentication retry count value.	
Туре	0x9A			1	Authentication Protocol *	
Length	1			2		
Value	\rightarrow	enum8	auth_protocol	1	Values:	
			-		• 0 – NONE	
					• 1 – PAP	
					• 2 – CHAP	
					• 3 – PAP or CHAP	
Туре	0x9B			1	User ID *	
Length	Var			2		
Value	\rightarrow	string	user_id	Var	User ID used during data network	
value	,	sumg	user_iu	Vai	authentication; maximum length allowed	
					is 127 bytes.	
					QMI_ERR_ARG_TOO_LONG is	
					_	
					returned if the storage on the wireless	
					device is insufficient in size to hold the	
	0.00				value.	
Туре	0x9C			1	Authentication Password *	
Length	Var			2		

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	string	auth_password	Var	Password used during data network
					authentication; maximum length allowed
					is 127 bytes.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
					device is insufficient in size to hold the
					value.
Туре	0x9D			1	Data Rate *
Length	1			2	6
Value	\rightarrow	enum8	data_rate	1	Values:
			_		• 0 – Low (Low speed Service Options
					(SO15) only)
					• 1 – Medium (SO33 + low R-SCH)
				800	• 2 – High (SO33 + high R-SCH)
					Note: Default is 2.
Туре	0x9E		4	1	Application Type *
Length	4			2	
Value	\rightarrow	enum	app_type	4 4	Values:
		•110111			
			2016-05-18-00:05 2016-05-18-00:05	~ × ×	• 0x00000020 – LBS application type
				6.3 30	• 0x0000040 – Tethered application
			0:0	7.0	type
			903	5.	Note: Application type value in a profile
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		cannot be modified. It can only be used
		1	0, 300		to search for the profile ID numbers that
			10 1/11		have the specified application type.
			2000		Note: An error message is returned if
			80		this TLV is included in the request.
Туре	0x9F			1	Data Mode *
Length	1			2	Data Wode
Value		enum8	data_mode	1	Values:
value	\rightarrow	Ciluilio	data_mode	1	• 0 – CDMA or HDR (Hybrid
					1X/1xEV-DO)
					• 1 – CDMA only (1X only)
					• 2 – HDR only (1xEV-DO only)
					Note: Default is 0.
_	0-40			1	
Туре	0xA0			1	Application Priority *
Length	1	' ' ' ' '		2	Name and a second of
Value	\rightarrow	uint8	app_priority	1	Numerical one byte value defining the
					application priority; higher value implies
					higher priority.
					Note: Application priority value in a
					profile cannot be modified. It is listed for
					future extensibility of profile ID search
					based on application priority.
					Note: An error message is returned if
					this TLV is included in the request.

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0xA1			1	APN String *
Length	Var			2	
Value	\rightarrow	string	apn_string	Var	String representing the access point name; maximum length allowed is 100 bytes. QMI_ERR_ARG_TOO_LONG is returned if the APN name is too long.
Туре	0xA2			1	PDN Type *
Length	1			2	31
Value	\rightarrow	enum8	pdn_type	1	Values: • 0 – IPv4 PDN type • 1 – IPv6 PDN type • 2 – IPv4 or IPv6 PDN type • 3 – Unspecified PDN type (implying no preference)
Туре	0xA3			1	Is PCSCF Address Needed *
Length	1			2	
Value	\rightarrow	boolean	is_pcscf_address_needed	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Used to control whether the PCSCF address is requested from PDSN. Values: • 1 – TRUE – Request the PCSCF value from the PDSN • 0 – FALSE – Do not request the PCSCF value from the PDSN
Туре	0xA4		\$ 0.5°	1	IPv4 Primary DNS Address *
Length	4		557	2	,
Value	\rightarrow	uint32	primary_v4_dns_address	4	The primary IPv4 DNS address that can be statically assigned to the UE.
Туре	0xA5		120	1	IPv4 Secondary DNS Address *
Length	4		0	2	,
Value	\rightarrow	uint32	secondary_v4_dns_address	4	The secondary IPv4 DNS address that can be statically assigned to the UE.
Туре	0xA6			1	Primary IPv6 DNS Address *
Length	16			2	
Value	\rightarrow	uint8	primary_v6_dns_address	16	The primary IPv6 DNS address that can be statically assigned to the UE.
Туре	0xA7			1	Secondary IPv6 DNS Address *
Length	16			2	
Value	\rightarrow	uint8	secondary_v6_dns_address	16	The secondary IPv6 DNS address that can be statically assigned to the UE.
Туре	0xA8			1	RAT Type *
Length	1			2	~ .
Value	\rightarrow	enum8	rat_type	1	Values: • 1 – HRPD • 2 – EHRPD • 3 – HRPD_EHRPD
Туре	0xA9			1	APN Enabled *
Length	1			2	

Field	Field	Field	Parameter	Size	Description	
	value	type	11.1.2.2	(byte)	ADNI 11 11 G	
Value	\rightarrow	boolean	apn_enabled_3gpp2	1	APN enabled is a flag to specify whether	
					the APN in that profile is enabled or	
					disabled. If the APN is disabled, the data	
					call cannot be established using that	
					APN. Values:	
					• 1 – Enabled (default value)	
	0 4 4				• 0 – Disabled	
Туре	0xAA			1	PDN Inactivity Timeout *	
Length	4			2	<u> </u>	
Value	\rightarrow	uint32	pdn_inactivity_timeout_	4	The duration of the inactivity timer in	
			3gpp2		minutes. If a PDP context/PDN	
					connection is inactive (that is, no data	
					Rx/Tx) for this duration of time, the PDP	
					context/PDN connection is disconnected.	
					The default setting of zero is treated as	
				7	an infinite value.	
Туре	0xAB			1	APN Class *	
Length	1			2 <		
Value	\rightarrow	uint8	apn_class_3gpp2	100	An opaque, numeric identifier	
				3	representing the APN in the profile. This	
			0.	0. 00,	can be transparently set for any profile	
			00.	E.J.	and queried later.	
Туре	0xAD		\$ 0.45°	1	PDN Level Auth Protocol *	
Length	1		5,0	2		
Value	\rightarrow	enum8	pdn_level_auth_protocol	1	Authentication protocol used during	
			20,000		PDN level authentication. Values:	
			Sec.		WDS_PROFILE_PDN_LEVEL_	
					AUTH_PROTOCOL_NONE (0) -	
					WDS_PROFILE_PDN_LEVEL_	
					AUTH_PROTOCOL_PAP (1) –	
					WDS_PROFILE_PDN_LEVEL_	
					AUTH_PROTOCOL_CHAP (2) –	
					WDS_PROFILE_PDN_LEVEL_	
					AUTH_PROTOCOL_PAP_CHAP (3) -	
Туре	0xAE			1	PDN Level User ID *	
Length	Var			2		
Value	\rightarrow	string	pdn_level_user_id	Var	User ID used during PDN level	
					authentication. Maximum length	
					allowed is 127 bytes.	
Туре	0xAF			1	PDN Level Auth Password *	
Length	Var			2		
Value	\rightarrow	string	pdn_level_auth_password	Var	Password used during PDN level	
			^		authentication. Maximum length	
					allowed is 127 bytes.	
Туре	0xB0			1	PDN Label *	
Length	Var			2		

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
Value	\rightarrow	string	pdn_label	Var	Logical name used to map the APN
					name for selecting the packet data
					network. Maximum length allowed is
					100 bytes.
					The following are the three steps of a
					request using the PDN label:
					1. Find the corresponding profile that has
					the indicated PDN label.
					2. Get the profile's APN name.
					3. Use the APN name for the PDN
					connection.
Туре	0xBD			1	Operator Reserved PCO ID *
Length	2			2	
Value	\rightarrow	uint16	op_pco_id_3gpp2	2	Container ID of this PCO. If op_pco_id
					is configured, the UE sends the operator
			40	7	PCO with the container ID that is
					configured. Once configured, the profile
					cannot be unconfigured.
Туре	0xBE			100	Mobile Country Code *
Length	2			2	2,
Value	\rightarrow	uint16	pco_mcc_3gpp2	2//	A 16-bit integer representation of MCC.
			00:	e. H.	Range: 0 to 999.
Туре	0xBF		No. 25	1	Mobile Network Code *
Length	3		5 10	2	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC.
			201.01		Range: 0 to 999.
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length
					of the corresponding MNC reported in
					the TLVs. Values:
					• TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Туре	0xC0			1	PDN Throttling Timer 1-6 *
Length	24			2	
Value	\rightarrow	uint32	failure_timer	24	The back-off time (in seconds) to be
					used after a PDN connection or IP
					address assignment failure. For example,
					immediately following a third
					consecutive PDN connection request
					failure, the UE waits failure_timer[2]
					seconds before sending the fourth
					request. Following failures of six or
					greater, failure_timer[5] is used .
Туре	0xC1			1	PDN Disallow Timer 1-6 *

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	24			2	
Value	\rightarrow	uint32	disallow_timer	24	The back-off time (in seconds) to be
					used after the network refuses to grant
					the requested IP address type, such as
					when an IPv6 address is requested from
					a network that only grants the IPv4
					address. For example, immediately after
					a third consecutive PDN connection
					request is denied, the UE waits
					disallow_timer[2] seconds before
					sending the fourth request. Following
					failures of six or greater,
					disallow_timer[5] is used.
Туре	0xC2			1	3GPP2 Application User Data *
Length	4			2	
Value	\rightarrow	uint32	app_user_data_3gpp2	4	An opaque, numeric identifier
					representing the user data in the profile.
				_	This can be transparently set for any
				<0	profile and queried later.
Туре	0xC3			31	PCSCF Address Using DHCP 3GPP2 *
Length	1		0.	2	
Value	\rightarrow	boolean	pcscf_addr_using_dhcp_	e 41	Values:
			3gpp2		• 1 – TRUE – Request PCSCF address
			5 79		using the DHCP
			6, Hai		• 0 – FALSE – Do not request (default)
Туре	0xC4		20,00	1	DNS Address Using DHCP *
Length	1		, 85°,	2	
Value	\rightarrow	boolean	dns_addr_using_dhcp_	1	Values:
			3gpp2		• 1 – TRUE – Request DNS address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0xDF			1	IPv6 Prefix Delegation Flag * **
Length	1			2	
Value	\rightarrow	boolean	ipv6_prefix_delegation	1	Enables IPv6 prefix delegation. Values:
					• 0 – FALSE (default)
					• 1 – TRUE

3.16.2 Response - QMI_WDS_CREATE_PROFILE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Profile Identifier	Unknown	1.13

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Profile Identifier
Length	2			2	
Value	\rightarrow	enum8	profile_type	1	Identifies the type of the profile. Values:
			, (F	• WDS_PROFILE_TYPE_3GPP (0x00)
				6	- 3GPP
				767	• WDS_PROFILE_TYPE_3GPP2
				3	(0x01) - 3GPP2
			.0	, 60,	• WDS_PROFILE_TYPE_EPC (0x02) -
			200	57	EPC
		uint8	profile_index	1	Index identifying the profile.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0xE0			1	Extended Error Code
Length	2			2	
Value	\rightarrow	enum16	extended_error_code	2	The extended error code received from
					the DS Profile subsystem. These error
					codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request	
QMI_ERR_INTERNAL	Unexpected error occurred during processing	
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point	
	or the message was corrupted during transmission	
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request	
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response	

QMI_ERR_ARG_TOO_LONG	Argument passed in a TLV is larger than the available
	storage in the device
QMI_ERR_INVALID_PROFILE_TYPE	Profile type specified is invalid
QMI_ERR_INVALID_PDP_TYPE	PDP type specified is not supported
QMI_ERR_NO_FREE_PROFILE	Maximum number of profiles are stored in the device and
	there is no more storage available to create a new profile
QMI_ERR_EXTENDED_INTERNAL	Error from the the DS profile module; the extended error
	code from the DS profile is populated in an additional
	optional TLV

3.16.3 Description of QMI_WDS_CREATE_PROFILE REQ/RESP

This command creates a configured profile and assigns settings in the newly created profile.

A configured profile is a collection of settings stored together in one record by the device. A configured profile can be used when starting a packet data session via QMI_WDS_START_NETWORK_INTERFACE.

An EPC profile is used to configure common parameters that apply to both 3GPP and 3GPP2. It can also be used to configure technology specific parameters such as 3GPP- or 3GPP2-specific TLVs.

TLV values 0xE1 through 0xEA are reserved for OEM use.

The AT command equivalent of this command is AT+CGDCONT defined in 3GPP TS 27.007.

3.17 QMI WDS MODIFY PROFILE SETTINGS

Changes the settings in a configured profile.

WDS message ID

0x0028

Version introduced

Major - 1, Minor - 1

Request - QMI_WDS_MODIFY_PROFILE_SETTINGS_REQ 3.17.1

Mandatory TLVs

	Name	Version introduced	Version last modified
Profile Identifier	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Unknown	1.11

3.17.1	Rec	quest -	QMI_WD5_MODIFY_	PROF	-ILE_SETTIN	IGS_REQ	
Message	type			1			
Request	Request						
Sender	Sender						
Control 1	point						
Mandato	ry TLVs	;		63.00°	(n)		
	Name Version introduced Version last modified						
Profile	Identific	er	20 m2	J	Jnknown	1.11	
			5.05 hande				
Field	Field	Field	Parameter	Size Description		Description	
	value	type	180.	(byte)			
Туре	0x01		~	1	Profile Identifie	r	
Length	2			2			
Value	\rightarrow	enum8	profile_type	1	· ·	pe of the profile. Values:	
						LE_TYPE_3GPP (0x00)	
					- 3GPP		
						LE_TYPE_3GPP2	
					(0x01) - 3GPP2		
						LE_TYPE_EPC (0x02) -	
					EPC	1 01	
		uint8	profile_index	1	Index identifying	ig the profile.	

Optional TLVs

Name	Version introduced	Version last modified
Profile Name **	Unknown	1.11
PDP Type **	Unknown	1.11
PDP Header Compression Type **	Unknown	1.11
PDP Data Compression Type **	Unknown	1.11
Context Access Point Node Name **	Unknown	1.11
Primary DNS IPv4 Address Preference **	Unknown	1.11

Name	Version introduced	Version last modified
Secondary DNS IPv4 Address Preference **	Unknown	1.11
UMTS Requested QoS **	Unknown	1.11
UMTS Minimum QoS **	Unknown	1.11
GPRS Requested QoS **	Unknown	1.11
GRPS Minimum Qos **	Unknown	1.11
Username **	Unknown	1.11
Password **	Unknown	1.11
Authentication Preference **	Unknown	1.11
IPv4 Address Preference **	Unknown	1.11
PCSCF Address Using PCO Flag **	Unknown	1.3
PDP Access Control Flag **	Unknown	1.11
PCSCF Address Using DHCP **	Unknown	1.11
IM CN flag **	Unknown	1.11
Traffic Flow Template ID1 Parameters **	Unknown	1.11
TFT ID2 Parameters **	Unknown	1.11
PDP Context Number **	Unknown	1.11
PDP Context Secondary Flag **	Unknown	1.11
PDP Context Primary ID **	Unknown	1.11
IPv6 Address Preference **	Unknown	1.11
UMTS Requested QoS with Signaling Indication	Unknown	1.11
Flag **	Chritown	1.11
UMTS Minimum QoS with Signaling Indication **	Unknown	1.11
Primary DNS IPv6 Address Preference **	Unknown	1.11
Secondary DNS IPv6 Address Preference **	Unknown	1.11
DHCP/NAS Preference **	Unknown	1.11
3GPP LTE QoS Parameters **	Unknown	1.11
APN Disabled Flag **	Unknown	1.13
PDN Inactivity Timeout **	Unknown	1.13
APN Class **	1.13	1.13
APN Bearer **	1.26	1.26
Support Emergency Calls **	1.31	1.31
Operator Reserved PCO ID **	1.37	1.37
Mobile Country Code **	1.37	1.37
Mobile Network Code **	1.37	1.37
Max PDN Connections Per Time Block **	1.46	1.46
Max PDN Connections Timer **	1.46	1.46
PDN Request Wait Timer **	1.46	1.46
3GPP Application User Data **	1.57	1.57
Roaming Disallow Flag **	1.63	1.63
PDN Disconnect Wait Timer **	1.63	1.63
DNS Address Using DHCP **	1.74	1.74
Common PCSCF Address Using DHCP ** *	1.74	1.74
Common DNS Address Using DHCP ** *	1.74	1.74
Common PDP Type ** *	1.65	1.67
Common Application User Data **	1.59	1.59
Common Mobile Network Code ***	1.59	1.59
Common Mount Network Code	1.37	1.57

Name	Version introduced	Version last modified	
Common Mobile Country Code ***	1.59	1.59	
Common Operator Reserved PCO ID **	1.59	1.59	
Common Authentication Password ***	1.59	1.59	
Common User ID ***	1.59	1.59	
Common Authentication Protocol ***	1.59	1.59	
Common PCSCF Address Using PCO Flag ***	1.59	1.59	
Common Allow/Disallow Lingering of Interface ***	1.59	1.59	
Common Secondary DNS IPv6 Address Preference ***	1.59	1.59	
Common Primary DNS IPv6 Address Preference ***	1.59	1.59	
Common Secondary DNS IPv4 Address	1.59	1.59	
Preference *** Common Primary DNS Address Preference ***	1.59	1.59	
Common APN Class ***	1.59	1.59	
	1.59	1.59	
Common APN Disabled Flag ***			
Negotiate DNS Server Preference * PPP Session Close Timer for DO *	Unknown	1.11	
	Unknown	1.11	
PPP Session Close Timer for 1X *	Unknown	1.11	
Allow/Disallow Lingering of Interface *	Unknown	1.11	
LCP ACK Timeout *	Unknown	1.11	
IPCP ACK Timeout *	Unknown	1.11	
Authentication Timeout *	Unknown	1.11	
LCP Configuration Request Retry Count Value *	Unknown	1.11	
IPCP Configuration Request Retry Count *	Unknown	1.11	
AUTH Retry *	Unknown	1.11	
Authentication Protocol *	Unknown	1.33	
User ID *	Unknown	1.11	
Authentication Password *	Unknown	1.11	
Data Rate *	Unknown	1.11	
Application Type *	Unknown	1.11	
Data Mode *	Unknown	1.11	
Application Priority *	Unknown	1.11	
APN String *	Unknown	1.11	
PDN Type *	Unknown	1.11	
Is PCSCF Address Needed *	Unknown	1.11	
IPv4 Primary DNS Address *	Unknown	1.11	
IPv4 Secondary DNS Address *	Unknown	1.11	
Primary IPv6 DNS Address *	Unknown	1.11	
Secondary IPv6 DNS address *	Unknown	1.11	
RAT Type *	Unknown	1.13	
APN Enabled *	Unknown	1.13	
PDN Inactivity Timeout *	Unknown	1.13	
APN Class 3GPP2 *	1.13	1.13	
PDN Level Auth Protocol *	Unknown	1.34	
PDN Level User ID *	Unknown	1.19	
I DIA FEACI AREI ID .	UIIKIIOWII	1.19	

Name	Version introduced	Version last modified
PDN Level Auth Password *	Unknown	1.19
PDN Label *	Unknown	1.19
Operator Reserved PCO ID *	1.37	1.37
Mobile Country Code *	1.37	1.37
Mobile Network Code *	1.37	1.37
PDN Throttling Timer 1-6 *	1.42	1.42
PDN Disallow Timer 1-6 *	1.42	1.42
3GPP2 Application User Data *	1.57	1.57
PCSCF Address Using DHCP 3GPP2 *	1.74	1.74
DNS Address Using DHCP *	1.74	1.74
IPv6 Prefix Delegation Flag * **	1.66	1.66

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Name **
Length	Var			2	
Value	\rightarrow	string	profile_name	Var	One or more bytes describing the profile.
				_	The description can be a user-defined
				0	name for the profile.
				3	QMI_ERR_ARG_TOO_LONG is
			0.	0. 00	returned if the profile_name is too long.
Туре	0x11		00.	e√1	PDP Type **
Length	1		10 mg	2	
Value	\rightarrow	enum8	pdp_type	1	Packet Data Protocol (PDP) type
			6 hair		specifies the type of data payload
			20, 20,		exchanged over the airlink when the
			200		packet data session is established with
					this profile. Values:
					• 0 – PDP-IP (IPv4)
					• 1 – PDP-PPP
					• 2 – PDP-IPv6
					• 3 – PDP-IPv4v6
Туре	0x12			1	PDP Header Compression Type **
Length	1			2	
Value	\rightarrow	enum8	pdp_hdr_compression_	1	Values:
			type		• 0 – PDP header compression is off
					• 1 – Manufacturer preferred
					compression
					• 2 – PDP header compression based on
					RFC 1144
					• 3 – PDP header compression based on
					RFC 2507
					• 4 – PDP header compression based on
					RFC 3095
Туре	0x13			1	PDP Data Compression Type **
Length	1			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	enum8	pdp_data_compression_	1	Values:
			type		• 0 – PDP data compression is off
					• 1 – Manufacturer preferred
					compression
					• 2 – V.42BIS data compression
					• 3 – V.44 data compresion
Туре	0x14			1	Context Access Point Node (APN)
71					Name **
Length	Var			2	(b)
Value	\rightarrow	string	apn_name	Var	A string parameter that is a logical name
		8	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		used to select the GGSN and external
					packet data network.
					If the value is NULL or omitted, the
				900	subscription default value is requested.
					QMI_ERR_ARG_TOO_LONG is
					returned if the APN name is too long.
Туре	0x15			1	Primary DNS IPv4 Address Preference
Type	UXIJ			1	**
Length	4			200	
Value	$\stackrel{+}{\longrightarrow}$	uint32	primary_DNS_IPv4_	4 .	This value can be used as a preference
value	\rightarrow	umt52	pilinary_DNS_IFV4_		_
			address_preference	3, 10,	during negotiation with the network; if
			200	E.	not specified, the wireless device
			N° 62		attempts to obtain the DNS address
			05, 210		automatically from the network. The
			16 Than		negotiated value is provided to the host
	0.16		address_preference	1	via DHCP.
Туре	0x16		De la companya della companya della companya de la companya della	1	Secondary DNS IPv4 Address
					Preference **
Length	4			2	
Value	\rightarrow	uint32	secondary_DNS_IPv4_	4	This value can be used as a preference
			address_preference		during negotiation with the network; if
					not specified, the wireless device
					attempts to obtain the DNS address
					automatically from the network. The
					negotiated value is provided to the host
					via DHCP.
Туре	0x17			1	UMTS Requested QoS **
Length	33			2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
		umtsz			
		umt32			second.
		uint32	max_downlink_bitrate	4	_

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	Consequents of continuous hits man
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_ bitrate	4	Guaranteed downlink bit rate in bits per second.
		enum8	qos_delivery_order	1	Values:
		•1101110	qos_donvery_order	_	• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
		•1101110	SGG_G11 61_14416	_	or detected as erroneous. Values:
					• 0 – Subscribe
				1	• $1 - 1 \times 10^2$
				900	• $2 - 7 \times 10^3$
					• $3 - 1 \times 10^3$
					• $4 - 1 \times 10^4$
					• $5 - 1 \times 10^5$
				r	• $6 - 1 \times 10^6$
				-0	• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	. 1 ×	Target value for the undetected bit error
		CHAINO		3 0	ratio in the delivered SDUs. Values:
			0.0	100	• 0 – Subscribe
			800	000	• $1 - 5x10^2$
			, N. @8"		• $2 - 1 \times 10^2$
		1	2016-05-18-00-05 2016-05-18-00-05		• $3 - 5 \times 10^3$
			10. Tue		• $4 - 4 \times 10^3$
			2000		$\bullet 5 - 1 \times 10^3$
			800		• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					$\bullet 9 - 6 \times 10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
					whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
Туре	0x18			1	UMTS Minimum QoS **
Length	33			2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
			_		• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
				- N	• 3 – Interactive
				200	• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
				30	second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
					second.
		uint32	guaranteed_uplink_bitrate	400	Guaranteed uplink bit rate in bits per
				~ × ×	second.
		uint32	guaranteed_downlink_	4.1	Guaranteed downlink bit rate in bits per
			bitrate	24.C	second.
		enum8	qos_delivery_order	1	Values:
					• 0 – Subscribe
			0, 300		• 1 – Delivery order on
			76 111		• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
			_ _		or detected as erroneous. Values:
					• 0 – Subscribe
					• $1 - 1 \times 10^2$
					• $2 - 7x10^3$
					• $3 - 1 \times 10^3$
					• $4 - 1 \times 10^4$
					• $5 - 1 \times 10^5$
					• $6 - 1 \times 10^6$
					• $7 - 1 \times 10^{1}$

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					$\bullet 2 - 1 \times 10^2$
					$\bullet 3 - 5 \times 10^3$
					$\bullet 4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1x10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6 \times 10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
			<u></u>	000	whether SDUs detected as erroneous are
					delivered or not. Values:
			4	30	• 0 – Subscribe
					• 1 – No detection
				r	• 2 – Erroneous SDU is delivered
				6	• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	M -	Transfer delay (ms). Indicates the
		umtsz	transfer_deray	370	targeted time between a request to
			.0	, 0,	transfer an SDU at one SAP to its
			00	57	delivery at the other SAP, in
			75 WAS		
			05 10		milliseconds; if the parameter is set to 0,
		uint32	tuoffo hondling suiguity	4	the subscribed value is requested.
		umt32	traffic_handling_priority	4	Traffic handling priority. Specifies the
			200		relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
	0.10				subscribed value is requested.
Туре	0x19			1	GPRS Requested QoS **
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1A			1	GRPS Minimum Qos **
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1B			1	Username **
Length	Var			2	
9			<u> </u>	I	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Value	\rightarrow	string	username	Var	Username used during data network
					authentication.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
					device is insufficient in size to hold the
					value.
Туре	0x1C			1	Password **
Length	Var			2	
Value	\rightarrow	string	password	Var	Password to be used during data network
					authentication.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
				- 1	device is insufficient in size to hold the
					value.
Туре	0x1D			1	Authentication Preference **
Length	1			2	
Value	\rightarrow	mask8	authentication_preference	1	A bit map that indicates the
				_	authentication algorithm preference.
				00	Values:
				2	Bit 0 – PAP preference:
				9. '91	• 0 – PAP is never performed
			00.	e. A.	• 1 – PAP can be performed
			2016.05.12 00:05 2016.05.12 00:05		Bit 1 – CHAP preference:
			5 36		• 0 – CHAP is never performed
			S. Mall		• 1 – CHAP can be performed
			201.07		All other bits are reserved and ignored.
			150,		They must be set to zero by the client.
			Ų.		If more than one bit is set, the device
					decides which authentication procedure
					is performed while setting up the data
					session. For example, the device can
					have a policy to select the most secure
					authentication mechanism.
Туре	0x1E			1	IPv4 Address Preference **
Length	4			2	
Value	\rightarrow	uint32	ipv4_address_preference	4	The preferred IPv4 address assigned to
					the TE. The actual assigned address is
					negotiated with the network and might
					differ from this value. If not specified,
					the IPv4 Address is obtained
					automatically from the network. The
					assigned value is provided to the host via
					DHCP.
Туре	0x1F			1	PCSCF Address Using PCO Flag **
Length	1			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	boolean	pcscf_addr_using_pco	1	Values:
					• 1 – TRUE – Request PCSCF address
					using PCO
					• 0 – FALSE – Do not request
					By default this value is 0.
Туре	0x20			1	PDP Access Control Flag **
Length	1			2	
Value	\rightarrow	enum8	pdp_access_control_flag	1	Values:
					• 0 – PDP access control none
					• 1 – PDP access control reject
					• 2 – PDP access control permission
Туре	0x21			1 _	PCSCF Address Using DHCP **
Length	1			2	
Value	\rightarrow	boolean	pcscf_addr_using_dhcp	1	Values:
			. = = = .		• 1 – TRUE – Request PCSCF address
				3"	using the DHCP
					• 0 – FALSE – Do not request
				_	By default, the value is 0.
Туре	0x22			100	IM CN flag **
Length	1		im_cn_flag	2	Contract of the Contract of th
Value	\rightarrow	boolean	im_cn_flag	j. 10 ₄₂	Values:
			0.5	04.	• 1 – TRUE – Request the IM CN flag
			19 15		for this profile
			65,76		• 0 – FALSE – Do not request the IM CN
		1	S.O. Walley		flag for this profile
Туре	0x23		07.07	1	Traffic Flow Template (TFT) ID1
,,			2,00		Parameters **
Length	39		0	2	
Value	\rightarrow	uint8	filter_id	1	Filter identifier.
	·	uint8	eval_id	1	Evaluation precedence index.
		enum8	ip_version	1	IP version number. Values:
		0 - 1 0 - 1 0 0	-F		• 4 – IPv4
					• 6 – IPv6
		uint8	source_ip	16	Values:
			_1		• IPv4 – Fill the first 4 bytes
					• IPv6 – Fill all the 16 bytes
		uint8	source_ip_mask	1	Mask value for the source address.
		uint8	next_header	1	Next header/protocol value.
		uint16	dest_port_range_start	2	Start value for the destination port range.
		uint16	dest_port_range_end	2	End value for the destination port range.
		uint16	src_port_range_start	2	Start value for the source port range.
		uint16	src_port_range_end	2	End value for the source port range.
		uint32	ipsec_spi	4	IPSec security parameter index.
		uint16	tos_mask	2	TOS mask (traffic class for IPv6).
		uint32	flow_label	4	Flow label.
Туре	0x24			1	TFT ID2 Parameters **
Length	39			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	filter_id	1	Filter identifier.
		uint8	eval_id	1	Evaluation precedence index.
		enum8	ip_version	1	IP version number. Values:
					• 4 – IPv4
					• 6 – IPv6
		uint8	source_ip	16	Values:
					• IPv4 – Fill the first 4 bytes
					• IPv6 – Fill all the 16 bytes
		uint8	source_ip_mask	1	Mask value for the source address.
		uint8	next_header	1	Next header/protocol value.
		uint16	dest_port_range_start	2	Start value for the destination port range.
		uint16	dest_port_range_end	2	End value for the destination port range.
		uint16	src_port_range_start	2	Start value for the source port range.
		uint16	src_port_range_end	2	End value for the source port range.
		uint32	ipsec_spi	4	IPSec security parameter index.
		uint16	tos_mask	2	TOS mask (traffic class for IPv6).
		uint32	flow_label	4	Flow label.
Туре	0x25			1 _<	PDP Context Number **
Length	1			200	<u> </u>
Value	\rightarrow	uint8	pdp_context	21/2	PDP context number
Туре	0x26		0.	0. 194	PDP Context Secondary Flag **
Length	1		00.	2	
Value	\rightarrow	boolean	secondary_flag	1	Values:
			5 20		• 1 – TRUE – This is the secondary
			6. Hall		profile
			20,000		• 0 – FALSE – This is not the secondary
			200		profile
Туре	0x27				PDP Context Primary ID **
Length	1			2	
Value	\rightarrow	uint8	primary_id	1	PDP context number primary ID.
Туре	0x28			1	IPv6 Address Preference **
Length	16			2	
Value	\rightarrow	uint8	ipv6_address_preference	16	The preferred IPv6 address to be
					assigned to the TE. The actual assigned
					address is negotiated with the network
					and can differ from this value; if not
					specified, the IPv6 address is obtained
					automatically from the network.
Туре	0x29			1	UMTS Requested QoS with Signaling
					Indication Flag **
Length	34			2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	Maniana and the late of the la
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per
					second.
		uint32	guaranteed_downlink_ bitrate	4	Guaranteed downlink bit rate in bits per second.
		enum8	qos_delivery_order	1	Values:
					• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
				"	• 0 – Subscribe
					• $1 - 1 \times 10^2$
				_	• $2 - 7x10^3$
				00	• $3 - 1 \times 10^3$
				27 "	• $4 - 1 \times 10^4$
				0.00	• $5 - 1 \times 10^5$
			0.5	34.	• $6 - 1 \times 10^6$
			18 15		• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
		1	C.O. Walley		ratio in the delivered SDUs. Values:
			070 77		• 0 – Subscribe
			2,50		• $1 - 5x10^2$
			0		$\bullet 2 - 1 \times 10^2$
					$\bullet 3 - 5 \times 10^3$
					• $4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					$\bullet 9 - 6 \times 10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
					whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the relative importance for handling of SDUs that belong to the UMTS bearer, compared to the SDUs of other bearers. If the parameter is set to 0, the subscribed value is requested.
	0.24	boolean	sig_ind	1	Signaling indication flag. Values: • 0 – Signaling indication off • 1 – Signaling indication on
Туре	0x2A			1	UMTS Minimum QoS with Signaling Indication **
Length	34			2	
Value	\rightarrow	enum8	traffic_class		Traffic class. Values: • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		uint32	max_uplink_bitrate	4.0	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_ bitrate	4	Guaranteed downlink bit rate in bits per second.
		enum8	qos_delivery_order	1	Values: • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: • 0 – Subscribe • 1 – $1x10^2$ • 2 – $7x10^3$ • 3 – $1x10^3$ • 4 – $1x10^4$ • 5 – $1x10^5$ • 6 – $1x10^6$ • 7 – $1x10^1$

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	_
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					• $2 - 1 \times 10^2$
					• $3 - 5 \times 10^3$
					• $4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
		CHAINS	denvery_enroneeds_82 es	0	whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
				E.	• 2 – Erroneous SDU is delivered
				6	• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	M	Transfer delay (ms). Indicates the
		umisz	transfer_deray	370	targeted time between a request to
			.0	, 60,	transfer an SDU at one SAP to its
			200	57	delivery at the other SAP, in
		1	750 045		milliseconds; if the parameter is set to 0,
			05, 40		the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
		umisz	trame_nanding_priority		relative importance for handling of
			de		SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
		boolean	sig_ind	1	Signaling indication flag. Values:
		boolean	sig_iiid	1	• 0 – Signaling indication off
					• 1 – Signaling indication on
T	02D			1	0 0
Туре	0x2B			1	Primary DNS IPv6 Address Preference **
Length	16			2	
Value	\rightarrow	uint8	primary_dns_ipv6_	16	The value can be used as a preference
			address_preference		during negotiation with the network; if
					not specified, the wireless device
					attempts to obtain the DNS address
					automatically from the network. The
					negotiated value is provided to the host
					via DHCP.
Туре	0x2C			1	Secondary DNS IPv6 Address
					Preference **
Length	16			2	
9					<u> </u>

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
Type Length Value	$ \begin{array}{c} $	uint8	secodnary_dns_ipv6_ address_preference	16 16 2 1	The value can be used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via DHCP. DHCP/NAS Preference ** This enumerated value can be used to
				7	 indicate the address allocation preference. Values: 0 – NAS signaling is used for address allocation 1 – DHCP is used for address allocation
Туре	0x2E			1	3GPP LTE QoS Parameters **
Length Value	17 →	uint8	qci	2	For LTE, the requested QoS must be
			2015-05-1800:05 2015-05-1800:05		specified using the QoS Class Identifier (QoS). Values: • QCI value 0 – Requests the network to assign the appropriate QCI value • QCI values 1-4 – Associated with guaranteed bit rates • QCI values 5-9 – Associated with nonguaranteed bit rates, the values specified as guaranteed and maximum bit rates are ignored.
		uint32	g_dl_bit_rate	4	Guaranteed DL bit rate.
		uint32	max_dl_bit_rate	4	Maximum DL bit rate.
		uint32 uint32	g_ul_bit_rate	4	Guaranteed UL bit rate. Maximum UL bit rate.
Type	0x2F	umtsz	max_ul_bit_rate	1	APN Disabled Flag **
Type Length	1			2	ATT Disaulcu Flag
Value	\rightarrow	boolean	apn_disabled_flag	1	When this flag is set, the use of this
value	7	Jooican	apn_uisaoica_nag	1	profile for making a data call is disabled. Any data call with this profile fails locally. Values: • 0 – FALSE (default) • 1 – TRUE
Туре	0x30			1	PDN Inactivity Timeout **
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint32	pdn_inactivity_timeout	4	The duration of the inactivity timer in seconds. When a PDP context/PDN
					connection is inactive (that is, no data
					Rx/Tx) for this duration of time, the PDP
					context/PDN connection is disconnected.
					The default setting of zero is treated as
					an infinite value.
Туре	0x31			1	APN Class **
Length	1			2	•
Value	\rightarrow	uint8	apn_class	1	An opaque, numeric identifier
					representing the APN in the profile. This
					can be transparently set for any profile
					and queried later.
Туре	0x35			1	APN Bearer **
Length	8			2	
Value	\rightarrow	mask	apn_bearer	8	APN bearer mask. Specifies whether a
				,	data call is allowed on specific RAT
					types. Values:
				60	• 0x0000000000000001 – GSM
				3	• 0x00000000000000000000000000000000000
			0.	0. 50%	• 0x0000000000000004 – LTE
			60.	E. J.	• 0x8000000000000000 – Any
Туре	0x36			1	Support Emergency Calls **
Length	1		5 15	2	
Value	\rightarrow	boolean	support_emergency_calls	1	When this flag is set, the user can make
			20, 20,		emergency calls using this profile.
			200		Values:
					• 0 – FALSE (default)
					• 1 – TRUE
Туре	0x37			1	Operator Reserved PCO ID **
Length	2			2	
Value	\rightarrow	uint16	op_pco_id	2	Container ID of this PCO. If op_pco_id
					is configured, the UE sends the operator
					PCO with the container ID that is
					configured. Once configured, the profile
					cannot be unconfigured.
Туре	0x38			1	Mobile Country Code **
Length	2			2	
Value	\rightarrow	uint16	pco_mcc	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
Туре	0x39			1	Mobile Network Code **
Length	3			2	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC.
					Range: 0 to 999.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length of the corresponding MNC reported in
					the TLVs. Values: • TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Туре	0x3A			1	Max PDN Connections Per Time Block **
Length	2			2	
Value	\rightarrow	uint16	max_pdn_conn_per_block	2	Specifies the maximum number of PDN connections that the UE is allowed to
					perform with the network in a specified time block. The time block size is
					defined by a configuration item. The
				*	default value is 1023.
				~Ô	Range: 0 to 1023.
Туре	0x3B		A 12	^Y *	Max PDN Connections Timer **
Length	2			2	
Value	\rightarrow	uint16	max_pdn_conn_timer	2	Specifies the time duration in seconds
			14 15		during which the UE counts the PDN
			() () () () () () () () () ()		connections already made. The default
		1	C.O. Value		value is 300.
			07.77		Range: 0 to 3600 seconds.
Туре	0x3C		J. 760.	1	PDN Request Wait Timer **
Length	2		<u> </u>	2	
Value	\rightarrow	uint16	pdn_req_wait_interval	2	Specifies the minimum time interval
					between the new PDN connection
					request and the last successful UE
					initiated PDN disconnection. The default
					value is 0.
					Range: 0 to 1023 sec.
Туре	0x3D			1	3GPP Application User Data **
Length	4			2	
Value	\rightarrow	uint32	app_user_data_3gpp	4	An opaque, numeric identifier
					representing the user data in the profile.
					This can be transparently set for any
					profile and queried later.
Туре	0x3E			1	Roaming Disallow Flag **
Length	1			2	
Value	\rightarrow	boolean	roaming_disallowed	1	Specifies whether the UE is allowed to
					connect to the APN specified by the
					profile while roaming.
Туре	0x3F			1	PDN Disconnect Wait Timer **
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	pdn_discon_wait_timer	1	Indicates the delay that the control point
					expects to be available for successful
					deregistration with the network before
					the modem disconnects the PDN(s).
					When the default value of zero is
					specified, the modem disconnects the
					PDN immediately upon moving to the
					roaming network, without waiting for the
					control point. Range: 0-255 minutes.
Туре	0x40			1	DNS Address Using DHCP **
Length	1			2	
Value	\rightarrow	boolean	dns_addr_using_dhcp	1 _	Values:
					• 1 – TRUE – Request DNS address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0x7D			1	Common PCSCF Address Using DHCP
					** *
Length	1			2 .	
Value	\rightarrow	boolean	common_pcscf_addr_	100	Values:
			using_dhcp	27 1	• 1 – TRUE – Request PCSCF address
				6. 0	using the DHCP
			20:5	a. di	• 0 – FALSE – Do not request (default)
Туре	0x7E		18 15	1	Common DNS Address Using DHCP **
			5,700		*
Length	1		6, 43	2	
Value	\rightarrow	boolean	common_dns_addr_using_	1	Values:
			dhep		• 1 – TRUE – Request DNS address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0x7F			1	Common PDP Type ** *
Length	4			2	
Value	\rightarrow	enum	common_pdp_type	4	Specifies the type of data payload
					exchanged over the airlink when the
					packet data session is established with
					this profile. Values:
					• 0 – PDP-IP (IPv4)
					• 1 – PDP-IPv6
					• 2 – PDP-IPv4v6
Туре	0x80			1	Common Application User Data **
Length	4			2	
Value	\rightarrow	uint32	common_app_user_data	4	An opaque, numeric identifier
					representing the user data in the profile.
					This can be transparently set for any
					profile and queried later.
Туре	0x81			1	Common Mobile Network Code ***
Length	3			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC.
		1 1	. 1 1 1 1 1	1	Range: 0 to 999.
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length
					of the corresponding MNC reported in
					the TLVs. Values:
					• TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Туре	0x82			1	Common Mobile Country Code ***
Length	2			2	
Value	\rightarrow	uint16	common_pco_mcc	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
Туре	0x83			1	Common Operator Reserved PCO ID **
Length	2			2	
Value	\rightarrow	uint16	common_op_pco_id	2 <	Container ID of this PCO. If op_pco_id
				0	is configured, the UE sends the operator
				3	PCO with the container ID that is
				0. 00	configured. Once configured, the profile
			00.	24.	cannot be unconfigured.
Туре	0x84	1	No. 1945	1	Common Authentication Password ***
Length	Var		5,00	2	
Value	\rightarrow	string	common_auth_password	Var	Password used during data network
			20,50		authentication; maximum length allowed
			Seo.		is 127 bytes.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
					device is insufficient in size to hold the
					value.
Туре	0x85			1	Common User ID ***
Length	Var			2	
Value	\rightarrow	string	common_user_id	Var	User ID used during data network
		-			authentication; maximum length allowed
					is 127 bytes.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
					device is insufficient in size to hold the
					value.
Туре	0x86			1	Common Authentication Protocol ***
Length	1			2	
Value	\rightarrow	enum8	common_auth_protocol	1	Values:
		-	— — 1		• 0 – None
					• 1 – PAP
					• 2 – CHAP
					• 3 – PAP or CHAP
				I	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x87			1	Common PCSCF Address Using PCO Flag ***
Length	1			2	
Value	\rightarrow	boolean	common_is_pcscf_ address_ needed	1	Values: • 1 – TRUE – Request PCSCF address using PCO • 0 – FALSE – Do not request By default the value is 0.
Туре	0x88			1	Common Allow/Disallow Lingering of Interface ***
Length	3			2	
Value	\rightarrow	boolean uint16	common_allow_linger common_linger_timeout	2	Values: • 1 – TRUE – Allow lingering • 0 – FALSE – Do not allow lingering Value of linger timeout in milliseconds.
Туре	0x89			1	Common Secondary DNS IPv6 Address Preference ***
Length	16			2 <	
Value	\rightarrow	uint8	common_secodnary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8A		016-7 1181	1	Common Primary DNS IPv6 Address Preference ***
Length	16		1,50	2	
Value	\rightarrow	uint8	common_primary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8B			1	Common Secondary DNS IPv4 Address Preference ***
Length	4			2	
Value	\rightarrow	uint32	common_secondary_DNS_ IPv4_address_preference	4	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8C			1	Common Primary DNS Address Preference ***
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint32	common_primary_DNS_	4	Used as a preference during negotiation
			IPv4_address_preference		with the network; if not specified, the
					wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via the DHCP.
Туре	0x8D			1	Common APN Class ***
Length	1			2	
Value	\rightarrow	uint8	common_apn_class	1	An opaque, numeric identifier
			- . -		representing the APN in the profile. The
					APN class can be transparently set for
					any profile and queried later.
Туре	0x8E			1	Common APN Disabled Flag ***
Length	1			2	Common / II TV Disabled Trag
Value	$\overset{\scriptscriptstyle{1}}{\rightarrow}$	boolean	common_apn_disabled_	1	Setting this flag disables the use of this
value	′	Joontail	flag	30	profile for making data calls. Any data
			nag		call with this profile fails locally. Values:
					• 0 – FALSE (default)
				~	• 1 – TRUE
Type	0x90			2 Y	Negotiate DNS Server Preference *
Type	1			2	inegotiate DNS Server i reference
Length		haalaan	nanctiota des samue	nd i	Values:
Value	\rightarrow	boolean	negotiate_dns_server_	5.1	
			preference		• 1 – TRUE – Request DNS address
		1	0,310		from the PDSN
			10. Tue		• 0 – FALSE – Do not request DNS
			20,000		addresses from the PDSN
_	0.01		preference	1	Note: Default value is 1 (TRUE).
Туре	0x91			1	PPP Session Close Timer for DO *
Length	4			2	
Value	\rightarrow	uint32	ppp_session_close_timer_	4	Timer value (in seconds) on the DO
			DO		indicating how long the PPP session
					lingers before closing down.
Туре	0x92			1	PPP Session Close Timer for 1X *
Length	4			2	
Value	\rightarrow	uint32	ppp_session_close_timer_	4	Timer value (in seconds) on 1X
			1x		indicating how long the PPP session
					lingers before closing down.
Туре	0x93			1	Allow/Disallow Lingering of Interface *
Length	1			2	
Value	\rightarrow	boolean	allow_linger	1	Values:
					• 1 – TRUE – Allow lingering
					• 0 – FALSE – Do not allow lingering
Туре	0x94			1	LCP ACK Timeout *
Length	2			2	
Value	\rightarrow	uint16	lcp_ack_timeout	2	Value of LCP ACK timeout in
			_		milliseconds.
Туре	0x95			1	IPCP ACK Timeout *
.,,,,	01170				11 01 11011 111110001

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	2			2	
Value	\rightarrow	uint16	ipcp_ack_timeout	2	Value of IPCP ACK timeout in milliseconds.
Туре	0x96			1	Authentication Timeout *
Length	2			2	
Value	\rightarrow	uint16	auth_timeout	2	Value of authentication timeout in
					milliseconds.
Туре	0x97			1	LCP Configuration Request Retry Count Value *
Length	1			2	
Value	\rightarrow	uint8	lcp_creq_retry_count	1	LCP configuration request retry count value.
Туре	0x98			1	IPCP Configuration Request Retry Count *
Length	1			2	
Value	\rightarrow	uint8	ipcp_creq_retry_count	1	IPCP configuration request retry count value.
Туре	0x99			1 <	AUTH Retry *
Length	1			2	Acmicuy
Value	\rightarrow	uint8	auth_retry_count	31	Authentication retry count value.
	0x9A	uiiito	auti_fetry_count	0. TU.	Authentication Protocol *
Туре			0:0	2	Authentication Protocol *
Length	1	0	such must seel	1	Values:
Value	\rightarrow	enum8	auth_protocol	1	• 0 – NONE
		1	C.O. Value		• 1 – PAP
			700 111		• 2 – CHAP
			2, 6011		
T	00D		auth_protocol	1	• 3 – PAP or CHAP
Туре	0x9B			1	User ID *
Length	Var		. 1	2	II ID 11 1 1 1 1
Value	\rightarrow	string	user_id	Var	User ID used during data network
					authentication; maximum length allowed
					is 127 bytes.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
					device is insufficient in size to hold the
	0.00				value.
Туре	0x9C			1	Authentication Password *
Length	Var			2	
Value	\rightarrow	string	auth_password	Var	Password used during data network
					authentication; maximum length allowed is 127 bytes.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
					device is insufficient in size to hold the
					value.
Туре	0x9D			1	Data Rate *
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	data_rate	1	Values:
					• 0 – Low (Low speed Service Options
					(SO15) only)
					• 1 – Medium (SO33 + low R-SCH)
					• 2 – High (SO33 + high R-SCH)
					Note: Default is 2.
Туре	0x9E			1	Application Type *
Length	4			2	
Value	\rightarrow	enum	app_type	4	Values:
					• 0x00000001 – Default application type
					• 0x00000020 – LBS application type
					• 0x00000040 – tethered application type
					Note: Application type value in a profile
					cannot be modified. It can only be used
					to search for the profile ID numbers that
			40	3"	have the specified application type.
					Note: An error message is returned if
				/	this TLV is included in the request.
Туре	0x9F			100	Data Mode *
Length	1		4	2 ×	
Value	\rightarrow	enum8	data_mode	5. Pu	Values:
			0.5	34.	• 0 – CDMA or HDR (Hybrid
			18 15		1X/1xEV-DO)
			5,700		• 1 – CDMA only (1X only)
		1	C.O. Value		• 2 – HDR only (1xEV-DO only)
			data_mode		Note: Default is 0.
Туре	0xA0		720	1	Application Priority *
Length	1		V	2	
Value	\rightarrow	uint8	app_priority	1	Numerical one byte value defining the
					application priority; higher value implies
					higher priority.
					Note: Application priority value in a
					profile cannot be modified. It is listed for
					future extensibility of profile ID search
					based on application priority.
					Note: An error message is returned if
					this TLV is included in the request.
Туре	0xA1			1	APN String *
Length	Var			2	
Value	\rightarrow	string	apn_string	Var	String representing the access point
					name (APN); the maximum length
					allowed is 100 bytes.
					QMI_ERR_ARG_TOO_LONG is
					returned if the APN name is too long.
Туре	0xA2			1	PDN Type *
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	pdn_type	1	Values:
					• 0 – IPv4 PDN type
					• 1 – IPv6 PDN type
					• 2 – IPv4 or IPv6 PDN type
					• 3 – Unspecified PDN type (no
					preference)
Туре	0xA3			1	Is PCSCF Address Needed *
Length	1			2	
Value	\rightarrow	boolean	is_pcscf_address_needed	1	Used to control whether the PCSCF
					address is requested from PDSN. Values:
					• 1 – TRUE – Request for PCSCF value
					from the PDSN
					• 0 – FALSE – Do not request for
					PCSCF value from the PDSN
Туре	0xA4			1	IPv4 Primary DNS Address *
Length	4			2	•
Value	\rightarrow	uint32	primary_v4_dns_address	4	The primary IPv4 DNS address statically
			1 1 - 1	,	assigned to the UE.
Туре	0xA5			100	IPv4 Secondary DNS Address *
Length	4			2	,
Value	\rightarrow	uint32	secondary_v4_dns_address	4	The secondary IPv4 DNS address
			0.	34.	statically assigned to the UE.
Туре	0xA6		\$ 50 AS	1	Primary IPv6 DNS Address *
Length	16			2	111111111111111111111111111111111111111
Value	\rightarrow	uint8	primary_v6_dns_address	16	The primary IPv6 DNS address statically
	,		primary_, o_ass_acciross	10	assigned to the UE.
Туре	0xA7		2,00	1	Secondary IPv6 DNS address *
Length	16		0	2	Secondary II vo 21 to address
Value	\rightarrow	uint8	secondary_v6_dns_address	16	The secondary IPv6 DNS address
Value	,	unito	secondary_vo_ans_address	10	statically assigned to the UE.
Туре	0xA8			1	RAT Type *
Length	1			2	Territype
Value	\rightarrow	enum8	rat_type	1	Values:
value	,	Citatilo	rat_type	1	• 1 – HRPD
					• 2 – EHRPD
					• 3 – HRPD_EHRPD
Type	0xA9			1	APN Enabled *
Type	1			2	ALIV Eliabled
Length		boolean	onn anablad 2ann?	1	ADN anabled is a flag to energify whether
Value	\rightarrow	boolean	apn_enabled_3gpp2	1	APN enabled is a flag to specify whether the APN in that profile is enabled or
					disabled. If the APN is disabled, the data
					·
					call cannot be established using that
					APN. Values:
					• 1 – Enabled (default value)
	0 1 1				• 0 – Disabled
Туре	0xAA			1	PDN Inactivity Timeout *
Length	4			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	uint32	pdn_inactivity_timeout_ 3gpp2	4	Duration of inactivity timer in minutes. If a PDP context/PDN connection is inactive (that is, no data Rx/Tx) for this duration of time, the PDP context/PDN connection is disconnected. The default setting of zero is treated as an infinite value.
Туре	0xAB			1	APN Class 3GPP2 *
Length	1			2	(b)
Value	\rightarrow	uint8	apn_class_3gpp2	1	An opaque, numeric identifier representing the APN in the profile. This can be transparently set for any profile and queried later.
Туре	0xAD			1	PDN Level Auth Protocol *
Length	1			2	
Value	→	enum8	pdn_level_auth_protocol	3,500	Authentication protocol used during PDN level authentication. Values: • WDS_PROFILE_PDN_LEVEL_ AUTH_PROTOCOL_NONE (0) - • WDS_PROFILE_PDN_LEVEL_ AUTH_PROTOCOL_PAP (1) - • WDS_PROFILE_PDN_LEVEL_ AUTH_PROTOCOL_CHAP (2) - • WDS_PROFILE_PDN_LEVEL_ AUTH_PROTOCOL_PAP_CHAP (3) - PDN Level User ID *
Length	Var		2000	2	1 DIV Level Osci ID
Value	\rightarrow	string	pdn_level_user_id	Var	User ID used during PDN level authentication. Maximum length allowed is 127 bytes.
Туре	0xAF			1	PDN Level Auth Password *
Length	Var			2	
Value	\rightarrow	string	pdn_level_auth_password	Var	Password used during PDN level authentication. Maximum length allowed is 127 bytes.
Туре	0xB0			1	PDN Label *
Length	Var			2	
Value	\rightarrow	string	pdn_label	Var	Logical name used to map the APN name for selecting the packet data network. Maximum length allowed is 100 bytes.
Туре	0xBD			1	Operator Reserved PCO ID *
Length	2			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint16	op_pco_id_3gpp2	2	Container ID of this PCO. If op_pco_id
					is configured, the UE sends the operator
					PCO with the container ID that is
					configured. Once configured, the profile
					cannot be unconfigured.
Туре	0xBE			1	Mobile Country Code *
Length	2			2	
Value	\rightarrow	uint16	pco_mcc_3gpp2	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
Туре	0xBF			1	Mobile Network Code *
Length	3			2	
Value	\rightarrow	uint16	mnc	2 @	A 16-bit integer representation of MNC.
				- 1	Range: 0 to 999.
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length
					of the corresponding MNC reported in
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	the TLVs. Values:
					• TRUE – MNC is a three-digit value; for
				_	example, a reported value of 90
				0	corresponds to an MNC value of 090
				27 3	• FALSE – MNC is a two-digit value; for
				0. '04.	example, a reported value of 90
			00.5	34.	corresponds to an MNC value of 90
Туре	0xC0		No. 16	1	PDN Throttling Timer 1-6 *
Length	24		5,00	2	
Value	\rightarrow	uint32	failure_timer	24	The back-off time (in seconds) to be
			202-07		used after a PDN connection or IP
			750,		address assignment failure. For example,
			· ·		immediately following a third
					consecutive PDN connection request
					failure, the UE waits failure_timer[2]
					seconds before sending the fourth
					request. Following failures of six or
					greater, failure_timer[5] is used.
Туре	0xC1			1	PDN Disallow Timer 1-6 *
Length	24			2	
Value	\rightarrow	uint32	disallow_timer	24	The back-off time (in seconds) to be
					used after the network refuses to grant
					the requested IP address type, such as
					when an IPv6 address is requested from
					a network that only grants the IPv4
					address. For example, immediately after
					a third consecutive PDN connection
					request is denied, the UE waits
					disallow_timer[2] seconds before
					sending the fourth request. Following
					failures of six or greater,

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0xC2			1	3GPP2 Application User Data *
Length	4			2	
Value	\rightarrow	uint32	app_user_data_3gpp2	4	An opaque, numeric identifier
					representing the user data in the profile.
					This can be transparently set for any
					profile and queried later.
Туре	0xC3			1	PCSCF Address Using DHCP 3GPP2 *
Length	1			2	
Value	\rightarrow	boolean	pcscf_addr_using_dhcp_	1	Values:
			3gpp2		• 1 – TRUE – Request PCSCF address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0xC4			1	DNS Address Using DHCP *
Length	1			2	
Value	\rightarrow	boolean	dns_addr_using_dhcp_	1	Values:
			3gpp2		• 1 – TRUE – Request DNS address
				3	using the DHCP
				_<	• 0 – FALSE – Do not request (default)
Туре	0xDF			100	IPv6 Prefix Delegation Flag * **
Length	1			.32	
Value	\rightarrow	boolean	ipv6_prefix_delegation	J. 10/	Enables IPv6 prefix delegation. Values:
			00.	E.g.	• 0 – FALSE (default)
			100 000		• 1 – TRUE

3.17.2 Response - QMI_WDS_MODIFY_PROFILE_SETTINGS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0xE0			1	Extended Error Code

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	2			2	
Value	\rightarrow	enum16	extended_error_code	2	Error code from the DS profile. These
					error codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_ARG_TOO_LONG	Argument passed in a TLV is larger than the available
	storage in the device
QMI_ERR_INVALID_PROFILE	Invalid profile index specified
QMI_ERR_INVALID_PROFILE_TYPE	Invalid profile type specified
QMI_ERR_INVALID_PDP_TYPE	PDP type specified is not supported
QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code
	from the DS profile is populated in an additional optional
	TLV

3.17.3 Description of QMI_WDS_MODIFY_PROFILE_SETTINGS REQ/RESP

This command modifies the parameters of a configured profile.

Changing a profile that was used for an active data session does not affect the runtime settings of that data session. A configured profile is only referenced at the start of a data session.

TLV values 0xE1 through 0xEA are reserved for OEM use.

3.18 QMI WDS DELETE PROFILE

Deletes a configured profile.

WDS message ID

0x0029

Version introduced

Major - 1, Minor - 1

Request - QMI_WDS_DELETE_PROFILE_REQ 3.18.1

Message type

Mandatory TLVs

Message type			
Request			
Sender		60.	
Control point		and the second	
Mandatory TLVs		06:31 nr.in	
	Name	Version introduced	Version last modified
Profile Identifier		Unknown	1.13

Field	Field	Field	Parameter	Size	Description
	value	type	720	(byte)	
Туре	0x01			1	Profile Identifier
Length	2			2	
Value	\rightarrow	enum8	profile_type	1	Identifies the type of the profile. Values: • WDS_PROFILE_TYPE_3GPP (0x00) - 3GPP • WDS_PROFILE_TYPE_3GPP2 (0x01) - 3GPP2 • WDS_PROFILE_TYPE_EPC (0x02) - EPC
		uint8	profile_index	1	Index identifying the profile.

Optional TLVs

None

3.18.2 Response - QMI_WDS_DELETE_PROFILE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	4
Туре	0xE0			31	Extended Error Code
Length	2		0.0	2)	
Value	\rightarrow	enum16	extended_error_code	2	Error code from the DS profile. These
			150 m25		error codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message is not formulated correctly by the control point or
	the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_INVALID_PROFILE	Invalid profile index is specified
QMI_ERR_INVALID_PROFILE_TYPE	Invalid profile type is specified
QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code
	from the DS profile is populated in an additional optional
	TLV

3.18.3 Description of QMI WDS DELETE PROFILE REQ/RESP

This command deletes a previously created configured profile.

If the profile from which settings were obtained for the current data session is deleted, the current data session is not affected.

The deletion of a profile does not affect profile index assignments. For example, if profiles 1, 2, 3 were created, then 2 was deleted, profiles 1, 3 are still valid and referenced by the same profile indexes.



3.19 QMI_WDS_GET_PROFILE_LIST

Retrieves a list of configured profiles present on the wireless device.

WDS message ID

0x002A

Version introduced

Major - 1, Minor - 1

3.19.1 Request - QMI_WDS_GET_PROFILE_LIST_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

Name	Version introduced	Version last modified
Profile Type	1.11	1.59

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Type
Length	1			2	
Value	\rightarrow	enum8	profile_type	1	Identifies the technology type of the
					profile. Values:
					• WDS_PROFILE_TYPE_3GPP (0x00)
					- 3GPP
					• WDS_PROFILE_TYPE_3GPP2
					(0x01) - 3GPP2
					• WDS_PROFILE_TYPE_EPC (0x02) -
					EPC

3.19.2 Response - QMI_WDS_GET_PROFILE_LIST_RESP

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Profile list	Unknown	1.11

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			31 3	Profile list
Length	Var		.0	2	
Value	\rightarrow	uint8	profile_list_len	e ³ 1	Number of sets of the following
			20 Mg		elements:
			5,00		• profile_type
			6. (18)		• profile_index
			20,00		• profile_name_len
			profile_list_len		• profile_name
		enum8	profile_type	1	Identifies the technology type of the
					profile. Values:
					• WDS_PROFILE_TYPE_3GPP (0x00)
					- 3GPP
					• WDS_PROFILE_TYPE_3GPP2
					(0x01) - 3GPP2
					• WDS_PROFILE_TYPE_EPC (0x02) -
					EPC
		uint8	profile_index	1	Profile number identifying the profile.
		uint8	profile_name_len	1	Number of sets of the following
					elements:
					• profile_name
		string	profile_name	Var	One or more bytes describing the profile.
					The description can be a user-defined
					name for the profile.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0xE0			1	Extended Error Code
Length	2			2	
Value	\rightarrow	enum16	extended_error_code	2	Error code from the DS profile. These
					error codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message is not formulated correctly by the control point or
	the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code
	from the DS profile is populated in an additional optional
	TLV

3.19.3 Description of QMI_WDS_GET_PROFILE_LIST REQ/RESP

This command requests a list of configured profile indexes from the device.

The control point can use the returned profile numbers when issuing the OML WDS GET PROFILE SETTINGS REQ command to retrieve the

QMI_WDS_GET_PROFILE_SETTINGS_REQ command to retrieve the complete set of parameters for a single profile. The key-value pair search option (published in Rev N) of this document has been deprecated due to overlapping TLV types. This functionality is supported with a new command instead.

3.20 QMI_WDS_GET_PROFILE_SETTINGS

Retrieves the settings from a configured profile

WDS message ID

0x002B

Version introduced

Major - 1, Minor - 1

Request - QMI_WDS_GET_PROFILE_SETTINGS_REQ 3.20.1

Mandatory TLVs

	Name	Ves Co	ersion introduced	Version last modified
Profile Identifier		20 m25	Unknown	1.11

3.20.1	nec	quest -	QIVII_WD5_GE1_PR	OFILE	_SETTINGS	_REQ	
Message	type			1			
Request	Request						
Sender	Sender						
Control j	point			y S			
Mandato	ry TLVs	3		63,000	en e		
		Na	ame	Version	on introduced	Version last modified	
Profile	Identific	er	20 mg	J	Jnknown	1.11	
			5.05 hande				
Field	Field	Field	Parameter	Size	[Description	
	value	type	75°C.	(byte)			
Туре	0x01			1	Profile Identifie	r	
Length	2			2			
Value	\rightarrow	enum8	profile_type	1	_	pe of the profile. Values:	
					• WDS_PROFI	LE_TYPE_3GPP (0x00)	
					- 3GPP		
						LE_TYPE_3GPP2	
					(0x01) - 3GPP2		
					_	LE_TYPE_EPC (0x02) -	
					EPC		
		uint8	profile_index	1	Index identifyir	ng the profile.	

Optional TLVs

None

3.20.2 Response - QMI_WDS_GET_PROFILE_SETTINGS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Profile Name **	Unknown	1.11
PDP Type **	Unknown	1.11
PDP Header Compression Type **	Unknown	1.11
PDP Data Compression Type to Use **	Unknown	1.11
Context Access Point Node Name **	Unknown	1.11
Primary DNS Address Preference **	Unknown	1.11
Secondary DNS Address Preference **	Unknown	1.11
UMTS Requested QoS **	Unknown	1.11
UMTS Minimum QoS **	Unknown	1.11
GPRS Requested QoS **	Unknown	1.11
GRPS Minimum Qos **	Unknown	1.11
Username **	Unknown	1.11
Password **	Unknown	1.11
Authentication Preference **	Unknown	1.11
IPv4 Address Preference **	Unknown	1.11
PCSCF Address Using PCO Flag **	Unknown	1.3
PDP Access Control Flag **	Unknown	1.11
PCSCF Address Using DHCP **	Unknown	1.11
IM CN flag **	Unknown	1.11
Traffic Flow Template ID1 Parameters **	Unknown	1.11
TFT ID2 Parameters **	Unknown	1.11
PDP Context Number **	Unknown	1.11
PDP Context Secondary Flag **	Unknown	1.11
PDP Context Primary ID **	Unknown	1.11
IPv6 Address Preference **	Unknown	1.11
UMTS Requested QoS with Signaling Indication Flag **	Unknown	1.11
UMTS Minimum QoS with Signaling Indication **	Unknown	1.11
Primary DNS IPv6 Address Preference **	Unknown	1.11
Secondary DNS IPv6 Address Preference **	Unknown	1.11
DHCP/NAS Preference **	Unknown	1.11

Name	Version introduced	Version last modified
3GPP LTE QoS Parameters **	Unknown	1.11
APN Disabled Flag **	Unknown	1.13
PDN Inactivity Timeout **	Unknown	1.13
APN Class **	1.13	1.13
APN Bearer **	1.26	1.26
Support Emergency Calls **	1.31	1.31
Operator Reserved PCO ID **	1.37	1.37
Mobile Country Code **	1.37	1.37
Mobile Network Code **	1.37	1.37
Max PDN Connections Per Time Block **	1.46	1.46
Max PDN Connections Timer **	1.46	1.46
PDN Request Wait Timer **	1.46	1.46
3GPP Application User Data **	1.57	1.57
Roaming Disallow Flag **	1.63	1.63
PDN Disconnect Wait Timer **	1.63	1.63
DNS Address Using DHCP **	1.74	1.74
Common PCSCF Address Using DHCP ** *	1.74	1.74
Common DNS Address Using DHCP ** *	1.74	1.74
Common PDP Type ** *	1.65	1.67
Common Application User Data **	1.59	1.59
Common Mobile Network Code ***	1.59	1.59
Common Mobile Country Code ***	1.59	1.59
Common Operator Reserved PCO ID **	1.59	1.59
Common Authentication Password ***	1.59	1.59
Common User ID ***	1.59	1.59
Common Authentication Protocol ***	1.59	1.59
Common PCSCF Address Using PCO Flag ***	1.59	1.59
Common Allow/Disallow Lingering of Interface	1.59	1.59

Common Secondary DNS IPv6 Address Preference ***	1.59	1.59
Common Primary DNS IPv6 Address Preference	1.59	1.59
***	1.39	1.39
Common Secondary DNS IPv4 Address	1.59	1.59
Preference ***		
Common Primary DNS Address Preference ***	1.59	1.59
Common APN Class ***	1.59	1.59
Common APN Disabled Flag ***	1.59	1.59
Negotiate DNS Server Preference *	Unknown	1.11
PPP Session Close Timer for DO *	Unknown	1.11
PPP Session Close Timer for 1X *	Unknown	1.11
Allow/Disallow Lingering of Interface *	Unknown	1.11
LCP ACK Timeout *	Unknown	1.11
IPCP ACK Timeout *	Unknown	1.11
AUTH Timeout *	Unknown	1.11
LCP Configuration Request Retry Count Value *	Unknown	1.11
LCF Configuration Request Retry Count value	Ulikilowii	1.11

Name	Version introduced	Version last modified
Authentication Retry *	Unknown	1.11
Authentication Protocol *	Unknown	1.33
User ID *	Unknown	1.11
Authentication Password *	Unknown	1.11
Data Rate *	Unknown	1.11
Application Type *	Unknown	1.11
Data Mode *	Unknown	1.11
Application Priority *	Unknown	1.11
APN String *	Unknown	1.11
PDN Type *	Unknown	1.11
Is PCSCF Address Needed *	Unknown	1.11
IPv4 Primary DNS Address *	Unknown	1.11
IPv4 Secondary DNS Address *	Unknown	1.11
Primary IPv6 DNS Address *	Unknown	1.11
Secondary IPv6 DNS Address *	Unknown	1.11
RAT Type *	Unknown	1.13
APN Enabled *	Unknown	1.13
PDN Inactivity Timeout *	Unknown	1.13
APN Class *	1.13	1.13
PDN Level Auth Protocol *	Unknown	1.34
PDN Level User ID *	Unknown	1.19
PDN Level Auth Password *	Unknown	1.19
PDN Label *	Unknown	1.19
Operator Reserved PCO ID *	1.37	1.37
Mobile Country Code *	1.37	1.37
Mobile Network Code *	1.37	1.37
PDN Throttling Timer 1-6 *	1.42	1.42
PDN Disallow Timer 1-6 *	1.42	1.42
3GPP2 Application User Data *	1.57	1.57
PCSCF Address Using DHCP 3GPP2 *	1.74	1.74
DNS Address Using DHCP *	1.74	1.74
IPv6 Prefix Delegation Flag * **	1.66	1.66
Profile Extended Error Code *	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Name **
Length	Var			2	
Value	\rightarrow	string	profile_name	Var	One or more bytes describing the profile. The description can be a user-defined name for the profile. QMI_ERR_ARG_TOO_LONG is returned if the profile_name is too long
Туре	0x11			1	PDP Type **
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	pdp_type	1	PDP type specifies the type of data
					payload exchanged over the airlink when
					the packet data session is established
					with this profile. Values:
					• 0 – PDP-IP (IPv4)
					• 1 – PDP-PPP
					• 2 – PDP-IPv6
					• 3 – PDP-IPv4v6
Туре	0x12			1	PDP Header Compression Type **
Length	1			2	
Value	\rightarrow	enum8	pdp_hdr_compression_	1	Values:
			type		• 0 – PDP header compression is off
			-3F-		• 1 – Manufacturer preferred
					compression
					• 2 – PDP header compression based on
					RFC 1144
					• 3 – PDP header compression based on
				F	RFC 2507
				6	
				V 6/2	• 4 – PDP header compression based on RFC 3095
_	0-12			3,0	
Туре	0x13		.0	0. 1/2	PDP Data Compression Type to Use **
Length	1		00,	2	
Value	\rightarrow	enum8	pdp_data_compression_ type	1	Values:
			type		• 0 – PDP data compression is off
			6 Hair		• 1 – Manufacturer preferred
			20,000		compression
			Ses		• 2 – V.42BIS data compression
			· ·		• 3 – V.44 data compresion
Туре	0x14			1	Context Access Point Node Name **
Length	Var			2	
Value	\rightarrow	string	apn_name	Var	A string parameter that is a logical name
					used to select the GGSN and external
					packet data network.
					If the value is NULL or omitted, the
					subscription default value is requested.
					QMI_ERR_ARG_TOO_LONG is
					returned if the APN name is too long.
Туре	0x15			1	Primary DNS Address Preference **
Length	4			2	J
Value	\rightarrow	uint32	primary_DNS_IPv4_	4	Used as a preference during negotiation
- 3.00	,	5.11102	address_preference		with the network; if not specified, the
			address_preference		wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via DHCP.
Tyme	0v.14			1	_
Туре	0x16			1	Secondary DNS Address Preference **
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint32	secondary_DNS_IPv4_	4	Used as a preference during negotiation
			address_preference		with the network; if not specified, the
					wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via DHCP.
Туре	0x17			1	UMTS Requested QoS **
Length	33			2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
				3"	second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
				_	second.
		uint32	guaranteed_uplink_bitrate	4,0	Guaranteed uplink bit rate in bits per
				27 "	second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
			bitrate	04.	second.
		enum8	qos_delivery_order	1	Values:
			5		• 0 – Subscribe
			C.O. Walley		• 1 – Delivery order on
			07.77		• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
					• 0 – Subscribe
					• $1 - 1 \times 10^2$
					• $2 - 7x10^3$
					• $3 - 1x10^3$
					• $4 - 1x10^4$
					• $5 - 1 \times 10^5$
					• $6 - 1x10^6$
					• $7 - 1 \times 10^{1}$

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					$\bullet 2 - 1 \times 10^2$
					$\bullet 3 - 5 \times 10^3$
					• $4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6 \times 10^8$
	ŀ	enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
		Cituino	delivery_enoneous_SDOs	6.3	whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
			, 0		• 2 – Erroneous SDU is delivered
	-	:	4 C 1.1.	00	• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	34	Transfer delay (ms). Indicates the
			.0	0. 0,,	targeted time between a request to
			00.	E.g.	transfer an SDU at one SAP to its
			Nº 65	•	delivery at the other SAP, in
			5 19		milliseconds; if the parameter is set to 0,
	-	20	CC 1 112	4	the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
			200		relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
Туре	0x18			1	UMTS Minimum QoS **
Length	33			2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
					second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
					second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per
					second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
			bitrate		second.

Field	Field value	Field type	Parameter	Size (byte)	Description
	value	enum8	qos_delivery_order	(byte)	Values:
		Citatilo	qos_denvery_order	1	• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
		chamo	sau_ciror_rano	1	or detected as erroneous. Values:
					• 0 – Subscribe
					\bullet 1 – 1x10 ²
					• $2 - 7x10^3$
					• $3 - 1 \times 10^3$
					• $4 - 1 \times 10^4$
				1	• $5 - 1 \times 10^5$
					• $6 - 1 \times 10^6$
					\bullet 7 – 1x10 ¹
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
		Circino	residual_sit_effer_ructo		ratio in the delivered SDUs. Values:
				r	• 0 – Subscribe
				- Ó	$\bullet \ 1 - 5x10^2$
				2	• $2 - 1 \times 10^2$
				3	$\bullet \ 3 - 5 \times 10^3$
			0:0	100.	• $4 - 4 \times 10^3$
			000	2	• $5 - 1 \times 10^3$
			77.62		• $6 - 1 \times 10^4$
			0,340		• $7 - 1 \times 10^5$
			70. Tu		• $8 - 1 \times 10^6$
			20.00		• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
			, – –		whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
			•		targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
Туре	0x19			1	GPRS Requested QoS **

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1A			1	GRPS Minimum QoS **
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1B			1	Username **
Length	Var			2	
Value	\rightarrow	string	username	Var	Username used during data network
				7	authentication.
				_	QMI_ERR_ARG_TOO_LONG is
				. 60	returned if the storage on the wireless
				3	device is insufficient in size to hold the
			.0'	0. 0/,	value.
Туре	0x1C		00.	e 1	Password **
Length	Var		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2	
Value	\rightarrow	string	password	Var	Password to be used during data network
			16, 1kg		authentication.
			30,00		QMI_ERR_ARG_TOO_LONG is
			password		returned if the storage on the wireless
					device is insufficient in size to hold the
					value.
Туре	0x1D			1	Authentication Preference **
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	mask8	authentication_preference	1	A bit map that indicates the
					authentication algorithm preference.
					Values:
					Bit 0 – PAP preference:
					• 0 – PAP is never performed
					• 1 – PAP can be performed
					Bit 1 – CHAP preference:
					• 0 – CHAP is never performed
					• 1 – CHAP can be performed
					All other bits are reserved and ignored.
					They must be set to zero by the client.
					If more than one bit is set, the device
					decides which authentication procedure
					is performed while setting up the data
					session. For example, the device might
			4	3-	have a policy to select the most secure
					authentication mechanism.
Туре	0x1E			1 ,	IPv4 Address Preference **
Length	4			200	
Value	\rightarrow	uint32	ipv4_address_preference	. M ×	Preferred IPv4 address assigned to the
				S. Coll	TE. Actual assigned address is
			0:0	24.C	negotiated with the network and can
			8 3		differ from this value. If not specified,
			C. Y. C.		the IPv4 Address is obtained
		1	(O', 310)		automatically from the network. The
			70 111		assigned value is provided to the host via
			27,000		DHCP.
Туре	0x1F		\\\\\	1	PCSCF Address Using PCO Flag **
Length	1			2	
Value	\rightarrow	boolean	pcscf_addr_using_pco	1	Values:
					• 1 – TRUE – Request PCSCF address
					using PCO
					• 0 – FALSE – Do not request
					By default this value is 0.
Туре	0x20			1	PDP Access Control Flag **
Length	1			2	
Value	\rightarrow	enum8	pdp_access_control_flag	1	PDP access control flag. Values:
					• 0 – PDP access control none
					• 1 – PDP access control reject
					• 2 – PDP access control permission
Туре	0x21			1	PCSCF Address Using DHCP **
Length	1			2	-
Value	\rightarrow	boolean	pcscf_addr_using_dhcp	1	Values:
			_ •		• 1 – TRUE – Request PCSCF address
					using DHCP
					• 0 – FALSE – Do not request
					By default, value is 0.
					= J ==================================

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x22			1	IM CN flag **
Length	1			2	-
Value	\rightarrow	boolean	im_cn_flag	1	Values:
			_		• 1 – TRUE – Request IM CN flag for
					this profile
					• 0 – FALSE – Do not request IM CN
					flag for this profile
Туре	0x23			1	Traffic Flow Template (TFT) ID1
					Parameters **
Length	39			2	
Value	\rightarrow	uint8	filter_id	1	Filter identifier.
		uint8	eval_id	1 @	Evaluation precedence index.
		enum8	ip_version	1	IP version number. Values:
					• 4 – IPv4
					• 6 – IPv6
		uint8	source_ip	16	Values:
				7	• IPv4 – Fill the first 4 bytes
					• IPv6 – Fill all the 16 bytes
		uint8	source_ip_mask	100	Mask value for the source address.
		uint8	next_header	31	Next header/protocol value.
		uint16	dest_port_range_start	2,11	Start value for the destination port range.
		uint16	dest_port_range_end	2	End value for the destination port range.
		uint16	src_port_range_start	2	Start value for the source port range.
		uint16	src_port_range_end	2	End value for the source port range.
		uint32	ipsec_spi	4	IPSec security parameter index.
		uint16	tos_mask	2 4	TOS mask (traffic class for IPv6). Flow label.
T	0x24	uint32	flow_label	1	TFT ID2 Parameters **
Type Length	39			2	TFT ID2 Farameters
Value	\rightarrow	uint8	filter_id	1	Filter identifier.
value	\rightarrow	uint8		1	
		enum8	eval_id ip_version	1	Evaluation precedence index. IP version number. Values:
		Ciluino	ip_version	1	• 4 – IPv4
					• 6 – IPv6
		uint8	source_ip	16	Values:
		unito	source_ip	10	• IPv4 – Fill the first 4 bytes
					• IPv6 – Fill all the 16 bytes
		uint8	source_ip_mask	1	Mask value for the source address.
		uint8	next_header	1	Next header/protocol value.
		uint16	dest_port_range_start	2	Start value for the destination port range.
		uint16	dest_port_range_end	2	End value for the destination port range.
		uint16	src_port_range_start	2	Start value for the source port range.
		uint16	src_port_range_end	2	End value for the source port range.
		uint32	ipsec_spi	4	IPSec security parameter index.
		uint16	tos_mask	2	TOS mask (traffic class for IPv6).
		uint32	flow_label	4	Flow label.
Туре	0x25			1	PDP Context Number **

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	1			2	
Value	\rightarrow	uint8	pdp_context	1	PDP context number.
Туре	0x26			1	PDP Context Secondary Flag **
Length	1			2	
Value	\rightarrow	boolean	secondary_flag	1	Values:
					• 1 – TRUE – This is secondary profile
					• 0 – FALSE – This is not secondary
					profile
Туре	0x27			1	PDP Context Primary ID **
Length	1			2	
Value	\rightarrow	uint8	primary_id	1	PDP context number primary ID.
Туре	0x28			1 @	IPv6 Address Preference **
Length	16			2	
Value	\rightarrow	uint8	ipv6_address_preference	16	Preferred IPv6 address to be assigned to
					the TE; actual assigned address is
					negotiated with the network and can
				1	differ from this value; if not specified,
					the IPv6 address is obtained
				60	automatically from the network.
Туре	0x29			31	UMTS Requested QoS with Signaling
			.0.	0. 00,	Indication Flag **
Length	34		00.	2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
			05 10		• 0 – Subscribed
			16 than		• 1 – Conversational
			20, 20.		• 2 – Streaming
			JE2		• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
					second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
					second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per
					second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
			bitrate		second.
		enum8	qos_delivery_order	1	Values:
					• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
					• 0 – Subscribe
					• $1 - 1 \times 10^2$
					• $2 - 7x10^3$
					• $3 - 1 \times 10^3$
					• $4 - 1 \times 10^4$
					• $5 - 1 \times 10^5$
					• $6 - 1 \times 10^6$
					• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
		Citatilo	residual_sit_effor_turio	1	ratio in the delivered SDUs. Values:
				9	• 0 – Subscribe
				0	• $1 - 5x10^2$
					• $2 - 1 \times 10^2$
					• $3 - 5x10^3$
					$\bullet \ 4 - 4 \times 10^3$
			, 0	ľ	• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
				160	
				3	\bullet 7 - 1x10 ⁵
			.0	0.50%	• 8 – 1x10 ⁶
		0	1.1' CDII.	5.A.	• 9 – 6x10 ⁸
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
		1	2016-05 Thange		whether SDUs detected as erroneous are
			16 Mai		delivered or not. Values:
			20,00		• 0 – Subscribe
			200		• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
		boolean	sig_ind	1	Signaling indication flag. Values:
					• 0 – Signaling indication off
					• 1 – Signaling indication on
Туре	0x2A			1	UMTS Minimum QoS with Signaling
					Indication **
Length	34			2	

Field	Field	Field	Parameter	Size	Description
	value	type	, cc 1	(byte)	TD CC 1 X/1
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_ bitrate	4	Guaranteed downlink bit rate in bits per second.
		enum8	qos_delivery_order	1	Values:
		Chamo	qos_denvery_order		• 0 – Subscribe
					• 1 – Delivery order on
				g.	• 2 – Delivery order off
		uint32	max_sdu_size	4.0	Maximum SDU size.
		enum8	sdu_error_ratio	31	Target value for the fraction of SDUs lost
		Chamo	SGG_CITOI_FGG	3	or detected as erroneous. Values:
			0.0	1.00	• 0 – Subscribe
			000	0,0	$\bullet 1 - 1 \times 10^2$
			N. 62		• $2 - 7x10^3$
		1	0, 310		• $3 - 1 \times 10^3$
			10. Tu		• $4 - 1 \times 10^4$
			20,000		• $5 - 1 \times 10^5$
			2016.05.18.00.85		$\bullet 6 - 1 \times 10^6$
					• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
		chamo	residual_oit_oitoi_tatio	1	ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					$\bullet 1 - 5x10^2$
					• $2 - 1 \times 10^2$
					$\bullet 3 - 5x10^3$
					$\bullet 4 - 4 \times 10^3$
					$\bullet 5 - 1 \times 10^3$
					$\bullet 6 - 1x10^4$
					$\bullet 7 - 1 \times 10^5$
					$\bullet 8 - 1 \times 10^6$
					\bullet 9 - 6x10 ⁸
		enum8	dolivary arrangous CDUs	1	
		CHUIIIO	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
			_		targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
		boolean	sig_ind	1	Signaling indication flag. Values:
			-		• 0 – Signaling indication off
					• 1 – Signaling indication on
Туре	0x2B			1	Primary DNS IPv6 Address Preference
					**
Length	16			2 <	
Value	\rightarrow	uint8	primary_dns_ipv6_	16	Used as a preference during negotiation
			address_preference	27 4	with the network; if not specified, the
				0.00	wireless device attempts to obtain the
			0.5	04.	DNS address automatically from the
			19 25		network. The negotiated value is
					provided to the host via the DHCP.
Туре	0x2C		6. Wall	1	Secondary DNS IPv6 Address
			0101		Preference **
Length	16		1 100	2	
Value	\rightarrow	uint8	secodnary_dns_ipv6_	16	Used as a preference during negotiation
			address_preference		with the network; if not specified, the
					wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via the DHCP.
Туре	0x2D			1	DHCP/NAS Preference **
Length	1			2	
Value	\rightarrow	enum8	addr_allocation_preference	1	Used to indicate the address allocation
					preference. Values:
					• 0 – NAS signaling is used for address
					allocation
					• 1 – DHCP is used for address allocation
Туре	0x2E			1	3GPP LTE QoS Parameters **
Length	17			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	qci	1	For LTE, the requested QoS must be
					specified using the QoS Class Identifier
					(QoS). Values:
					• QCI value 0 – Requests the network to
					assign the appropriate QCI value
					• QCI values 1-4 – Associated with
					guaranteed bit rates
					• QCI values 5-9 – Associated with
					nonguaranteed bit rates, the values
					specified as guaranteed and maximum
					bit rates are ignored.
		uint32	g_dl_bit_rate	4	Guaranteed DL bit rate.
		uint32	max_dl_bit_rate	4	Maximum DL bit rate.
		uint32	g_ul_bit_rate	4	Guaranteed UL bit rate.
		uint32	max_ul_bit_rate	4	Maximum UL bit rate.
Туре	0x2F			1	APN Disabled Flag **
Length	1			2	<u> </u>
Value	\rightarrow	boolean	apn_disabled_flag	1 /	If this flag is set, the use of this profile
			T = "" " " " " " " " " " " " " " " " " "	~O	for making data calls is disabled. Any
				27 "	data call with this profile fails locally.
				6.3 30	Values:
			0:0	4.00	• 0 – FALSE (default)
			9 3		• 1 – TRUE
Туре	0x30		() () () () () ()	1	PDN Inactivity Timeout **
Length	4			2	121(11110)11110
Value	\rightarrow	uint32	pdn_inactivity_timeout	4	Duration of inactivity timer in seconds.
700	,	G11100 2	pun_inited go, _inited at		If a PDP context/PDN connection is
			00		inactive (that is, no data Rx/Tx) for this
					duration of time, PDP context/PDN
					connection is disconnected. The default
					setting of zero is treated as an infinite
					value.
Туре	0x31			1	APN Class **
Length	1			2	
Value	\rightarrow	uint8	apn_class	1	An opaque, numeric identifier
				•	representing the APN in the profile. The
					APN class can be transparently set for
					any profile and queried later.
Туре	0x35			1	APN Bearer **
Length	8			2	
Value	\rightarrow	mask	apn_bearer	8	APN bearer mask. Specifies whether a
value	'	mask	apii_ooutoi		data call is allowed on specific RAT
					types. Values:
					• 0x0000000000000001 – GSM
					• 0x0000000000000001 – GSM • 0x00000000000000002 – WCDMA
					• 0x0000000000000002 = WCDMA • 0x0000000000000004 - LTE
					• 0x800000000000000004 – LTE • 0x800000000000000000 – Any
					- UAOUUUUUUUUUUUU – Ally

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x36			1	Support Emergency Calls **
Length	1			2	
Value	\rightarrow	boolean	support_emergency_calls	1	When this flag is set, the user can make
					emergency calls using this profile.
					Values:
					• 0 – FALSE (default)
					• 1 – TRUE
Туре	0x37			1	Operator Reserved PCO ID **
Length	2			2	(5)
Value	\rightarrow	uint16	op_pco_id	2	Container ID of this PCO. If op_pco_id
					is configured, the UE sends the operator
					PCO with the container ID that is
					configured. Once configured, the profile
					cannot be unconfigured.
Туре	0x38			1	Mobile Country Code **
Length	2		4	2	
Value	\rightarrow	uint16	pco_mcc	2	A 16-bit integer representation of MCC.
			P.12		Range: 0 to 999.
Туре	0x39			100	Mobile Network Code **
Length	3			2	Widelie Hetweik Code
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC.
''	,	GIIICIO	70:5	34.	Range: 0 to 999.
		boolean	mnc includes pcs digit	1	This field is used to interpret the length
		ooolean	nme_merades_pes_ergn	1	of the corresponding MNC reported in
		1	mnc_includes_pcs_digit		the TLVs. Values:
			200 11		• TRUE – MNC is a three-digit value; for
			2,50		example, a reported value of 90
			0		corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Time	0x3A			1	Max PDN Connections Per Time Block
Туре	UXSA			1	**
Length	2			2	
Value	\rightarrow	uint16	max_pdn_conn_per_block	2	Specifies the maximum number of PDN
Value	′	unitio	max_pan_comi_per_orock		connections that the UE is allowed to
					perform with the network in a specified
					time block. The time block size is
					defined by a configuration item. The
					default value is 1023.
T	0v:2D			1	Range: 0 to 1023.
Туре	0x3B			1	Max PDN Connections Timer **
Length	2			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Value	\rightarrow	uint16	max_pdn_conn_timer	2	Specifies the time duration in seconds
					during which the UE counts the PDN
					connections already made. The default
					value is 300.
					Range: 0 to 3600 seconds.
Type	0x3C			1	PDN Request Wait Timer **
Length	2			2	
Value	\rightarrow	uint16	pdn_req_wait_interval	2	Specifies the minimum time interval
					between the new PDN connection
					request and the last successful UE
					initiated PDN disconnection. The default
				- 0	value is 0.
_	0.00				Range: 0 to 1023 sec.
Туре	0x3D			1	3GPP Application User Data **
Length	4			2	
Value	\rightarrow	uint32	app_user_data_3gpp	4	An opaque, numeric identifier
			, 0	5	representing the user data in the profile.
				6	This can be transparently set for any
	0.25			2	profile and queried later.
Туре	0x3E			31	Roaming Disallow Flag **
Length	1	1 1	.00	2	
Value	\rightarrow	boolean	roaming_disallowed	0.1	Specifies whether the UE is allowed to
			7, @a		connect to the APN specified by the
T	0x3F	1	0, 40,	1	profile while roaming. PDN Disconnect Wait Timer **
Type			76. VII.	2	PDN Disconnect wait Timer ***
Length	1	uint8	ndn diagon weit timer	1	Indicates the delay that the central point
Value	\rightarrow	uiiito	pdn_discon_wait_timer	1	Indicates the delay that the control point expects to be available for successful
					deregistration with the network before
					the modem disconnects the PDN(s).
					When the default value of zero is
					specified, the modem disconnects the
					PDN immediately upon moving to the
					roaming network, without waiting for the
					control point. Range: 0-255 minutes.
Туре	0x40			1	DNS Address Using DHCP **
Length	1			2	
Value	\rightarrow	boolean	dns_addr_using_dhcp	1	Values:
			r		• 1 – TRUE – Request DNS address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0x7D			1	Common PCSCF Address Using DHCP ***
Longette	1			2	~ ~ ~
Length	1				

Field	Field value	Field	Parameter	Size	Description
Value	value →	type boolean	common_pcscf_addr_	(byte)	Values:
value	\rightarrow	boolean	using_dhcp	1	• 1 – TRUE – Request PCSCF address
			using_uncp		using the DHCP
					• 0 – FALSE – Do not request (default)
Time	0x7E			1	Common DNS Address Using DHCP **
Туре	UX/E				*
Length	1			2	
Value	\rightarrow	boolean	common_dns_addr_using_	1	Values:
			dhep		• 1 – TRUE – Request DNS address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0x7F			1	Common PDP Type ** *
Length	4			2	
Value	\rightarrow	enum	common_pdp_type	4	Specifies the type of data payload
					exchanged over the airlink when the
					packet data session is established with
				7	this profile. Values:
				_	• 0 – PDP-IP (IPv4)
				60	• 1 – PDP-IPv6
				3	• 2 – PDP-IPv4v6
Туре	0x80		.0	o. <i>To</i> zz	Common Application User Data **
Length	4		00.	2	
Value	\rightarrow	uint32	common_app_user_data	4	An opaque, numeric identifier
			05 nd		representing the user data in the profile.
			16 dhai		This can be transparently set for any
			20,00		profile and queried later.
Туре	0x81		825	1	Common Mobile Network Code ***
Length	3			2	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC. Range: 0 to 999.
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length
					of the corresponding MNC reported in
					the TLVs. Values:
					• TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Туре	0x82			1	Common Mobile Country Code ***
Length	2			2	
Value	\rightarrow	uint16	common_pco_mcc	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
Туре	0x83			1	Common Operator Reserved PCO ID **
Length	2			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	uint16	common_op_pco_id	2	Container ID of this PCO. If op_pco_id is configured, the UE sends the operator PCO with the container ID that is configured. Once configured, the profile cannot be unconfigured.
Туре	0x84			1	Common Authentication Password ***
Length	Var			2	
Value	\rightarrow	string	common_auth_password	Var	Password used during data network authentication; maximum length allowed is 127 bytes. QMI_ERR_ARG_TOO_LONG is returned if the storage on the wireless device is insufficient in size to hold the value.
Туре	0x85			1	Common User ID ***
Length	Var			2	
Value	\rightarrow	string	common_user_id	Var	User ID used during data network authentication; maximum length allowed is 127 bytes. QMI_ERR_ARG_TOO_LONG is
			78.00:0	5.4.CO.	returned if the storage on the wireless device is insufficient in size to hold the value.
Туре	0x86		5 13	1	Common Authentication Protocol ***
Length	1		16' Mai	2	
Value	\rightarrow	enum8	common_auth_protocol	1	Values: • 0 – None • 1 – PAP • 2 – CHAP • 3 – PAP or CHAP
Туре	0x87			1	Common PCSCF Address Using PCO Flag ***
Length	1			2	
Value	\rightarrow	boolean	common_is_pcscf_ address_ needed	1	Values: • 1 – TRUE – Request PCSCF address using PCO • 0 – FALSE – Do not request By default the value is 0.
Туре	0x88			1	Common Allow/Disallow Lingering of Interface ***
Length	3			2	
Value	\rightarrow	boolean	common_allow_linger	1	Values: • 1 – TRUE – Allow lingering • 0 – FALSE – Do not allow lingering
Туре	0x89	uint16	common_linger_timeout	1	Value of linger timeout in milliseconds. Common Secondary DNS IPv6 Address Preference ***

Field	Field value	Field type	Parameter	Size (byte)	Description
Length	16			2	
Value	\rightarrow	uint8	common_secodnary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8A			1	Common Primary DNS IPv6 Address Preference ***
Length	16			2	
Value	\rightarrow	uint8	common_primary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8B		'C	1	Common Secondary DNS IPv4 Address Preference ***
Length	4			20	
Value	\rightarrow	uint32	common_secondary_DNS_ IPv4_address_preference	4	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8C		20,5011	1	Common Primary DNS Address Preference ***
Length	4			2	
Value	\rightarrow	uint32	common_primary_DNS_ IPv4_address_preference	4	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8D			1	Common APN Class ***
Length	1			2	
Value	\rightarrow	uint8	common_apn_class	1	An opaque, numeric identifier representing the APN in the profile. The APN class can be transparently set for any profile and queried later.
Туре	0x8E			1	Common APN Disabled Flag ***
Length Value	$\stackrel{1}{\rightarrow}$	boolean	common_apn_disabled_ flag	1	Setting this flag disables the use of this profile for making data calls. Any data call with this profile fails locally. Values: • 0 – FALSE (default) • 1 – TRUE

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x90			1	Negotiate DNS Server Preference *
Length	1			2	
Value	\rightarrow	boolean	negotiate_dns_server_	1	Values:
			preference		• 1 – TRUE – Request DNS address
			•		from the PDSN
					• 0 – FALSE – Do not request DNS
					address from the PDSN
					Note: Default value is 1 (TRUE).
Туре	0x91			1	PPP Session Close Timer for DO *
Length	4			2	
Value	\rightarrow	uint32	ppp_session_close_timer_	4	Timer value (in seconds) on DO
value	,	diffe 2	DO		indicating how long the PPP session
			DO	1	lingers before closing down.
Type	0x92			1	PPP Session Close Timer for 1X *
Type	4			2	111 Session Close Time IOI 1A
Length		uint32	nnn cassion alosa times	4	Timer value (in seconds) on 1V
Value	\rightarrow	uiiit32	ppp_session_close_timer_	4	Timer value (in seconds) on 1X
			1x	*	indicating how long the PPP session
_	0.02			1.0	lingers before closing down.
Туре	0x93			10	Allow/Disallow Lingering of Interface *
Length	1			2	
Value	\rightarrow	boolean	allow_linger	o. To,,	Values:
			000	57	• 1 – TRUE – Allow lingering
			7° 67°	•	• 0 – FALSE – Do not allow lingering
Туре	0x94		05, 40,	1	LCP ACK Timeout *
Length	2		16' No.	2	
Value	\rightarrow	uint16	lcp_ack_timeout	2	Value of LCP ACK timeout in
			DE TOTAL		milliseconds.
Туре	0x95			1	IPCP ACK Timeout *
Length	2			2	
Value	\rightarrow	uint16	ipcp_ack_timeout	2	Value of IPCP ACK timeout in
					milliseconds.
Туре	0x96			1	AUTH Timeout *
Length	2			2	
Value	\rightarrow	uint16	auth_timeout	2	Value of authentication timeout in
					milliseconds.
Туре	0x97			1	LCP Configuration Request Retry Count
					Value *
Length	1			2	
Value	\rightarrow	uint8	lcp_creq_retry_count	1	LCP configuration request retry count
	•		r — · · · · · · · · · · · · · · · · · ·		value.
Туре	0x98			1	IPCP Configuration Request Retry
. , pc	UNJU			1	Count *
Length	1			2	Count
		uint8	inan araa ratmi aaunt	1	IDCD configuration request votes; sound
Value	\rightarrow	uiillo	ipcp_creq_retry_count	1	IPCP configuration request retry count
T	000			1	value.
Type	0x99			1	Authentication Retry *
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	auth_retry_count	1	Authentication retry count value.
Туре	0x9A			1	Authentication Protocol *
Length	1			2	
Value	\rightarrow	enum8	auth_protocol	1	Values:
			_i		• 0 – NONE
					• 1 – PAP
					• 2 – CHAP
					• 3 – PAP or CHAP
Туре	0x9B			1	User ID *
Length	Var			2	034112
Value	\rightarrow	string	user_id	Var	User ID used during data network
value	,	sumg	user_iu	Vai	authentication; maximum length allowed
					is 127 bytes.
				900	QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
				20	device is insufficient in size to hold the
_	0-00			1	value.
Туре	0x9C			1	Authentication Password *
Length	Var		1	2	
Value	\rightarrow	string	auth_password	Var	Password used during data network
			0	vai	authentication; maximum length allowed
			000	57	is 127 bytes.
			Nº 62		QMI_ERR_ARG_TOO_LONG is
			05,40		returned if the storage on the wireless
			16, 14,0		device is insufficient in size to hold the
			2016.05.12.00:05		value.
Туре	0x9D		800	1	Data Rate *
Length	1			2	
Value	\rightarrow	enum8	data_rate	1	Values:
					• 0 – Low (Low speed service options
					(SO15) only)
					• 1 – Medium (SO33 + low R-SCH)
					• 2 – High (SO33 + high R-SCH)
					Note: Default is 2.
Туре	0x9E			1	Application Type *
Length	4			2	
Value	\rightarrow	enum	app_type	4	Values:
					• 0x00000001 – Default application type
					• 0x00000020 – LBS application type
					• 0x00000040 – Tethered application
					type
					Note: The application type value in a
					profile cannot be modified. It can only be
					used to search for the profile ID numbers
					that have the specified application type.
Туре	0x9F			1	Data Mode *
Length	1			2	
Lengui	1				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	data_mode	1	Values:
					• 0 – CDMA or HDR (Hybrid
					1X/1xEV-DO)
					• 1 – CDMA only (1X only)
					• 2 – HDR only (1xEV-DO only)
					Note: Default is 0.
Туре	0xA0			1	Application Priority *
Length	1			2	
Value	\rightarrow	uint8	app_priority	1	Numerical one byte value defining the
					application priority; higher value means
					higher priority.
					Note: Application priority value in a
					profile cannot be modified. It is listed for
					future extensibility of profile ID search
					based on application priority.
Туре	0xA1			1	APN String *
Length	Var			2	
Value	\rightarrow	string	apn_string	Var	String representing the access point
		υ	1 = 0	00	name; maximum length allowed is 100
				27 8	bytes. QMI_ERR_ARG_TOO_LONG is
				53.00	returned when the APN name is too long.
Туре	0xA2		20.	341	PDN Type *
Length	1		18 15	2	
Value	\rightarrow	enum8	pdn_type	1	Values:
			1 = 31		• 0 – IPv4 PDN type
			070 27		• 1 – IPv6 PDN type
			2,50		• 2 – IPv4 or IPv6 PDN type
			0		• 3 – Unspecified PDN type (implying no
					preference)
Туре	0xA3			1	Is PCSCF Address Needed *
Length	1			2	
Value	\rightarrow	boolean	is_pcscf_address_needed	1	Used to control whether the PCSCF
-					address is requested from PDSN. Values:
					• 1 – TRUE – Request PCSCF value
					from the PDSN
					• 0 – FALSE – Do not request PCSCF
					value from the PDSN
Туре	0xA4			1	IPv4 Primary DNS Address *
Length	4			2	2
Value	\rightarrow	uint32	primary_v4_dns_address	4	The primary IPv4 DNS address that can
Taide	,	unit 52	P111101 J _ 1 _ 0110 _ 0001 000	"	be statically assigned to the UE.
Туре	0xA5			1	IPv4 Secondary DNS Address *
Length	4			2	I va secondary Divo Address
Value	$\stackrel{+}{\longrightarrow}$	uint32	secondary_v4_dns_address	4	The secondary IPv4 DNS address that
value	\rightarrow	umtsz	secondary_v4_uns_address	+	can be statically assigned to the UE.
Time	0xA6			1	Primary IPv6 DNS Address *
Type					rimary irvo DNS Address *
Length	16			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	primary_v6_dns_address	16	The primary IPv6 DNS address that can
					be statically assigned to the UE.
Туре	0xA7			1	Secondary IPv6 DNS Address *
Length	16			2	
Value	\rightarrow	uint8	secondary_v6_dns_address	16	The secondary IPv6 DNS address that
					can be statically assigned to the UE.
Туре	0xA8			1	RAT Type *
Length	1			2	
Value	\rightarrow	enum8	rat_type	1	Values:
					• 1 – HRPD
					• 2 – EHRPD
					• 3 – HRPD_EHRPD
Туре	0xA9			1	APN Enabled *
Length	1			2	
Value	\rightarrow	boolean	apn_enabled_3gpp2	1	APN enabled is a flag to specify whether
					the APN in that profile is enabled or
				ï	disabled. If the APN is disabled, the data
				_	call cannot be established using that
				80	APN. Values:
				3	• 1 – Enabled (default value)
			0.	0. 0//	• 0 – Disabled
Туре	0xAA		00.	e 1	PDN Inactivity Timeout *
Length	4		20 m25	2	
Value	\rightarrow	uint32	pdn_inactivity_timeout_	4	Duration of inactivity timer in minutes.
			3gpp2		If a PDP context/PDN connection is
			20,00		inactive (that is, no data Rx/Tx) for this
			100		duration of time, the PDP context/PDN
					connection is disconnected. The default
					setting of zero is treated as an infinite
					value.
Туре	0xAB			1	APN Class *
Length	1			2	
Value	\rightarrow	uint8	apn_class_3gpp2	1	An opaque, numeric identifier
					representing the APN in the profile. This
					can be transparently set for any profile
					and queried later.
Туре	0xAD			1	PDN Level Auth Protocol *
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	pdn_level_auth_protocol	1	Authentication protocol used during
					PDN level authentication. Values:
					• WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_NONE (0) -
					• WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_PAP (1) –
					WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_CHAP (2) –
					WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_PAP_CHAP (3) -
Туре	0xAE			1	PDN Level User ID *
Length	Var			2	
Value	\rightarrow	string	pdn_level_user_id	Var	User ID used during PDN level
					authentication. Maximum length
					allowed is 127 bytes.
Туре	0xAF			1	PDN Level Auth Password *
Length	Var			2	
Value	\rightarrow	string	pdn_level_auth_password	Var	Password used during PDN level
				0	authentication. Maximum length
				3	allowed is 127 bytes.
Туре	0xB0		0.	5. TOL.	PDN Label *
Length	Var		00.	2	
Value	\rightarrow	string	pdn_label	Var	Logical name used to map the APN
			5 19		name for selecting the packet data
			pdn_label		network. Maximum length allowed is
			20,00		100 bytes.
Туре	0xBD		80,	1	Operator Reserved PCO ID *
Length	2			2	
Value	\rightarrow	uint16	op_pco_id_3gpp2	2	Container ID of this PCO. If op_pco_id
					is configured, the UE sends the operator
					PCO with the container ID that is
					configured. Once configured, the profile
					cannot be unconfigured.
Туре	0xBE			1	Mobile Country Code *
Length	2			2	
Value	\rightarrow	uint16	pco_mcc_3gpp2	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
Туре	0xBF			1	Mobile Network Code *
Length	3			2	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC.
					Range: 0 to 999.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length
					of the corresponding MNC reported in
					the TLVs. Values:
					• TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Туре	0xC0			1	PDN Throttling Timer 1-6 *
Length	24			2	
Value	\rightarrow	uint32	failure_timer	24	The back-off time (in seconds) to be
					used after a PDN connection or IP
					address assignment failure. For example,
					immediately following a third
					consecutive PDN connection request
				1	failure, the UE waits failure_timer[2]
					seconds before sending the fourth
				60	request. Following failures of six or
				37 3	greater, failure_timer[5] is used.
Туре	0xC1		.0.	o. P.	PDN Disallow Timer 1-6 *
Length	24		00.	2	
Value	\rightarrow	uint32	disallow_timer	24	The back-off time, in seconds, to be used
			distantow_time!		after the network refuses to grant the
			16. That		requested IP address type, such as when
			30,00		an IPv6 address is requested from a
			De		network that only grants the IPv4
					address. For example, immediately after
					a third consecutive PDN connection
					request is denied, the UE waits
					disallow_timer[2] seconds before
					sending the fourth request. Following
					failures of six or greater, disallow_timer[5] is used.
Туре	0xC2			1	3GPP2 Application User Data *
Length	4			2	30112 Application Osci Data
Value	\rightarrow	uint32	app_user_data_3gpp2	4	An opaque, numeric identifier
value	7	umt32	app_user_uata_5gpp2	•	representing the user data in the profile.
					This can be transparently set for any
					profile and queried later.
Туре	0xC3			1	PCSCF Address Using DHCP 3GPP2 *
Length	1			2	1 Cool riddiess comg Difer 50112
Value	\rightarrow	boolean	pcscf_addr_using_dhcp_	1	Values:
- 3.00	,	o o o o o o o o o o o o o o o o o o o	3gpp2	•	• 1 – TRUE – Request PCSCF address
			-orr-		using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0xC4			1	DNS Address Using DHCP *
1 y P C	UACT			1 1	Dito radicos Come Difei

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	1			2	
Value	\rightarrow	boolean	dns_addr_using_dhcp_	1	Values:
			3gpp2		• 1 – TRUE – Request DNS address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0xDF			1	IPv6 Prefix Delegation Flag * **
Length	1			2	
Value	\rightarrow	boolean	ipv6_prefix_delegation	1	Enables IPv6 prefix delegation. Values:
					• 0 – FALSE (default)
					• 1 – TRUE
Туре	0xE0			1	Profile Extended Error Code *
Length	2			2	
Value	\rightarrow	enum16	extended_error_code	2	The extended error code received from
					the DS profile subsystem. These error
					codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_PROFILE	Invalid profile index is specified
QMI_ERR_INVALID_PROFILE_TYPE	Invalid profile type is specified
QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code
	from the DS profile is populated in an additional optional
	TLV

3.20.3 Description of QMI_WDS_GET_PROFILE_SETTINGS REQ/RESP

This command retrieves the settings stored in the configured profile, specified by profile type and index.

The Password TLV is not returned for 3GPP2 security reasons (to prevent malicious users from stealing service).

TLV values 0xE1 through 0xEA are reserved for OEM use.

QMI_WDS_GET_DEFAULT_SETTINGS 3.21

Retrieves the default data session settings.

WDS message ID

0x002C

Version introduced

Major - 1, Minor - 1

Request - QMI_WDS_GET_DEFAULT_SETTINGS_REQ 3.21.1

Mandatory TLVs

	Name	00 ,00	ersion introduced	Version last modified
Profile Type		20 W. 20	1.1	1.59

Message	e type						
Request	Request						
Sender							
Control	Control point						
Mandato	ory TLVs	;		63,010	(A)		
		Na	ame	Version	n introduced	Version last modified	
Profile	Type		Nº 027		1.1	1.59	
			C. O.S. Harida		_		
Field	Field value	Field type	Parameter	Size (byte)	L	Description	
Туре	0x01		<u> </u>	1	Profile Type		
Length	1			2			
Value	\rightarrow	enum8	profile_type	1	Identifies the technology type of the profile. Values: • WDS_PROFILE_TYPE_3GPP (0x00) - 3GPP • WDS_PROFILE_TYPE_3GPP2 (0x01) - 3GPP2 • WDS_PROFILE_TYPE_EPC (0x02) - EPC		

Optional TLVs

None

3.21.2 Response - QMI_WDS_GET_DEFAULT_SETTINGS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Profile Name	Unknown	1.1
PDP Type	Unknown	1.11
PDP Header Compression Type	Unknown	1.11
PDP Data Compression Type	Unknown	1.11
Context Access Point Node Name	Unknown	1.1
Primary DNS Address Preference	Unknown	1.1
Secondary DNS Address Preference	Unknown	1.1
UMTS Requested QoS	Unknown	1.11
UMTS Minimum QoS	Unknown	1.11
GPRS Requested QoS	Unknown	1.1
GRPS Minimum Qos	Unknown	1.1
Username	Unknown	1.1
Password	Unknown	1.1
Authentication Preference	Unknown	1.1
IPv4 Address Preference	Unknown	1.1
PCSCF Address Using PCO Flag	Unknown	1.3
PDP Access Control Flag	Unknown	1.11
PCSCF Address Using DHCP	Unknown	1.11
IM CN Flag	Unknown	1.11
Traffic Flow Template ID1 Parameters	Unknown	1.11
TFT ID2 Parameters	Unknown	1.11
PDP Context Number	Unknown	1.11
PDP Context Secondary Flag	Unknown	1.11
PDP Context Primary ID	Unknown	1.11
IPv6 Address Preference	Unknown	1.11
UMTS Requested QoS With Signaling Indication	Unknown	1.11
Flag		
UMTS Minimum QoS With Signaling Indication	Unknown	1.11
Primary DNS IPv6 Address Preference	Unknown	1.11
Secondary DNS IPv6 Address Preference	Unknown	1.11
DHCP/NAS Preference	Unknown	1.11
3GPP LTE QoS Parameters	Unknown	1.11

Name	Version introduced	Version last modified		
APN Disabled Flag	Unknown	1.13		
PDN Inactivity Timeout	Unknown	1.13		
APN Class	1.13	1.13		
APN Bearer **	1.26	1.26		
Support Emergency Calls **	1.31	1.31		
Operator Reserved PCO ID **	1.37	1.37		
Mobile Country Code **	1.37	1.37		
Mobile Network Code **	1.37	1.37		
Max PDN Connections Per Time Block **	1.46	1.46		
Max PDN Connections Timer **	1.46	1.46		
PDN Request Wait Timer **	1.46	1.46		
3GPP Application User Data **	1.57	1.57		
Roaming Disallow Flag **	1.63	1.63		
PDN Disconnect Wait Timer **	1.63	1.63		
DNS Address Using DHCP **	1.74	1.74		
Common PCSCF Address Using DHCP ** *	1.74	1.74		
Common DNS Address Using DHCP ** *	1.74	1.74		
Common PDP Type ** *	1.65	1.67		
Common Application User Data **	1.59	1.59		
Common Mobile Network Code ***	1.59	1.59		
Common Mobile Country Code ***	1.59	1.59		
Common Operator Reserved PCO ID **	1.59	1.59		
Common Authentication Password ***	1.59	1.59		
Common User ID ***	1.59	1.59		
Common Authentication Protocol ***	1.59	1.59		
Common PCSCF Address Using PCO Flag ***	1.59	1.59		
Common Allow/Disallow Lingering of Interface ***	1.59	1.59		
Common Secondary DNS IPv6 Address	1.59	1.59		
Preference ***	1.39	1.39		
Common Primary DNS IPv6 Address Preference	1.59	1.59		
***	1.39	1.39		
Common Secondary DNS IPv4 Address	1.59	1.59		
Preference ***	1.50	1.50		
Common Primary DNS Address Preference ***	1.59	1.59		
Common APN Class ***	1.59	1.59		
Common APN Disabled Flag ***	1.59	1.59		
Negotiate DNS Server Preference	Unknown	1.11		
PPP Session Close Timer for DO	Unknown	1.11		
PPP Session Close Timer for 1X	Unknown	1.11		
Allow/Disallow Lingering of Interface	Unknown	1.11		
LCP ACK Timeout	Unknown	1.11		
IPCP ACK Timeout	Unknown	1.11		
AUTH Timeout	Unknown	1.11		
LCP Configuration Request Retry Count Value	Unknown	1.11		
IPCP Configuration Request Retry Count	Unknown	1.11		
AUTH Retry	Unknown 1.11			

Name	Version introduced	Version last modified
Authentication Protocol	Unknown	1.33
User ID	Unknown	1.11
Authentication Password	Unknown	1.11
Data Rate	Unknown	1.11
Application Type	Unknown	1.11
Data Mode	Unknown	1.11
Application Priority	Unknown	1.11
APN String	Unknown	1.11
PDN Type	Unknown	1.11
Is PCSCF Address Needed	Unknown	1.11
IPv4 Primary DNS Address	Unknown	1.11
IPv4 Secondary DNS Address	Unknown	1.11
Primary IPv6 DNS Address	Unknown	1.11
Secondary IPv6 DNS Address	Unknown	1.11
RAT Type	Unknown	1.13
APN Enabled	Unknown	1.13
PDN Inactivity Timeout	Unknown	1.13
APN Class	1.13	1.13
PDN Level Auth Protocol *	Unknown	1.34
PDN Level User ID *	Unknown	1.19
PDN Level Auth Password *	Unknown	1.19
PDN Label *	Unknown	1.19
Operator Reserved PCO ID *	1.37	1.37
Mobile Country Code *	1.37	1.37
Mobile Network Code *	1.37	1.37
PDN Throttling Timer 1-6 *	1.42	1.42
PDN Disallow Timer 1-6 *	1.42	1.42
3GPP2 Application User Data *	1.57	1.57
PCSCF Address Using DHCP 3GPP2 *	1.74	1.74
DNS Address Using DHCP *	1.74	1.74
IPv6 Prefix Delegation Flag * **	1.66	1.66
Profile Extended Error Code	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Name
Length	Var			2	
Value	\rightarrow	string	profile_name	Var	One or more bytes describing the profile. The description is a user-defined name for the profile. QMI_ERR_ARG_TOO_LONG is returned if the profile_name is too long.
Туре	0x11			1	PDP Type
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	pdp_type	1	Packet Data Protocol (PDP) type
					specifies the type of data payload
					exchanged over the airlink when the
					packet data session is established with
					this profile. Values:
					• 0 – PDP-IP (IPv4)
					• 1 – PDP-PPP
					• 2 – PDP-IPv6
					• 3 – PDP-IPv4v6
Туре	0x12			1	PDP Header Compression Type
Length	1			2	
Value	\rightarrow	enum8	pdp_hdr_compression_	1 _	Values:
			type		• 0 – PDP header compression is off
			31		• 1 – Manufacturer preferred
					compression
			4	30	• 2 – PDP header compression based on
					RFC 1144
				,	• 3 – PDP header compression based on
				~O	RFC 2507
				~ × ×	• 4 – PDP header compression based on
				53 30	RFC 3095
Туре	0x13		20:	-4·I	PDP Data Compression Type
Length	1		\$ 5	2	J
Value	\rightarrow	enum8	pdp_data_compression_	1	Values:
			type		• 0 – PDP data compression is off
					• 1 – Manufacturer preferred
			2, 6011		compression
			0.0		• 2 – V.42BIS data compression
					• 3 – V.44 data compresion
Туре	0x14			1	Context Access Point Node (APN) Name
Length	Var			2	, , , , ,
Value	\rightarrow	string	apn_name	Var	A string parameter that is a logical name
	,	56	F	,	used to select the GGSN and external
					packet data network.
					If the value is NULL or omitted, the
					subscription default value is requested.
					QMI_ERR_ARG_TOO_LONG is
					returned if the APN name is too long.
Туре	0x15			1	Primary DNS Address Preference
Length	4			2	2 I I I I I I I I I I I I I I I I I I I
Value	\rightarrow	uint32	primary_DNS_IPv4_	4	Used as a preference during negotiation
value	,	unit32	address_preference	т	with the network; if not specified, the
			uddiess_preference		wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via DHCP.
Tyme	0x16			1	Secondary DNS Address Preference
Туре	UXIU			1	Secondary Divo Address Preference

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	4			2	
Value	\rightarrow	uint32	secondary_DNS_IPv4_	4	Used as a preference during negotiation
			address_preference		with the network; if not specified, the
					wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via DHCP.
Туре	0x17			1	UMTS Requested QoS
Length	33			2	<u> </u>
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
					second.
		uint32	max_downlink_bitrate	4 _	Maximum downlink bit rate in bits per
				80	second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per
			0.	0. 0/,	second.
		uint32	guaranteed_downlink_	24	Guaranteed downlink bit rate in bits per
			bitrate		second.
		enum8	qos_delivery_order	1	Values:
			16 than		• 0 – Subscribe
			20, 20.		• 1 – Delivery order on
		22	75,	4	• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
					• 0 – Subscribe
					$\bullet \ 2 - 7 \times 10^{\circ}$ $\bullet \ 3 - 1 \times 10^{3}$
					$\begin{array}{c} \bullet \ 3 - 1 \times 10^{9} \\ \bullet \ 4 - 1 \times 10^{4} \end{array}$
					• 4 – 1×10 ² • 5 – 1×10 ⁵
					$\bullet 6 - 1 \times 10^6$ $\bullet 6 - 1 \times 10^6$
					$\bullet 6 - 1 \times 10^{\circ}$ $\bullet 7 - 1 \times 10^{1}$
					• / - 1X1U ²

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					• $2 - 1 \times 10^2$
					• $3 - 5 \times 10^3$
					• $4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
		Citatilo	denvery_enoneous_5Des	6.3	whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
				1	• 2 – Erroneous SDU is delivered
				<u> </u>	• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	M	Transfer delay (ms). Indicates the
		umtsz	transfer_defay	37	targeted time between a request to
			.0	0,00	transfer an SDU at one SAP to its
			00	64.	delivery at the other SAP, in
			Nº 64		milliseconds; if the parameter is set to 0,
			05, 10		the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
		umtsz	trame_nanding_priority	•	relative importance for handling of
			Ser		SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
_	0.10			1	subscribed value is requested.
Туре	0x18			1	UMTS Minimum QoS
Length	33		4 CC 1	2	TD CC 1 XX1
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
			1. 1		• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per
					second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per
					second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per
					second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
			bitrate		second.

Field	Field value	Field type	Parameter	Size (byte)	Description
	value	enum8	qos_delivery_order	1	Values:
		Citatilo	qos_denvery_order	1	• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4	Maximum SDU size.
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
		chamo	Sau_ciroi_iano	1	or detected as erroneous. Values:
					• 0 – Subscribe
					• $1 - 1 \times 10^2$
					• $2 - 7 \times 10^3$
					• $3 - 1 \times 10^3$
					• $4 - 1 \times 10^4$
				1	$\bullet 5 - 1 \times 10^5$
				900	$\bullet 6 - 1 \times 10^6$
					• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
		0 0 0			ratio in the delivered SDUs. Values:
				r	• 0 – Subscribe
				~	• $1 - 5x10^2$
				~ ~ ×	• $2 - 1 \times 10^2$
				3 10	• $3 - 5 \times 10^3$
			0.0	7:00	• $4 - 4x10^3$
			. 80 5		• $5 - 1 \times 10^3$
			() () () ()		• $6 - 1 \times 10^4$
			0, 300		• $7 - 1 \times 10^5$
			76 111		• $8 - 1 \times 10^6$
			27, 501,		• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
					whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
Туре	0x19			1	GPRS Requested QoS

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	_
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1A			1	GRPS Minimum QoS
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4	Peak throughput class
		uint32	mean_throughput_class	4	Mean throughput class
Туре	0x1B			1	Username
Length	Var			2	
Value	\rightarrow	string	username	Var	Username used during data network
				3	authentication.
				_	QMI_ERR_ARG_TOO_LONG is
				V 6/2	returned if the storage on the wireless
				3	device is insufficient in size to hold the
			.0'	0. 0,	value.
Туре	0x1C		00.	15	Password
Length	Var		100000	2	
Value	\rightarrow	string	password	Var	Password used during data network
			password		authentication.
			20,00		QMI_ERR_ARG_TOO_LONG is
			90		returned if the storage on the wireless
					device is insufficient in size to hold the
					value.
Туре	0x1D			1	Authentication Preference
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
Value	\rightarrow	mask8	authentication_preference	1	A bit map that indicates the
			-		authentication algorithm preference.
					Values:
					Bit 0 – PAP preference:
					• 0 – PAP is never performed
					• 1 – PAP can be performed
					Bit 1 – CHAP preference:
					• 0 – CHAP is never performed
					• 1 – CHAP can be performed
					All other bits are reserved and are
					ignored. They must be set to zero by the client.
					If more than one bit is set, the device
				900	decides which authentication procedure
					is performed while setting up the data
			A (30	session. For example, the device might
					have a policy to select the most secure
				,	authentication mechanism.
Туре	0x1E			1,0	IPv4 Address Preference
Length	4			2	The second second
Value	\rightarrow	uint32	ipv4_address_preference	9. 43.	Preferred IPv4 address assigned to the
			00.5	34.	TE – The actual assigned address is
			19 25	-	negotiated with the network and can
			5 36		differ from this value. If not specified,
			6. hall		the IPv4 Address is obtained
			201.03		automatically from the network. The
			ipv+_address_preference		assigned value is provided to the host via
					DHCP.
Туре	0x1F			1	PCSCF Address Using PCO Flag
Length	1			2	
Value	\rightarrow	boolean	pcscf_addr_using_pco	1	Values:
					• 1 – TRUE – Request PCSCF address
					using PCO
					• 0 – FALSE – Do not request
_	0.20			1	By default this value is 0.
Туре	0x20			1	PDP Access Control Flag
Length	1	0		2	¥7-1
Value	\rightarrow	enum8	pdp_access_control_flag	1	Values:
					• 0 – PDP access control none
					• 1 – PDP access control reject
Tour	021			1	• 2 – PDP access control permission
Type	0x21			1	PCSCF Address Using DHCP
Length	1			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	boolean	pcscf_addr_using_dhcp	1	Values:
	·		F131-231-32-31-14		• 1 – TRUE – Request PCSCF address
					using DHCP
					• 0 – FALSE – Do not request
					By default, value is 0.
Туре	0x22			1	IM CN Flag
Length	1			2	- 10
Value	\rightarrow	boolean	im_cn_flag	1	Values:
14.45	,	00010411	<u></u>	_	• 1 – TRUE – Request IM CN flag for
					this profile
					• 0 – FALSE – Do not request IM CN
					flag for this profile
Туре	0x23			1	Traffic Flow Template (TFT) ID1
.ypc	0.123				Parameters Parameters
Length	39			2	T drumeters
Value	\xrightarrow{JJ}	uint8	filter_id	1	Filter identifier.
value	7	uint8	eval id	1	Evaluation precedence index.
		enum8	ip_version	1	IP version number. Values:
		Ciluino	ip_version	10	• 4 – IPv4
				~ ~ ~ .	• 6 – IPv6
		uint8	source_ip	16	Values:
		uiiito	source_ip	16	• IPv4 – Fill the first 4 bytes
			000	27	• IPv6 – Fill all the 16 bytes
		uint8	source_ip_mask	1	Mask value for the source address.
		uint8	next_header	1	Next header/protocol value.
		uint16	dest_port_range_start	2	Start value for the destination port range.
		uint16	dest_port_range_end	2	End value for the destination port range.
		uint16	src_port_range_start	2	Start value for the source port range.
		uint16	src_port_range_end	2	End value for the source port range.
		uint32	ipsec_spi	4	IPSec security parameter index.
		uint32	tos_mask	2	TOS mask (traffic class for IPv6).
		uint32	flow_label	4	Flow label.
Туре	0x24	umtsz	now_tabet	1	TFT ID2 Parameters
	39			2	Traineters
Length Value		uint8	filter_id	1	Filter identifier.
value	\rightarrow	uint8	eval_id		
				1	Evaluation precedence index. IP version number. Values:
		enum8	ip_version	1	• 4 – IPv4
		uint8		16	• 6 – IPv6 Values:
		uiiito	source_ip	10	
					• IPv4 – Fill the first 4 bytes
		uint8	course in most	1	• IPv6 – Fill all the 16 bytes Mask value for the source address.
		uint8	source_ip_mask next_header	1	
				1	Next header/protocol value.
		uint16	dest_port_range_start	2	Start value for the destination port range.
		uint16	dest_port_range_end	2	End value for the destination port range.
		uint16	src_port_range_start	2	Start value for the source port range.
		uint16	src_port_range_end	2	End value for the source port range.

Field	Field value	Field type	Parameter	Size (byte)	Description
		uint32	ipsec_spi	4	IPSec security parameter index.
		uint16	tos_mask	2	TOS mask (traffic class for IPv6).
		uint32	flow_label	4	Flow label.
Туре	0x25			1	PDP Context Number
Length	1			2	
Value	\rightarrow	uint8	pdp_context	1	PDP context number.
Туре	0x26	0.2227	F-F	1	PDP Context Secondary Flag
Length	1			2	The content becondary 1 mg
Value	\rightarrow	boolean	secondary_flag	1	Values:
value	7	boolcan	secondary_nag	1	 1 - TRUE - This is the secondary profile 0 - FALSE - This is not the secondary profile
Туре	0x27			1	PDP Context Primary ID
Length	1			2	
Value	\rightarrow	uint8	primary_id	1	PDP context number primary ID.
Туре	0x28	unito	primary_ru	1	IPv6 Address Preference
Length	16			2 <	11 vo Address i Telefence
Value	\rightarrow	uint8	ipv6_address_preference	16	The preferred IPv6 address to be
			5-18-00:05	53 COLU.	assigned to the TE; the actual assigned address is negotiated with the network and can differ from this value. If not specified, the IPv6 address is obtained automatically from the network.
Туре	0x29		016. That	1	UMTS Requested QoS With Signaling Indication Flag
Length	34		200	2	
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values: • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_ bitrate	4	Guaranteed downlink bit rate in bits per second.
		enum8	qos_delivery_order	1	Values: • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		ı			▼ Z = Delivery order on

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
		enum8	sdu_error_ratio	1	Target value for the fraction of SDUs lost
					or detected as erroneous. Values:
					• 0 – Subscribe
					• $1 - 1 \times 10^2$
					$\bullet 2 - 7x10^3$
					\bullet 3 - 1x10 ³
					• $4 - 1 \times 10^4$
					• $5 - 1 \times 10^5$
					\bullet 6 – 1x10 ⁶
					• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
		Cituino	residual_oit_effor_ratio	1	ratio in the delivered SDUs. Values:
				9	• 0 – Subscribe
				0.00	$ \bullet 1 - 5x10^2 $
					$\bullet \ 1 - 3x10$ $\bullet \ 2 - 1x10^2$
					$\bullet \ 2 - 1 \times 10$ $\bullet \ 3 - 5 \times 10^3$
				1	$\bullet 4 - 4 \times 10^3$
				_	• $5 - 1 \times 10^3$
				80	• $6 - 1 \times 10^4$
				3	• $7 - 1 \times 10^5$
			.0	0. 50%	$\bullet 8 - 1 \times 10^6$
		0	11. 001	64.	• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
			2016-05 Trange		whether SDUs detected as erroneous are
			6. Mail		delivered or not. Values:
			20,00		• 0 – Subscribe
			750		• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
		boolean	sig_ind	1	Signaling indication flag. Values:
					• 0 – Signaling indication off
					• 1 – Signaling indication on
Туре	0x2A			1	UMTS Minimum QoS With Signaling
					Indication
Length	34			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_ bitrate	4	Guaranteed downlink bit rate in bits per second.
		enum8	qos_delivery_order	1	Values:
			40	3"	• 0 – Subscribe
					• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4,0	Maximum SDU size.
		enum8	sdu_error_ratio	34	Target value for the fraction of SDUs lost
				0.00	or detected as erroneous. Values:
			0.5	34.	• 0 – Subscribe
			19 15		• $1 - 1 \times 10^2$
			5,70		$\bullet 2 - 7x10^3$
		1	C.O. Walley		• $3 - 1 \times 10^3$
			070 77		• $4 - 1 \times 10^4$
			2,50		• $5 - 1 \times 10^5$
			2016.05.18.00.05 2016.05.18.00.05		• $6 - 1 \times 10^6$
					• $7 - 1 \times 10^{1}$
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					• $2 - 1 \times 10^2$
					$\bullet 3 - 5 \times 10^3$
					• $4 - 4 \times 10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					$\bullet 9 - 6 \times 10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
					whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
		boolean	sig_ind	1	Signaling indication flag. Values:
					• 0 – Signaling indication off
					• 1 – Signaling indication on
Туре	0x2B			1	Primary DNS IPv6 Address Preference
Length	16		ć	2	
Value	\rightarrow	uint8	primary_dns_ipv6_	16	Used as a preference during negotiation
			address_preference	0	with the network; if not specified, the
				3	wireless device attempts to obtain the
			0	0. 00.	DNS address automatically from the
			00.	er.	network. The negotiated value is
			\$.5°		provided to the host via DHCP.
Туре	0x2C		5,00	1	Secondary DNS IPv6 Address
			6, 112		Preference
Length	16		20, 07	2	
Value	\rightarrow	uint8	secodnary_dns_ipv6_	16	Used as a preference during negotiation
			address_preference		with the network; if not specified, the
					wireless device attempts to obtain the
					DNS address automatically from the
					network. The negotiated value is
					provided to the host via DHCP.
Туре	0x2D			1	DHCP/NAS Preference
Length	1			2	
Value	\rightarrow	enum8	addr_allocation_preference	1	Used to indicate the address allocation
					preference. Values:
					• 0 – NAS signaling is used for address
					allocation
					• 1 – DHCP is used for address allocation
Туре	0x2E			1	3GPP LTE QoS Parameters
Length	17			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Value	\rightarrow	uint8	qci	1	For LTE, the requested QoS must be
					specified using the QoS Class Identifier
					(QoS). Values:
					• QCI value 0 – Requests the network to
					assign the appropriate QCI value
					• QCI values 1-4 – Associated with
					guaranteed bit rates
					• QCI values 5-9 – Associated with
					nonguaranteed bit rates, the values
					specified as guaranteed and maximum
					bit rates are ignored.
		uint32	g_dl_bit_rate	4	Guaranteed DL bit rate.
		uint32	max_dl_bit_rate	4	Maximum DL bit rate.
		uint32	g_ul_bit_rate	4	Guaranteed UL bit rate.
		uint32	max_ul_bit_rate	4	Maximum UL bit rate.
Туре	0x2F			1	APN Disabled Flag
Length	1			2	1-
Value	\rightarrow	boolean	apn_disabled_flag	1 -	When this flag is set, the use of this
74.40	,	ocorcan	upii_disuoied_iiag	~	profile for making data calls is disabled.
					Any data call with this profile fails
				53 10	locally. Values:
			0:0	3.00	• 0 – FALSE (default)
			202	27	• 1 – TRUE
Туре	0x30		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	1	PDN Inactivity Timeout
Length	4		0,340	2	1 Divinactivity innecat
Value	\rightarrow	uint32	pdn_inactivity_timeout	4	Duration of the inactivity timer in
Value	,	umt32	pan_macavity_timeout	•	seconds. When a PDP context/PDN
			80		connection is inactive (that is, no data
					Rx/Tx) for this duration of time, PDP
					context/PDN connection is disconnected.
					The default setting of zero is treated as
					an infinite value.
Туре	0x31			1	APN Class
Length	1			2	711 11 (1000)
Value	\rightarrow	uint8	apn_class	1	An opaque, numeric identifier
value	\rightarrow	uiiito	apii_Ciass	1	representing the APN in the profile. This
					can be transparently set for any profile
					and queried later.
Type	0x35			1	APN Bearer **
Type	8			2	ALIN Dealer
Length		maal-	onn hoores	8	ADN boorer meet Creekees
Value	\rightarrow	mask	apn_bearer	ð	APN bearer mask. Specifies whether a
					data call is allowed on specific RAT
					types. Values:
					• 0x000000000000001 – GSM
					• 0x00000000000000002 – WCDMA
					• 0x0000000000000004 – LTE
					• 0x800000000000000 – Any

Type 0x36	Size	Parameter	Field	Field
Length 1 Doolean support_emergency_calls 1 When this flag is set, the user of emergency calls using this profivalues:	(byte)		value	
Value → boolean support_emergency_calls 1 When this flag is set, the user of emergency calls using this profivalues:			0x36	Туре
mergency calls using this profivalues:	2		1	Length
Type 0x37	1 V	support_emergency_calls	\rightarrow	Value
Type 0x37	e			
Type 0x37	V			
Type 0x37 1 Operator Reserved PCO ID ** Length 2 2 Value → uint16 op_pco_id 2 Container ID of this PCO. If of is configured, the UE sends the PCO with the container ID that configured. Once configured, the unconfigured. Type 0x38 1 Mobile Country Code ** Length 2 2 Value → uint16 pco_mcc 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 Mobile Network Code ** Length 3 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 This field is used to interpret the of the corresponding MNC repether TLVs. Values: Tris field is used to interpret the of the corresponding MNC repether TLVs. Values: TRUE – MNC is a three-digit example, a reported value of 90 corresponds to an MNC value of 90 corresponds to an MNC value of 90 corresponds to an MNC value. Type 0x3A 1 Max PDN Connections Per Tires Length 2 2 2 2 2 2 2 Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum numbe	•			
Length 2 Value → uint16 op_pco_id 2 Container ID of this PCO. If op is configured, the UE sends the PCO with the container ID that configured. Once configured, the cannot be unconfigured. Type 0x38 1 Mobile Country Code ** Length 2 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 Mobile Network Code ** Length 3 2 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. Type boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC repthe TLVs. Values: • TRUE – MNC is a three-digit example, a reported value of 90 corresponds to an MNC value	•			
Value → uint16 op_pco_id 2 Container ID of this PCO. If op is configured, the UE sends the PCO with the container ID that configured. Once configured, the cannot be unconfigured. Type 0x38 1 Mobile Country Code ** Length 2 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 Mobile Network Code ** Length 3 2 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 This field is used to interpret the of the corresponding MNC representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC representation Range: 0 to 999. FAUE – MNC is a three-digit example, a reported value of 90 corresponds to an MNC value example, a reported value of 90 corresponds to an MNC value example, a reported value of 90 corresponds to an MNC valu	1 C		0x37	Туре
Value → uint16 op_pco_id 2 Container ID of this PCO. If of is configured, the UE sends the PCO with the container ID that configured. Once configured, the cannot be unconfigured. Type 0x38 1 Mobile Country Code ** Length 2 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 Mobile Network Code ** Length 3 2 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. Type boolean mnc_includes_pcs_digit 1 This field is used to interpret the field is used to interpret the TLVs. Values:	2		2	
is configured, the UE sends the PCO with the container ID that configured. Once configured, the cannot be unconfigured. Type 0x38 Length 2 Value → uint16 pco_mcc 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 Length 3 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC representation the truty. Values: • TRUE – MNC is a three-digit example, a reported value of 90 corresponds to an MNC value of 90 corresponds to a	2 C	op pco id	\rightarrow	
Type 0x38		1-1 -		
Type 0x38				
Type 0x38				
Type 0x38 1 Mobile Country Code ** Length 2 2 Value → uint16 pco_mcc 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 Mobile Network Code ** Length 3 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the TLVs. Values:				
Length 2 Value → uint16 pco_mcc 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 Mobile Network Code ** Length 3 2 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC repthe TLVs. Values:			0x38	Type
Value → uint16 pco_mcc 2 A 16-bit integer representation Range: 0 to 999. Type 0x39 1 Mobile Network Code ** Length 3 2 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC repthe TLVs. Values:				
Type 0x39 1 Mobile Network Code ** Length 3 2 2 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC rep the TLVs. Values: • TRUE − MNC is a three-digit example, a reported value of 90 corresponds to an MNC value of 90 corresponds to		nco mee		
Type 0x39 1 Mobile Network Code ** Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC representation Range: 0 to 999. TRUE – MNC is a three-digit example, a reported value of 90 corresponds to an MNC value of FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of		peo_mee	′	value
Length 3 2 Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC rep the TLVs. Values: TRUE – MNC is a three-digit example, a reported value of 90 corresponds to an MNC value of FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 90 corresp	400		0v30	Type
Value → uint16 mnc 2 A 16-bit integer representation Range: 0 to 999. boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC representation Range: 0 to 999. TRUE – MNC is a three-digit example, a reported value of 90 corresponds to an MNC value of FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 90 corresponds to an	10			
Bange: 0 to 999.		mne		
boolean mnc_includes_pcs_digit 1 This field is used to interpret the of the corresponding MNC rep the TLVs. Values: • TRUE − MNC is a three-digit example, a reported value of 90 corresponds to an MNC value example, a reported value of 90 corresponds to an MNC value of 90 corr		mile		value
• FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 1 Max PDN Connections Per Tir ** Length 2 Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number		mno includos nos digit		
• FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 1 Max PDN Connections Per Tir ** Length 2 Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number		mile_merudes_pes_digit		
• FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 1 Max PDN Connections Per Tir ** Length 2 Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number		0, 340		
• FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 1 Max PDN Connections Per Tir ** Length 2 Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number		10 11		
• FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 1 Max PDN Connections Per Tir ** Length 2 Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number		2000		
• FALSE – MNC is a two-digit example, a reported value of 90 corresponds to an MNC value of 1 Max PDN Connections Per Tir ** Length 2 Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number		800		
type 0x3A corresponds to an MNC value of 90 corresponds to an MNC value				
Type $0x3A$ $0x$				
Type $0x3A$ 1 Max PDN Connections Per Tinger Length 2 2 Value \rightarrow uint16 max_pdn_conn_per_block 2 Specifies the maximum number				
Length 2 $**$ Value \rightarrow uint16 max_pdn_conn_per_block 2 Specifies the maximum number			0.24	
Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number			0x3A	Туре
Value → uint16 max_pdn_conn_per_block 2 Specifies the maximum number	2		2	Length
	2 S	max_pdn_conn_per_block	\rightarrow	
		. —. —		
perform with the network in a s	p			
time block. The time block size	_			
defined by a configuration item	d			
default value is 1023.				
Range: 0 to 1023.				
Type 0x3B 1 Max PDN Connections Timer			0x3B	Type
Length 2 2				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint16	max_pdn_conn_timer	2	Specifies the time duration (in seconds)
					during which the UE counts the PDN
					connections already made. The default
					value is 300.
					Range: 0 to 3600 sec.
Туре	0x3C			1	PDN Request Wait Timer **
Length	2			2	
Value	\rightarrow	uint16	pdn_req_wait_interval	2	Specifies the minimum time interval (in
					seconds) between the new PDN
					connection request and the last
					successful UE initiated PDN
				9	disconnection. The default value is 0.
_	0.25				Range: 0 to 1023 sec.
Туре	0x3D			1	3GPP Application User Data **
Length	4	: .22	12	2	
Value	\rightarrow	uint32	app_user_data_3gpp	4	An opaque, numeric identifier
				F	representing the user data in the profile.
				6	This can be transparently set for any
_	0-25			2	profile and queried later.
Туре	0x3E			31	Roaming Disallow Flag **
Length	1	la a la an	assurios discrimental	2	Consider whather the LIE is allowed to
Value	\rightarrow	boolean	roaming_disallowed	0 1	Specifies whether the UE is allowed to
			7 ° 62		connect to the APN specified by the profile while roaming.
Time	0x3F	1	0,340	1	PDN Disconnect Wait Timer **
Type Length	1		70 VII.	2	r Div Disconnect wait Timer
Value	\rightarrow	uint8	pdn_discon_wait_timer	1	Indicates the delay that the control point
value		uiiito	pun_uiscon_wait_uinci	1	expects to be available for successful
					deregistration with the network before
					the modem disconnects the PDN(s).
					When the default value of zero is
					specified, the modem disconnects the
					PDN immediately upon moving to the
					roaming network, without waiting for the
					control point. Range: 0-255 minutes.
Туре	0x40			1	DNS Address Using DHCP **
Length	1			2	
Value	\rightarrow	boolean	dns_addr_using_dhcp	1	Values:
					• 1 – TRUE – Request DNS address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0x7D			1	Common PCSCF Address Using DHCP ***
Length	1			2	
Lengui	1				

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	boolean	common_pcscf_addr_ using_dhcp	1	Values: • 1 – TRUE – Request PCSCF address using the DHCP • 0 – FALSE – Do not request (default)
Туре	0x7E			1	Common DNS Address Using DHCP **
Length	1			2	
Value	\rightarrow	boolean	common_dns_addr_using_ dhcp	1	Values: • 1 – TRUE – Request DNS address using the DHCP • 0 – FALSE – Do not request (default)
Туре	0x7F			1	Common PDP Type ** *
Length	4			2	
Value	\rightarrow	enum	common_pdp_type	4	Specifies the type of data payload exchanged over the airlink when the packet data session is established with this profile. Values: • 0 – PDP-IP (IPv4) • 1 – PDP-IPv6 • 2 – PDP-IPv4v6
Туре	0x80		.0	o. P ₁ /2	Common Application User Data **
Length	4		00.	2	
Value	\rightarrow	uint32	common_app_user_data	4	An opaque, numeric identifier representing the user data in the profile. This can be transparently set for any profile and queried later.
Туре	0x81		800	1	Common Mobile Network Code ***
Length	3			2	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC. Range: 0 to 999.
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length of the corresponding MNC reported in the TLVs. Values: • TRUE – MNC is a three-digit value; for example, a reported value of 90 corresponds to an MNC value of 090 • FALSE – MNC is a two-digit value; for example, a reported value of 90 corresponds to an MNC value of 90
Туре	0x82			1	Common Mobile Country Code ***
Length	2			2	-
Value	\rightarrow	uint16	common_pco_mcc	2	A 16-bit integer representation of MCC. Range: 0 to 999.
Туре	0x83			1	Common Operator Reserved PCO ID **
	2			2	

Field	Field value	Field type	Parameter	Size (byte)	Description	
Value	\rightarrow	uint16	common_op_pco_id	2	Container ID of this PCO. If op_pco_id is configured, the UE sends the operator PCO with the container ID that is configured. Once configured, the profile cannot be unconfigured.	
Туре	0x84			1	Common Authentication Password ***	
Length	Var			2		
Value	\rightarrow	string	common_auth_password	Var	Password used during data network authentication; maximum length allowed is 127 bytes. QMI_ERR_ARG_TOO_LONG is returned if the storage on the wireless device is insufficient in size to hold the value.	
Туре	0x85			1	Common User ID ***	
Length	Var			2		
Value	\rightarrow	string	common_user_id	Var	User ID used during data network authentication; maximum length allowed is 127 bytes. QMI_ERR_ARG_TOO_LONG is	
			78.00:0	5.4.CO.	returned if the storage on the wireless device is insufficient in size to hold the value.	
Туре	0x86		5 13	1	Common Authentication Protocol ***	
Length	1		16' Mai	2		
Value	\rightarrow	enum8	common_auth_protocol	1	Values: • 0 – None • 1 – PAP • 2 – CHAP • 3 – PAP or CHAP	
Туре	0x87			1	Common PCSCF Address Using PCO Flag ***	
Length	1			2		
Value	\rightarrow	boolean	common_is_pcscf_ address_ needed	1	Values: • 1 – TRUE – Request PCSCF address using PCO • 0 – FALSE – Do not request By default the value is 0.	
Туре	0x88			1	Common Allow/Disallow Lingering of Interface ***	
Length	3			2		
Value	\rightarrow	boolean	common_allow_linger	1	Values: • 1 – TRUE – Allow lingering • 0 – FALSE – Do not allow lingering	
Туре	0x89	uint16	common_linger_timeout	1	Value of linger timeout in milliseconds. Common Secondary DNS IPv6 Address Preference ***	

Field	Field value	Field type	Parameter	Size (byte)	Description
Length	16	typo		2	
Value	\rightarrow	uint8	common_secodnary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8A			1	Common Primary DNS IPv6 Address Preference ***
Length	16			2	
Value	\rightarrow	uint8	common_primary_dns_ ipv6_address_preference	16	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8B		'C	1	Common Secondary DNS IPv4 Address Preference ***
Length	4			20	
Value	\rightarrow	uint32	common_secondary_DNS_ IPv4_address_preference	4	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8C		20,501	1	Common Primary DNS Address Preference ***
Length	4		0	2	
Value	\rightarrow	uint32	common_primary_DNS_ IPv4_address_preference	4	Used as a preference during negotiation with the network; if not specified, the wireless device attempts to obtain the DNS address automatically from the network. The negotiated value is provided to the host via the DHCP.
Туре	0x8D			1	Common APN Class ***
Length	1			2	
Value	\rightarrow	uint8	common_apn_class	1	An opaque, numeric identifier representing the APN in the profile. The APN class can be transparently set for any profile and queried later.
Туре	0x8E			1	Common APN Disabled Flag ***
Value	<u>1</u> →	boolean	common_apn_disabled_ flag	1	Setting this flag disables the use of this profile for making data calls. Any data call with this profile fails locally. Values: • 0 – FALSE (default) • 1 – TRUE

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x90			1	Negotiate DNS Server Preference
Length	1			2	
Value	\rightarrow	boolean	negotiate_dns_server_	1	Values:
			preference		• 1 – TRUE – Request DNS address
					from the PDSN
					• 0 – FALSE – Do not request DNS
					addresses from the PDSN
					Note: Default value is 1 (TRUE).
Туре	0x91			1	PPP Session Close Timer for DO
Length	4			2	
Value	\rightarrow	uint32	ppp_session_close_timer_	4	Timer value (in seconds) on the DO
			DO		indicating how long the PPP session
					lingers before closing down.
Туре	0x92			1	PPP Session Close Timer for 1X
Length	4			2	
Value	\rightarrow	uint32	ppp_session_close_timer_	4	The timer value (in seconds) on 1X
			1x		indicating how long the PPP session
				_	lingers before closing.
Туре	0x93			100	Allow/Disallow Lingering of Interface
Length	1			2	
Value	\rightarrow	boolean	allow_linger	p. Tol.	Values:
raido	,	coolean	anow_miger	34.	• 1 – TRUE – Allow lingering
			4 3		• 0 – FALSE – Do not allow lingering
Туре	0x94	1		1	LCP ACK Timeout
Length	2	1		2	Del Heit Timeout
Value	$\stackrel{\scriptstyle 2}{\rightarrow}$	uint16	lcp_ack_timeout	2	Value of LCP ACK timeout in
Value	,	unitio	rep_dek_timeodi	_	milliseconds.
Туре	0x95		0	1	IPCP ACK Timeout
Length	2			2	II CI /ICK IIIIIcout
Value	$\xrightarrow{2}$	uint16	ipcp_ack_timeout	2	Value of IPCP ACK timeout in
Value	,	unitio	ipep_uek_timeout		milliseconds.
Туре	0x96			1	AUTH Timeout
Length	2			2	
Value	$\xrightarrow{\mathcal{L}}$	uint16	auth_timeout	2	Value of authentication timeout in
Talue	′	unit 10	addi_diffeOut		milliseconds.
Туре	0x97			1	LCP Configuration Request Retry Count
.ype	UATI			1	Value Value
Length	1			2	, and
Value	\rightarrow	uint8	lcp_creq_retry_count	1	LCP configuration request retry count
value	1	umio	rep_oreq_reny_count	1	value.
Туре	0x98			1	IPCP Configuration Request Retry Count
Length	1			2	ii er comiguration request retry count
Value		uint8	inon craa ratry count	1	IPCP configuration request retry count
value	\rightarrow	uIIIIo	ipcp_creq_retry_count	1	value.
Trens	000			1	
Type	0x99			1	AUTH Retry
Length	1	140		2	Andhantiantian material 1
Value	\rightarrow	uint8	auth_retry_count	1	Authentication retry count value.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x9A			1	Authentication Protocol
Length	1			2	
Value	\rightarrow	enum8	auth_protocol	1	Values:
					• 0 – NONE
					• 1 – PAP
					• 2 – CHAP
					• 3 – PAP or CHAP
Туре	0x9B			1	User ID
Length	Var			2	<u> </u>
Value	\rightarrow	string	user_id	Var	User ID used during data network
		_			authentication; maximum length allowed
					is 127 bytes.
					QMI_ERR_ARG_TOO_LONG is
					returned if the storage on the wireless
					device is insufficient in size to hold the
				"	value.
Туре	0x9C			1	Authentication Password
Length	Var			2 <	
Value	\rightarrow	string	auth_password	Var	Password used during data network
				3	authentication; maximum length allowed
			0.	0. 00	is 127 bytes.
			00.	E. J.	QMI_ERR_ARG_TOO_LONG is
			20 000		returned if the storage on the wireless
			5,00		device is insufficient in size to hold the
			auth_password		value.
Туре	0x9D		20,000	1	Data Rate
Length	1		200	2	
Value	\rightarrow	enum8	data_rate	1	Values:
					• 0 – Low (Low speed service options
					(SO15) only)
					• 1 – Medium (SO33 + low R-SCH)
					• 2 – High (SO33 + high R-SCH)
					Note: Default is 2.
Туре	0x9E			1	Application Type
Length	4			2	
Value	\rightarrow	enum	app_type	4	Values:
					• 0x00000001 – Default application type
					• 0x00000020 – LBS application type
					• 0x00000040 – Tethered application
					type
					Note: Application type value in a profile
					cannot be modified. It can only be used
					to search for the profile ID numbers that
	_				have the specified application type.
Туре	0x9F			1	Data Mode
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	data_mode	1	Values:
					• 0 – CDMA or HDR (Hybrid
					1X/1xEV-DO)
					• 1 – CDMA only (1X only)
					• 2 – HDR only (1xEV-DO only)
					Note: Default is 0.
Туре	0xA0			1	Application Priority
Length	1			2	
Value	\rightarrow	uint8	app_priority	1	Numerical one byte value defining the
					application priority; higher value means
					higher priority.
					Note: Application priority value in a
					profile cannot be modified. It is listed for
					future extensibility of profile ID search
					based on application priority.
Туре	0xA1			1	APN String
Length	Var			2	
Value	\rightarrow	string	apn_string	Var	String representing the access point
		υ	1 = 0	00	name; maximum length allowed is 100
				27 8	bytes. QMI_ERR_ARG_TOO_LONG is
				53.00	returned if the APN name is too long.
Туре	0xA2		20.	341	PDN Type
Length	1		18 15	2	
Value	\rightarrow	enum8	pdn_type	1	Values:
			1 = 31		• 0 – IPv4 PDN type
			070 11		• 1 – IPv6 PDN type
			2,50		• 2 – IPv4 or IPv6 PDN type
			0,,		• 3 – Unspecified PDN type (implying no
					preference)
Туре	0xA3			1	Is PCSCF Address Needed
Length	1			2	10.1 0.5 0.1 1.100.100.1
Value	\rightarrow	boolean	is_pcscf_address_needed	1	Used to control whether the PCSCF
	•		_1		address is requested from PDSN. Values:
					• 1 – TRUE – Request for PCSCF value
					from the PDSN
					• 0 – FALSE – Do not request for
					PCSCF value from the PDSN
Туре	0xA4			1	IPv4 Primary DNS Address
Length	4			2	2
Value	\rightarrow	uint32	primary_v4_dns_address	4	The primary IPv4 DNS address that can
value	′	umtsz	primary_v=_ans_address	_ T	be statically assigned to the UE.
Туре	0xA5			1	IPv4 Secondary DNS Address
Length	4			2	11 v + occondary Divo Addices
Value	$\stackrel{+}{\longrightarrow}$	uint32	secondary_v4_dns_address	4	The secondary IPv4 DNS address that
value	\rightarrow	umtsz	secondary_v4_uns_address	+	can be statically assigned to the UE.
Time	0xA6			1	
Type					Primary IPv6 DNS Address
Length	16			2	

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)		
Value	\rightarrow	uint8	primary_v6_dns_address	16	The primary IPv6 DNS address that can	
					be statically assigned to the UE.	
Туре	0xA7			1	Secondary IPv6 DNS Address	
Length	16			2		
Value	\rightarrow	uint8	secondary_v6_dns_address	16	The secondary IPv6 DNS address that	
					can be statically assigned to the UE.	
Туре	0xA8			1	RAT Type	
Length	1			2		
Value	\rightarrow	enum8	rat_type	1	Values:	
					• 1 – HRPD	
					• 2 – EHRPD	
					• 3 – HRPD_EHRPD	
Туре	0xA9			1	APN Enabled	
Length	1			2		
Value	\rightarrow	boolean	apn_enabled_3gpp2	1	APN enabled is a flag to specify whether	
					the APN in that profile is enabled or	
					disabled. If the APN is disabled, the data	
				_	call cannot be established using that	
				60	APN. Values:	
				3	• 1 – Enabled (default value)	
			0.	0. 0//	• 0 – Disabled	
Туре	0xAA		00,	e 1	PDN Inactivity Timeout	
Length	4		\$ 64°	2		
Value	\rightarrow	uint32	pdn_inactivity_timeout_	4	The duration of inactivity timer in	
			3gpp2		minutes. When a PDP context/PDN	
			30, 20.		connection is inactive (that is, no data	
			3gpp2		Rx/Tx) for this duration of time, the PDP	
					context/PDN connection is disconnected.	
					The default setting of zero is treated as	
					an infinite value.	
Туре	0xAB			1	APN Class	
Length	1			2		
Value	\rightarrow	uint8	apn_class_3gpp2	1	An opaque, numeric identifier	
					representing the APN in the profile. This	
					can be transparently set for any profile	
					and queried later.	
Туре	0xAD			1	PDN Level Auth Protocol *	
Length	1			2		

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	pdn_level_auth_protocol	1	Authentication protocol used during
					PDN level authentication. Values:
					• WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_NONE (0) -
					• WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_PAP (1) –
					WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_CHAP (2) –
					WDS_PROFILE_PDN_LEVEL_
					AUTH_PROTOCOL_PAP_CHAP (3) -
Туре	0xAE			1	PDN Level User ID *
Length	Var			2	
Value	\rightarrow	string	pdn_level_user_id	Var	User ID used during PDN level
					authentication. Maximum length
					allowed is 127 bytes.
Туре	0xAF			1	PDN Level Auth Password *
Length	Var			2	
Value	\rightarrow	string	pdn_level_auth_password	Var	Password used during PDN level
				0	authentication. Maximum length
				3	allowed is 127 bytes.
Туре	0xB0		0.	5. TOL.	PDN Label *
Length	Var		00.	2	
Value	\rightarrow	string	pdn_label	Var	Logical name used to map the APN
			5 19		name for selecting the packet data
			pdn_label		network. Maximum length allowed is
			20,00		100 bytes.
Туре	0xBD		80,	1	Operator Reserved PCO ID *
Length	2			2	
Value	\rightarrow	uint16	op_pco_id_3gpp2	2	Container ID of this PCO. If op_pco_id
					is configured, the UE sends the operator
					PCO with the container ID that is
					configured. Once configured, the profile
					cannot be unconfigured.
Туре	0xBE			1	Mobile Country Code *
Length	2			2	
Value	\rightarrow	uint16	pco_mcc_3gpp2	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
Туре	0xBF			1	Mobile Network Code *
Length	3			2	
Value	\rightarrow	uint16	mnc	2	A 16-bit integer representation of MNC.
					Range: 0 to 999.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length
					of the corresponding MNC reported in
					the TLVs. Values:
					• TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
Туре	0xC0			1	PDN Throttling Timer 1-6 *
Length	24			2	
Value	\rightarrow	uint32	failure_timer	24	The back-off time (in seconds) to be
			_		used after a PDN connection or IP
					address assignment failure. For example,
					immediately following a third
			A (30	consecutive PDN connection request
					failure, the UE waits failure_timer[2]
				,	seconds before sending the fourth
				~ (O	request. Following failures of six or
				~ × ×	greater, failure_timer[5] is used.
Туре	0xC1			6. 75°	PDN Disallow Timer 1-6 *
Length	24		20:	2	
Value	\rightarrow	uint32	disallow_timer	24	The back-off time (in seconds) to be
			2016 OF HAILING A		used after the network refuses to grant
		1	C. C. Sales		the requested IP address type, such as
			70 111		when an IPv6 address is requested from
			22,000		a network that only grants IPv4 address.
			0.0		For example, immediately after a third
					consecutive PDN connection request is
					denied, the UE waits disallow_timer[2]
					seconds before sending the fourth
					request. Following failures of six or
					greater, disallow_timer[5] is used.
Туре	0xC2			1	3GPP2 Application User Data *
Length	4			2	11
Value	\rightarrow	uint32	app_user_data_3gpp2	4	An opaque, numeric identifier
			11		representing the user data in the profile.
					This can be transparently set for any
					profile and queried later.
Туре	0xC3			1	PCSCF Address Using DHCP 3GPP2 *
Length	1			2	
Value	\rightarrow	boolean	pcscf_addr_using_dhcp_	1	Values:
			3gpp2		• 1 – TRUE – Request PCSCF address
					using the DHCP
					• 0 – FALSE – Do not request (default)
Туре	0xC4			1	DNS Address Using DHCP *
Length	1			2	
_c.ig.ii					

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)		
Value	\rightarrow	boolean	dns_addr_using_dhcp_	1	Values:	
			3gpp2		• 1 – TRUE – Request DNS address	
					using the DHCP	
					• 0 – FALSE – Do not request (default)	
Туре	0xDF			1	IPv6 Prefix Delegation Flag * **	
Length	1			2		
Value	\rightarrow	boolean	ipv6_prefix_delegation	1	Enables IPv6 prefix delegation. Values:	
					• 0 – FALSE (default)	
					• 1 – TRUE	
Туре	0xE0			1	Profile Extended Error Code	
Length	2			2		
Value	\rightarrow	enum16	extended_error_code	2	Extended error code received from the	
					DS profile subsystem. These error codes	
					are explained in Appendix C.	

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_PROFILE_TYPE	Profile type specified was invalid
QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code
7,80	from the DS profile is populated in an additional optional
<u> </u>	TLV

3.21.3 Description of QMI_WDS_GET_DEFAULT_SETTINGS REQ/RESP

This command retrieves the default settings used when starting a data session without referencing a configured profile.

The default settings are the requested values for the call parameters. The normal negotiations that occur during data session setup can result in differing runtime settings.

The Password TLV is not returned for 3GPP2 security reasons. The default profile settings are technology-specific.

TLV values 0xE1 through 0xEA are reserved for OEM use.

3.22 QMI WDS GET RUNTIME SETTINGS

Retrieves the packet data session settings currently in use.

WDS message ID

0x002D

Version introduced

Major - 1, Minor - 2

Request - QMI_WDS_GET_RUNTIME_SETTINGS_REQ 3.22.1

Message type

Optional TLVs

Request		W.	
Sender		O ,	
Control point			
Mandatory TLVs		631 M. 14	
None	00:	OG.3. TOWN	
Optional TLVs	(1) (2) (2) (2) (2) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	5	
	Name	Version introduced	Version last modified
Requested Settings	J. 750/	Unknown	1.37

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Requested Settings
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Field			Parameter requested_settings	(byte)	Set bits to 1, corresponding to requested information. All other bits must be set to 0. If the values are not available, the corresponding TLVs are not returned in the response. Absence of this mask TLV results in the device returning all of the available information corresponding to bits 0 through 12. In cases where the information from bit 13 or greater is required, this TLV with all the necessary bits set must be present in the request. Values: Bit 0 – Profile identifier Bit 1 – Profile name Bit 2 – PDP type Bit 3 – APN name Bit 4 – DNS address Bit 5 – UMTS/GPRS granted QoS Bit 6 – Username Bit 7 – Authentication Protocol Bit 8 – IP address Bit 9 – Gateway information (address and subnet mask) Bit 10 – PCSCF address using PCO flag
			Ole Of Thange		and subnet mask)
			2 deals		
					• Bit 12 – PCSCF domain name list
					• Bit 13 – MTU
					• Bit 14 – Domain name list
					• Bit 15 – IP family
					• Bit 16 – IM_CM flag
					• Bit 17 – Technology name
					• Bit 18 – Operator reserved PCO

3.22.2 Response - QMI_WDS_GET_RUNTIME_SETTINGS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified	
Profile Name **	Unknown	1.2	
PDP Type **	Unknown	1.2	
Context Access Point Node Name **	Unknown	1.2	
Primary DNS Address Preference * **	Unknown	1.2	
Secondary DNS Address Preference * **	Unknown	1.2	
UMTS Requested QoS **	Unknown	1.2	
GPRS Requested QoS **	Unknown	1.2	
Username **	Unknown	1.2	
Authentication Preference **	Unknown	1.2	
IPv4 Address Preference * **	Unknown	1.2	
Profile Identifier **	Unknown	1.2	
IPv4 Gateway Address * **	Unknown	1.2	
IPv4 Subnet Mask * **	Unknown	1.2	
PCSCF Address Using PCO Flag **	Unknown 1.3		
PCSCF IPv4 Server Address List **	Unknown	1.3	
PCSCF FQDN List **	Unknown	1.3	
IPv6 Address * **	Unknown	1.9	
IPv6 Gateway Address * **	Unknown	1.9	
Primary IPv6 DNS Address * **	Unknown	1.7	
Secondary IPv6 DNS Address * **	Unknown	1.7	
MTU * **	Unknown	1.8	
Domain Name List * **	Unknown	1.8	
IP Family * **	Unknown	1.8	
IM CN Flag *	Unknown 1.8		
Technology Name * **	Unknown	1.25	
PCSCF IPv6 Address List * **	Unknown	1.11	
Operator Reserved Protocol Information * **	1.37	1.37	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Name **
Length	Var			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	string	profile_name	Var	One or more bytes describing the profile.
					The description can be a user-defined
					name for the profile.
					QMI_ERR_ARG_TOO_LONG is
					returned when the profile_name is too
					long
Type	0x11			1	PDP Type **
Length	1			2	
Value	\rightarrow	enum8	pdp_type	1	The PDP type specifies the type of data
					payload exchanged over the airlink when
					the packet data session is established
					with this profile. Values:
					• 0 – PDP-IP (IPv4)
					• 1 – PDP-PPP
					• 2 – PDP-IPv6
			40	3"	• 3 – PDP-IPv4v6
Туре	0x14			1	Context Access Point Node (APN)
					Name **
Length	Var			200	
Value	\rightarrow	string	apn_name	Var	Access point name – String parameter
		C		ey com	that is a logical name used to select the
			20:0	34.	GGSN and external packet data network.
			3 3		If the value is NULL or omitted, the
			~ ~ ~ @ °		subscription default value is requested.
		1	CO Value		QMI_ERR_ARG_TOO_LONG is
			016.05.18.00:00		returned if the APN name is too long.
Туре	0x15		2,50	1	Primary DNS Address Preference * **
Length	4			2	
Value	\rightarrow	uint32	primary_DNS_IPv4_	4	Value used as a preference during
			address_preference		negotiation with the network; if not
			_ı		specified, the wireless device attempts to
					obtain the DNS address automatically
					from the network. The negotiated value
					is provided to the host via DHCP.
Туре	0x16			1	Secondary DNS Address Preference * **
Length	4			2	Secondary 2118 11001000 110101010
Value	\rightarrow	uint32	secondary_DNS_IPv4_	4	Value used as a preference during
		5.111.52	address_preference	.	negotiation with the network; if not
			protetoneo		specified, the wireless device attempts to
					obtain the DNS address automatically
					from the network. The negotiated value
					is provided to the host via DHCP.
Type	0x17			1	UMTS Requested QoS **
Type				2	OWITS Requested Qus
Length	33				

Field	Field	Field	Parameter	Size	Description
	value	type	, cc 1	(byte)	TD CC 1 X/1
Value	\rightarrow	enum8	traffic_class	1	Traffic class. Values:
					• 0 – Subscribed
					• 1 – Conversational
					• 2 – Streaming
					• 3 – Interactive
					• 4 – Background
		uint32	max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		uint32	max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		uint32	guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		uint32	guaranteed_downlink_	4	Guaranteed downlink bit rate in bits per
			bitrate		second.
		enum8	qos_delivery_order	1	Values:
					• 0 – Subscribe
				;	• 1 – Delivery order on
					• 2 – Delivery order off
		uint32	max_sdu_size	4,0	Maximum SDU size.
		enum8	sdu_error_ratio	31	Target value for the fraction of SDUs lost
			0.	0. '0/,	or detected as erroneous. Values:
			00.	E.J.	• 0 – Subscribe
			Nº 645		• $1 - 1x10^2$
			5,00		• $2 - 7x10^3$
			6. (13)		• $3 - 1 \times 10^3$
			20,00		• $4 - 1x10^4$
			2016.05.18.00.85		\bullet 5 - 1x10 ⁵
					\bullet 6 – 1x10 ⁶
					• $7 - 1 \times 10^1$
		enum8	residual_bit_error_ratio	1	Target value for the undetected bit error
					ratio in the delivered SDUs. Values:
					• 0 – Subscribe
					• $1 - 5x10^2$
					• $2 - 1 \times 10^2$
					• $3 - 5x10^3$
					• $4 - 4x10^3$
					• $5 - 1 \times 10^3$
					• $6 - 1 \times 10^4$
					• $7 - 1 \times 10^5$
					• $8 - 1 \times 10^6$
					• $9 - 6x10^8$
		enum8	delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates
					whether SDUs detected as erroneous are
					delivered or not. Values:
					• 0 – Subscribe
					• 1 – No detection
					• 2 – Erroneous SDU is delivered
					• 3 – Erroneous SDU is not delivered

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	transfer_delay	4	Transfer delay (ms). Indicates the
					targeted time between a request to
					transfer an SDU at one SAP to its
					delivery at the other SAP, in
					milliseconds; if the parameter is set to 0,
					the subscribed value is requested.
		uint32	traffic_handling_priority	4	Traffic handling priority. Specifies the
					relative importance for handling of
					SDUs that belong to the UMTS bearer,
					compared to the SDUs of other bearers.
					If the parameter is set to 0, the
					subscribed value is requested.
Туре	0x19			1	GPRS Requested QoS **
Length	20			2	
Value	\rightarrow	uint32	precedence_class	4	Precedence class
		uint32	delay_class	4	Delay class
		uint32	reliability_class	4	Reliability class
		uint32	peak_throughput_class	4 <	Peak throughput class
		uint32	mean_throughput_class	4,0	Mean throughput class
Туре	0x1B			21	Username **
Length	Var		.0	2,77	
Value	\rightarrow	string	username	Var	Username used during data network
			20 000		authentication.
			5,00		QMI_ERR_ARG_TOO_LONG is
			6.6,4131		returned if the storage on the wireless
			20,000		device is insufficient in size to hold the
			200		value.
Туре	0x1D				Authentication Preference **
Length	1			2	
Value	\rightarrow	mask8	authentication_preference	1	A bit map that indicates the
					authentication algorithm preference.
					Values:
					Bit 0 – PAP preference:
					• 0 – PAP is never performed
					• 1 – PAP can be performed
					Bit 1 – CHAP preference:
					• 0 – CHAP is never performed
					• 1 – CHAP can be performed
					All other bits are reserved and are
					ignored.
					If more than one bit is set, the device
					decides which authentication procedure
					is performed while setting up the data
					session. For example, the device can
					have a policy to select the most secure
T.	0-15			1	authentication mechanism.
Туре	0x1E			1	IPv4 Address Preference * **

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	4			2	
Value	\rightarrow	uint32	ipv4_address_preference	4	Preferred IPv4 address assigned to the
					TE. The actual assigned address is
					negotiated with the network and can
					differ from this value. If not specified,
					the IPv4 address is obtained
					automatically from the network. The
					assigned value is provided to the host via
					DHCP.
Туре	0x1F			1	Profile Identifier **
Length	2			2	
Value	\rightarrow	enum8	profile_type	1	Values:
					• 0 – PROFILE_TYPE_3GPP – 3GPP
		uint8	profile_index	1	Index of the profile whose settings are
					loaded before session parameter
					negotiation for the current call; if this
				1	TLV is not present, the data call
				_	parameters are based on the device
				80	default settings for each parameter.
Туре	0x20			31 3	IPv4 Gateway Address * **
Length	4		.0.	2	
Value	\rightarrow	uint32	ipv4_gateway_addr	24	Gateway address.
Туре	0x21		\$ 645	1	IPv4 Subnet Mask * **
Length	4		5/10	2	
Value	\rightarrow	uint32	ipv4_subnet_mask	4	Subnet mask.
Туре	0x22		20, 20,	1	PCSCF Address Using PCO Flag **
Length	1		200	2	
Value	\rightarrow	boolean	pcscf_addr_using_pco	1	Values:
					• 1 – TRUE – PCSCF address is
					requested using PCO
					• 0 – FALSE – It is not requested
Туре	0x23			1	PCSCF IPv4 Server Address List **
					PCSCF IPv4 server address.
Length	Var			2	
Value	\rightarrow	uint8	pcscf_ipv4_addr_list_len	1	Number of sets of the following
			_		elements:
					• pcscf_ipv4_address
		uint32	pcscf_ipv4_address	4	PCSCF IPv4 server address.
Туре	0x24		-	1	PCSCF FQDN List **
Length	Var			2	
Value	\rightarrow	uint8	fqdn_list_len	1	Number of sets of the following
					elements:
					• fqdn_len
					• fqdn
		uint16	fqdn_len	2	Number of sets of the following
			. –		elements:
					• fqdn
					174

Field	Field	Parameter	Size	Description
value	type		(byte)	
	string	fqdn	Var	FQDN string.
0x25			1	IPv6 Address * **
17			2	
\rightarrow	uint8	ipv6_addr	16	IPv6 address (in network byte order).
				The address is an 16-element array of
				8-bit numbers, each of which is in
				big-endian format.
	uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits.
				Range: 0 to 128.
0x26			1	IPv6 Gateway Address * **
17			2	
\rightarrow	uint8	ipv6_addr	16	IPv6 address (in network byte order).
				The address is an 16-element array of
				8-bit numbers, each of which is in
				big-endian format.
	uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits.
				Range: 0 to 128.
0x27			1 🗸	Primary IPv6 DNS Address * **
16			200	
\rightarrow	uint8	primary_dns_IPv6_address	16	Primary IPv6 DNS address in network
			0.00	byte order; an 8-element array of 16-bit
		0:0	34.	numbers, each of which is in big-endian
		18 25		format.
0x28		57,00	1	Secondary IPv6 DNS Address * **
16		6, 100	2	
\rightarrow	uint8	secondary dns IPv6	16	Secondary IPv6 DNS address in network
		address		byte order; an 8-element array of 16-bit
		Ų.		numbers, each of which is in big-endian
				format.
0x29			1	MTU * **
4			2	
\rightarrow	uint32	mtu	4	MTU.
0x2A			1	Domain Name List * **
			2	
	uint8	domain name list len	1	Number of sets of the following
			-	elements:
				domain_name_len
				• domain_name
		ı	2	_
	uint16	domain name len	2	Number of sets of the following
	uint16	domain_name_len	2	Number of sets of the following elements:
	uint16	domain_name_len	2	elements:
				elements: • domain_name
0x2B	uint16	domain_name_len domain_name	Var	elements: • domain_name Domain name.
0x2B			Var 1	elements: • domain_name
1	string	domain_name	Var 1 2	elements: • domain_name Domain name. IP Family * **
			Var 1	elements: • domain_name Domain name.
	$\begin{array}{c} \text{value} \\ \hline 0x25 \\ 17 \\ \hline \rightarrow \\ \\ 0x26 \\ \hline 17 \\ \hline \rightarrow \\ \\ 0x27 \\ \hline 16 \\ \hline \rightarrow \\ \\ 0x28 \\ \hline 16 \\ \hline \rightarrow \\ \\ 0x29 \\ \hline 4 \\ \\ \end{array}$	valuetype $0x25$ 17 \rightarrow uint8 $uint8$ $0x26$ 17 \rightarrow uint8 $uint8$ $0x27$ 16 \rightarrow uint8 $0x28$ 16 \rightarrow uint8 $0x28$ 16 \rightarrow uint8	value type string fqdn 0x25	value type (byte) 0x25 1 17 2 → uint8 ipv6_addr uint8 ipv6_prefix_length 1 0x26 1 1 17 2 2 → uint8 ipv6_prefix_length 1 0x27 1 1 16 2 2 → uint8 primary_dns_IPv6_address 16 0x28 1 1 0x28 1 2 → uint8 secondary_dns_IPv6_address 16 0x28 1 2 → uint8 secondary_dns_IPv6_address 16 0x29 1 2 → uint32 mtu 4 0x2A 1 2 → uint8 domain_name_list_len 1

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x2C			1	IM CN Flag *
Length	1			2	
Value	\rightarrow	boolean	im_cn_flag	1	Values:
					• 0 – FALSE
					• 1 – TRUE
Туре	0x2D			1	Technology Name * **
Length	2			2	
Value	\rightarrow	enum16	technology_name	2	Technology on which current packet data
					session is in progress. Values:
					• -32767 – CDMA
					• -32764 – UMTS
					• -30592 – EPC
					• -30584 – Modem Link Local
					EPC is a logical interface to support
					LTE/eHRPD handoff. It is returned if the
					device supports IP session continuity.
				3	Modem Link Local is an interface for
				_	transferring data between entities on the
				\$V	AP and modem.
Туре	0x2E			31	PCSCF IPv6 Address List * ** PCSCF
			.0	0, 00,	IPv6 server address (in network byte
			00.	64.	order); An 8-element array of 16-bit
			72 845	•	numbers, each of which is in big endian
	* 7		05, 10,	2	format.
Length	Var	• .0		2	
Value	\rightarrow	uint8	pcscf_ipv6_addr_list_len	1	Number of sets of the following
			95		elements:
				1.6	• pcscf_ipv6_addr
		uint8	pcscf_ipv6_addr	16	PCSCF IPv6 server address (in network
					byte order); this is an 8-element array of
					16-bit numbers, each of which is in
Time	0x2F			1	big-endian format Operator Reserved Protocol Information
Туре	UX2F			1	* **
					Operator reserved PCO information that
					the device retrieved from the network. If
					there is no information available, a value
					of 0 is returned.
Length	Var			2	
Value	\rightarrow	uint16	mcc	2	A 16-bit integer representation of MCC.
					Range: 0 to 999.
		uint16	mnc	2	A 16-bit integer representation of MNC.
					Range: 0 to 999.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		boolean	mnc_includes_pcs_digit	1	This field is used to interpret the length
					of the corresponding MNC reported in
					the TLV. Values:
					• TRUE – MNC is a three-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 090
					• FALSE – MNC is a two-digit value; for
					example, a reported value of 90
					corresponds to an MNC value of 90
		uint8	app_specific_info_len	1	Number of sets of the following
					elements:
					• app_specific_info
		uint8	app_specific_info	Var	Points to the application-specific
					information from the network. The
					format for this field complies with 3GPP
				7"	TS 24.008. The field is populated in this
					format for both 3GPP and 3GPP2.
		uint16	container_id	2	Container ID of this PCO.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the client or the
7.0.	message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.22.3 Description of QMI_WDS_GET_RUNTIME_SETTINGS REQ/RESP

This command retrieves the settings for the current data session. Note that these settings might not be identical to the referenced profile number, since the settings are negotiated with the network and the assigned values from the network can be different from the profile values. Also, some of the profile values can be overridden in the QMI_WDS_START_NETWORK_INTERFACE request, hence the preferred values are a combination of the profile values and those overrides.

The runtime settings are those in use for an active data session. If no data session has been started, there are no runtime settings. Password TLV is not returned.

3.23 QMI WDS SET MIP MODE

Sets the current Mobile IP mode setting for the device.

WDS message ID

0x002E

Version introduced

Major - 1, Minor - 3

Request - QMI_WDS_SET_MIP_MODE_REQ 3.23.1

Mandatory TLVs

	Name	15,00	ersion introduced	Version last modified
Mobile IP Mode *		20 000 D	Unknown	1.3

3.23.1	3.23.1 Request - QMI_WDS_SET_MIP_MODE_REQ					
Message	e type			- 1		
Request						
Sender	Sender					
Control	point					
Mandato	ory TLVs	;	"ID"	63,0KL	Th'	
		Na	ame	Version	on introduced	Version last modified
Mobile	IP Mod	le *	Nº 6	o T	Jnknown	1.3
			6.05 range			
Field	Field	Field	Parameter	Size	С	Description
	value	type	100	(byte)		
Туре	0x01			1	Mobile IP Mode *	
Length	1			2		
Value	\rightarrow	enum8	mip_mode	1	Values:	
					• $0 - MIP off (s)$	_
					• 1 – MIP prefer	rred

Optional TLVs

None

3.23.2 Response - QMI_WDS_SET_MIP_MODE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	6 28
QMI_ERR_NO_EFFECT	Specified Mobile IP setting is already in effect

3.23.3 Description of QMI_WDS_SET_MIP_MODE REQ/RESP

This command sets the current mobile IP setting for the device.

Mobile IP settings only apply to some devices on CDMA networks. Attempts to set the mobile IP setting for a device that does not support it returns a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

If the mobile IP setting is already set to the specified value, a QMI_ERR_NO_EFFECT error is returned.

Success of this command indicates that the mobile IP setting has changed on the device.

3.24 QMI WDS GET MIP MODE

Queries the provisioned Mobile IP mode setting from the device.

WDS message ID

0x002F

Version introduced

Major - 1, Minor - 3

3.24.1 Request - QMI_WDS_GET_MIP_MODE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.24.2 Response - QMI_WDS_GET_MIP_MODE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

Name	Version introduced	Version last modified
Mobile IP Mode *	Unknown	1.3

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Mobile IP Mode *
Length	1			2	
Value	\rightarrow	enum8	mip_mode	1	Values:
					• 0 – MIP off (simple IP only)
					• 1 – MIP preferred
					• 2 – MIP only

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	633 1613

3.24.3 Description of QMI_WDS_GET_MIP_MODE REQ/RESP

This command queries the Mobile IP Mode setting for the device.

Mobile IP settings only apply to CDMA networks. Attempts to read the mobile IP setting in GSM/UMTS return a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.25 QMI WDS GET DORMANCY STATUS

Queries the current traffic channel status.

WDS message ID

0x0030

Version introduced

Major - 1, Minor - 3

3.25.1 Request - QMI_WDS_GET_DORMANCY_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.25.2 Response - QMI_WDS_GET_DORMANCY_STATUS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

Name	Version introduced	Version last modified
Dormancy status	Unknown	1.3

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Dormancy status
Length	1			2	
Value	\rightarrow	enum8	dormancy_status	1	Values:
					• 1 – Traffic channel dormant
					• 2 – Traffic channel active

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Dormancy status cannot be returned, because the call is not
	up
QMI_ERR_INFO_UNAVAILABLE	Dormancy status information is unavailable at this point
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible subscription)

3.25.3 Description of QMI_WDS_GET_DORMANCY_STATUS REQ/RESP

This command queries the state of the traffic channel. It returns dormant or active based on the traffic channel state, implying that the data connection must be established to obtain a valid traffic channel state.

3.26 QMI WDS GET AUTOCONNECT SETTING

Queries autoconnect settings.

WDS message ID

0x0034

Version introduced

Major - 1, Minor - 12

3.26.1 Request - QMI_WDS_GET_AUTOCONNECT_SETTING_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.26.2 Response - QMI_WDS_GET_AUTOCONNECT_SETTING_RESP

Message type

Response

Sender

Service

Mandatory TLVs

Name	Version introduced	Version last modified
Autoconnect Setting	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Autoconnect Setting
Length	1			2	
Value	\rightarrow	enum8	autoconnect_setting	1	Values:
					• 0x00 – Autoconnect disabled
					• 0x01 – Autoconnect enabled
					• 0x02 – Autoconnect paused (resume on
					power cycle)

Name	Version introduced	Version last modified
Autoconnect Roam Setting	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Autoconnect Roam Setting
Length	1			2	
Value	\rightarrow	enum8	autoconnect_roam_setting	, J .	Values:
				63.00	• 0x00 – Autoconnect always allowed
			0:0	-4.C	• 0x01 – Autoconnect while in home
			9 3		service area only
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Note: If inactive, this TLV is not
		1	0, 340		included in the response and the device
			70 Tu		defaults to use $0x00$ – Autoconnect
			2000		always allowed.
			200		Note: autoconnect_roam_setting is only
					used while autoconnect is enabled.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.26.3 Description of QMI_WDS_GET_AUTOCONNECT_SETTING REQ/RESP

This command queries the current autoconnect state and settings.

The autoconnect state and settings take effect immediately and persist over device power cycles. A successful request to change the autoconnect state can modify the packet_data_connection_state shared state variable, described in Section 2.5.1).

If autoconnect is disabled, the device does not attempt to automatically initiate a data call; clients must do so by issuing requests to QMI_WDS_START_NETWORK_INTERFACE.

The autoconnect enabled state causes the session to automatically reconnect if the packet data session is disconnected for any reason.

The autoconnect paused state allows autoconnect to be temporarily disabled until the next time the device is power cycled. When power cycled, the setting automatically changes to autoconnect enabled, and autoconnect behavior resumes.

If autoconnect roam setting is set to home-only, the device does not automatically initiate a data call if the device is not in a home service area. If a data call is active and the device moves out of a home service area, the data call is not be stopped automatically. Autoconnect support only resumes when the device is returned to the home service area.

3.27 QMI WDS GET CALL DURATION

Queries the duration of the current call.

WDS message ID

0x0035

Version introduced

Major - 1, Minor - 4

3.27.1 Request - QMI_WDS_GET_CALL_DURATION_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.27.2 Response - QMI_WDS_GET_CALL_DURATION_RESP

Message type

Response

Sender

Service

Mandatory TLVs

Name	Version introduced	Version last modified
Call Duration	Unknown	1.4

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Call Duration
Length	8			2	
Value	\rightarrow	uint64	call_duration	8	Call duration in milliseconds

Name	Version introduced	Version last modified
Last Call Duration	Unknown	1.4
Call Active Duration	Unknown	1.8
Last Call Active Duration	Unknown	1.8

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10		4	1	Last Call Duration
Length	8			2	
Value	\rightarrow	uint64	last_call_duration	8	Call duration in milliseconds of the last
				00	data call since device was powered up
				27 1	(zero if no call was made); returned only
				5. 00	if not in a call.
Type	0x11		0:5	T.E.	Call Active Duration
Length	8		4 3	2	
Value	\rightarrow	uint64	call_active_duration	8	Duration that the current call was active,
			C.O. Walley		in milliseconds; returned only if in a call.
Туре	0x12		07.77	1	Last Call Active Duration
Length	8		120	2	
Value	\rightarrow	uint64	last_call_active_duration	8	Duration that the last data call was
					active, in milliseconds, since the device
					was powered up (zero if no call has been
					made); returned only if not in a call.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Call duration cannot be returned, because the call is not up
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.27.3 Description of QMI WDS GET CALL DURATION REQ/RESP

This command queries the duration of the current call in milliseconds. The number of milliseconds that the call was active (in active not dormant state) is also returned.

If the error code returned is QMI_ERR_OUT_OF_CALL, the last call duration TLVs are present in QMI_WDS_GET_CALL_DURATION_RESP.



3.28 QMI_WDS_GET_DATA_BEARER_TECHNOLOGY

Queries the current data bearer technology. (Deprecated)

WDS message ID

0x0037

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 40

3.28.1 Request - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.28.2 Response - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_RESP

Message type

Response

Sender

Service

Mandatory TLVs

Name	Version introduced	Version last modified	
Data Bearer Technology	1.12	1.30	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Data Bearer Technology
Length	1			2	
Value	\rightarrow	enum8	data_bearer_tech	1	Values:
					• 0x01 – cdma2000 [®] 1X
					• 0x02 – cdma2000 [®] HRPD (1xEV-DO)
					• $0x03 - GSM$
					• 0x04 – UMTS
					• 0x05 – cdma2000® HRPD (1xEV-DO
					RevA)
					• 0x06 – EDGE
					• 0x07 – HSDPA and WCDMA
					• 0x08 – WCDMA and HSUPA
					• 0x09 – HSDPA and HSUPA
					• 0x0A – LTE
					• 0x0B – cdma2000 [®] EHRPD
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• 0x0C – HSDPA+ and WCDMA
					• 0x0D – HSDPA+ and HSUPA
				_	• 0x0E – DC_HSDPA+ and WCDMA
				0	 0x0F – DC_HSDPA+ and HSUPA
				27 "	• 0x10 – HSDPA+ and 64QAM
				0.00	• 0x11 – HSDPA+, 64QAM and HSUPA
			0.0	04.	• 0x12 – TDSCDMA
			3 3		• 0x13 – TDSCDMA and HSDPA
			1 4 5/ \@"		• 0x14 – TDSCDMA and HSUPA
		1	6.0 Halls		• -1 – Unknown

Name	Version introduced	Version last modified
Last Call Data Bearer Technology	1.12	1.30

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Last Call Data Bearer Technology
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	last_call_data_bearer_tech	1	Returned only if not in a call and when
					the previous call was made using RmNet
					(for any devices that support
					QMI_WDS_GET_DUN_CALL_INFO).
					Values:
					• 0x01 – cdma2000 [®] 1X
					• 0x02 – cdma2000 [®] HRPD (1xEV-DO)
					• 0x03 – GSM
					• 0x04 – UMTS
					• 0x05 – cdma2000 [®] HRPD (1xEV-DO
					RevA)
					• 0x06 – EDGE
					• 0x07 – HSDPA and WCDMA
					• 0x08 – WCDMA and HSUPA
					• 0x09 – HSDPA and HSUPA
				3"	• 0x0A – LTE
					• 0x0B – cdma2000® EHRPD
					• 0x0C – HSDPA+ and WCDMA
				00	• 0x0D – HSDPA+ and HSUPA
				27 1	• 0x0E – DC_HSDPA+ and WCDMA
				5. of	• 0x0F – DC_HSDPA+ and HSUPA
			20:0	a. J.	• 0x10 – HSDPA+ and 64QAM
			18 35	-	• 0x11 – HSDPA+, 64QAM and HSUPA
					• 0x12 – TDSCDMA
		1	C.O. Value		• 0x13 – TDSCDMA and HSDPA
			10 11		• 0x14 – TDSCDMA and HSUPA
			5, 501.		• -1 – Unknown

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	
QMI_ERR_OUT_OF_CALL	Data bearer is not returned because a call is not active

3.28.3 Description of QMI_WDS_GET_DATA_BEARER_TECHNOLOGY REQ/RESP

This command queries the current data bearer technology. The data connection must be established to obtain a valid current data bearer technology.

If the error code returned is QMI_ERR_OUT_OF_CALL, the Last Call Data Bearer TLV is present in QMI_WDS_GET_DATA_BEARER_RESP.

This command is deprecated from QMI WDS version 1.40. The command is retained for backward compatibility, but no additional functionality is added to it. The data bearer technology is reported in the new format using the QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_EX command.

2016-05-18-00:06:31 PDT.NN

3.29 QMI_WDS_GET_DUN_CALL_INFO

Queries the current modem connection status. (Deprecated)

WDS message ID

0x0038

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 85

3.29.1 Request - QMI_WDS_GET_DUN_CALL_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version introduced	Version last modified
Request Info	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Request Info
Length	4			2	
Value	$\stackrel{\cdot}{\rightarrow}$	mask32	mask	4	Set the bits corresponding to the information requested to 1; all other bits must be set to 0. If any values are not available or applicable, the corresponding TLVs are not returned in the response. Values: • Bit 0 – Connection status • Bit 1 – Last call end reason • Bit 2 – Tx/Rx bytes OK • Bit 3 – Dormancy status • Bit 4 – Data bearer
					 Bit 5 – Channel rate Bit 6 – Call active duration

Name	Version introduced	Version last modified
Connect Status Indicator	Unknown	1.12
Transfer Statistics Indicator	Unknown	1.12
Dormancy Status Indicator	Unknown	1.12
Current Data Bearer Technology Indicator	Unknown	1.12
Channel Rate Indicator	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Connect Status Indicator
Length	1			2	
Value	\rightarrow	boolean	report_connection_status	1	Values:
					• 0 – Do not report
					• 1 – Report connection status and call
					end reason
Туре	0x11			1	Transfer Statistics Indicator
Length	5			2 <	
Value	\rightarrow	uint8	stats_peroid	10	Period between transfer statistic reports.
				3	Values:
			0.	0. 0/	• 0 – Do not report
			00.	E.g.	• Other – Period between reports (in
			Nº 65		seconds)
		mask32	stats_mask	4	Requested statistic bitmask. Each bit set
			16 Thai		causes the corresponding optional TLV
			20, 20.		to be sent in the IND. All unlisted bits
			750		are reserviced for future use and must be
					set to zero. Values:
					• 0x00000040 – Tx bytes OK
					• 0x00000080 – Rx bytes OK
Туре	0x12			1	Dormancy Status Indicator
Length	1			2	
Value	\rightarrow	boolean	report_dormancy_status	1	Values:
					• 0 – Do not report
					• 1 – Report traffic channel state of
					interface used for data connection
Туре	0x13			1	Current Data Bearer Technology
					Indicator
Length	1			2	
Value	\rightarrow	boolean	report_data_bearer_tech	1	Values:
					• 0 – Do not report
					• 1 – Report radio interface used for data
					transfer when it changes
Туре	0x14			1	Channel Rate Indicator
Length	1			2	
Value	\rightarrow	boolean	report_channel_rate	1	Values:
					• 0 – Do not report
					• 1 – Report channel rate

3.29.2 Response - QMI_WDS_GET_DUN_CALL_INFO_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Connection Status	Unknown	1.12
Last Modem Call End Reason	Unknown	1.12
Tx Bytes OK	Unknown	1.12
Rx Bytes OK	Unknown	1.12
Dormancy Status	Unknown	1.12
Data Bearer Technology	1.12	1.30
Channel Rate	Unknown	1.12
Last Call Tx Bytes OK	Unknown	1.12
Last Call Rx Bytes OK	Unknown	1.12
Call Active Duration	Unknown	1.12
Last Call Data Bearer Technology	1.12	1.30

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Connection Status
Length	9			2	
Value	\rightarrow	enum8	modem_connection_status	1	Current link status. Values: • 0x01 – DISCONNECTED
					• 0x02 – CONNECTED
		uint64	modem_call_duration	8	Call duration in milliseconds. If the modem connection status is connected, this represents the duration of the current DUN call If the modem connection status is disconnected, this represents the duration of the last DUN call since the device was powered up (zero, if no call has been made or if the last call was not DUN).
Туре	0x11			1	Last Modem Call End Reason
Length	2			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum16	call_end_reason	2	Reason the call ended; see Appendix A
					for the definition of these values. Only
					valid if the last call made was DUN, else
					zero is returned.
Туре	0x12			1	Tx Bytes OK
Length	8			2	
Value	\rightarrow	uint64	tx_ok_bytes_count	8	Number of bytes transmitted without
					error. Returned only if a data call is up
Туре	0x13			1	Rx Bytes OK
Length	8			2	
Value	\rightarrow	uint64	rx_ok_bytes_count	8	Number of bytes received without error.
			•		Returned only if a data call is up
Туре	0x14			1	Dormancy Status
Length	1			2	
Value	\rightarrow	enum8	dormancy_status	1	Current traffic channel status. Returned
				3"	only if a data call is up. Values:
					• 0x01 – Traffic channel dormant
					• 0x02 – Traffic channel active
Туре	0x15			100	Data Daguar Taglaralagar
Length	1		data_bearer_tech	2	Duta Bearer recimerogy
Value	\rightarrow	enum8	data_bearer_tech	0. 10 <u>0</u>	Current data bearer technology.
value	,	Citatilo	data_bearer_teen	34.	Returned only if a data call is up. Values:
			3 3		• 0x01 – cdma2000 [®] 1X
			~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		• $0x01 - cdma2000$ HRPD (1xEV-DO)
		1	, O, 250,		$\bullet 0x03 - GSM$
			70 111		• 0x04 – UMTS
			2,000		• 0x05 – cdma2000® HRPD (1xEV-DO
			0		RevA)
					\bullet 0x06 – EDGE
					• 0x00 – EDGE • 0x07 – HSDPA and WCDMA
					• 0x07 – HSDFA and WCDMA • 0x08 – WCDMA and HSUPA
					• 0x09 – HSDPA and HSUPA
					• 0x0A – LTE
					• 0x0B – cdma2000® EHRPD
					• 0x0C – HSDPA+ and WCDMA
					• 0x0D – HSDPA+ and HSUPA
					• 0x0E – DC_HSDPA+ and WCDMA
					• 0x0F – DC_HSDPA+ and HSUPA
					• 0x10 – HSDPA+ and 64QAM
					• 0x11 – HSDPA+, 64QAM and HSUPA
					• 0x12 – TDSCDMA
					• 0x13 – TDSCDMA and HSDPA
					• 0x14 – TDSCDMA and HSUPA
					• -1 – Unknown
Туре	0x16			1	Channel Rate
Length	16			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Value	\rightarrow	uint32	current_channel_tx_rate	4	Instantaneous channel Tx rate in bits per
					second.
		uint32	current_channel_rx_rate	4	Instantaneous channel Rx rate in bits per
					second.
		uint32	max_channel_tx_rate	4	Maximum Tx rate that can be assigned
					to the device by the serving system in
					bits per second.
		uint32	max_channel_rx_rate	4	Maximum Rx rate that can be assigned
					to the device by the serving system in
					bits per second.
Туре	0x17			1	Last Call Tx Bytes OK
Length	8			2	
Value	\rightarrow	uint64	last_call_tx_ok_bytes_	8	Number of bytes transmitted without
			count		error during the last data call (0 if no call
					was made). Return only if not in a call
					and the previous call was made using
					DUN.
Туре	0x18			1 🗸	Last Call Rx Bytes OK
Length	8			20	_
Value	\rightarrow	uint64	last_call_rx_ok_bytes_	8	Number of bytes received without error
			count	o Coll	during the last data call (0 if no call was
			00.	E.J.	made). Returned only if not in a call and
			\\$ _45		the previous call was made using DUN.
Туре	0x19		5 10	1	Call Active Duration
Length	8		6, 1721	2	
Value	\rightarrow	uint64	modem_call_duration_	8	Duration that the call is active in
			active		milliseconds. If the modem connection
					status is connected, this represents the
					active duration of the current DUN call
					If the modem connection status is
					disconnected, this represents the active
					duration of the last DUN call since the
					device was powered up (0 if no call has
					been made or if last call was not DUN.
Туре	0x20			1	Last Call Data Bearer Technology
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	last_call_data_bearer_tech	1	Returned only if not in a call and when
					the previous call was made using DUN.
					Values:
					• 0x01 – cdma2000 [®] 1X
					• 0x02 – cdma2000 [®] HRPD (1xEV-DO)
					• 0x03 – GSM
					• 0x04 – UMTS
					• 0x05 – cdma2000 [®] HRPD (1xEV-DO
					RevA)
					• 0x06 – EDGE
					 0x07 – HSDPA and WCDMA
					 0x08 – WCDMA and HSUPA
					• 0x09 – HSDPA and HSUPA
					• 0x0A – LTE
					• 0x0B – cdma2000® EHRPD
				"	• 0x0C – HSDPA+ and WCDMA
					• 0x0D – HSDPA+ and HSUPA
					• 0x0E – DC_HSDPA+ and WCDMA
				00	 0x0F – DC_HSDPA+ and HSUPA
				27 "	• 0x10 – HSDPA+ and 64QAM
				0.00	• 0x11 – HSDPA+, 64QAM and HSUPA
			0.0	04.	• 0x12 – TDSCDMA
			8 3		• 0x13 – TDSCDMA and HSDPA
			6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		• 0x14 – TDSCDMA and HSUPA
		1	C.O. Walley		• -1 – Unknown

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.29.3 Description of QMI WDS GET DUN CALL INFO REQ/RESP

This command queries the state of the modem data connection, which is not connected through the RmNet interface on which this command is issued.

The modem connection state changes when a call on the modem interface is started (connected) or ended (disconnected).

Call duration is calculated as the duration between modem connection state change from disconnected to connected (start time) and connected to disconnected (end time). The duration of the previous call is available after the call, and returned as part of this response, until the next call is established.

The last modem call termination reason can be included in the response. These include network and user-generated reasons and are defined in Appendix A.

2016-05-18 00:06:31 PDT IN THE TOTAL PROPERTY OF THE PROPERTY

3.30 QMI_WDS_DUN_CALL_INFO_IND

Indicates a change in the DUN data connection status.

WDS message ID

0x0038

Version introduced

Major - 1, Minor - 12

3.30.1 Indication - QMI_WDS_DUN_CALL_INFO_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

Name	Version introduced	Version last modified
Connection Status	Unknown	1.12
Last Modem Call End Reason	Unknown	1.12
Tx Bytes OK	Unknown	1.12
Rx Bytes OK	Unknown	1.12
Dormancy Status	Unknown	1.12
Data Bearer Technology	1.12	1.30
Channel Rate	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Connection Status
Length	1			2	
Value	\rightarrow	enum8	modem_connection_status	1	Current link status. Values:
					• 0x01 – DISCONNECTED
					• 0x02 – CONNECTED
Туре	0x11			1	Last Modem Call End Reason
Length	2			2	

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)		
Value	\rightarrow	enum16	call_end_reason	2	Reason the call ended; see Appendix A	
					for the definition of these values.	
Туре	0x12			1	Tx Bytes OK	
Length	8			2		
Value	\rightarrow	uint64	tx_ok_bytes_count	8	Number of bytes transmitted without	
					error.	
Туре	0x13			1	Rx Bytes OK	
Length	8			2	,	
Value	\rightarrow	uint64	rx_ok_bytes_count	8	Number of bytes received without error.	
Туре	0x14			1	Dormancy Status	
Length	1			2		
Value	\rightarrow	enum8	dormancy_status	1 @	Values:	
					• 0x01 – Traffic channel dormant	
					• 0x02 – Traffic channel active	
Туре	0x15			1	Data Bearer Technology	
Length	1			2		
Value	\rightarrow	enum8	data_beare_technology	1	Values:	
					• 0x01 – cdma2000 [®] 1X	
				0	• 0x02 – cdma2000 [®] HRPD (1xEV-DO)	
				27 "	• 0x03 – GSM	
				0.00	• 0x04 – UMTS	
			0.5	04.	• 0x05 – cdma2000 [®] HRPD (1xEV-DO	
			2016.05.18.00:05 deon.zhandeas	-	RevA)	
			(5/ × 0°		• 0x06 – EDGE	
		1	C.O. Walley		• 0x07 – HSDPA and WCDMA	
			070 77		• 0x08 – WCDMA and HSUPA	
			2,50		• 0x09 – HSDPA and HSUPA	
			Q.		• 0x0A – LTE	
					• 0x0B – cdma2000® EHRPD	
					• 0x0C – HSDPA+ and WCDMA	
					• 0x0D – HSDPA+ and HSUPA	
					• 0x0E – DC_HSDPA+ and WCDMA	
					• 0x0F – DC HSDPA+ and HSUPA	
					• 0x10 – HSDPA+ and 64QAM	
					• 0x10 – HSDPA+, 64QAM and HSUPA	
					• 0x11 – HSDFA+, 04QAM and HSUFA • 0x12 – TDSCDMA	
					• 0x12 – TDSCDMA • 0x13 – TDSCDMA and HSDPA	
					• 0x13 – TDSCDMA and HSDPA • 0x14 – TDSCDMA and HSUPA	
True	0v14			1	• -1 – Unknown	
Type	0x16			2	Channel Rate	
Length	8	ni-420			May shownal Transta in hit and a little and	
Value	\rightarrow	uint32	current_channel_tx_rate	4	Max channel Tx rate in bits per second.	
		uint32	current_channel_rx_rate	4	Max channel Rx rate in bits per second.	

3.30.2 Description of QMI_WDS_DUN_CALL_INFO_IND

This indication communicates changes in the modem connection status.

If the indication is sent because of modem call disconnection, the modem call end reason TLV is included indicating the cause of the call termination. Network and user-generated reasons are included and are defined in Appendix A.



3.31 QMI_WDS_GET_ACTIVE_MIP_PROFILE

Queries the current Mobile IP mode profile index from the devices.

WDS message ID

0x003C

Version introduced

Major - 1, Minor - 12

3.31.1 Request - QMI_WDS_GET_ACTIVE_MIP_PROFILE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.31.2 Response - QMI_WDS_GET_ACTIVE_MIP_PROFILE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

Name	Version introduced	Version last modified
Mobile IP Profile Identifier *	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Mobile IP Profile Identifier *
Length	1			2	
Value	\rightarrow	uint8	profile_index	1	Index of the active profile.

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.31.3 Description of QMI_WDS_GET_ACTIVE_MIP_PROFILE REQ/RESP

This command queries the active mobile IP profile index for the device.

Requests to query the active mobile IP profile when none have been provisioned generate a QMI_ERR_NOT_PROVISIONED error.

Mobile IP applies only to 3GPP2 networks. Attempts to read the active mobile IP profile in non-3GPP2 devices return a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

QMI WDS SET ACTIVE MIP PROFILE 3.32

Sets the Mobile IP mode setting for the active profile of the device.

WDS message ID

0x003D

Version introduced

Major - 1, Minor - 12

Request - QMI_WDS_SET_ACTIVE_MIP_PROFILE_REQ 3.32.1

Mandatory TLVs

Name	Version introduced	Version last modified
Mobile IP Profile Identifier *	Unknown	1.12

3.32.1	Rec	•				
Message	e type			- 1		
Request						
Sender				O,		
Control	point			5		
				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
Mandato	ory TLVs	i		63711	120	
Mandato	ory TLVs		ame	Version	on introduced	Version last modified
				1	on introduced Unknown	Version last modified 1.12
		N		1		
		N		1	Jnknown	
Mobile	IP Prof	Naile Identif	fier *	Size	Jnknown	1.12 Description
Mobile	Field value 0x01	Naile Identif	fier *	Size (byte)	Jnknown	1.12 Description
Mobile Field Type	Field value 0x01	Naile Identif	fier *	Size (byte)	Jnknown C Mobile IP Profi	1.12 Description
Mobile Field Type Length	Field value 0x01	Note: Identification of the second of the se	Parameter	Size (byte) 1 2	Jnknown C Mobile IP Profi	1.12 Description le Identifier * mming code in ASCII

Optional TLVs

None

Response - QMI WDS SET ACTIVE MIP PROFILE RESP 3.32.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_AUTHENTICATION_	Authentication of supplied SPC failed
FAILED	12 2
QMI_ERR_AUTHENTICATION_LOCK	Maximum number of authentication failures has been
	reached
QMI_ERR_INVALID_INDEX	MIP profile index is not within the valid range
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.32.3 Description of QMI_WDS_SET_ACTIVE_MIP_PROFILE REQ/RESP

This command is a service programming request and is protected by the service programming security of QMI. Only the Service Programming Code (SPC), not the one-time-subsidy-lock code, can be used to restore the factory default settings of the device. The correct service programming authentication code must be specified for this command. Requests with an invalid SPC elicit a

QMI_ERR_AUTHENTICATION_FAILED error. If too many requests are made with an invalid SPC by any control point, the device enters an authentication locked state and elicits a

QMI_ERR_AUTHENTICATION_LOCK error. When the authentication lock state is reached the device automatically issues a power down procedure and shut down. Upon rebooting, the authentication lock state is removed and the device processes service programming requests.

This command sets the active mobile IP profile for the device. After successful completion the device must be power cycled before the new parameters take effect.

Requests to set an active mobile IP profile that has not been provisioned elicit a QMI_ERR_NOT_PROVISIONED error.

Mobile IP applies only to 3GPP2 networks. Attempts to set the active mobile IP profile in non-3GPP2 devices results in a QMI_ERR_OP_DEVICE_UNSUPPORTED error returned.

QMI WDS READ MIP PROFILE 3.33

Queries a mobile IP profile from the device.

WDS message ID

0x003E

Version introduced

Major - 1, Minor - 12

Request - QMI_WDS_READ_MIP_PROFILE_REQ 3.33.1

Mandatory TLVs

Name	Version introduced	Version last modified
Mobile IP Profile Identifier *	Unknown	1.12

3.33.1	Rec	uest -	QMI_WDS_READ_M	IP_PR	OFILE_REG	•
Message	e type			_1		
Request						
Sender)"		
Control	point			, só		
Mandato	ory TLVs			63,010	The state of the s	
		Na	ame	Version	n introduced	Version last modified
Mobile IP Profile Identifier *				Unknown		1.12
			5.05 hande			
Field	Field	Field	Parameter	Size	Description	
	value	type	7801	(byte)		
					Mobile IP Profile Identifier *	
Туре	0x01		<u> </u>	1	Mobile IP Profi	le Identifier *
Type Length				2	Mobile IP Profi	le Identifier *

Optional TLVs

None

Response - QMI_WDS_READ_MIP_PROFILE_RESP 3.33.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Mobile IP Profile State	Unknown	1.12
Mobile IP Profile Home Address	Unknown	1.12
Mobile IP Profile HA Primary	Unknown	1.12
Mobile IP Profile HA Secondary	Unknown	1.12
Mobile IP Profile Reverse Tunneling Pref	Unknown	1.12
Mobile IP Profile NAI	Unknown	1.12
Mobile IP Profile HA SPI	Unknown	1.12
Mobile IP Profile AAA SPI	Unknown	1.12
Mobile IP Profile HA Key State *	Unknown	1.12
Mobile IP Profile AAA Key State *	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type	. 8 . 5	(byte)	
Туре	0x10		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	1	Mobile IP Profile State
Length	1		in Janes	2	
Value	\rightarrow	boolean	profile_state	1	Values:
			2,80		• 0x00 – Disabled
			0		• 0x01 – Enabled
Туре	0x11			1	Mobile IP Profile Home Address
Length	4			2	
Value	\rightarrow	uint32	home_address	4	Home address (IPv4 format).
Туре	0x12			1	Mobile IP Profile HA Primary
Length	4			2	
Value	\rightarrow	uint32	home_agent_priv	4	Primary home agent (HA) address (IPv4 format).
Туре	0x13			1	Mobile IP Profile HA Secondary
Length	4			2	
Value	\rightarrow	uint32	home_agent_sec	4	Secondary HA address (IPv4 format).
Туре	0x14			1	Mobile IP Profile Reverse Tunneling
					Pref
Length	1			2	
Value	\rightarrow	boolean	rev_tun_pref	1	Values:
					• $0x00$ – Disable
					• 0x01 – Enable
Туре	0x15			1	Mobile IP Profile NAI
Length	Var			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	string	nai	Var	NAI string in ASCII text.
					QMI_ERR_ARG_TOO_LONG is
					returned if the NAI is too long.
Туре	0x16			1	Mobile IP Profile HA SPI
Length	4			2	
Value	\rightarrow	uint32	mn_ha_spi	4	HA security parameter index.
Туре	0x17			1	Mobile IP Profile AAA SPI
Length	4			2	
Value	\rightarrow	uint32	mn_aaa_spi	4	AAA server security parameter index.
Туре	0x1A			1	Mobile IP Profile HA Key State *
Length	1			2	
Value	\rightarrow	enum8	mn_ha_key_state	1 (Values:
				0.00	• $0x00 - $ Unset (empty)
					• 0x01 – Set but still default value
					• 0x02 – Set and modified from default
					value
Туре	0x1B			1	Mobile IP Profile AAA Key State *
Length	1			2 <	
Value	\rightarrow	enum8	mn_aaa_key_state	10V	Values:
				3	• 0x00 – Unset (empty)
			.0	, '0,,	• 0x01 – Set but still default value
			00.	54.	• 0x02 – Set and modified from default
			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•	value

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_INVALID_INDEX	MIP profile index is out of range
QMI_ERR_NOT_PROVISIONED	MIP profile has not been provisioned on the device
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.33.3 Description of QMI_WDS_READ_MIP_PROFILE REQ/RESP

This command queries the mobile IP setting of a specified profile for the device. The HA and AAA keys are never displayed for security reasons and the security parameter indexes are provided as optional TLVs only if set in the profile.

Mobile IP applies only to 3GPP2 networks. Attempts to read a mobile IP profile in non-3GPP2 devices return a QMI_ERR_OP_DEVICE_UNSUPPORTED error.



QMI WDS MODIFY MIP PROFILE 3.34

Modifies a mobile IP profile on the device.

WDS message ID

0x003F

Version introduced

Major - 1, Minor - 12

Request - QMI_WDS_MODIFY_MIP_PROFILE_REQ 3.34.1

Mandatory TLVs

Name	Version introduced	Version last modified	
Mobile IP Profile Identifier *	Unknown	1.12	

3.34.1	Red	quest -	QMI_WDS_MODIF	I _IVIIIP_I	PROFILE_N	EQ
Message	e type			1		
Request						
Sender				O,		
Control	point			5		
				\\\\		
Mandato	ry TLVs	•		63.0m	an and a second	
Mandato	ory TLVs		ame	Version	on introduced	Version last modified
				V1	on introduced Jnknown	Version last modified 1.12
		N		V1		
		N		V1	Jnknown	
Mobile	IP Prof	Na ile Identif Field	îler *	Size	Jnknown	1.12 Description
Mobile Field	Field value	Na ile Identif Field	îler *	Size (byte)	Jnknown	1.12 Description
Mobile Field Type	Field value 0x01	Na ile Identif Field	îler *	Size (byte)	Jnknown I Mobile IP Profi	1.12 Description
Mobile Field Type Length	Field value 0x01	Note the Note of t	Parameter	Size (byte) 1 2	Jnknown I Mobile IP Profi	1.12 Description le Identifier * mming code in ASCII

Name	Version introduced	Version last modified
Mobile IP Profile State *	Unknown	1.12
Mobile IP Profile Home Address *	Unknown	1.12
Mobile IP Profile HA Primary *	Unknown	1.12
Mobile IP Profile HA Secondary *	Unknown	1.12
Mobile IP Profile Reverse Tunneling Preference *	Unknown	1.12
Mobile IP Profile NAI *	Unknown	1.12
Mobile IP Profile HA SPI *	Unknown	1.12
Mobile IP Profile AAA SPI *	Unknown	1.12
MN-HA Key *	Unknown	1.12
MN-AAA Key *	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Mobile IP Profile State *
Length	1			2	
Value	\rightarrow	boolean	profile_state	1	Values:
					• 0x00 – Disabled
					• 0x01 – Enabled
Туре	0x11			1	Mobile IP Profile Home Address *
Length	4			2	
Value	\rightarrow	uint32	home_address	4	Home address (IPv4 format).
Туре	0x12			1	Mobile IP Profile HA Primary *
Length	4			2	
Value	\rightarrow	uint32	home_agent_priv	4	Primary home agent address (IPv4 format).
Time	0x13			1	Mobile IP Profile HA Secondary *
Туре	4			2	Mobile IP Profile HA Secondary "
Length		uint32	home agent see	Miles Tills	Casandami hama agant address (IDi)
Value	\rightarrow	umt32	home_agent_sec	4	Secondary home agent address (IPv4
T	0x14			1	format).
Туре	UX14			1	Mobile IP Profile Reverse Tunneling Preference *
1	1			200	Preference *
Length		1 1		2	V-1
Value	\rightarrow	boolean	rev_tun_pref	.?1	Values:
			0:0	-4.C	• $0x00$ – Disable
T	0x15		803	2	• 0x01 – Enable Mobile IP Profile NAI *
Туре				2	Mobile IP Profile NAI *
Length	Var	.4	0, 300		NIAT (described as it is a different as it is
Value	\rightarrow	string	nai 7016 thanh	Var	NAI (network access identifier) string in
			27,000		ASCII text.
			0.0		QMI_ERR_ARG_TOO_LONG is
_	0-16			1	returned if the NAI is too long.
Туре	0x16			1	Mobile IP Profile HA SPI *
Length	4	ni-420	mn ho or:	2	IIA acquaitre management in de-
Value	\rightarrow	uint32	mn_ha_spi	4	HA security parameter index.
Туре	0x17			1	Mobile IP Profile AAA SPI *
Length	4	:		2	A A A
Value -	\rightarrow	uint32	mn_aaa_spi	4	AAA server security parameter index.
Туре	0x18			1	MN-HA Key *
Length	Var			2	ON A FREE ARG MOS YOUNG
Value	\rightarrow	string	mn_ha_key	Var	QMI_ERR_ARG_TOO_LONG is returned if the MN-HA key is too long.
Туре	0x19			1	MN-AAA Key *
	Var			2	WII V-MAA INCY
Length		ctring	mn aga kay	Var	String containing MN-AAA key.
Value	\rightarrow	string	mn_aaa_key	var	
					QMI_ERR_ARG_TOO_LONG is
					returned if the MN-AAA key is too long.

Response - QMI WDS MODIFY MIP PROFILE RESP 3.34.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Error codes

Optional TLVs	
None	
Error codes	ÇŌ,
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response.
QMI_ERR_AUTHENTICATION_	Authentication of supplied SPC failed
FAILED	5 20
QMI_ERR_AUTHENTICATION_LOCK	Maximum number of authentication failures has been
201	reached
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_ARG_TOO_LONG	Argument passed in a TLV was larger than the available
	storage in the device
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.34.3 Description of QMI WDS MODIFY MIP PROFILE REQ/RESP

This command is a service programming request and is protected by the service programming security of QMI. Only the service programming code, not the one-time-subsidy-lock code, can be used to restore the factory default settings of the device. The correct service programming authentication code must be specified for this command. Requests with an invalid SPC elicit a

QMI_ERR_AUTHENTICATION_FAILED error. If too many requests are made with an invalid SPC by any control point, the device enters an authentication locked state and elicits a

QMI_ERR_AUTHENTICATION_LOCK error. When the authentication lock state is reached, the device automatically issues a power-down procedure and shut down. Upon rebooting, the authentication lock state is removed and the device processes service programming requests.

This command modifies the mobile IP profile values on the device for a specified profile index. All profile values are optional and only the TLVs provided in the request are updated in the profile; all others remain

unchanged. After successful completion, the device must be power cycled before the new parameters take effect.

Mobile IP applies only to 3GPP2 networks. Attempts to read a mobile IP profile in non-3GPP2 devices results in a QMI_ERR_OP_DEVICE_UNSUPPORTED error returned.



3.35 QMI_WDS_GET_MIP_SETTINGS

Queries the mobile IP settings from the device.

WDS message ID

0x0040

Version introduced

Major - 1, Minor - 12

3.35.1 Request - QMI_WDS_GET_MIP_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.35.2 Response - QMI_WDS_GET_MIP_SETTINGS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Mobile IP Mode	Unknown	1.12
Mobile IP Reg Retry Count	Unknown	1.12
Mobile IP Reg Retry Interval	Unknown	1.12
Mobile IP Re-Reg Period	Unknown	1.12

Name	Version introduced	Version last modified
Mobile IP Re-Reg if Traffic	Unknown	1.12
Mobile IP QC Domant Handoff	Unknown	1.12
Mobile IP RFC 2002 MN-HA Auth	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Mobile IP Mode
Length	1			2	
Value	\rightarrow	enum8	mip_mode	1	Mode:
					• 0x00 – MIP off (Simple IP only)
					• 0x01 – MIP preferred
					• 0x02 – MIP only
Туре	0x11			1	Mobile IP Reg Retry Count
Length	1			2	
Value	\rightarrow	uint8	mip_reg_retry_count	1	Mobile IP registration retry attempt limit.
Туре	0x12			1	Mobile IP Reg Retry Interval
Length	1			2	
Value	\rightarrow	uint8	mip_reg_retry_interval	1 🗸	Mobile IP initial interval modifier used
				00	to determine the time between
				27 "	registration attempts (valid range 0-4).
Туре	0x13		6	o. 10/2	Mobile IP Re-Reg Period
Length	1		00.	2	-
Value	\rightarrow	uint8	mip_re_reg_peroid	1	Mobile IP period to attempt
			5 36		reregistration before current registration
		1	6.0 halls		expires (in minutes).
Туре	0x14		02.03	1	Mobile IP Re-Reg if Traffic
Length	1		100	2	-
Value	\rightarrow	boolean	mip_re_reg_if_traf	1	Mobile IP reregistration occursonly if
					there is traffic since the last attempt.
					Values:
					• 0x00 – Disabled
					• 0x01 – Enabled
Туре	0x15			1	Mobile IP QC Domant Handoff
Length	1			2	
Value	\rightarrow	boolean	mip_qc_handoff	1	Mobile IP MN-HA authenticator
					calculator. Values:
					• 0x00 – Disabled
					• 0x01 – Enabled
Туре	0x16			1	Mobile IP RFC 2002 MN-HA Auth
Length	1			2	
Value	\rightarrow	boolean	mip_rfc2002bis	1	Mobile IP MN-HA authenticator
					calculation using RFC2002bis instead of
					RFC 2002. Values:
					• 0x00 – Disabled
					• 0x01 – Enabled

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.35.3 Description of QMI WDS GET MIP SETTINGS REQ/RESP

This command queries the mobile IP setting for the device. Refer to RFC 2002 for more information regarding each of these parameters. Each response includes all settings listed in Section 3.33 with the exception of TLVs for non-provisioned settings, which are absent from the response.

Mobile IP settings only apply to 3GPP2 networks. Attempts to read the mobile IP setting in non-3GPP2 devices result in a QMI_ERR_OP_DEVICE_UNSUPPORTED error returned.

3.36 QMI WDS SET MIP SETTINGS

Sets the current mobile IP setting for the device.

WDS message ID

0x0041

Version introduced

Major - 1, Minor - 12

Request - QMI_WDS_SET_MIP_SETTINGS_REQ 3.36.1

Message type

Sender

Mandatory TLVs

Name	Version introduced	Version last modified
Service Programming Authentication *	Unknown	1.12

3.36.1	Req	uest -	QMI_WDS_SET_MIF	SET	TINGS_REQ	
Message	e type					
Request						
Sender)		
Control j	point			, S		
Mandato	ory TLVs			63,00	27	
		N	ame	Version	on introduced	Version last modified
Service	Prograi	nming A	uthentication *	J	Jnknown	1.12
			C.O. Tande			
Field	Field	Field	Parameter	Size	[Description
	value	type	1,50,	(byte)		
Туре	0x01		V	1	Service Program	nming Authentication *
Length	6			2		
		char		6		Format (digits 0 to 0 only).

Name	Version introduced	Version last modified
Mobile IP Mode *	Unknown	1.12
Mobile IP Reg Retry Count *	Unknown	1.12
Mobile IP Reg Retry Interval *	Unknown	1.12
Mobile IP Re-Reg Period *	Unknown	1.12
Mobile IP Re-Reg if Traffic *	Unknown	1.12
Mobile IP QC Domant Handoff *	Unknown	1.12
Mobile IP RFC 2002 MN-HA Auth *	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Mobile IP Mode *
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	mip_mode	1	Values:
					• 0x00 – MIP off (Simple IP only)
					• 0x01 – MIP preferred
					• 0x02 – MIP only
Туре	0x11			1	Mobile IP Reg Retry Count *
Length	1			2	
Value	\rightarrow	uint8	mip_reg_retry_count	1	Mobile IP registration retry attempt limit.
Туре	0x12			1	Mobile IP Reg Retry Interval *
Length	1			2	(S)
Value	\rightarrow	uint8	mip_reg_retry_interval	1	Mobile IP initial interval modifier used
					to determine time between registration
					attempts (valid range 0-4).
Туре	0x13			1	Mobile IP Re-Reg Period *
Length	1			2	
Value	\rightarrow	uint8	mip_re_reg_peroid	1	Mobile IP period to attempt
					reregistration before current registration
					expires (in minutes).
Туре	0x14			1 <	Mobile IP Re-Reg if Traffic *
Length	1			20	4
Value	\rightarrow	boolean	mip_re_reg_if_traf	SI	Mobile IP reregistration only if traffic
			0.	0. 00,	since the last attempt. Values:
			00.	EN COL	• 0x00 – Disabled
		1	Nº 65		• 0x01 – Enabled
Туре	0x15		55 70	1	Mobile IP QC Domant Handoff *
Length	1		16' Ma	2	
Value	\rightarrow	boolean	mip_qc_handoff	1	Mobile IP MN-HA authenticator
			1825		calculator. Values:
					• 0x00 – Disabled
					• 0x01 – Enabled
Туре	0x16			1	Mobile IP RFC 2002 MN-HA Auth *
Length	1			2	
Value	\rightarrow	boolean	mip_rfc2002bis	1	Mobile IP MN-HA authenticator
					calculation using RFC2002bis instead of
					RFC 2002. Values:
					• 0x00 – Disabled
					• 0x01 – Enabled

3.36.2 Response - QMI WDS SET MIP SETTINGS RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Error codes

Optional TLVs	
None	
Error codes	CO,
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_AUTHENTICATION_	Authentication of supplied SPC failed
FAILED	25 mg/s
QMI_ERR_AUTHENTICATION_LOCK	Maximum number of authentication failures has been
6'	reached
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.36.3 Description of QMI_WDS_SET_MIP_SETTINGS REQ/RESP

This command is a service programming request and is protected by the service programming security of QMI. Only the service programming code, not the one-time-subsidy-lock code, can be used to restore the factory default settings of the device. The correct service programming authentication code must be specified for this command. Requests with an invalid SPC elicit a

QMI ERR AUTHENTICATION FAILED error. If too many requests are made with an invalid SPC by any control point, the device enters an authentication locked state and elicits a

QMI_ERR_AUTHENTICATION_LOCK error. When the authentication lock state is reached, the device automatically issues a power-down procedure and shut down. Upon rebooting, the authentication lock state is removed and the device processes service programming requests.

This command sets the mobile IP setting for the device. Refer to RFC 2002 for more information regarding each of these parameters. After successful completion, the device must be power cycled before the new parameters take effect.

Mobile IP settings only apply to 3GPP2 networks. Attempts to read the mobile IP setting in non-3GPP2 devices result in a QMI ERR OP DEVICE UNSUPPORTED error returned.

3.37 QMI WDS GET LAST MIP STATUS

Queries the last mobile IP status from the device.

WDS message ID

0x0042

Version introduced

Major - 1, Minor - 12

3.37.1 Request - QMI_WDS_GET_LAST_MIP_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.37.2 Response - QMI_WDS_GET_LAST_MIP_STATUS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Last MIP Status *	Unknown	1.12

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0x01	- 71		1	Last MIP Status *
Length	1			2	
Value	\rightarrow	uint8	mip_error	1	Status of the last MIP call (or attempt). Values:
					• 0x00 – Success
					•>0 – Error code (as defined in RFC
					2002)

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_DEVICE_IN_USE	Device is currently in a call
QMI_ERR_NO_ENTRY	No MIP status has been recorded
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	/_ ^ _@**

3.37.3 Description of QMI_WDS_GET_LAST_MIP_STATUS REQ/RESP

This command queries the status of the last mobile IP session for the device. A nonzero response indicates that the last MIP session ended with an error; otherwise it was completed successfully.

If the command requests to return the MIP status when a session is in progress, it results in a QMI_ERR_DEVICE_IN_USE error.

Mobile IP settings only apply to 3GPP2 networks. Attempts to read the mobile IP setting in non-3GPP2 devices result in a QMI_ERR_OP_DEVICE_UNSUPPORTED error returned.

3.38 QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOLOGY

Queries the current data bearer technology.

WDS message ID

0x0044

Version introduced

Major - 1, Minor - 4

3.38.1 Request - QMI_WDS_GET_CURRENT_DATA_BEARER_-TECHNOLOGY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.38.2 Response - QMI_WDS_GET_CURRENT_DATA_BEARER_-TECHNOLOGY_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified	
Current Data Bearer Technology	1.10	1.24	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Current Data Bearer Technology
Length	9			2	
Value	\rightarrow	enum8	current_nw	1	Current network type of data bearer.
					Values:
					• WDS_CURRENT_NETWORK_
					UNKNOWN (0x00) – Unknown
					• WDS_CURRENT_NETWORK_3GPP2
					(0x01) - 3GPP2
					• WDS_CURRENT_NETWORK_3GPP
					(0x02) - 3GPP
		uint32	rat_mask	4	RAT mask to indicate the type of
					technology. A RAT mask value of zero
					indicates that this field is ignored.
					Values:
					• 0x00 – DONT_CARE
				"	• 0x8000 – NULL_BEARER
				,	CDMA RAT mask:
				~Ô	• 0x01 – CDMA_1X
				~ ×	• 0x02 – EVDO_REV0
				63.00	• 0x04 – EVDO_REVA
			20:0	24.0	• 0x08 – EVDO_REVB
			38 3	2	• 0x10 – EHRPD
			2016.05.18.00.25		• 0x20 – FMC
			0.76, 74,0		UMTS RAT mask:
			7,001		• 0x01 – WCDMA
			O O		• 0x02 – GPRS
					• 0x04 – HSDPA
					• 0x08 – HSUPA
					• 0x10 – EDGE
					• 0x20 – LTE
					• 0x40 – HSDPA+
					• 0x80 – DC_HSDPA+
					• 0x100 – 64_QAM
					• 0x200 – TDSCDMA

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	so_mask	4	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					CDMA 1X SO mask:
					• 0x01 – CDMA 1X IS95
					• 0x02 – CDMA_1X_IS2000
					• 0x04 – CDMA_1X_IS2000_REL_A
				- 0	CDMA EV-DO Rev 0 SO mask:
					• 0x01 – DPA
					CDMA EV-DO Rev A SO mask:
				3"	• 0x01 – DPA
					• 0x02 – MFPA
					• 0x04 – EMPA
				0	• 0x08 – EMPA_EHRPD
				37	CDMA EV-DO Rev B SO mask:
			.0	, (0)	• 0x01 – DPA
			00	54	$\bullet 0x01 - DFA$ $\bullet 0x02 - MFPA$
			12000		$\bullet 0x02 - WITA$ $\bullet 0x04 - EMPA$
			65 415		• 0x04 – EMPA • 0x08 – EMPA_EHRPD
			10, Vis.		• 0x10 – MMPA
			20,00		
			1,00		• 0x20 – MMPA_EHRPD

Name	Version introduced	Version last modified
Last Call Bearer Technology	1.12	1.24

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Last Call Bearer Technology
Length	9			2	
Value	\rightarrow	enum8	current_nw	1	Current network type of data bearer.
					Values:
					• WDS_CURRENT_NETWORK_
					UNKNOWN (0x00) – Unknown
					• WDS_CURRENT_NETWORK_3GPP2
					(0x01) - 3GPP2
					• WDS_CURRENT_NETWORK_3GPP
					(0x02) - 3GPP

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
		uint32	rat_mask	4	RAT mask to indicate the type of
					technology. A RAT mask value of zero
					indicates that this field is ignored.
					Values:
					• 0x00 – DONT_CARE
					• 0x8000 – NULL_BEARER
					CDMA RAT mask:
					• 0x01 – CDMA_1X
					• 0x02 – EVDO REV0
					• 0x04 – EVDO_REVA
					• 0x08 – EVDO REVB
				1	• 0x10 – EHRPD
				8	• 0x20 – FMC
				7	UMTS RAT mask:
					• 0x01 – WCDMA
					• 0x02 – GPRS
				0	• 0x04 – HSDPA
				27 "	• 0x08 – HSUPA
				0.00	• 0x10 – EDGE
			00.0	e. 4.	• 0x20 – LTE
			3 3		• 0x40 – HSDPA+
			6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		• 0x80 – DC_HSDPA+
		1	C.O. Walley		• 0x100 – 64_QAM
			0707		• 0x200 – TDSCDMA

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	so_mask	4	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					CDMA 1X SO mask:
					• 0x01 – CDMA_1X_IS95
					• 0x02 – CDMA_1X_IS2000
					• 0x04 – CDMA_1X_IS2000_REL_A
					CDMA EV-DO Rev 0 SO mask:
					• 0x01 – DPA
					CDMA EV-DO Rev A SO mask:
					• 0x01 – DPA
					• 0x02 – MFPA
					• 0x04 – EMPA
				0	• 0x08 – EMPA_EHRPD
				3	The state of the s
				9. '94,	CDMA EV-DO Rev B SO mask:
			20:	0.4.	• 0x01 – DPA
			30 35		• 0x02 – MFPA
			5,7,00		• $0x04 - EMPA$
		1	C. Mailes		• 0x08 – EMPA_EHRPD
					• 0x10 – MMPA
			2,801		• 0x20 – MMPA_EHRPD

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Data bearer technology cannot be returned, because the call
	is not up
QMI_ERR_INFO_UNAVAILABLE	Data bearer technology information is unavailable at this
	point

3.38.3 Description of QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOLOGY REQ/RESP

This command queries the current data bearer technology. The data connection must be established to obtain a valid current data bearer technology.



3.39 QMI WDS CALL HISTORY LIST

Queries a list of call history records from the device. (Deprecated)

WDS message ID

0x0045

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 85

3.39.1 Request - QMI_WDS_CALL_HISTORY_LIST_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.39.2 Response - QMI WDS CALL HISTORY LIST RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Full Call History List	1.12	1.41
Record ID-Only Call History List	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Full Call History List
Length	Var			2	•
Value	\rightarrow	uint16	full_call_history_len	2	Number of sets of the following
					elements:
				- 0	• call_record_id
					• call_type
					• call_data_bearer
					• call_timestamp
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• call_ip_addr
					• call_duration_total
				_	• call_duration_active
				0	• call_rx_ok_bytes
				37	• call_tx_ok_bytes
				0. '0/	• call_end_reason
			00.	24:	• call_phone_num_len
			2000		• call_phone_num
		uint16	call_record_id	2	Unique record ID.
		enum8	call_type	1	Call type. Values:
			207.03		• 0x00 – RmNet
			120		• 0x01 – Dial Up Network (DUN)

Field	Field value	Field type	Parameter	Size (byte)	Description
	14.40	enum8	call_data_bearer	1	Data bearer technology. Values: • 0x01 – cdma2000® 1X
					• 0x01 – cdma2000 TX • 0x02 – cdma2000® HRPD (1xEV-DO)
					• 0x03 – GSM
					• 0x04 – UMTS
					• 0x05 – cdma2000 [®] HRPD (1xEV-DO
					RevA)
					• 0x06 – EDGE
					• 0x07 – HSDPA and WCDMA
					 0x08 – WCDMA and HSUPA 0x09 – HSDPA and HSUPA
					• 0x09 – HSDFA and HSOFA • 0x0A – LTE
				9	• 0x0B – cdma2000 [®] EHRPD
				900	• 0x0C – HSDPA+ and WCDMA
					• 0x0D – HSDPA+ and HSUPA
			4	30	• 0x0E – DC_HSDPA+ and WCDMA
					• 0x0F – DC_HSDPA+ and HSUPA
				_	• 0x10 – HSDPA+ and 64QAM
				0	• 0x11 – HSDPA+, 64QAM and HSUPA
				3	• 0x12 – TDSCDMA
			.0	0. 00	• 0x13 – TDSCDMA and HSDPA
			00.	64.	0x14 – TDSCDMA and HSUPA0x15 – IWLAN S2B
		1	7,000		• -1 – Unknown
		uint64	call_timestamp	8	Call origination timestamp.
		uint32	call_ip_addr	4	Call IP address (IPv4 format). Note: this
			5, 60L		value is zero if the IP address cannot be
			0		determined.
		uint64	call_duration_total	8	Total duration of the call in milliseconds.
		uint64	call_duration_active	8	Duration the call is active in
			11 1. 1 4	0	milliseconds.
		uint64	call_rx_ok_bytes	8	Number of bytes transmitted without
		uint64	call_tx_ok_bytes	8	Number of bytes received without error.
		enum16	<u>~</u>	2	Reason the call ended.
		uint8	call_phone_num_len	1	Number of sets of the following
			<u> </u>		elements:
					• call_phone_num
		string	call_phone_num	Var	Phone number.
Туре	0x11			1	Record ID-Only Call History List
Length	Var			2	
Value	\rightarrow	uint16	id_only_call_history_len	2	Number of sets of the following
					elements:
		nin+16	and ranged id	2	• call_record_id
		uint16	call_record_id	2	Unique record ID.

Error codes

QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.39.3 Description of QMI WDS CALL HISTORY LIST REQ/RESP

This command lists the past RmNet call history records stored for the device. If QMI_WDS_GET_DUN_CALL_INFO is supported, DUN call records are also stored in the history and are returned in the list.

Different types of lists can be queried to return all of the data in the call history record or only the record IDs. If the optional list type is absent from the request, the default list type returned in the response is the full record set. The unique record ID returned is valid until the record is deleted (either cleared using QMI_WDS_CALL_HISTORY_DELETE or replaced by a more recent entry).

Call history might not be available on all devices. Attempts to list the call history from a device that does not support call history generates a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.40 QMI_WDS_CALL_HISTORY_READ

Queries a call history record from the device. (Deprecated)

WDS message ID

0x0046

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 85

3.40.1 Request - QMI_WDS_CALL_HISTORY_READ_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version introduced	Version last modified
Call History Record ID	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Call History Record ID
Length	2			2	
Value	\rightarrow	uint16	call_record_id	2	Record ID of the call history record to
					read.

Optional TLVs

None

3.40.2 Response - QMI_WDS_CALL_HISTORY_READ_RESP

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Call History Record	1.12	1.41

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			31 3	Call History Record
Length	Var		0.	5. 52	
Value	\rightarrow	enum8	call_type	e 1	Call type. Values:
			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		• 0x00 – RmNet
			5,70		• 0x01 – Dial Up Network (DUN)
		enum8	call_data_bearer	1	Data bearer technology. Values:
			20,000		• 0x01 – cdma2000 [®] 1X
			200		• 0x02 – cdma2000 [®] HRPD (1xEV-DO)
					• 0x03 – GSM
					• 0x04 – UMTS
					• 0x05 – cdma2000 [®] HRPD (1xEV-DO
					RevA)
					• 0x06 – EDGE
					• 0x07 – HSDPA and WCDMA
					• 0x08 – WCDMA and HSUPA
					• 0x09 – HSDPA and HSUPA
					• 0x0A – LTE
					• 0x0B – cdma2000® EHRPD
					• 0x0C – HSDPA+ and WCDMA
					• 0x0D – HSDPA+ and HSUPA
					• 0x0E – DC_HSDPA+ and WCDMA
					• 0x0F – DC_HSDPA+ and HSUPA
					• 0x10 – HSDPA+ and 64QAM
					• 0x11 – HSDPA+, 64QAM and HSUPA
					• 0x12 – TDSCDMA
					• 0x13 – TDSCDMA and HSDPA
					• 0x14 – TDSCDMA and HSUPA
					• 0x15 – IWLAN S2B
					• -1 – Unknown

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint64	call_timestamp	8	Call origination timestamp.
		uint32	call_ip_addr	4	Call IP address (IPv4 format). Note: this
					value is zero if the IP address cannot be
					determined.
		uint64	call_duration_total	8	Total duration of the call in milliseconds.
		uint64	call_duration_active	8	Duration the call is active in
					milliseconds.
		uint64	call_rx_ok_bytes	8	Number of bytes transmitted without
					error.
		uint64	call_tx_ok_bytes	8	Number of bytes received without error.
		enum16	call_end_reason	2	Reason the call ended.
		uint8	call_phone_num_len	1	Number of sets of the following
					elements:
					• call_phone_num
		string	call_phone_num	Var	Phone number.

Error codes

Optional TLVs					
None					
Error codes					
QMI_ERR_NONE	No error in the request				
QMI_ERR_INTERNAL	Unexpected error occurred during processing				
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point				
or the message was corrupted during transmission					
QMI_ERR_NO_MEMORY Device could not allocate memory to formulate a response					
QMI_ERR_OP_DEVICE_ Operation is not supported by the device					
UNSUPPORTED					

3.40.3 Description of QMI_WDS_CALL_HISTORY_READ REQ/RESP

This command queries a RmNet call history record stored for the device. If QMI_WDS_GET_DUN_CALL_INFO is supported, DUN call records are stored in the history and can be read.

Requests to read a record ID that is not set generate a QMI_ERR_NO_ENTRY error, while requests to read a record ID that is invalid generate a QMI_ERR_INVALID_INDEX error.

Call history might not be available on all devices. Attempts to read the call history from a device that does not support call history generates a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.41 QMI WDS CALL HISTORY DELETE

Clears the call history records from the device. (Deprecated)

WDS message ID

0x0047

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 85

3.41.1 Request - QMI_WDS_CALL_HISTORY_DELETE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.41.2 Response - QMI WDS CALL HISTORY DELETE RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.41.3 Description of QMI WDS CALL HISTORY DELETE REQ/RESP

This command clears the data call history records stored for the device. Clearing the history resets the unique record ID series back to zero.

Call history might not be available on all devices. Attempts to clear the call history from a device that does not support call history generates a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.42 QMI_WDS_CALL_HISTORY_MAX_SIZE

Requests the maximum number of call history records that can be stored in the device. (Deprecated)

WDS message ID

0x0048

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 85

3.42.1 Request - QMI_WDS_CALL_HISTORY_MAX_SIZE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.42.2 Response - QMI_WDS_CALL_HISTORY_MAX_SIZE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Call History Size	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Call History Size
Length	2			2	
Value	\rightarrow	uint16	max_size	2	Maximum number of call history records
					that can be stored.

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.42.3 Description of QMI_WDS_CALL_HISTORY_MAX_SIZE REQ/RESP

This requests the maximum number of call history records that can be stored in the device.

Call history might not be available on all devices. Attempts to clear the call history from a device that does not support call history generates a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

QMI WDS GET DEFAULT PROFILE NUM 3.43

Retrieves the default profile number configured on the wireless device for the specified technology.

WDS message ID

0x0049

Version introduced

Major - 1, Minor - 8

Request - QMI_WDS_GET_DEFAULT_PROFILE_NUM_REQ 3.43.1

Mandatory TLVs

	Name	Version introduced	Version last modified
Profile Type	Nº 02	Unknown	1.24

3.43.1	nec	quest -	QIVII_WD5_GE1_DE	FAULI	_PROFILE_	NUW_REQ		
Message	type			- 1				
Request								
Sender	Sender							
Control 1	point) 				
Mandato	ry TLVs	;		63,787	en en			
	Name Version introduced Version last modified							
Profile Type				J	Jnknown	1.24		
			6.05 hands					
Field	Field	Field	Parameter	Size		escription		
	value	type	150,	(byte)				
Туре	0x01		~	1	Profile Type			
Length	2			2				
Value	\rightarrow	enum8	profile_type	1	Identifies the tec	chnology type of the		
					profile. Values:			
					• 0x0 – 3GPP			
					• 0x1 – 3GPP2			
		enum8	profile_family	1	Identifies the family of the profile.			
					Values:			
					• 0 – Embedded			
					• 1 – Tethered			
					• 1 – Sockets (d	eprecated)		

Optional TLVs

None

3.43.2 Response - QMI_WDS_GET_DEFAULT_PROFILE_NUM_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Default Profile Number	Unknown	1.11

Field	Field	Field	Parame	ter	Size	Description
	value	type			(byte)	
Туре	0x01				31 3	Default Profile Number
Length	1			0	5, 2,,,	
Value	\rightarrow	uint8	profile_index	00.	e>1	Profile number identifying the default
				No 000	b	profile.

Optional TLVs

Name	Version introduced	Version last modified	
Extended error code.	Unknown	1.25	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0xE0			1	Extended error code.
Length	2			2	
Value	\rightarrow	enum16	extended_error_code	2	Error code from the DS profile. These
					error codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request	
QMI_ERR_INTERNAL	Unexpected error occurred during processing	
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point	
	or the message was corrupted during transmission	
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response	
QMI_ERR_INVALID_PROFILE_TYPE	Profile type specified was invalid	

QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code		
	from the DS profile is populated in an additional optional		
	TLV		

3.43.3 Description of QMI_WDS_GET_DEFAULT_PROFILE_NUM REQ/RESP

This command retrieves the default profile number for the specified profile type and family.



QMI WDS SET DEFAULT PROFILE NUM 3.44

Sets the default profile number on the wireless device for the specified technology.

WDS message ID

0x004A

Version introduced

Major - 1, Minor - 8

Request - QMI_WDS_SET_DEFAULT_PROFILE_NUM_REQ 3.44.1

Message type

Mandatory TLVs

Request						
Sender	Sender					
Control point	Control point					
Mandatory TLVs						
	Name	Version introduced	Version last modified			
Profile Identifier	A	Unknown	1.24			

Field	Field	Field	Parameter	Size	Description
	value	type	120	(byte)	
Туре	0x01		<u> </u>	1	Profile Identifier
Length	3			2	
Value	\rightarrow	enum8	profile_type	1	Identifies the technology type of the
					profile. Values:
					• 0 – 3GPP
					• 1 – 3GPP2
		enum8	profile_family	1	Identifies the family of profile. Values:
					• 0 – Embedded
					• 1 – Tethered
					• 1 – Sockets (deprecated)
		uint8	profile_index	1	Profile number to be set as default
					profile.

None

3.44.2 Response - QMI_WDS_SET_DEFAULT_PROFILE_NUM_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type	100 000	(byte)	
Туре	0xE0		65 119	1	Extended Error Code
Length	2		16' Than	2	
Value	\rightarrow	enum16	extended_error_code	2	Error code from the DS profile. These
			825		error codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_PROFILE_TYPE	Profile type specified was invalid
QMI_ERR_EXTENDED_INTERNAL	Indicates an error from the DS profile module; the extended
	error code from the DS profile is populated in an additional
	optional TLV

3.44.3 Description of QMI_WDS_SET_DEFAULT_PROFILE_NUM REQ/RESP

This command sets the default profile number for the specified profile type and family.



QMI WDS RESET PROFILE TO DEFAULT 3.45

Resets all the parameters of the specified profile and technology to default values.

WDS message ID

0x004B

Version introduced

Major - 1, Minor - 8

Request - QMI_WDS_RESET_PROFILE_TO_DEFAULT_REQ 3.45.1

Mandatory TLVs

	Name	Version	n introduced	Version last modified
Profile Identifier		T Company	Jnknown	1.11

3.45.1	3.45.1 Request - QMI_WDS_RESET_PROFILE_TO_DEFAULT_REQ							
Message	Message type							
Request	Request							
Sender	Sender							
Control j	Control point							
Mandato	Mandatory TLVs							
Name Version introduced Version last modifi						Version last modified		
Profile	Identifi	er	Nº 60	Unknown 1.11				
			5.05 hande					
Field	Field	Field	Parameter	Size		Description		
	value	type	Yes.	(byte)				
Туре	0x01			1	Profile Identifie	r		
Length	2			2				
Value	\rightarrow	enum8	profile_type	1		pe of the profile. Values:		
					_	LE_TYPE_3GPP (0x00)		
					- 3GPP			
						LE_TYPE_3GPP2		
					(0x01) - 3GPP2			
					_	LE_TYPE_EPC (0x02) -		
					EPC			
		uint8	profile_index	1	Index identifyin	ig the profile.		

Optional TLVs

None

3.45.2 Response - QMI_WDS_RESET_PROFILE_TO_DEFAULT_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified	
Extended Error Code	Unknown	1.25	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	4
Туре	0xE0			31	Extended Error Code
Length	2		0.0	2)	
Value	\rightarrow	enum16	extended_error_code	2	Error code from the DS profile. These
			150 m25		error codes are explained in Appendix C.

Error codes

0	
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_PROFILE_TYPE	Profile type specified was invalid
QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code
	from the DS profile is populated in an additional optional
	TLV

3.45.3 Description of QMI_WDS_RESET_PROFILE_TO_DEFAULT REQ/RESP

This command resets the specified profile number to default values for the specified profile family type. The profile_name field (which is in other commands) is not reset.

QMI WDS RESET PROFILE PARAM TO INVALID 3.46

Resets the specified profile parameter type for the specified technology to invalid.

WDS message ID

0x004C

Version introduced

Major - 1, Minor - 8

Request - QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID_REQ 3.46.1

Message type

Mandatory TLVs

Request			
Sender		60.	
Control point		and a	
Mandatory TLVs		.06:32 nn.tm	
	Name	Version introduced	Version last modified
Profile Parameter		Unknown	1.11

Field	Field	Field	Parameter	Size	Description
	value	type	7501	(byte)	
Туре	0x01			1	Profile Parameter
Length	6			2	
Value	\rightarrow	enum8	profile_type	1	Identifies the technology type of the
					profile. Values:
					• 0 – 3GPP
					• 1 – 3GPP2
		uint8	profile_index	1	Profile number whose profile_param_id
					must be set to invalid.
		enum	profile_param_id	4	Profile parameter that must be marked as
					invalid; only the following values are
					allowed:
					• 0x17 – UMTS requested QoS
					• 0x18 – UMTS minimum QoS
					• 0x19 – GPRS requested QoS
					• 0x1A – GPRS minimum QoS
					• 0x23 – TFT filter ID 1
					• 0x24 – TFT filter ID 2

None

3.46.2 Response - QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID_- RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	Unknown	1.25

Field	Field	Field	Parameter	Size	Description
	value	type	0, 410	(byte)	
Туре	0xE0		70, 1/1,	1	Extended Error Code
Length	2		2000	2	
Value	\rightarrow	enum16	extended_error_code	2	Error code from the DS profile. These
					error codes are explained in Appendix C.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_PROFILE_TYPE	Profile type specified was invalid
QMI_ERR_EXTENDED_INTERNAL	Error from the DS profile module; the extended error code
	from the DS profile is populated in an additional optional
	TLV

3.46.3 Description of QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID REQ/RESP

This command sets the input profile parameter for the specified profile number and profile type to invalid.



QMI WDS SET CLIENT IP FAMILY PREF 3.47

Sets the control point IP preference.

WDS message ID

0x004D

Version introduced

Major - 1, Minor - 9

Request - QMI_WDS_SET_CLIENT_IP_FAMILY_PREF_REQ 3.47.1

Mandatory TLVs

Name	Version introduced	Version last modified
IP Family Preference	Unknown	1.9

3.47.1	Rec	quest -	QMI_WDS_SET_CL		P_FAMILY_F	'KEF_KEQ
Message	e type					
Request				1		
Sender				O,		
Control j	point			, s		
				767	le	
Mandato	ory TLVs	}		63,00		
Mandato	ory TLVs		ame	Versio	on introduced	Version last modified
	ily Pref	Na	ame	1.00	on introduced Jnknown	Version last modified 1.9
		Na	ame 05 18 00	1.00		
		Na	ame Parameter	1.00	Jnknown	
IP Fam	ily Pref	Na erence	6.05,151,03	Ţ	Jnknown	1.9
IP Fam	ily Pref	Na erence Field	6.05,151,03	Size	Jnknown	1.9 Description
IP Fam	ily Prefe	Na erence Field	6.05,151,03	Size	Jnknown D	1.9 Description
IP Fam Field Type	Field value 0x01	Na erence Field	6.05,151,03	Size (byte)	Jnknown D	1.9 Description
IP Fam Field Type Length	Field value 0x01	erence Field type	Parameter	Size (byte) 1 2	Jnknown D IP Family Prefe	1.9 Description

Optional TLVs

None

Response - QMI_WDS_SET_CLIENT_IP_FAMILY_PREF_RESP 3.47.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_INVALID_ARG	Invalid IP preference

3.47.3 Description of QMI_WDS_SET_CLIENT_IP_FAMILY_PREF REQ/RESP

This command allows a control point to choose its IP family preference. When the service successfully sets the IP preference for a control point, it binds the control point to that IP family until it gets another request with a different IP preference.

Any subsequent QMI_WDS_START_NETWORK_INTERFACE requests from the control point cause a data call to be attempted with an IP family preference that it is bound to. This allows two control points to bring up data calls of a different IP family type (for example, IPv4 and IPv6) on the same port.

3.48 QMI_WDS_FMC_SET_TUNNEL_PARAMS

Sets the tunnel parameters for FMC. (Deprecated)

WDS message ID

0x004E

Version introduced

Major - 1, Minor - 23

Version deprecated

Major - 1, Minor - 85

3.48.1 Request - QMI_WDS_FMC_SET_TUNNEL_PARAMS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version introduced	Version last modified
Tunnel Parameters	1.23	1.23

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Tunnel Parameters
Length	7			2	
Value	\rightarrow	uint32	stream_id	4	Stream ID
		boolean	nat_presence_indicator	1	Indicates whether the NAT is present:
					• 0x00 – Absent
					• 0x01 – Present
		uint16	port_id	2	Port ID

Optional TLVs

Name	Version introduced	Version last modified
IPv4 Socket Address	1.23	1.23
IPv6 Socket Address	1.23	1.23

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	IPv4 Socket Address
Length	4			2	
Value	\rightarrow	uint8	ipv4_sock_addr	4	Byte array containing IPv4 socket
					address information in network byte
					order.
Туре	0x11			1	IPv6 Socket Address
Length	16			2	
Value	\rightarrow	uint8	ipv6_sock_addr	16	Byte array containing IPv6 socket
					address information in network byte
					order.

3.48.2 Response - QMI_WDS_FMC_SET_TUNNEL_PARAMS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.23	1.23

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_INTERFACE_NOT_FOUND	Cannot retrieve the FMC interface
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.48.3 Description of QMI_WDS_FMC_SET_TUNNEL_PARAMS REQ/RESP

This command sets the tunnel parameters for Fixed Mobile Convergence (FMC). A successful setting of FMC tunnel parameters sends a QMI_WDS_EVENT_REPORT_IND to all registered control points with FMC added to the Data System Status TLV.

At least one of the IPv4 or IPv6 socket address TLVs must be present in the request. A QMI_ERR_OP_DEVICE_UNSUPPORTED is returned if the operation is not supported by the device.



3.49 QMI_WDS_FMC_CLEAR_TUNNEL_PARAMS

Clears the tunnel parameters for FMC. (Deprecated)

WDS message ID

0x004F

Version introduced

Major - 1, Minor - 23

Version deprecated

Major - 1, Minor - 85

3.49.1 Request - QMI_WDS_FMC_CLEAR_TUNNEL_PARAMS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.49.2 Response - QMI_WDS_FMC_CLEAR_TUNNEL_PARAMS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.23	1.23

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_INTERFACE_NOT_FOUND	Cannot retrieve the FMC interface
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	(b)

3.49.3 Description of QMI_WDS_FMC_CLEAR_TUNNEL_PARAMS REQ/RESP

This command clears the tunnel parameters for FMC. A successful clearing of FMC tunnel parameters sends a QMI_WDS_EVENT_REPORT_IND to all registered control points with FMC removed from the Data System Status TLV.

A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned if the operation is not supported by the device.

3.50 QMI_WDS_FMC_GET_TUNNEL_PARAMS

Queries the FMC tunnel parameters from the device. (Deprecated)

WDS message ID

0x0050

Version introduced

Major - 1, Minor - 23

Version deprecated

Major - 1, Minor - 85

3.50.1 Request - QMI_WDS_FMC_GET_TUNNEL_PARAMS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.50.2 Response - QMI WDS FMC GET TUNNEL PARAMS RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.23	1.23

Name	Version introduced	Version last modified	
Tunnel Parameters	1.23	1.23	
IPv4 Socket Address	1.23	1.23	
IPv6 Socket Address	1.23	1.23	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Tunnel Parameters
Length	7			2	
Value	\rightarrow	uint32	stream_id	4	Stream ID
		boolean	nat_presence_indicator	1 💣	Indicates whether the NAT is present:
					• 0x00 – Absent
					• 0x01 – Present
		uint16	port_id	2	Port ID
Туре	0x11			1	IPv4 Socket Address
Length	4			2	
Value	\rightarrow	uint8	ipv4_sock_addr	4 <	Byte array containing IPv4 socket
				80	address information in network byte
				3	order.
Туре	0x12		0.	o. To,,	IPv6 Socket Address
Length	16		00,	2	
Value	\rightarrow	uint8	ipv6_sock_addr	16	Byte array containing IPv6 socket
			5 10		address information in network byte
			6. 4121		order.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INTERFACE_NOT_FOUND	Cannot retrieve the FMC interface
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.50.3 Description of QMI_WDS_FMC_GET_TUNNEL_PARAMS REQ/RESP

This command queries the FMC tunnel parameters from the device.

A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned if not supported by the device.

QMI_WDS_SET_AUTOCONNECT_SETTINGS 3.51

Sets the autoconnect settings.

WDS message ID

0x0051

Version introduced

Major - 1, Minor - 12

Request - QMI_WDS_SET_AUTOCONNECT_SETTINGS_REQ 3.51.1

Message type

Mandatory TLVs

wessage type				
Request			1/2	
Sender)"	
Control point				
Mandatory TLVs		06	3 Chin	
	Name	00 48	Version introduced	Version last modified
Autoconnect Setting		No. 125	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type	750	(byte)	
Туре	0x01			1	Autoconnect Setting
Length	1			2	
Value	\rightarrow	enum8	autoconnect_setting	1	Values:
					• 0x00 – Disabled
					• 0x01 – Enabled
					• 0x02 – Paused (resume on power cycle)

Optional TLVs

Name	Version introduced	Version last modified
Autoconnect Roam Setting	Unknown	1.12

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0x10			1	Autoconnect Roam Setting
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	autoconnect_roam_setting	1	Current autoconnect roaming status.
					Values:
					• 0x00 – Autoconnect always allowed
					• 0x01 – Autoconnect while in home
					service area only
					Note: Autoconnect roam setting is only
					used while autoconnect is enabled.

3.51.2 Response - QMI_WDS_SET_AUTOCONNECT_SETTINGS_RESP

Messag	e type
wicssay	CIVAC

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_INVALID_ARG	Specified value is not within the valid range
QMI_ERR_ACCESS_DENIED	Autoconnect feature is unavailable at this time
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	
QMI_ERR_NO_EFFECT	Specified mobile IP setting is already in effect

3.51.3 Description of QMI_WDS_SET_AUTOCONNECT_SETTINGS REQ/RESP

This command sets the current autoconnect state and settings.

The autoconnect state and settings take effect immediately and persist over device power cycles. Successful requests to change the autoconnect state may modify the packet_data_connection_state shared state variable, described in Section 2.5.1.

If autoconnect is disabled, the device does not attempt to automatically initiate a data call; clients must do so by issuing requests to QMI_WDS_START_NETWORK_INTERFACE.

The autoconnect enabled state causes the session to automatically reconnect if the packet data session is disconnected for any reason.

The autoconnect paused state allows autoconnect to be temporarily disabled until the next time the device is power cycled. When power cycled, the setting automatically changes to autoconnect enabled and autoconnect behavior resumes.

The roam setting may also be used to modify autoconnect behavior. If set to home-only, the device does not automatically initiate a data call if the device is not in a home service area. If a data call is active and the device moves out of a home service area, the data call is not stopped automatically. Autoconnect support only resumes after the device is returned to the home service area.

Requests to enable or pause autoconnect when disallowed by the device provisioning generate a QMI_ERR_ACCESS_DENIED error.

Requests to set the same values that are already active generate a QMI_ERR_NO_EFFECT error.

3.52 QMI WDS GET DNS SETTINGS

Queries the current DNS settings for the device. (Deprecated)

WDS message ID

0x0052

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 85

3.52.1 Request - QMI_WDS_GET_DNS_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.52.2 Response - QMI WDS GET DNS SETTINGS RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Primary DNS IPv4 Address	Unknown	1.12
Secondary DNS IPv4 Address	Unknown	1.12
Primary IPv6 DNS Address	Unknown	1.12
Secondary IPv6 DNS Address	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	(b)
Туре	0x10			1	Primary DNS IPv4 Address
Length	4			2	
Value	\rightarrow	uint32	primary_dns_ipv4_address	4 _	The primary DNS address reported from
					the device. Note: A value of 0.0.0.0 or
					the absence of this TLV indicates that the
					network values are reported.
Туре	0x11			1	Secondary DNS IPv4 Address
Length	4			2	
Value	\rightarrow	uint32	secondary_dns_ipv4_	4 <	Secondary DNS address reported from
			address	80	the device.
				3	Note: A value of 0.0.0.0 or the absence
			0.	0. 0//	of this TLV indicates that the network
			00.	64.	values are reported.
Туре	0x12		5° 66	1	Primary IPv6 DNS Address
Length	16		65 .69	2	
Value	\rightarrow	uint8	primary_dns_ipv6_address	16	Primary IPv6 DNS address in network
			30,00		byte order; an 8-element array of 16-bit
			98		numbers, each of which is in big-endian
					format. Note: A value of 0 indicates that
					the network values are reported.
Туре	0x13			1	Secondary IPv6 DNS Address
Length	16			2	
Value	\rightarrow	uint8	secondary_dns_ipv6_	16	Secondary IPv6 DNS address in network
			address		byte order; an 8-element array of 16-bit
					numbers, each of which is in big-endian
					format. Note: A value of 0 indicates that
					the network values are reported.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.52.3 Description of QMI_WDS_GET_DNS_SETTINGS REQ/RESP

This command queries the DNS settings for the device. If set, these values override the DNS server's addresses for active data connections (see QMI_WDS_GET_RUNTIME_SETTINGS). These settings can be queried while the data call is idle or active.

Requests to query the DNS settings when neither has been set generates a QMI_ERR_NOT_PROVISIONED error.



3.53 QMI_WDS_SET_DNS_SETTINGS

Sets the current DNS settings for the device. (Deprecated)

WDS message ID

0x0053

Version introduced

Major - 1, Minor - 12

Version deprecated

Major - 1, Minor - 85

3.53.1 Request - QMI_WDS_SET_DNS_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

Name	Version introduced	Version last modified
Primary DNS IPv4 Address	Unknown	1.12
Secondary DNS IPv4 Address	Unknown	1.12
Primary IPv6 DNS Address	Unknown	1.12
Secondary IPv6 DNS Address	Unknown	1.12

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Primary DNS IPv4 Address
Length	4			2	
Value	\rightarrow	uint32	primary_dns_ipv4_address	4	Primary DNS address reported from the device. Note: A value of 0.0.0.0 indicates that the network values are reported.
Туре	0x11			1	Secondary DNS IPv4 Address
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint32	secondary_dns_ipv4_	4	Secondary DNS address reported from
			address		the device. Note: A value of 0.0.0.0
					indicates that the network values are
					reported.
Туре	0x12			1	Primary IPv6 DNS Address
Length	16			2	
Value	\rightarrow	uint8	primary_dns_ipv6_address	16	Primary IPv6 DNS address in network
					byte order; an 8-element array of 16-bit
					numbers, each of which is in big-endian
					format. Note: A value of 0 indicates that
					the network values are reported.
Туре	0x13			1 @	Secondary IPv6 DNS Address
Length	16			2	
Value	\rightarrow	uint8	secondary_dns_ipv6_	16	Secondary IPv6 DNS address in network
			address		byte order; an 8-element array of 16-bit
					numbers, each of which is in big-endian
				3	format. Note: A value of 0 indicates that
				_	the network values are reported.

3.53.2 Response - QMI_WDS_SET_DNS_SETTINGS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	
QMI_ERR_NO_EFFECT	Request to set the same values that are already active
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request

3.53.3 Description of QMI WDS SET DNS SETTINGS REQ/RESP

This request sets the DNS settings reported by the device for an active data call. When set (nonzeros), these values override the DNS address values specified by the serving network.

Requests to set the same values that are already active generates a QMI_ERR_NO_EFFECT error.



3.54 QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS

Retrieves the packet data session information before dormancy.

WDS message ID

0x0054

Version introduced

Major - 1, Minor - 14

3.54.1 Request - QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS_- REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.54.2 Response - QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS_-RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Predormancy Settings	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Predormancy Settings
Length	3			2	
Value	\rightarrow	enum16	service_option	2	Packet data call service option before
					dormancy. Values:
					• 0x0007 – IS-657
					• 0x000F – IS-657 over rate set 2
					• 0x0016 – IS-707A with rate set 1
					forward and reverse
					• 0x0019 – IS-707A with rate set 2
					forward and reverse
					• 0x0021 – cdma2000 [®] packet service
					option
					• 0x1007 – IS-707
					• 0x8020 – QC Proprietary, rate set 2
					• -1 – NULL service option (returned
				3"	when not in a CDMA-1X data session)
		enum8	data_sess_nw	1	Data session network before dormancy.
				_	Values:
				00	• 0x00 – No service (returned when not
			V 1200	27 1	in a 3GPP2 data session)
				5. of	• 0x02 – CDMA
			0:0	04:	• 0x04 – HDR

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.54.3 Description of QMI_WDS_GET_PRE_DORMANCY_CDMA_-SETTINGS REQ/RESP

This command retrieves the network and service option information for the 3GPP2 data session before going into dormancy.

If the device is not in a 3GPP2 data session, the service option is set to the NULL service option (0xFFFF) and the data session network is set to no service (0x00).

If the device is not in a CDMA-1X data session, the service option is set to the NULL service option (0xFFFF).

A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned when this command is queried for 3GPP-only devices.

2016.05.18.00.06:31.bofin.tw

3.55 QMI WDS SET CAM TIMER

Sets the Chatty App Manager timer value.

WDS message ID

0x0055

Version introduced

Major - 1, Minor - 14

Request - QMI_WDS_SET_CAM_TIMER_REQ 3.55.1

Mandatory TLVs

	Name	Version introduced	Version last modified
CAM Timer	Nº 63	Unknown	1.14

3.55.1	Rec	quest -	QMI_WDS_SET_CAI	M_TIM	ER_REQ			
Message	e type			_1				
Request	Request							
Sender	Sender							
Control	Control point							
Mandato	ory TLVs	;		63.0m	21			
		Na	ame	Version	on introduced	Version last modified		
CAM	Гimer		5° 63°	Unknown 1.14		1.14		
			(105 Yang)					
Field	Field	Field	Parameter	Size	1	Description		
	value	type	1,80,	(byte)				
	value	-7						
Туре	0x01	3,10	○	1	CAM Timer			
Type Length		-5/2-5		1 2	CAM Timer			

Optional TLVs

None

Response - QMI_WDS_SET_CAM_TIMER_RESP 3.55.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	CAM Timer TLV was missing in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.55.3 Description of QMI_WDS_SET_CAM_TIMER REQ/RESP

This command sets the Chatty App Manager timer value to the one specified in the TLV, cam_timer. This timer is used for CDMA-1X calls only.

Attempts to set this in 3GPP-only devices generate a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

The CAM timer value can be changed at any point for 3GPP2 devices. If set during an active CDMA-1X call, the new value is used in the subsequent 1X data call, and does not affect the current call.

The default value of the CAM timer is set to 300 seconds. A value of 0 causes the timer to be disabled.

3.56 QMI WDS GET CAM TIMER

Queries the Chatty App Manager timer value.

WDS message ID

0x0056

Version introduced

Major - 1, Minor - 14

3.56.1 Request - QMI_WDS_GET_CAM_TIMER_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.56.2 Response - QMI_WDS_GET_CAM_TIMER_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS

Name	Version introduced	Version last modified
CAM Timer	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	CAM Timer
Length	4			2	
Value	\rightarrow	uint32	cam_timer	4	Retrieves the current value of the CAM
					timer, in seconds.

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.56.3 Description of QMI_WDS_GET_CAM_TIMER REQ/RESP

This command queries the Chatty App Manager timer setting for the device. Attempts to read this setting in 3GPP-only devices generate a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.57 QMI_WDS_SET_SCRM

Disables/enables the Supplemental Channel Request Message (SCRM).

WDS message ID

0x0057

Version introduced

Major - 1, Minor - 14

3.57.1 Request - QMI_WDS_SET_SCRM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

	Name	00	Version introduced	Version last modified
SCRM		No 200	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type	180	(byte)	
Туре	0x01		<u> </u>	1	SCRM
Length	1			2	
Value	\rightarrow	boolean	scrm	1	Values:
					• 0x00 – SCRM disabled
					• 0x01 – SCRM enabled

Optional TLVs

None

3.57.2 Response - QMI_WDS_SET_SCRM_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	SCRM TLV was missing in the request
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	100

3.57.3 Description of QMI WDS SET SCRM REQ/RESP

This command enables or disables the SCRM support.

The SCRM setting can be changed at any point for 3GPP2 devices. If set during an active CDMA-1X call, the new value is used in the subsequent 1X data call, and does not effect the current call.

Attempts to set this in 3GPP-only devices generate a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.58 QMI_WDS_GET_SCRM

Retrieves whether SCRM support is enabled or disabled.

WDS message ID

0x0058

Version introduced

Major - 1, Minor - 14

3.58.1 Request - QMI_WDS_GET_SCRM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.58.2 Response - QMI_WDS_GET_SCRM_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified	
SCRM	Unknown	1.14	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	SCRM
Length	1			2	
Value	\rightarrow	boolean	scrm	1	Values:
					• 0x00 – SCRM disabled
					• 0x01 – SCRM enabled

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.58.3 Description of QMI_WDS_GET_SCRM REQ/RESP

This command queries whether the SCRM is enabled or disabled for the device. Attempts to set this in 3GPP-only devices generate a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

QMI WDS SET RDUD 3.59

Enables or disables reduced dormancy followed by unsolicited data.

WDS message ID

0x0059

Version introduced

Major - 1, Minor - 14

Request - QMI_WDS_SET_RDUD_REQ 3.59.1

Mandatory TLVs

	Name	OO EV	ersion introduced	Version last modified
RDUD		20 m25	Unknown	1.14

Message	lessage type					
Request	Request					
Sender	Sender					
Control	point					
Mandato	Mandatory TLVs					
		Na	ime	Version	on introduced	Version last modified
RDUD	RDUD			Unknown		1.14
		1	5.05 range			
Field	Field	Field	Parameter	Size	I	Description
	value	type	1,50,	(byte)		
Туре	0x01			1	RDUD	
Length	1			2		
Value	\rightarrow	boolean	rdud	1	Values:	
					• 0x00 – RDUI	O disabled
					• 0x01 – RDUI	enabled

Optional TLVs

None

Response - QMI_WDS_SET_RDUD_RESP 3.59.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	RDUD TLV was missing in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.59.3 Description of QMI_WDS_SET_RDUD REQ/RESP

This command enables or disables RDUD. Attempts to set this in 3GPP-only devices generate a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.60 QMI WDS GET RDUD

Retrieves whether reduced dormancy followed by unsolicited data is enabled or disabled.

WDS message ID

0x005A

Version introduced

Major - 1, Minor - 14

3.60.1 Request - QMI_WDS_GET_RDUD_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.60.2 Response - QMI_WDS_GET_RDUD_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
RDUD	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	RDUD
Length	1			2	
Value	\rightarrow	boolean	rdud	1	Values:
					• 0x00 – Disabled
					• 0x01 – Enabled

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

3.60.3 Description of QMI_WDS_GET_RDUD REQ/RESP

This command queries whether reduced dormancy followed by unsolicited data is enabled or disabled for the device. Attempts to set this in 3GPP-only devices generate a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.61 QMI_WDS_GET_SIP_MIP_CALL_TYPE

Queries the SIP/MIP call type.

WDS message ID

0x005B

Version introduced

Major - 1, Minor - 14

3.61.1 Request - QMI_WDS_GET_SIP_MIP_CALL_TYPE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.61.2 Response - QMI_WDS_GET_SIP_MIP_CALL_TYPE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Call Type	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Call Type
Length	1			2	
Value	\rightarrow	enum8	call_type	1	Values:
					• 0x00 – SIP_MIP not up
					• 0x01 – SIP up
					• 0x02 – MIP up

None

Error codes

QMI_ERR_NONE	No error in the request	
QMI_ERR_INTERNAL	Unexpected error occurred during processing	
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point	
	or the message was corrupted during transmission	
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response	
QMI_ERR_OP_DEVICE_	Operation is not supported by the device	
UNSUPPORTED		
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was	
	disconnected	

3.61.3 Description of QMI_WDS_GET_SIP_MIP_CALL_TYPE REQ/RESP

This command is used to request the current SIP/MIP call type.

This request is valid only in an active data call. QMI_ERR_OUT_OF_CALL is returned if the query is made outside a data call.

A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned when this command is queried for 3GPP-only devices or if the current data session is on a 3GPP network. Smaller values for the slot cycle index result in lower latency to receive the network initiated data at the cost of higher battery usage.

QMI WDS SET EVDO PAGE MONITOR PERIOD

Sets the EV-DO slot cycle index.

WDS message ID

0x005C

Version introduced

Major - 1, Minor - 14

Request - QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD_REQ

Mandatory TLVs

Name	Version introduced	Version last modified
EV-DO Page Monitor Period	Unknown	1.14

3.02.1	3.62.1 Request - QMI_WD5_5E1_EVDO_PAGE_MONITOR_PERIOD_REQ					
Message	Message type					
Request	Request					
Sender	Sender					
Control	point			, O		
Mandato	ry TLVs	3		6300	and	
		Na	ame	Version	on introduced	Version last modified
EV-DC	Page N	Ionitor Pe	riod	Unknown 1.14		
		1	5.05 hande			
Field	Field	Field	Parameter	Size	D	escription
	value	type	750	(byte)		
Туре	0x01		<u> </u>	1	EV-DO Page Mo	onitor Period
Length	1			2		
Value	\rightarrow	enum8	evdo_page_monitor_	1	If the service red	ceives any value that can
			period		not be set, it retu	ırns
					QMI_ERR_INV	ALID_ARG and does
					not modify the I	EV-DO page monitor
					_	sets the SCI to the
					default value.	

Optional TLVs

None

3.62.2 Response - QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.62.3 Description of QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD REQ/RESP

This command is used to set the EV-DO slot cycle index. Success of this command indicates that the request has been received but it does not imply that the value has been changed. The control point is expected to process the QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND to learn about success or failure.

A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned when this command is queried for 3GPP-only devices. A QMI_ERR_INVALID_ARG is returned if any input value is outside the range understood by the service implementation.

3.63 QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND

Indicates the result of the attempt to change the EV-DO slot cycle.

WDS message ID

0x005C

Version introduced

Major - 1, Minor - 14

3.63.1 Indication - QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_- IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

Name	Version introduced	Version last modified
EV-DO Slot Cycle Set Result	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	EV-DO Slot Cycle Set Result
Length	1			2	
Value	\rightarrow	enum8	status	1	Values:
					0x00 – Success
					0x01 – Failure –
					REQUEST_REJECTED
				0x02 – Failure –	
					REQUEST_FAILED_TX
					0x03 – Failure – NOT_SUPPORTED
					0x04 – Failure – NO_NET

None

3.63.2 Description of QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_-RESULT_IND

This indication is sent to the control point to indicate whether the setting using QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD was accepted by the network. Note that if the contol point sends a second QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD_REQ before receiving the first QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND, it is unspecified which of the requests this result refers to. The control point must monitor the EV-DO page monitor period change to learn the current EV-DO page monitor period.

2016-05-18 00:06:3 LEDTIN

QMI WDS SET EVDO FORCE LONG SLEEP 3.64

Enables or disables the EV-DO force long sleep feature.

WDS message ID

0x005D

Version introduced

Major - 1, Minor - 14

Request - QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP_REQ 3.64.1

Mandatory TLVs

Name	Version introduced	Version last modified
Force Long Sleep Setting	Unknown	1.14

3.04.1	nec	lucsi -		`		
Message	e type					
Request						
Sender				J.		
Control	point					
Mandatory TLVs						
	.,			63 00		
			ame	20. 50%	on introduced	Version last modified
				Versio		Version last modified
		Na		Versio	on introduced	
		Na		Versio	on introduced Jnknown	
Force I	Long Sle	Na eep Setting		Versio	on introduced Jnknown	1.14
Force I	Long Sle	Na eep Setting Field		Versio	on introduced Jnknown	1.14 Description
Force I	ong Sle	Na eep Setting Field		Version [on introduced Jnknown	1.14 Description
Force I Field Type	Field value 0x01	Na eep Setting Field		Version Using Size (byte)	on introduced Jnknown	1.14 Description
Field Type Length	Field value 0x01	Na eep Setting Field type	Parameter	Versid U Size (byte) 1 2	Force Long Slee	1.14 Description

Optional TLVs

None

Response - QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP_RESP 3.64.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	1000

3.64.3 Description of QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP REQ/RESP

When EV-DO Force Long Sleep is enabled, the EV-DO air interface ignores the slot cycle (sleep duration) negotiated with the network and instead sleeps for long periods of time when possible. Enabling EV-DO Force Long Sleep can result in the modem missing pages from the network. Note that the EV-DO air interface always performs long sleep when there is no packet data session established with the network. This interface is used to force the long sleep behavior even when there is a packet data session established. The settings controlled by this interface persist until the device enters Low Power mode or is powered down. For example, the settings persist if the EV-DO session is closed and re-opened. A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned when this command is queried for 3GPP-only devices.

3.65 QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD

Retrieves details about the EV-DO page monitoring period.

WDS message ID

0x005E

Version introduced

Major - 1, Minor - 14

3.65.1 Request - QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.65.2 Response - QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD_-RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
EV-DO Page Monitor Period Details	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	EV-DO Page Monitor Period Details
Length	2			2	
Value	\rightarrow	enum8	evdo_page_monitor_ period_change	1	EV-DO slot cycle and long sleep info.
		boolean	evdo_force_long_sleep	1	Set to 1 if EV-DO is forced to ignore the slot cycle setting and instead sleep for long periods, potentially missing pages

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	0.001.00

3.65.3 Description of QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD REQ/RESP

This command queries the slot cycle value and whether the EV-DO Force Long Sleep feature is enabled. QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned when this command is queried for 3GPP-only devices.

3.66 QMI_WDS_GET_CALL_THROTTLE_INFO

Queries whether the system is call throttled and returns the remaining throttled delay.

WDS message ID

0x005F

Version introduced

Major - 1, Minor - 14

3.66.1 Request - QMI_WDS_GET_CALL_THROTTLE_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.66.2 Response - QMI_WDS_GET_CALL_THROTTLE_INFO_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Call Throttled	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Call Throttled
Length	8			2	
Value	\rightarrow	uint32	hdr_call_throttled_delay	4	HDR throttled delay; specifies the
					remaining call throttled delay in seconds.
					Set to 0 if the system is not call throttled.
		uint32	cdma_call_throttled_delay	4	CDMA-1X throttled delay; specifies the
					remaining call throttled delay in seconds.
					Set to 0 if the system is not call throttled.

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	20 75 E.

3.66.3 Description of QMI_WDS_GET_CALL_THROTTLE_INFO REQ/RESP

This command is used to query if the system is call throttled or not, and returns the remaining throttled delay.

The Call Throttled TLV (0x01) contains the throttle information for both HDR and CDMA-1X systems. A default throttled delay value of 0 indicates that the system is not call throttled.

Attempts to retrieve this in 3GPP-only devices generate a QMI_ERR_OP_DEVICE_UNSUPPORTED error.

3.67 **QMI WDS GET NSAPI**

Retrieves the Network Service Access Point Identifier (NSAPI), based on the access point name.

WDS message ID

0x0060

Version introduced

Major - 1, Minor - 14

Request - QMI_WDS_GET_NSAPI_REQ 3.67.1

Mandatory TLVs

	Name	Version introduced	Version last modified
APN	Nº 63	Unknown	1.14

5.5							
Message type							
Request							
Sender							
Control point							
Mandatory TLVs							
	Na	ame	Version	on introduced	Version last modified		
		\% a3	Ţ	Jnknown	1.14		
APN Unknown 1.14							
Field Field Parameter Size Description							
value	type	150	(byte)				
0x01		7	1	APN			
Var			2				
\rightarrow	string	apn	Var	Access point na	ame.		
1	point Field value 0x01 Var	point Pry TLVs Na Field Field type 0x01	point Name Field Field Parameter value type $0x01$ Var	Point Name Versice Field Field Parameter Size (byte) 0x01 1 Var 2	Point Name Version introduced Unknown Field Field Parameter Size (byte) 0x01 1 APN Var 2		

Optional TLVs

None

Response - QMI_WDS_GET_NSAPI_RESP 3.67.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
NSAPI	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	NSAPI
Length	Var		-	2	
Value	\rightarrow	uint8	nsapi_len	- 1	Number of sets of the following
			, 0	r	elements:
				5	• nsapi
		uint8	nsapi	Var	NSAPI.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_MISSING_ARG	APN TLV was missing in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	
QMI_ERR_INFO_UNAVAILABLE	NSAPI cannot be retrieved for the specified APN

3.67.3 Description of QMI_WDS_GET_NSAPI REQ/RESP

This command is used to request the primary and secondary bearer's NSAPI for a specified access point name. The primary bearer's NSAPI is always returned. The number of secondary bearer NSAPI's returned depends on how many bearers are active at that point.

A QMI_ERR_INFO_UNAVAILABLE error is returned when the NSAPI cannot be retrieved for the specified APN.

A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned when this command is queried for 3GPP2 only devices.

3.68 QMI_WDS_SET_DUN_CTRL_PREF

Sets the control point's preference to control the Dial-Up Networking (DUN) call requests received by the modem.

WDS message ID

0x0061

Version introduced

Major - 1, Minor - 14

3.68.1 Request - QMI_WDS_SET_DUN_CTRL_PREF_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	Version introduced	Version last modified
DUN Control Preference	5 20	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type	<u> </u>	(byte)	
Туре	0x01			1	DUN Control Preference
Length	1			2	
Value	\rightarrow	enum8	dun_control_preference	1	Values:
					• 0x00 – Relinquish control of DUN calls
					• 0x01 – Exercise control over DUN calls

Optional TLVs

Name	Version introduced	Version last modified
Allow DUN Calls	Unknown	1.14

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0x10			1	Allow DUN Calls
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	dun_allow_preference	1	Values:
					• 0x00 – Deny subsequent DUN calls by
					default
					• 0x01 – Allow subsequent DUN calls by
					default

3.68.2 Response - QMI_WDS_SET_DUN_CTRL_PREF_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_NO_EFFECT	Another control point is already registered for DUN call
	control
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.68.3 Description of QMI WDS SET DUN CTRL PREF REQ/RESP

This command sets the control point's preference to control the DUN call requests received by the modem.

The control point can choose to either exercise control over the DUN call requests or relinquish control. If the control point prefers to relinquish control of DUN call requests by specifying a value of zero in the mandatory TLV, all optional TLVs in the command are ignored.

If the control point chooses to exercise control over DUN calls, it can choose the default action (allow/deny) to be taken when a DUN call request is received by the modem. The default action is to allow incoming DUN calls when the optional DUN control action TLV is absent.

Only the first control point that registers for controlling DUN calls through this command is allowed to control DUN calls. Any other control points sending this request while another control point is already registered for DUN call control receive a QMI_ERR_NO_EFFECT error in response.

This command elicits a QMI_ERR_OP_DEVICE_UNSUPPORTED error on CDMA-only devices.

2016-05-1800:06:31 EDT IN

3.69 QMI WDS GET DUN CTRL INFO

Queries the status of the DUN call control on the modem.

WDS message ID

0x0062

Version introduced

Major - 1, Minor - 14

3.69.1 Request - QMI_WDS_GET_DUN_CTRL_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.69.2 Response - QMI_WDS_GET_DUN_CTRL_INFO_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
DUN Control Status	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	DUN Control Status
Length	1			2	
Value	\rightarrow	enum8	dun_control_status	1	Values:
					• 0x00 – DUN control is not enabled by
					any control point
					• 0x01 – DUN control is enabled

Name	Version introduced	Version last modified
Allow DUN Calls	Unknown	1.14
Current Control Point	Unknown	1.14
Event Report Mask	Unknown	1.19

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1,0	Allow DUN Calls
Length	1		7 200	2	gh.
Value	\rightarrow	enum8	allow_preference	5. July	Values:
			0:5	24.	• 0x00 – Deny subsequent DUN calls by
			19 15		default
			(a) (b) (c) (c)		• 0x01 – Allow subsequent DUN calls by
		,	C.O. Walley		default
Type	0x11			1	Current Control Point
Length	1		220	2	
Value	\rightarrow	enum8	current_control_point	1	Set by current control point. Values:
					• 0x00 – Preference is set by another
					control point
					• 0x01 – Preference is set by current
					control point
Туре	0x12			1	Event Report Mask
Length	1			2	
Value	\rightarrow	mask8	event_report_mask	1	Values:
					• 0x01 – Send DUN call completion
					notifications
					• 0x02 – Send DUN entitlement
					notifications
					• 0x04 – Send DUN silent redial
					notifications

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.69.3 Description of QMI_WDS_GET_DUN_CTRL_INFO REQ/RESP

This command queries the current DUN control preference set on the modem.

The DUN Call Status TLV contains SET if any active control point has explicitly acquired control of the DUN calls using the QMI_WDS_SET_DUN_CTRL_PREF message and NOT_SET in all other cases.

If DUN call control is exercised by any active control point, the response also contains the Allow Preference TLV to convey the default action for DUN call requests, the Current Control Point TLV to convey whether the current control point holds control over DUN call requests, and the Event Report Mask TLV to specify whether that control point is registered for entitlement and silent redial notifications.

This command elicits a QMI_ERR_OP_DEVICE_UNSUPPORTED error on CDMA-only devices.

QMI WDS SET DUN CTRL EVENT REPORT 3.70

Sets the DUN control event report preference for the control point.

WDS message ID

0x0063

Version introduced

Major - 1, Minor - 14

Request - QMI_WDS_SET_DUN_CTRL_EVENT_REPORT_REQ 3.70.1

Message type

Sender

Mandatory TLVs

Name	Version introduced	Version last modified
Enable DUN Call Notifications	Unknown	1.14

3.70.1	Rec	Įuesι -	QIVII_WDS_SEI_DU	JIN_C I I	IL_EAEIAI_I	nEPONI_NEW
Message	e type			1		
Request						
Sender	Sender					
Control 1	point			5		
Mandatory TLVs						
Mandato	,, , , _ , ,	•		6.3 10		
Mandato			ime	Version	on introduced	Version last modified
				V	on introduced Jnknown	Version last modified
		Na		V		
		Na		V	Jnknown	
Enable	DUN C	Na Call Notific	eations	Size	Jnknown	1.14
Enable Field	DUN C	Na Call Notific	eations	Size	Jnknown	1.14 Description
Enable Field Type	DUN C	Na Call Notific	eations	Size (byte)	Jnknown	1.14 Description
Enable Field Type Length	Field value 0x01	Na Call Notific Field type	Parameter	Size (byte) 1 2	Inknown Enable DUN Ca Values:	1.14 Description

Optional TLVs

Name	Version introduced	Version last modified
Entitlement Notifications	Unknown	1.14
Silent Redial Notifications	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Entitlement Notifications
Length	1			2	
Value	\rightarrow	boolean	notify_entitlement	1	Values:
					• 0x00 – Disable entitlement notifications
					• 0x01 – Enable entitlement notifications

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x11			1	Silent Redial Notifications
Length	1			2	
Value	\rightarrow	boolean	notify_silent_redial	1	Values:
					• 0x00 – Disable silent redial
					notifications
					• 0x01 – Enable silent redial notifications

3.70.2 Response - QMI_WDS_SET_DUN_CTRL_EVENT_REPORT_RESP

Message	type
---------	------

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version introduced	Version last modified
Accepted Event Report Mask	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Accepted Event Report Mask
Length	1			2	
Value	\rightarrow	mask8	accepted_event_report_	1	Values:
			mask		• 0x01 – Send DUN call completion
					notifications
					• 0x02 – Send DUN entitlement
					notifications
					• 0x04 – Send DUN silent redial
					notifications

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_NO_EFFECT	Request is deemed invalid
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	<u></u>

3.70.3 Description of QMI_WDS_SET_DUN_CTRL_EVENT_REPORT REQ/RESP

This command sets the control point's preference to receive notifications related to DUN call requests. A control point can prefer to listen to DUN call notifications, entitlement requests, or silent redial requests.

DUN call notification requests are honored from all control points. Entitlement and silent redial notification requests are only honored from the control point exercising control over DUN calls using the QMI_WDS_SET_DUN_CTRL_PREF message. If the controlling control point chooses to receive silent redial notifications, it must register for entitlement notifications as well. This command elicits a QMI_ERR_NO_EFFECT error if the request is deemed invalid because of any of these restrictions.

The request for notifications is acknowledged through the Accepted Event Report Mask TLV.

This command elicits a QMI_ERR_OP_DEVICE_UNSUPPORTED error on CDMA-only devices.

3.71 QMI_WDS_DUN_CTRL_EVENT_REPORT_IND

Indicates an event related to a pending DUN call request on the modem.

WDS message ID

0x0063

Version introduced

Major - 1, Minor - 14

3.71.1 Indication - QMI_WDS_DUN_CTRL_EVENT_REPORT_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

Name	Version introduced	Version last modified
DUN Control Event	Unknown	1.14

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	DUN Control Event
Length	1			2	
Value	\rightarrow	enum8	dun_ctrl_event	1	Values:
					• 0x01 – DUN call notification
					• 0x02 – Entitlement notification
					• 0x03 – Silent redial notification

Name	Version introduced	Version last modified
DUN Call Notification	Unknown	1.14
DUN Call Identifier	Unknown	1.14
Previous DUN Attempt Failure Reason	1.14	1.26

4

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1,0	DUN Call Notification
Length	1		A 12/4	2	gh.
Value	\rightarrow	enum8	dun_call_notification	5.7.John	Values:
			20:0	34.	• 0x00 – DUN call denied
			3 3		• 0x01 – DUN call allowed
Туре	0x11		-5/ \@"	1	DUN Call Identifier
Length	1		C. Valley	2	
Value	\rightarrow	uint8	dun_call_id	1	DUN call identifier.
Туре	0x12		1,00	1	Previous DUN Attempt Failure Reason
Length	4		0	2	
Value	\rightarrow	enum16	call_end_reason_type	2	Call end reason type. Values:
					• 0 – Unspecified
					• 1 – Mobile IP
					• 2 – Internal
					• 3 – Call Manager defined
					• 6 – 3GPP Specification defined
					• 7 – PPP
					• 8 – EHRPD
					• 9 – IPv6
		uint16	call_end_reason	2	Reason the call ended (verbose); see
					Appendix B for the definition of these
					values.

3.71.2 Description of QMI WDS DUN CTRL EVENT REPORT IND

This indication notifies the control point of a DUN call event on the modem. The nature of the event is conveyed through the DUN Control Event TLV.

In case of a DUN call notification, the indication does not contain any other TLVs.

In case of an entitlement notification, the Call Identifier TLV specifies the call ID of the call for which entitlement notification is being sent. In case of a silent redial notification, the call end reason for the previous DUN call attempt is specified through the Previous DUN Attempt Failure Reason TLV, along with the DUN Call Identifier TLV. The control point can choose to either allow or deny the DUN call by sending a QMI_WDS_CONTROL_PENDING_DUN_CALL message.

2016-05-18-00-06-31-PDT INV

3.72 QMI WDS CONTROL PENDING DUN CALL

Allows or disallows a pending DUN call request.

WDS message ID

0x0064

Version introduced

Major - 1, Minor - 14

Request - QMI_WDS_CONTROL_PENDING_DUN_CALL_REQ 3.72.1

Message type

Mandatory TLVs

Request			N			
Sender) ,			
Control point						
Mandatory TLVs	4	MP.	26.3. Com 124			
	Name	00	Version introduced	Version last modified		
DUN Call Action		2000	Unknown	1.14		
DUN Call Identifier		65.70	Unknown	1.14		

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0x01	.,,,,		1	DUN Call Action
Length	1			2	
Value	\rightarrow	enum8	dun_call_action	1	Allow DUN calls. Values:
					• 0x00 – Deny DUN call
					• 0x01 – Allow DUN call
Туре	0x02			1	DUN Call Identifier
Length	1			2	
Value	\rightarrow	uint8	dun_call_id	1	DUN call identifier.

Optional TLVs

None

3.72.2 Response - QMI_WDS_CONTROL_PENDING_DUN_CALL_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_NO_EFFECT	Request arrives from an incorrect control point or there is no
6	pending DUN call
QMI_ERR_INVALID_ID	Incorrect call identifier is sent
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

ON

3.72.3 Description of QMI_WDS_CONTROL_PENDING_DUN_CALL REQ/RESP

This command directs the modem to allow or deny a pending DUN call request. The command must contain the call identifier of the call for which the request is being sent.

This command is honored only from the control point exercising control over DUN calls, subsequent to an entitlement or silent redial notification sent by the service. This request must be sent to the modem within the specified time-out period (10 seconds), after the entitlement or silent redial notification has been received. It elicits a QMI_ERR_NO_EFFECT error if it arrives from any other control point or if it arrives when there is no pending DUN call.

The command elicits an INVALID_ID error if an incorrect call identifier is sent.

This command elicits a QMI_ERR_OP_DEVICE_UNSUPPORTED error on CDMA-only devices.

QMI WDS EMBMS TMGI ACTIVATE 3.73

Activates the eMBMS Temporary Mobile Group Identity (TMGI).

WDS message ID

0x0065

Version introduced

Major - 1, Minor - 17

Request - QMI_WDS_EMBMS_TMGI_ACTIVATE_REQ 3.73.1

Message type

Sender

Mandatory TLVs

Name	Version introduced	Version last modified
Temporary Mobile Group Identity	1.17	1.17

3.73.1	3.73.1 Request - QMI_WD5_EMBM5_TMGI_ACTIVATE_REQ							
Message	Message type							
Request	Request							
Sender	Sender							
Control 1	point			, O				
Mandato	ory TLVs	;	Alban .	63,011	n'			
	Name Version introduced Version last modified							
Tempo	rary Mo	bile Grou	p Identity		1.17	1.17		
			5.05 hands					
Field	Field	Field	Parameter	Size	D	escription		
	value	type	180	(byte)				
Туре	0x01		V	1	Temporary Mob	ile Group Identity		
Length	8			2				
Value	\rightarrow	uint8	tmgi	6	TMGI			
		boolean	session_id_valid	1	Session ID valid	l flag. Values:		
					• 0 – Not valid			
					• 1 – Valid			
		uint8	session_id	1	Session ID.			
					Note: Valid if the	ne session_id_valid flag		
					is one.			

Optional TLVs

Name	Version introduced	Version last modified
Transaction ID	1.28	1.28
Preemption Priority	1.28	1.28
Frequencies List	1.28	1.28
SAI List	1.49	1.49
Extended Frequencies List	1.62	1.62
Multicast Address IP Family Type	1.73	1.73

Name	Version introduced	Version last modified
Multicast IPv4 Address	1.73	1.73
Multicast IPv6 Address	1.73	1.73
Multicast Port	1.73	1.73

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request
					(default is -1).
Туре	0x11			1	Preemption Priority
Length	4			2	
Value	\rightarrow	enum	preempt_priority	4	Preemption priority of the TMGI to be
					activated:
					• 0 – priority 0 (default)
				"	• 1 – priority 1
					• 2 – priority 2
					• 3 – priority 3
				0	• 4 – priority 4
				27 4	• 5 – priority 5 (highest)
Туре	0x12			9. Pu	Frequencies List
			00.	er.	Default is an empty list.
Length	Var		45 75	2	
Value	\rightarrow	uint8	earfcn_list_len	1	Number of sets of the following
			G. Mall		elements:
			20, 00		• earfcn
		uint16	earfcn	2	Frequency (EARFCN) on which the
			~		TMGI to be activated is available.
Туре	0x13			1	SAI List
Length	Var			2	
Value	\rightarrow	uint8	sai_list_len	1	Number of sets of the following
					elements:
					• sai_list
		uint32	sai_list	Var	Service area identity list.
Туре	0x14			1	Extended Frequencies List
Length	Var			2	
Value	\rightarrow	uint8	earfcn_list_ex_len	1	Number of sets of the following
					elements:
					• earfcn_list_ex
		uint32	earfcn_list_ex	Var	Default is an empty list.
Туре	0x15			1	Multicast Address IP Family Type
Length	1			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum8	multicast_ip_type	1	IP address family type of the multicast IP
					corresponding to the requested TMGI.
					Values:
					• WDS_IP_FAMILY_IPV4 (0x04) –
					IPv4
					• WDS_IP_FAMILY_IPV6 (0x06) –
					IPv6
Туре	0x16			1	Multicast IPv4 Address
Length	4			2	(a)
Value	\rightarrow	uint32	multicast_ipv4_addr	4	Multicast IPv4 address corresponding to
					the requested TMGI.
Туре	0x17			1	Multicast IPv6 Address
Length	16			2	
Value	\rightarrow	uint8	multicast_ipv6_addr	16	Multicast IPv6 address corresponding to
					the requested TMGI.
Туре	0x18			1	Multicast Port
Length	2			2	
Value	\rightarrow	uint16	multicast_port	2 <	Multicast port corresponding to the
				60	requested TMGI.

3.73.2 Response - QMI_WDS_EMBMS_TMGI_ACTIVATE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	1.17	1.17

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Extended Error Code
Length	2			2	
Value	\rightarrow	enum16	extended_error_code	2	Values:
					• 111 – Activation is in progress
					• 203 – Deactivation is in progress

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_OUT_OF_CALL	Request was issued when the eMBMS packet data session
	was not connected
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_EXTENDED_INTERNAL	More error information is indicated by the optional extended
	error code TLV
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.73.3 Description of QMI_WDS_EMBMS_TMGI_ACTIVATE REQ/RESP

This command activates an LTE evolved Multimedia Broadcast and Multicast Services (eMBMS) TMGI.

The mandatory Temporary Mobile Group Identity TLV consists of a 6-byte TMGI identifier, a flag indicating if session_id is valid, and the session_id value. The session_id is only used for activation if the session_id_valid flag is 1.

A transaction ID in the request provides a transaction identifier across all eMBMS layers.

Control points can also provide an optional frequencies list on the TMGI to be activated for search optimization using either the Frequencies List TLV or the Extended Frequencies List TLV for specifying 16-bit or 32-bit values, respectively. If both TLVs are specified in the request, a QMI_ERR_INVALID_ARG error is returned. Control points are expected to learn whether the modem supports 16-bit or 32-bit frequencies via the QMI_WDS_GET_CAPABILITIES_REQ message with the eMBMS Extended EARFCN List TLV set to TRUE.

A success response indicates that the request has been received, but it does not imply that the TMGI has been activated. The control point is expected to process the QMI_WDS_EMBMS_TMGI_ACTIVATE_IND indication to learn about activation success or failure.

In case of failure from the lower layers, a QMI_ERR_EXTENDED_INTERNAL error code is sent in the response along with the optional Extended Error Code TLV.

Control points can also provide the SAI list using the optional SAI List TLV.

3.74 QMI WDS EMBMS TMGI ACTIVATE IND

Indicates the result of the TMGI activate request.

WDS message ID

0x0065

Version introduced

Major - 1, Minor - 17

Indication - QMI_WDS_EMBMS_TMGI_ACTIVATE_IND 3.74.1

Message type

Mandatory TLVs

Indication						
Sender	CO,					
Service						
Scope	26.3. EV. 14					
Unicast	20,00					
Mandatory TLVs						
Name	Version introduced	Version last modified				
TMGI Activation Status	1.17	1.52				
TMGI	1.17	1.17				

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0x01			1	TMGI Activation Status
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum	activate_status	4	Values:
					• 0x00000000 – Success
					• 0x00000001 – Success – Duplicate
					activate
					• 0x00010000 – Failure – Radio
					configuration
					• 0x00010001 – Failure – Channel is
					unavailable
					• 0x00010002 – Failure – eMBMS is not
					enabled
					• 0x00010003 – Failure – Out of
					coverage
					• 0x00010004 – Failure – Unknown
					• 0x00010005 – Failure – Not allowed
					• 0x00010006 – Failure – Missing
				7	control information
					• 0x00010007 – Failure – Missing TMGI
				_	• 0x00010008 – Failure – Multicast OOS
				0	• 0x00010009 – Failure – Unicast OOS
				3	• 0x0001000A – Failure – Camped on
			.0	0.,00	another frequency
Туре	0x02		00.	T.Fig	TMGI
Length	8		, to , 5	2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
			20,000		• 0 – Not valid
			1800		• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.

Name	Version introduced	Version last modified
Transaction ID	1.28	1.28

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request.

3.74.2 Description of QMI_WDS_EMBMS_TMGI_ACTIVATE_IND

This indication is sent to the control point to convey the completion status of the TMGI activation request and is only sent to the control point that initiated the request.



3.75 QMI WDS EMBMS TMGI DEACTIVATE

Deactivates an eMBMS TMGI.

WDS message ID

0x0066

Version introduced

Major - 1, Minor - 17

Request - QMI_WDS_EMBMS_TMGI_DEACTIVATE_REQ 3.75.1

Mandatory TLVs

Name	Version introduced	Version last modified
Temporary Mobile Group Identity	1.17	1.17

3.75.1	nec	quest -	MINI_MD2_EINIBINI2_	_I MGI_	_DEACTIVAT	E_KEQ	
Message	type			-1			
Request							
Sender				J.			
Control 1	point) 			
Mandato	Mandatory TLVs						
		Na	ime	Version	on introduced	Version last modified	
Temporary Mobile Group Identity 1.17 1.17				1.17			
			5.05 range				
Field	Field	Field	Parameter	Size	С	escription	
	value	type	180	(byte)			
Туре	0x01			1	Temporary Mob	oile Group Identity	
Length	8			2			
Value	\rightarrow	uint8	tmgi	6	TMGI		
		boolean	session_id_valid	1	Session ID valid	l flag. Values:	
					• 0 – Not valid		
					• 1 – Valid		
		uint8	session_id	1	Session ID.		
					Note: Valid if the	ne session_id_valid flag	
					is one.		

Name	Version introduced	Version last modified	
Transaction ID	1.28	1.28	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request
					(default is -1).

3.75.2 Response - QMI_WDS_EMBMS_TMGI_DEACTIVATE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Extended Error Code	1.17	1.17

Field	Field	Field	Parameter	Size	Description
	value	type	6 Mail	(byte)	
Туре	0x10		20,20	1	Extended Error Code
Length	2		200	2	
Value	\rightarrow	enum16	extended_error_code	2	Values: • 108 – Not supported; the TMGI is not activated by this control point • 124 – Invalid; the TMGI is not activated • 203 – Duplicate request, deactivation is in progress

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_OUT_OF_CALL	Request was issued when the eMBMS packet data session
	was not connected.
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_EXTENDED_INTERNAL	More error information is indicated by the optional extended
	error code TLV.

QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.75.3 Description of QMI_WDS_EMBMS_TMGI_DEACTIVATE REQ/RESP

This command deactivates an LTE eMBMS TMGI.

The mandatory Temporary Mobile Group Identity TLV consists of a 6-byte TMGI identifier, a flag indicating if session_id is valid, and the session_id value. The session_id is only used for deactivation if the session_id_valid flag is one.

A transaction ID in the request provides a transaction identifier across all eMBMS layers.

A success response indicates that the request has been received, but it does not imply that the TMGI has been deactivated. The control point is expected to process the

QMI_WDS_EMBMS_TMGI_DEACTIVATE_IND indication to learn about deactivation success or failure.

In case of failure from the lower layers, a QMI_ERR_EXTENDED_INTERNAL error code is sent in the response along with the optional Extended Error Code TLV.

3.76 QMI WDS EMBMS TMGI DEACTIVATE IND

Indicates the result of the TMGI deactivate request.

WDS message ID

0x0066

Version introduced

Major - 1, Minor - 17

Indication - QMI_WDS_EMBMS_TMGI_DEACTIVATE_IND 3.76.1

Message type

Mandatory TLVs

moodage type							
Indication							
Sender	60,						
Service							
Scope	o63. pon.in						
Unicast	200						
Mandatory TLVs							
Name	Version introduced	Version last modified					
TMGI Deactivation Status	1.17	1.17					
TMGI	1.17	1.17					

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	TMGI Deactivation Status
Length	4			2	
Value	\rightarrow	enum	deactivate_status	4	Value:
					• 0x00000000 – Success
Туре	0x02			1	TMGI
Length	8			2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
					• 0 – Not valid
					• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.

Optional TLVs

Name	Version introduced	Version last modified
Transaction ID	1.28	1.28

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request.

3.76.2 Description of QMI_WDS_EMBMS_TMGI_DEACTIVATE_IND

This indication is sent to the control point to convey the completion status of the TMGI deactivation request and is only sent to the control point that initiated the request.

3.77 QMI_WDS_EMBMS_TMGI_LIST_QUERY

Queries the TMGI list.

WDS message ID

0x0067

Version introduced

Major - 1, Minor - 17

Request - QMI_WDS_EMBMS_TMGI_LIST_QUERY_REQ 3.77.1

Message type

Mandatory TLVs

Message type			
Request			
Sender		60.	
Control point		apri	
Mandatory TLVs		06.32 July 144	
	Name	Version introduced	Version last modified
TMGI List Type		1.17	1.26

Field	Field	Field	Parameter	Size	Description
	value	type	750	(byte)	
Туре	0x01			1	TMGI List Type
Length	1			2	
Value	\rightarrow	enum8	list_type	1	Values:
					• 0x00 – Active TMGI list
					• 0x01 – Available TMGI list
					• 0x02 – OOS warning TMGI list

Name	Version introduced	Version last modified
Transaction ID	1.28	1.28

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request
					(default is -1).

3.77.2 Response - QMI_WDS_EMBMS_TMGI_LIST_QUERY_RESP

Ν	1e	SS	ac	ıe	tν	рe

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
TMGI List	1.17	1.26
OOS Warning Reason	1.26	1.26

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)	and the second second	
Туре	0x10			o. To.,	TMGI List	
Length	Var		00,	2		
Value	\rightarrow	enum8	list_type	1	TMGI list type. Values:	
			05 10		• 0x00 – Active TMGI list	
			16 Thai		• 0x01 – Available TMGI list	
			20,20		• 0x02 – OOS warning TMGI list	
		uint8	tmgi_list_len	1	Number of sets of the following	
					elements:	
					• tmgi	
					• session_id_valid	
					• session_id	
		uint8	tmgi	6	TMGI	
		boolean	session_id_valid	1	Session ID valid flag. Values:	
					• 0 – Not valid	
					• 1 – Valid	
		uint8	session_id	1	Session ID.	
					Note: Valid if the session_id_valid flag	
					is one.	
Type	0x11			1	OOS Warning Reason	
Length	4			2		
Value	\rightarrow	enum	warn_reason	4	Values:	
					• 0x00 – Warning for unicast OOS	
					• 0x01 – Warning for multicast OOS	
					• 0x02 – Warning cleared	

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OUT_OF_CALL	Request was issued when the eMBMS packet data session
	was not connected
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_NO_EFFECT	Query request is already pending
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.77.3 Description of QMI_WDS_EMBMS_TMGI_LIST_QUERY REQ/RESP

This command queries the currently active or available TMGI list. The control point uses the list_type field to choose the type of TMGI list to query (active TMGI list or available TMGI list).

An optional OOS Warning Reason TLV is returned if the query is for a TMGI OOS warning list.

3.78 QMI_WDS_EMBMS_TMGI_LIST_IND

Indicates the currently active or available TMGI list.

WDS message ID

0x0068

Version introduced

Major - 1, Minor - 17

3.78.1 Indication - QMI_WDS_EMBMS_TMGI_LIST_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Name	Version introduced	Version last modified
TMGI List	1.17	1.26
OOS Warning Reason	1.26	1.26
Transaction ID	1.28	1.28

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	TMGI List
Length	Var			2	
Value	\rightarrow	enum8	list_type	1	TMGI list type. Values:
					• 0x00 – Active TMGI list
					• 0x01 – Available TMGI list
					• 0x02 – OOS warning TMGI list
		uint8	tmgi_list_len	1	Number of sets of the following
					elements:
					• tmgi
					• session_id_valid
					• session_id

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
					• 0 – Not valid
					• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.
Type	0x11			1	OOS Warning Reason
Length	4			2	
Value	\rightarrow	enum	warn_reason	4	Values:
					• 0x00 – Warning for unicast OOS
					• 0x01 – Warning for multicast OOS
					• 0x02 – Warning cleared
Type	0x12			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the
				3	indication.

3.78.2 Description of QMI_WDS_EMBMS_TMGI_LIST_IND

This indication returns a list of currently active or available TMGIs. A status change to the TMGIs (for example, control point or modem initiated TMGI activation/deactivation) generates the active TMGI list indication. The indication is sent to all control points that registered for the indication via the QMI_WDS_INDICATION_REGISTER command.

An optional OOS Warning Reason TLV is returned if there is a TMGI OOS Warning. The TMGI List TLV always has the absolute set of TMGIs under OOS. If OOS is cleared, the number of TMGIs is 0 in the TMGI List TLV.

3.79 QMI_WDS_GET_PREFERRED_DATA_SYSTEM

Queries the preferred data system. (Deprecated)

WDS message ID

0x0069

Version introduced

Major - 1, Minor - 16

Version deprecated

Major - 1, Minor - 85

3.79.1 Request - QMI_WDS_GET_PREFERRED_DATA_SYSTEM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.79.2 Response - QMI_WDS_GET_PREFERRED_DATA_SYSTEM_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
Current Preferred Data System	1.16	1.22

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Current Preferred Data System
Length	4			2	
Value	\rightarrow	enum	current_sys	4	Values:
					• 0x00 – Unknown
					• 0x01 – CMDA_1X
					• 0x02 – EVDO
					• 0x03 – GPRS
					• 0x04 – WCDMA
					• 0x05 – LTE
					• 0x06 – TDSCDMA

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported
UNSUPPORTED	D'ARTIN

3.79.3 Description of QMI_WDS_GET_PREFERRED_DATA_SYSTEM REQ/RESP

This command queries the currently preferred data system. The preferred data system indicates the preferred cellular packet data system among multiple potentially available data systems for providing data services. A QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned if the connectivity engine data system determination (DSD) feature is not present in the device. This command has been deprecated in favor of QMI_DSD_GET_SYSTEM_STATUS.

3.80 QMI_WDS_GET_LAST_DATA_CALL_STATUS

Queries the last reported data call status.

WDS message ID

0x006A

Version introduced

Major - 1, Minor - 16

3.80.1 Request - QMI_WDS_GET_LAST_DATA_CALL_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.80.2 Response - QMI_WDS_GET_LAST_DATA_CALL_STATUS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Data Call Status	Unknown	1.16
Data Call Type	Unknown	1.19
Data Call Address Family	1.29	1.29

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Data Call Status
Length	1			2	
Value	\rightarrow	enum8	data_call_status	1	Values:
					• $0x00 - Unknown$
					• 0x01 – Activated
					• 0x02 – Terminated
Type	0x11			1	Data Call Type
Length	2			2	
Value	\rightarrow	enum8	data_call_type	1	Values:
					• $0x00 - Unknown$
					• 0x01 – Embedded call (application)
					• 0x02 – Tethered call
				-	• 0x03 – Modem embedded call
		enum8	tethered_call_type	1	Values:
					• 0x00 – Non-tethered call
					• 0x01 – RmNet call
				3	• 0x02 – DUN call
Type	0x12			1 _<	Data Call Address Family
Length	4			20	A
Value	\rightarrow	enum	data_call_addr_family	34	Data call address family. Values:
			.0	0. 00	• 0 – Unknown
			00.	E. J.	• 4 – IPv4
			2000		• 6 – IPv6

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.80.3 Description of QMI_WDS_GET_LAST_DATA_CALL_STATUS REQ/RESP

This command queries the last reported data call status, that is, a packet data call is established or a packet data call is terminated. A Data Call Type TLV in the response indicates the type of the data call last established or terminated. A Data Call Address Family TLV indicates the IP family type of the data call.

3.81 QMI WDS GET CURRENT DATA SYSTEM STATUS

Queries the current data system status.

WDS message ID

0x006B

Version introduced

Major - 1, Minor - 18

3.81.1 Request - QMI_WDS_GET_CURRENT_SYSTEM_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.81.2 Response - QMI_WDS_GET_CURRENT_SYSTEM_STATUS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Data Sytem Status	1.18	1.23

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Data Sytem Status
Length	Var			2	
Value	\rightarrow	enum8	preferred_network	1	Values:
					• 0 – 3GPP
					• 1 – 3GPP2
		uint8	network_info_len	1	Number of sets of the following
					elements:
					• network
					• rat_mask
					• so_mask
		enum8	network	1	Values:
					• 0 – 3GPP
				-	• 1 – 3GPP2
		uint32	rat_mask	4	RAT mask to indicate the type of
					technology.
				"	A RAT mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
				00	• 0x8000 – NULL_BEARER
				37 3	2,
				0. 00	CDMA RAT mask:
			00.	E.A.	• 0x01 – CDMA_1X
			\$ 0 mg		• 0x02 – EVDO_REV0
			5 3		• 0x04 – EVDO_REVA
			6. Wall		• 0x08 – EVDO_REVB
			201.03		• 0x10 – EHRPD
			2016-05-18:00:00		• 0x20 – FMC
					UMTS RAT mask:
					• 0x01 – WCDMA
					• 0x02 – GPRS
					• 0x04 – HSDPA
					• 0x08 – HSUPA
					• 0x10 – EDGE
					• 0x20 – LTE
					• 0x40 – HSDPA+
					• 0x80 – DC_HSDPA+
					• 0x100 – 64_QAM
					• 0x200 – TDSCDMA

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	so_mask	4	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					CDMA 1X SO mask:
					• 0x01 – CDMA_1X_IS95
					• 0x02 – CDMA_1X_IS2000
					• 0x04 – CDMA_1X_IS2000_REL_A
					CDMA EV-DO Rev 0 SO mask:
					• 0x01 – DPA
					CDMA EV-DO Rev A SO mask:
			4	30	• 0x01 – DPA
					• 0x02 – MFPA
				,	• 0x04 – EMPA
				00	• 0x08 – EMPA_EHRPD
				27 "	A Company of the Comp
				5.00	CDMA EV-DO Rev B SO mask:
			0:5	24.	• 0x01 – DPA
			19 15		• 0x02 – MFPA
			6/100°		• 0x04 – EMPA
		1	C. Valley		• 0x08 – EMPA_EHRPD
			070 1		• 0x10 – MMPA
			N. 601.		• 0x20 – MMPA_EHRPD

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.81.3 Description of QMI_WDS_GET_CURRENT_DATA_SYSTEM_-STATUS REQ/RESP

This command gives the system status information about the preferred network and the RAT and SO mask for all the networks.

QMI WDS GET PDN THROTTLE INFO 3.82

Queries the PDN throttle information.

WDS message ID

0x006C

Version introduced

Major - 1, Minor - 18

Request - QMI_WDS_GET_PDN_THROTTLE_INFO_REQ 3.82.1

Mandatory TLVs

	Name	Version introduced	Version last modified
Technology Type		Unknown	1.18

	3.82.1 Request - QMI_WDS_GET_PDN_THROTTLE_INFO_REQ						
Message	e type			1			
Request							
Sender	Sender						
Control	point			and the second			
Mandatory TLVs							
Maridate	ory ILVS	1		63.00	G.		
Walldate	ory ILVS		ame	Version	on introduced	Version last modified	
	ory TEVS	Na	ame	VI. 37	on introduced Jnknown	Version last modified	
		Na	ame O	VI. 37			
		Na	Parameter	VI. 37	Jnknown		
Techno	ology Ty	pe Field	(5,05,12t)(8	Size	Jnknown	1.18 Description	
Techno	ology Ty Field value	pe Field	(5,05,12t)(8	Size (byte)	Jnknown	1.18 Description	
Technol Field Type	Field value 0x01	pe Field	(5,05,12t)(8	Size (byte)	Jnknown	1.18 Description	
Technology Field Type Length	Field value 0x01	pe Field type	Parameter	Size (byte)	Jnknown C Technology Typ	1.18 Description	

Optional TLVs

None

Response - QMI_WDS_GET_PDN_THROTTLE_INFO_RESP 3.82.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
PDN Throttle Info	Unknown	1.18

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	PDN Throttle Info
Length	Var		4	2	
Value	\rightarrow	uint8	throttle_info_len	1	Number of sets of the following
				ľ	elements:
				~	• is_ipv4_throttled
				~ ~ ~ ~	• is_ipv6_throttled
				3	remaining_ipv4_throttled_ time
			0.0	3.00	remaining_ipv6_throttled_ time
			202	27	• apn_string_len
			N. 64		• apn_string
		boolean	is_ipv4_throttled	1	Values:
			70. Tu		• 0 – IPv4 not throttled
			2000		• 1 – IPv4 throttled
		boolean	is_ipv6_throttled	1	Values:
					• 0 – IPv6 not throttled
					• 1 – IPv6 throttled
		uint32	remaining_ipv4_throttled_	4	Remaining IPv4 throttled time in
			time		milliseconds.
		uint32	remaining_ipv6_throttled_	4	Remaining IPv6 throttled time in
			time		milliseconds.
		uint8	apn_string_len	1	Number of sets of the following
					elements:
					• apn_string
		char	apn_string	Var	APN name.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_ARG	Specified value is invalid

3.82.3 Description of QMI WDS GET PDN THROTTLE INFO REQ/RESP

This command provides information about all throttled APNs/PDNs, as well as information related to throttle, including whether IPv4 or IPv6 is throttled, and how much time an application must wait before querying networks.



3.83 QMI WDS GET LTE ATTACH PARAMS

Queries LTE attach PDN parameters.

WDS message ID

0x0085

Version introduced

Major - 1, Minor - 20

3.83.1 Request - QMI_WDS_GET_LTE_ATTACH_PARAMS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.83.2 Response - QMI_WDS_GET_LTE_ATTACH_PARAMS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
APN String	1.20	1.20
IP Support Type	1.21	1.21
Over the Air Attach Performed	1.27	1.27

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
Туре	0x10			1	APN String
Length	Var			2	
Value	\rightarrow	string	apn_string	Var	String representing the APN. Maximum
					length is 100 bytes.
Туре	0x11			1	IP Support Type
Length	1			2	
Value	\rightarrow	enum8	ip_type	1	Values:
					• 0 – IPv4
					• 1 – IPv6
					• 2 – IPv4v6
Туре	0x12			1	Over the Air Attach Performed
Length	1			2	
Value	\rightarrow	boolean	ota_attach_performed	1	Values:
					• 0 – Over-the-air attach not performed
					• 1 – Over-the-air attach performed

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INFO_UNAVAILABLE	Information is not available

3.83.3 Description of QMI_WDS_GET_LTE_ATTACH_PARAMS REQ/RESP

This message queries LTE attach PDN parameters. Control points query the LTE attach parameters only after receiving the LTE attach event via the Data System Status TLV in QMI_WDS_EVENT_REPORT_IND. QMI_ERR_INFO_UNAVAILABLE is returned if LTE PDN is not attached.

3.84 QMI WDS RESET PKT STATISTICS

Resets the packet data transfer statistics.

WDS message ID

0x0086

Version introduced

Major - 1, Minor - 24

3.84.1 Request - QMI_WDS_RESET_PKT_STATISTICS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.84.2 Response - QMI_WDS_RESET_PKT_STATISTICS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.84.3 Description of QMI_WDS_RESET_PKT_STATISTICS REQ/RESP

2016.05.18.00.06.31.BDT.IN

This command resets the packet data transfer statistics.

3.85 QMI_WDS_GET_FLOW_CONTROL_STATUS

Queries the current data call flow control status

WDS message ID

0x0087

Version introduced

Major - 1, Minor - 26

3.85.1 Request - QMI_WDS_GET_FLOW_CONTROL_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.85.2 Response - QMI_WDS_GET_FLOW_CONTROL_STATUS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified	
Result Code	1.26	1.26	

Optional TLVs

Name	Version introduced	Version last modified
Uplink Flow Control	1.26	1.26

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Uplink Flow Control
Length	1			2	
Value	\rightarrow	boolean	uplink_flow_control	1	Uplink flow control status. Values:
					• 0 – Not flow controlled
					• 1 – Flow controlled

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.85.3 Description of QMI_WDS_GET_FLOW_CONTROL_STATUS REQ/RESP

This command queries the current data call flow control status.

3.86 QMI_WDS_EMBMS_TMGI_ACT_DEACT

Activates and deactivates TMGIs.

WDS message ID

0x0088

Version introduced

Major - 1, Minor - 28

Request - QMI_WDS_EMBMS_TMGI_ACT_DEACT_REQ 3.86.1

Message type

Mandatory TLVs

Request							
Sender							
Control point	rol point						
Mandatory TLVs	III.	26.3.2 EV. 114					
Nam	e 00	Version introduced	Version last modified				
TMGI To Activate	20 m2	1.28	1.28				
TMGI To Deactivate	5,0	1.28	1.28				

Field	Field	Field	Parameter	Size	Description
	value	type	· ·	(byte)	
Туре	0x01			1	TMGI To Activate
Length	8			2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
					• 0 – Not valid
					• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.
Туре	0x02			1	TMGI To Deactivate
Length	8			2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
					• 0 – Not valid
					• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.

Name	Version introduced	Version last modified
Transaction ID	1.28	1.28
Preemption Priority	1.28	1.28
Frequencies List	1.28	1.28
SAI List	1.49	1.49
Extended Frequencies List	1.62	1.62
Multicast Address IP Family Type	1.73	1.73
Multicast IPv4 Address	1.73	1.73
Multicast IPv6 Address	1.73	1.73
Multicast Port	1.73	1.73

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request
				_	(default is -1).
Туре	0x11			18	Preemption Priority
Length	4			2	
Value	\rightarrow	enum	preempt_priority	4	Preemption priority of the TMGI to be
			00.	E.J.	activated:
			10 mg		• 0 – priority 0 (default)
			5 19		• 1 – priority 1
			6. hai		• 2 – priority 2
			20,000		• 3 – priority 3
			200		• 4 – priority 4
			preempt_priority		• 5 – priority 5 (highest)
Туре	0x12			1	Frequencies List
					Default is an empty list.
Length	Var			2	
Value	\rightarrow	uint8	earfcn_list_len	1	Number of sets of the following
					elements:
					• earfcn
		uint16	earfcn	2	Frequency (EARFCN) on which the
					TMGI to be activated is available.
Туре	0x13			1	SAI List
Length	Var			2	
Value	\rightarrow	uint8	sai_list_len	1	Number of sets of the following
					elements:
					• sai_list
		uint32	sai_list	Var	Default is an empty list.
Туре	0x14			1	Extended Frequencies List
Length	Var			2	
Value	\rightarrow	uint8	earfcn_list_ex_len	1	Number of sets of the following
					elements:
					• earfcn_list_ex

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	earfcn_list_ex	Var	Default is an empty list.
Туре	0x15			1	Multicast Address IP Family Type
Length	1			2	
Value	\rightarrow	enum8	multicast_ip_type	1	IP address family type of the multicast IP
					corresponding to the requested TMGI.
					Values:
					• WDS_IP_FAMILY_IPV4 (0x04) –
					IPv4
					• WDS_IP_FAMILY_IPV6 (0x06) -
					IPv6
Туре	0x16			1	Multicast IPv4 Address
Length	4			2	
Value	\rightarrow	uint32	multicast_ipv4_addr	4	Multicast IPv4 address corresponding to
					the requested TMGI.
Type	0x17			1	Multicast IPv6 Address
Length	16			2	
Value	\rightarrow	uint8	multicast_ipv6_addr	16	Multicast IPv6 address corresponding to
					the requested TMGI.
Туре	0x18			1¢°	Multicast Port
Length	2			. 32	
Value	\rightarrow	uint16	multicast_port	2	Multicast port corresponding to the
			00.	E. J.	requested TMGI.

3.86.2 Response - QMI_WDS_EMBMS_TMGI_ACT_DEACT_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified	
Extended Error Code	1.28	1.28	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Extended Error Code
Length	2			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum16	extended_error_code	2	Values:
					• 108 – Not supported; the TMGI to be
					deactivated is not activated by this
					control point
					• 111 – Activation is in progress
					• 124 – Invalid; the TMGI to be
					deactivated is not activated
					• 203 – Deactivation is in progress

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_OUT_OF_CALL	Request was issued when the eMBMS packet data session
	was not connected
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_EXTENDED_INTERNAL	More error information is indicated by the optional extended
	error code TLV
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.86.3 Description of QMI_WDS_EMBMS_TMGI_ACT_DEACT REQ/RESP

This command activates a TMGI and deactivates another TMGI at the same time. The command optimizes channel switch delay.

A success response indicates that the request has been received, but it does not imply that the TMGIs have been activated or deactivated. The control point is expected to process the

QMI_WDS_EMBMS_TMGI_ACT_DEACT_IND indication to learn about activation and deactivation success or failure.

Control points can also provide an optional frequencies list on the TMGI to be activated or deactivated for search optimization using either the Frequencies List TLV or the Extended Frequencies List TLV for specifying 16-bit or 32-bit values, respectively. If both TLVs are specified in the request, a QMI_ERR_INVALID_ARG error is returned. Control points are expected to learn whether the modem supports 16-bit or 32-bit frequencies via the QMI_WDS_GET_CAPABILITIES_REQ message with the eMBMS Extended EARFCN List TLV set to TRUE.

In case of failure from the lower layers, a QMI_ERR_EXTENDED_INTERNAL error code is sent in the response along with the optional Extended Error Code TLV.

3.87 QMI WDS EMBMS TMGI ACT DEACT IND

Indicates the result of the TMGI activation and deactivation request.

WDS message ID

0x0088

Version introduced

Major - 1, Minor - 28

Indication - QMI_WDS_EMBMS_TMGI_ACT_DEACT_IND 3.87.1

Message type

Mandatory TLVs

Indication					
nder					
Service					
Unicast Mandatory TIVe					
Unicast					
Mandatory TLVs					
Name	Version introduced	Version last modified			
TMGI Activation Status	1.28	1.52			
Activation TMGI 1.28 1.28					
TMGI Deactivation Status	1.28	1.28			
Deactivation TMGI 1.28 1.28					

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	TMGI Activation Status
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum	act_status	4	Values:
					• 0x00000000 – Success
					• 0x00000001 – Success – Duplicate
					activate
					• 0x00010000 – Failure – Radio
					configuration
					• 0x00010001 – Failure – Channel is
					unavailable
					• 0x00010002 – Failure – eMBMS is not
					enabled
					• 0x00010003 – Failure – Out of
					coverage
					• 0x00010004 – Failure – Unknown
					• 0x00010005 – Failure – Not allowed
					• 0x00010006 – Failure – Missing
				3"	control information
					• 0x00010007 – Failure – Missing TMGI
					• 0x00010008 – Failure – Multicast OOS
				00	• 0x00010009 – Failure – Unicast OOS
				27 1	• 0x0001000A – Failure – Camped on
				5.00	another frequency
Туре	0x02		0.0	T.E.	Activation TMGI
Length	8	1	19 25	2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
			201-101		• 0 – Not valid
			750,		• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.
Туре	0x03			1	TMGI Deactivation Status
Length	4			2	
Value	\rightarrow	enum	deact_status	4	Values:
					• 0x00000000 – Success
Туре	0x04			1	Deactivation TMGI
Length	8			2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
					• 0 – Not valid
					• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.

Optional TLVs

Name	Version introduced	Version last modified
Transaction ID	1.28	1.28

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request.

3.87.2 Description of QMI_WDS_EMBMS_TMGI_ACT_DEACT_IND

This indication is sent to the control point to convey the completion status of the TMGI activation and deactivation request. This indication is only sent to the control point that initiated the request.

QMI WDS BIND DATA PORT 3.88

Binds a control point to an SIO data port.

WDS message ID

0x0089

Version introduced

Major - 1, Minor - 35

Request - QMI_WDS_BIND_DATA_PORT_REQ 3.88.1

Mandatory TLVs

	Name	Ver	sion introduced	Version last modified
Binding Data Port		20 000 D	1.35	1.35

3.88.1	Rec	quest -	QMI_WDS_BIND_DA	TA_P	ORT_REQ		
Message	e type			_1			
Request	Request						
Sender				"			
Control	point			, 			
Mandato	ory TLVs	;		37.00	27		
		Na	ame	Version	on introduced	Version last modified	
Bindin	g Data F	Port	5° 63°		1.35	1.35	
			5.05 hande				
Field	Field	Field	Parameter	Size	Γ	Description	
	value	type	180	(byte)			
Туре	0x01			1	Binding Data P	ort	
, , , , , , , , , , , , , , , , , , ,	0.101						
Length	2			2			

Optional TLVs

None

Response - QMI_WDS_BIND_DATA_PORT_RESP 3.88.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified	
Result Code	1.35	1.54	

Optional TLVs

Error codes

Optional TLVs	
None	
Error codes	
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_NO_EFFECT	Binding has no effect
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported
UNSUPPORTED	

3.88.3 Description of QMI WDS BIND DATA PORT REQ/RESP

This command binds the control point to the specified SIO data port. After binding is complete, all the messages sent from or received on this control point are for the specified data port instead of its default data port. This command must be sent immediately after the client ID is assigned. The control point must wait until a successful bind response is received before sending other messages.

The bind command resets the client state, and a control point cannot re-bind to a different data port. The QMI_WDS_RESET command does not reset the binding.

Support for this command is hardware-dependent. If QMI_ERR_OP_DEVICE_UNSUPPORTED is returned, the control point must use QMI_WDS_BIND_MUX_DATA_PORT.

3.89 QMI_WDS_SET_ADDITIONAL_PDN_FILTER

Sets the filter to allow multiple PDNs to be shared on the same data port. (Deprecated)

WDS message ID

0x008A

Version introduced

Major - 1, Minor - 36

Version deprecated

Major - 1, Minor - 85

3.89.1 Request - QMI_WDS_SET_ADDITIONAL_PDN_FILTER_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version introduced	Version last modified
IP Version	1.36	1.36
Network Policy	1.36	1.36

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	IP Version
Length	1			2	
Value	\rightarrow	enum8	ip_version	1	IP version number. Values:
					• 4 – IPv4
					• 6 – IPv6
Туре	0x02			1	Network Policy
					Information that is required to identify
					the NAT interface, which is required to
					support the sharing of PDNs on a single
					RmNet port.
Length	3			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	mask8	tech_pref	1	Bitmap indicating the technology
					preference. A single connection is
					attempted using the following specified
					technology preferences:
					• Bit 0 – 3GPP
					• Bit 1 – 3GPP2
					All other bits are reserved and ignored
					even if they are set in the request. If a
					single value of the technology preference
					bitmask is set, the device attempts to use
					that technology. If two or more bits in
					the technology preference bitmask are
					set, the device determines the technology
				1	to be used from those specified.
		uint8	profile_id_3gpp2	1	CDMA profile ID.
		uint8	profile_id_3gpp	1	UMTS profile ID.

Optional TLVs

N	ame	Ve	rsion introduced	Version last modified
Next Header Protocol		0. 4.	1.36	1.36
TCP/UDP Source		8 AST	1.36	1.36

Field	Field	Field	Parameter	Size	Description
	value	type	2000	(byte)	
Туре	0x10		80	1	Next Header Protocol
Length	4			2	
Value	\rightarrow	enum	next_hdr_prot	4	IPv4/IPv6 next header protocol after the
					IP header. Values:
					• WDS_PROTO_TCP (0x01) –
					Transmission Control Protocol
					• WDS_PROTO_UDP (0x02) – User
					Datagram Protocol
					• WDS_PROTO_TCP_UDP (0x03) -
					Transmission Control Protocol/User
					Datagram Protocol
Туре	0x11			1	TCP/UDP Source
					Contains the starting port number and a
					range value, which indicates the ending
					port number.
Length	4			2	
Value	\rightarrow	uint16	port	2	TCP, UDP, and TCP_UDP source port.
		uint16	port_range	2	Port range.

3.89.2 Response - QMI_WDS_SET_ADDITIONAL_PDN_FILTER_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.36	1.36

Optional TLVs

Name	Version introduced	Version last modified
Filter Handle	1.36	1.36

Field	Field	Field	Parameter	Size	Description
	value	type	4 5	(byte)	
Туре	0x10		-5/ \@°	1	Filter Handle
Length	4		C. Valley	2	
Value	\rightarrow	uint32	filter_handle	4	Filter handle.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Data call is not up on the RmNet port
QMI_ERR_POLICY_MISMATCH	Network policy does not match a valid NAT
QMI_ERR_NOT_SUPPORTED	RmNet port already has the allowed maximum number of
	filters

3.89.3 Description of QMI_WDS_SET_ADDITIONAL_PDN_FILTER REQ/RESP

This command sets the filter to allow data associated with a different PDN to be sent on the RmNet port already being used for another PDN's data.

The following errors may be returned:

- QMI_ERR_POLICY_MISMATCH Network policy does not match a valid NAT interface
- QMI_ERR_INVALID_ARG A specified value of the input TLVs is not valid
- QMI_ERR_OUT_OF_CALL No data call is up on the RmNet port
- QMI_ERR_NOT_SUPPORTED Allowed maximum number of filters on the RmNet Port is already present

When the command is successful, a filter is created and a filter handle is returned in the response.

2016.05.18.00.06.31.RDT.IN

3.90 QMI_WDS_REMOVE_ADDITIONAL_PDN_FILTER

Removes the filter that was set to allow additional PDNs to be shared on a single port. (Deprecated)

WDS message ID

0x008B

Version introduced

Major - 1, Minor - 36

Version deprecated

Major - 1, Minor - 85

3.90.1 Request - QMI_WDS_REMOVE_ADDITIONAL_PDN_FILTER_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version introduced	Version last modified
Filter Handle	1.36	1.36

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Filter Handle
Length	4			2	
Value	\rightarrow	uint32	filter_handle	4	Filter handle.

Optional TLVs

None

Response - QMI WDS REMOVE ADDITIONAL PDN FILTER -**RESP**

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.36	1.36

Optional TLVs

Error codes

Optional TLVs				
None From codes				
Error codes	00.06.3com			
QMI_ERR_NONE	No error in the request			
QMI_ERR_INTERNAL	Unexpected error occurred during processing			
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point			
010	or the message was corrupted during transmission			
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request			
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response			
QMI_ERR_OUT_OF_CALL	Data call is not up on the RmNet port			
QMI_ERR_INVALID_HANDLE	Invalid filter handle			

Description of QMI_WDS REMOVE ADDITIONAL PDN FILTER 3.90.3 **REQ/RESP**

This command removes the filter with the specified filter handle. The filter with its corresponding filter handle must have already been set previously via the QMI WDS SET ADDITIONAL PDN FILTER REQ message.

This command elicits a QMI_ERR_INVALID_HANDLE error if a filter with the specified filter handle does not exist. When there is no data call up on the RmNet port, a QMI_ERR_OUT_OF_CALL error is returned.

3.91 QMI_WDS_EXTENDED_IP_CONFIG_IND

Indicates a change in any of the IP configuration of the data session.

WDS message ID

0x008C

Version introduced

Major - 1, Minor - 37

3.91.1 Indication - QMI_WDS_EXTENDED_IP_CONFIG_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

Name	Version introduced	Version last modified
Changed IP Configuration	1.40	1.78

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Changed IP Configuration
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	mask32	changed_ip_config	4	Set bits to 1, corresponding to
					configuration changed. Values:
					• Bit 4 – DNS address
					• Bit 9 – Gateway information (address
					and subnet mask)
					• Bit 10 – PCSCF address using PCO
					flag
					• Bit 11 – PCSCF server address list
					• Bit 12 – PCSCF domain name list
					• Bit 13 – MTU
					• Bit 14 – Domain name list
					• Bit 18 – Operator reserved PCO

3.91.2 Description of QMI_WDS_EXTENDED_IP_CONFIG_IND

This indication is sent when ancillary IP configuration changes occur. The indication is not triggered by changes to the IP address. The changed_ip_config TLV indicates which configurations have changed.

Upon receiving the indication, the control point must query for the updated IP configuration using QMI_WDS_GET_RUNTIME_SETTINGS to determine what changes occurred.

Two examples of configuration changes that trigger this indication are a PCSCF address change and an operator reserved PCO information change. For operator reserved PCO information, this indication is sent whenever the network updates the information.

3.92 QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_-IND_REGISTRATION

Registration mechanism for indications relevant to reverse IP transport connections.

WDS message ID

0x008D

Version introduced

Major - 1, Minor - 41

3.92.1 Request - QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_-IND_REGISTRATION_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version introduced	Version last modified
Register for Indication	1.41	1.41

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Register for Indication
Length	1			2	
Value	\rightarrow	boolean	register_for_ind	1	Values:
					• 0 – Deregister for the indication
					• 1 – Register for the indication

Optional TLVs

None

3.92.2 Response - QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_- IND REGISTRATION RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.41	1.41

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
0.50	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.92.3 Description of QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_- IND REGISTRATION REQ/RESP

This command allows a control point to register for a

QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND indication. This signaling is required to establish a data path in reverse where a client on the modem must send/receive packets over-the-air through the AP.

The control point must explicitly register for IPv4 or IPv6 indications by binding itself using QMI_WDS_SET_CLIENT_IP_PREF.

QMI WDS REVERSE IP TRANSPORT CONNECTION IND 3.93

Indicates a change in the current reverse IP transport connection status.

WDS message ID

0x008E

Version introduced

Major - 1, Minor - 41

Indication - QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_-3.93.1 **IND**

Mandatory TLVs

Message type							
Indication		√O ,					
Sender	nder						
Service		3120 114					
Scope		28 00:06:31 FU TH					
Unicast		22.75 Charles					
Mandatory TLVs	201	o Thank					
	Name	Version intr	oduced	Version last modified			
Reverse IP Transpo	rt Connection Status	1.41		1.41			
Transaction ID		1.41		1.41			

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Reverse IP Transport Connection Status
Length	4			2	
Value	\rightarrow	enum	rev_ip_transport_conn_	4	Values:
			status		• WDS_REVERSE_IP_TRANSPORT_
					DISCONNECTED (0x00) –
					Disconnected
					• WDS_REVERSE_IP_TRANSPORT_
					CONNECTED (0x01) – Connected
Туре	0x02			1	Transaction ID
Length	4			2	
Value	\rightarrow	uint32	transaction_id	4	Transaction ID for this specific
					indication.

Optional TLVs

Name	Version introduced	Version last modified
Technology Name	1.41	1.41
Is Shared	1.41	1.41
IPv4 Address	1.41	1.41
IPv4 Subnet Mask	1.41	1.41
IPv6 Address	1.41	1.41
MTU	1.53	1.53

(3)

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1 @	Technology Name
Length	2			2	
Value	\rightarrow	enum16	tech_name	2	Technology name of the reverse IP
					transport data connection. Values:
					• -32736 – WLAN_LOCAL_BRKOUT
				1	• -32735 – IWLAN_S2B
				_	WLAN_LOCAL_BRKOUT is an
				80	interface for transferring data between
				STOR	entities on the AP and modem. It can be
			0.	0. 501	used either for local breakout calls, or for
			00.	E.J.	IPSec signaling for ePDG calls.
			Nº 015		IWLAN_S2B is an interface for
			5 ,0		transferring data between entities on the
			6. 4121		AP and modem for ePDG calls.
Туре	0x11		20, 20,	1	Is Shared
Length	1		80,	2	
Value	\rightarrow	boolean	is_shared	1	Indicates whether the static SAs are
					shared between IPv4 and IPv6. Values:
					• 0 – Not shared
					• 1 – Shared
Туре	0x12			1	IPv4 Address
Length	4			2	
Value	\rightarrow	uint32	ipv4_addr	4	Provides the IPv4 address for the WLAN
					local breakout or ePDG connection.
Туре	0x13			1	IPv4 Subnet Mask
Length	4			2	
Value	\rightarrow	uint32	ipv4_subnet_mask	4	IPv4 subnet mask.
Туре	0x14			1	IPv6 Address
					Provides the IPv6 address for the WLAN
					local breakout or ePDG connection.
Length	17			2	
Value	\rightarrow	uint8	ipv6_addr	16	IPv6 address (in network byte order).
					The address is an 16-element array of
					8-bit numbers, each of which is in
					big-endian format.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits.
					Range: 0 to 128.
Туре	0x15			1	MTU
Length	4			2	
Value	\rightarrow	uint32	mtu	4	MTU size.

3.93.2 Description of QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_-IND

This indication communicates changes in the reverse IP transport connection status.

When the reverse IP transport first must be configured on the AP side, an indication is sent with rev_ip_transport_conn_status as WDS_REVERSE_IP_TRANSPORT_CONNECTED. For a dual IP call, two indications are generated, one for IPv4 and the other for IPv6. Each indication contains its respective IPv4 Address of IPv6 TLV.

There is no static Security Association (SA) configuration required on the AP side if the Technology Name TLV is WLAN_LOCAL_BRKOUT. If the TLV is IWLAN_S2B, static SAs must be configured on the AP side. The static SAs are retrieved using the QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG command.

When the ePDG or WLAN local breakout call is brought down, the AP must clear the static SAs and IP forwarding rules at its end. This is signaled by sending an indication with the Reverse IP Transport Connection Status TLV as WDS_REVERSE_IP_TRANSPORT_DISCONNECTED.

If there is a reconfiguration needed on the AP side for the IP transport, it is achieved by sending an indication with WDS_REVERSE_IP_TRANSPORT_DISCONNECTED followed by another indication with WDS_REVERSE_IP_TRANSPORT_CONNECTED.

The optional Is Shared TLV conveys whether the static SAs are shared between IPv4 and IPv6. The control point can use the Is Shared TLV to determine whether to issue a single or multiple QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG commands to retrieve the SAs. For WLAN-WWAN mobility support for S2B type of connections, refer to the 3GPP Release 10 Spec.

3.94 QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG

Retrieves IPSec static Security Associations (SA) for the ePDG call.

WDS message ID

0x008F

Version introduced

Major - 1, Minor - 41

3.94.1 Request - QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.94.2 Response - QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.41	1.41

Optional TLVs

Name	Version introduced	Version last modified
Security Parameter Index Rx	1.41	1.41
Security Parameter Index Tx	1.41	1.41
IPSec SA Protocol	1.41	1.41
Encapsulation Mode	1.41	1.41
Destination Address	1.41	1.41
Local Address	1.41	1.41
Hash Algorithm	1.41	1.83
Hash Key Rx	1.41	1.41
Hash Key Tx	1.41	1.41
Cryptography Algorithm	1.41	1.83
Cryptography Key Rx	1.41	1.41
Cryptography Key Tx	1.41	1.41
Initialization Vector	1.41	1.41
UDP Encapsulated	1.41	1.41
NAT Local IP Address	1.41	1.41
NAT Remote IP Address	1.41	1.41
Configuration Attribute Internal IPv4 Address	1.41	1.41
Configuration Attribute Internal IPv4 Netmask	1.41	1.41
Configuration Attribute Internal IPv4 DNS	1.41	1.41
Configuration Attribute Internal IPv4 NBNS	1.41	1.41
Configuration Attribute Internal Address Expiry	1.41	1.41
Configuration Attribute Internal IPv4 DHCP	1.41	1.41
Configuration Attribute Application Version	1.41	1.41
Configuration Attribute Internal IPv6 Address	1.41	1.41
Configuration Attribute Internal IPv6 DNS	1.41	1.41
Configuration Attribute Internal IPv6 NBNS	1.41	1.41
Configuration Attribute Internal IPv6 DHCP	1.41	1.41
Configuration Attribute Internal IPv4 Subnet	1.41	1.41
Configuration Attribute Supported Attributes	1.41	1.41
Configuration Attribute Internal IPv6 Subnet	1.41	1.41
Configuration Attribute Internal PCSCF IPv4	1.41	1.41
Address		
Configuration Attribute Internal PCSCF IPv6	1.41	1.41
Address		
Configuration Attribute 3GPP2 MIP4 HA	1.41	1.41
Configuration Attribute 3GPP2 MIP4 HOA	1.41	1.41
Configuration Attribute 3GPP2 MIP6 HA	1.41	1.41
Configuration Attribute 3GPP2 MIP6 HOA	1.41	1.41
Traffic Selector List	1.41	1.41
Traffic Selector Responder List	1.72	1.72
Access Point Name	1.75	1.75
Advanced Encryption Standard Mode	1.83	1.83

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Security Parameter Index Rx
Length	4			2	
Value	\rightarrow	uint32	spi_rx	4	Security parameter index Rx.
Туре	0x11			1	Security Parameter Index Tx
Length	4			2	
Value	\rightarrow	uint32	spi_tx	4	Security parameter index Tx.
Туре	0x12		1 -	1	IPSec SA Protocol
Length	4			2	
Value	\rightarrow	enum	ipsec_sa_protocol	4	Values:
value	7	Cituiii	ipsec_sa_protocor		• WDS_IPSEC_SA_PROTOCOL_
					UNDEFINED (0x00) – Undefined
					• WDS_IPSEC_SA_PROTOCOL_
				0.5	ISAKMP (0x01) – Internet Security
					Association and Key Management
					Protocol
					• WDS_IPSEC_SA_PROTOCOL_
					IPSEC_AH (0x02) – Authentication
					header
				00	• WDS_IPSEC_SA_PROTOCOL_
				~ ×	IPSEC_ESP (0x03) – Encapsulating
				53 20	security payload
_	0-12		.0	7.00	
Туре	0x13		000	ē ¹ 1	Encapsulation Mode
Length	4		N N N	2	***
Value	\rightarrow	enum	encapsulation_mode	4	Values:
			16 This		• WDS_IPSEC_SA_ENCAPSULATE_
			30, 20.		UNDEFINED (0x00) – Undefined
			encapsulation_mode		• WDS_IPSEC_SA_ENCAPSULATE_
					TUNNEL (0x01) – Encapsulation mode
					tunnel
					• WDS_IPSEC_SA_ENCAPSULATE_
					TRANSPORT (0x02) – Encapsulation
					mode transport
Туре	0x14			1	Destination Address
Length	Var			2	2 communi i idai co
Value	\rightarrow	Anıım	addr_family	4	Values:
value	\rightarrow	enum	auui_iaiiiiy	4	• 4 – IPv4
		• • •			• 6 – IPv6
		uint8	ip_addr_len	1	Number of sets of the following
					elements:
					• ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address
					based on the value of addr_family.
Туре	0x15			1	Local Address
Length	Var			2	
Value	\rightarrow	enum	addr_family	4	Values:
- 4140	′	CHAIH		'	• 4 – IPv4
					• 6 – IPv6
					• U - IF VU

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
		uint8	ip_addr_len	1	Number of sets of the following
					elements:
					• ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address
					based on the value of addr_family.
Туре	0x16			1	Hash Algorithm
Length	4			2	
Value	\rightarrow	enum	hash_algo	4	See Appendix D for the definition of
					these values.
Туре	0x17			1	Hash Key Rx
Length	Var			2	
Value	\rightarrow	uint8	hash_key_rx_len	1	Number of sets of the following
				0	elements:
		:	Leads Income	X/	• hash_key_rx
	0.10	uint8	hash_key_rx	Var	Hash key Rx.
Туре	0x18			1	Hash Key Tx
Length	Var	0	1 1 1 1 1	2	N. 1 C . C.1 C.11
Value	\rightarrow	uint8	hash_key_tx_len	1	Number of sets of the following
				~ ~ ~ ~	elements:
		0	1 1 1	3	• hash_key_tx
	0.10	uint8	hash_key_tx	Var	Hash key Tx.
Туре	0x19			e 1	Cryptography Algorithm
Length	4		N 000	2	
Value	\rightarrow	enum	crypto_algo	4	See Appendix D for the definition of
	0.14		76, W.	1	these values.
Туре	0x1A		20,000	1	Cryptography Key Rx
Length	Var	:+0		2	Name to a contract of the Call and a
Value	\rightarrow	uint8	crypto_key_rx_len	1	Number of sets of the following
					elements:
		uint8	amunta Izau mu	Var	• crypto_key_rx Cryptography key Rx.
Time	0x1B	uiiito	crypto_key_rx	1	Cryptography Key Tx
Type Length	Var			2	Cryptography Key 1x
Value		uint8	crypto_key_tx_len	1	Number of sets of the following
value	\rightarrow	uiiito	ciypio_key_ix_lell	1	Number of sets of the following elements:
					• crypto_key_tx
		uint8	crypto_key_tx	Var	Cryptography key Tx.
Туре	0x1C	ullito	orypto_Key_tx	1	Initialization Vector
Length	Var			2	initialization vector
Value		uint8	iv_len	1	Number of sets of the following
value	\rightarrow	ullito	17_1011	1	elements:
					• iv
		uint8	iv	Var	Initialization vector.
Type	0x1D	ullito	11		
Type	1			2	UDP Encapsulated
Length	1				

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	boolean	is_udp_encaps	1	Values:
					• 0 – FALSE
					• 1 – TRUE
Туре	0x1E			1	NAT Local IP Address
Length	Var			2	
Value	\rightarrow	enum	addr_family	4	Values:
					• 4 – IPv4
					• 6 – IPv6
		uint8	ip_addr_len	1	Number of sets of the following
					elements:
					• ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address
					based on the value of addr_family.
Туре	0x1F			1	NAT Remote IP Address
Length	Var			2	
Value	\rightarrow	enum	addr_family	4	Values:
				3	• 4 – IPv4
				_	• 6 – IPv6
		uint8	ip_addr_len	100	Number of sets of the following
				3	elements:
			.0'	0. 00,	• ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address
			\$ \$ \$ \$ \$		based on the value of addr_family.
Туре	0x20		6.05 Hande	1	Configuration Attribute Internal IPv4 Address
Length	Var		20,00	2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv4_	1	Number of sets of the following
			address_len		elements:
					• cfg_attr_internal_ipv4_ address
		uint32	cfg_attr_internal_ipv4_	Var	Configuration attribute internal IPv4
			address		address.
Туре	0x21			1	Configuration Attribute Internal IPv4
					Netmask
Length	4			2	
Value	\rightarrow	uint32	cfg_attr_internal_ipv4_	4	Configuration attribute internal IPv4
			netmask		netmask.
Туре	0x22			1	Configuration Attribute Internal IPv4 DNS
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv4_	1	Number of sets of the following
			dns_len		elements:
					cfg_attr_internal_ipv4_ dns
		uint32	cfg_attr_internal_ipv4_dns	Var	Configuration attribute internal IPv4 DNS.
Туре	0x23			1	Configuration Attribute Internal IPv4 NBNS
Length	Var			2	
Length	Var			2	

Field	Field value	Field type	Parameter	Size (byte)	Description
Value	\rightarrow	uint8	cfg_attr_internal_ipv4_ nbns_len	1	Number of sets of the following elements:
		uint32	cfg_attr_internal_ipv4_ nbns	Var	• cfg_attr_internal_ipv4_ nbns Configuration attribute internal IPv4 NBNS.
Туре	0x24			1	Configuration Attribute Internal Address Expiry
Length	4			2	
Value	\rightarrow	uint32	cfg_attr_internal_address_ expiry	4	Configuration attribute internal address expiry.
Туре	0x25			1	Configuration Attribute Internal IPv4 DHCP
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv4_	1	Number of sets of the following
			dhcp_len		elements:
					• cfg_attr_internal_ipv4_ dhcp
		uint32	cfg_attr_internal_ipv4_ dhcp	Var	Configuration attribute internal IPv4 DHCP.
Туре	0x26		100	16 ⁰	Configuration Attribute Application Version
Length	Var		.0	5//	
Value	\rightarrow	uint8	cfg_attr_application_	€ ³ 1	Number of sets of the following
			version_len		elements: • cfg_attr_application_ version
		char	cfg_attr_application_ version	Var	Configuration attribute application version.
Туре	0x27		9ER	1	Configuration Attribute Internal IPv6 Address
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv6_ address_len	1	Number of sets of the following elements: • ipv6_addr • ipv6_prefix_length
		uint8	ipv6_addr	16	IPv6 address (in network byte order). The address is an 16-element array of 8-bit numbers, each of which is in big-endian format.
		uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits. Range: 0 to 128.
Туре	0x28			1	Configuration Attribute Internal IPv6 DNS
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv6_ dns_len	1	Number of sets of the following elements: • ipv6_address
			1		

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0x29	туре		1	Configuration Attribute Internal IPv6
	X 7			2	NBNS
Length	Var		afa attu intamal inac	2	Number of cate of the fellowing
Value	\rightarrow	uint8	cfg_attr_internal_ipv6_	1	Number of sets of the following
			nbns_len		elements: • ipv6_address
	ŀ	uint8	ipv6_address	16	IPv6_address.
Time	0x2A	uiiito	ipvo_address	10	Configuration Attribute Internal IPv6
Туре					DHCP
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv6_	1	Number of sets of the following
			dhcp_len		elements:
				-	• ipv6_address
		uint8	ipv6_address	16	IPv6 address.
Туре	0x2B		40	1	Configuration Attribute Internal IPv4 Subnet
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv4_	1 🗸	Number of sets of the following
			subnet_len	0	elements:
				3	• ipv4_subnet_address
			0.	0. 00,	• subnet_mask
		uint32	ipv4_subnet_address	×4	IPv4 subnet address.
		uint32	subnet_mask	4	Subnet mask.
Туре	0x2C		5-05 hande	1	Configuration Attribute Supported Attributes
Length	Var		207.07	2	
Value	\rightarrow	uint8	cfg_attr_supported_	1	Number of sets of the following
			attributes_len		elements:
					 cfg_attr_supported_attributes
		char	cfg_attr_supported_	Var	Configuration attribute supported
			attributes		attributes.
Туре	0x2D			1	Configuration Attribute Internal IPv6
					Subnet
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_ipv6_	1	Number of sets of the following
			subnet_len		elements:
					• ipv6_addr
					• ipv6_prefix_length
		uint8	ipv6_addr	16	IPv6 address (in network byte order).
					The address is an 16-element array of
					8-bit numbers, each of which is in
					big-endian format.
		uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits.
					Range: 0 to 128.
Туре	0x2E			1	Configuration Attribute Internal PCSCF IPv4 Address
	Var			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	cfg_attr_internal_pcscf_	1	Number of sets of the following
			ipv4_address_len		elements:
					cfg_attr_internal_pcscf_ ipv4_address
		uint32	cfg_attr_internal_pcscf_	Var	Configuration attribute internal PCSCF
			ipv4_address		IPv4 address.
Туре	0x2F			1	Configuration Attribute Internal PCSCF
					IPv6 Address
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_internal_pcscf_	1	Number of sets of the following
			ipv6_address_len		elements:
					• ipv6_addr
					ipv6_prefix_length
		uint8	ipv6_addr	16	IPv6 address (in network byte order).
					The address is an 16-element array of
					8-bit numbers, each of which is in
				"	big-endian format.
		uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits.
					Range: 0 to 128.
Туре	0x30			100	Configuration Attribute 3GPP2 MIP4
				27 "	НА
Length	Var		6	25	
Value	\rightarrow	uint8	cfg_attr_3gpp2_mip4_ha_	in I kin	Number of sets of the following
			len		elements:
			5,00		• cfg_attr_3gpp2_mip4_ha
		uint32	cfg_attr_3gpp2_mip4_ha	Var	Configuration attribute 3GPP2 MIP4
			070 17		HA.
Туре	0x31		120	1	Configuration Attribute 3GPP2 MIP4
			0		HOA
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_3gpp2_mip4_	1	Number of sets of the following
			hoa_len		elements:
					• cfg_attr_3gpp2_mip4_hoa
		uint32	cfg_attr_3gpp2_mip4_hoa	Var	Configuration attribute 3GPP2 MIP4
					HOA.
Туре	0x32			1	Configuration Attribute 3GPP2 MIP6
					НА
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_3gpp2_mip6_ha_	1	Number of sets of the following
			len		elements:
					• ipv6_addr
					• ipv6_prefix_length
	ŀ	uint8	ipv6_addr	16	IPv6 address (in network byte order).
			. –		The address is an 16-element array of
					8-bit numbers, each of which is in
	ļ		·	I	,
					big-endian format.
		uint8	ipv6_prefix_length	1	big-endian format. IPv6 prefix length in number of bits.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x33			1	Configuration Attribute 3GPP2 MIP6 HOA
Length	Var			2	
Value	\rightarrow	uint8	cfg_attr_3gpp2_mip6_ hoa_len	1	Number of sets of the following elements: • ipv6_addr • ipv6_prefix_length
		uint8	ipv6_addr	16	IPv6 address (in network byte order). The address is an 16-element array of 8-bit numbers, each of which is in big-endian format.
		uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits. Range: 0 to 128.
Туре	0x34			1	Traffic Selector List
Length	Var			2	
Value	\rightarrow	uint8	traffic_selector_list_len	1	Number of sets of the following elements: • protocol • start_port
			(15.75.00.00)	er. On	 end_port addr_family ip_addr_len ip_addr addr_family ip_addr_len
			0100 711		• ip_addr
		uint8	protocol	1	Protocol.
		uint16	start_port	2	Start port.
		uint16	end_port	2	End port.
		enum	addr_family	4	Values: • 4 – IPv4 • 6 – IPv6
		uint8	ip_addr_len	1	Number of sets of the following elements: • ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address based on the value of addr_family.
		enum	addr_family	4	Values: • 4 – IPv4 • 6 – IPv6
		uint8	ip_addr_len	1	Number of sets of the following elements: • ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address based on the value of addr_family.
Туре	0x35			1	Traffic Selector Responder List
Length	Var	·		2	

Field	Field	Field	Parameter	Size	Description
	value	type	4 - CC 1 - 4 1	(byte)	Niggel and Court of Call of Call of Call
Value	\rightarrow	uint8	traffic_selector_responder_	1	Number of sets of the following elements:
			list_len		
					• protocol
					• start_port
					• end_port
					• addr_family
					• ip_addr_len
					• ip_addr
					• addr_family
					• ip_addr_len
		• .0	. 1	1	• ip_addr
		uint8	protocol	1	Protocol.
		uint16	start_port	2	Start port.
		uint16	end_port	2	End port.
		enum	addr_family	4	Values:
					• 4 – IPv4
					• 6 – IPv6
		uint8	ip_addr_len	1	Number of sets of the following
				80	elements:
				2	• ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address
			60.	e4.	based on the value of addr_family.
		enum	addr_family	4	Values:
			5,00		• 4 – IPv4
		1	G. Wall		• 6 – IPv6
		uint8	ip_addr_len	1	Number of sets of the following
			100		elements:
			<u> </u>		• ip_addr
		uint8	ip_addr	Var	Contains either the IPv4 or IPv6 address
					based on the value of addr_family.
Туре	0x36			1	Access Point Name
Length	Var			2	
Value	\rightarrow	string	apn	Var	APN.
Туре	0x37			1	Advanced Encryption Standard Mode
Length	4			2	
Value	\rightarrow	enum	aes_mode	4	Advanced Encryption Standard Mode.
					Values:
					• WDS_IPSEC_AES_MODE_MIN (0) -
					No AES mode
					• WDS_IPSEC_AES_MODE_CBC (1)
					– AES mode CBC
					• WDS_IPSEC_AES_MODE_CTR (2) -
					AES mode CTR

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the IP transport was not
	established

3.94.3 Description of QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG REQ/RESP

This command retrieves the static SAs that have been negotiated for the ePDG call as defined in RFC 5996. The static SAs can be retrieved if a QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND indication had previously been sent with the Technology Name TLV set as IWLAN_S2B; otherwise QMI_ERR_OUT_OF_CALL error is returned.

QMI WDS REVERSE IP TRANSPORT CONFIG COMPLETE 3.95

Sends notification that reverse IP transport configuration is complete on the Application Processor (AP)

WDS message ID

0x0090

Version introduced

Major - 1, Minor - 41

Request - QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG_-**COMPLETE REQ**

Mandatory TLVs

Message type							
Request							
Sender	pp ¹						
Control point	00:06:31 cm. an						
Mandatory TLVs							
Name	Version introduced	Version last modified					
Configuration Result	1.41	1.41					
Transaction ID	1.41	1.41					

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Configuration Result
Length	1			2	
Value	\rightarrow	boolean	config_result	1	Values:
					• 0 – Failure
					• 1 – Success
Туре	0x02			1	Transaction ID
Length	4			2	
Value	\rightarrow	uint32	transaction_id	4	Transaction ID of the indication for
					which the processing is complete.

Optional TLVs

None

3.95.2 Response - QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG_-COMPLETE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name		Version introduced	Version last modified
Result Code	75.	1.41	1.41

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_ARG	Specified value is invalid

3.95.3 Description of QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG_-COMPLETE REQ/RESP

This command sends notification that the AP has finished configuring the reverse IP transport. If the QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND indication specifies that SA configuration is required, it must be queried using QMI_WDS_GET_IPSEC_STATIC_SA_CONFIG and applied on the AP side before this command is issued.

This command must be sent for every QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND indication. The Transaction ID TLV must be the same as the Transaction ID TLV sent in the QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND indication. If an incorrect Transaction ID TLV is provided, a QMI_ERR_INVALID_ARG error is returned.

If multiple QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND indications are sent, QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG_COMPLETE is only expected for the last indication.

A QMI_ERR_INVALID_ARG error is issued if QMI_WDS_REVERSE_IP_TRANSPORT_CONFIG_COMPLETE is sent for previous indications.



3.96 QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_EX

Queries the data bearer technology.

WDS message ID

0x0091

Version introduced

Major - 1, Minor - 41

3.96.1 Request - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_- EX_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.96.2 Response - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_- EX_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.41	1.41

Optional TLVs

Name	Version introduced	Version last modified	
Data Bearer Technology	1.41	1.70	
Last Call Bearer Technology	1.41	1.70	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Data Bearer Technology
Length	16			2	
Value	\rightarrow	enum	technology	4	Technology type. Values:
					• WDS_BEARER_TECH_NETWORK_
				- 0	3GPP (0) – 3GPP
				-	• WDS_BEARER_TECH_NETWORK_
					3GPP2 (1) – 3GPP2
		enum	rat_value	4	RAT value. Values:
					• WDS_BEARER_TECH_RAT_EX_
					NULL_BEARER (0x00) – NULL bearer
				_	• WDS_BEARER_TECH_RAT_EX_
				0	3GPP_WCDMA (0x01) – 3GPP
				3	WCDMA
			0	0. 00	• WDS_BEARER_TECH_RAT_EX_
			00.	e. y.	3GPP_GERAN (0x02) – 3GPP GERAN
			\$ 0.45	1000°	• WDS_BEARER_TECH_RAT_EX_
			5 10		3GPP_LTE (0x03) – 3GPP LTE
			6. hall		• WDS_BEARER_TECH_RAT_EX_
			201-01		3GPP_TDSCDMA (0x04) – 3GPP
			2016.05.18 00 ask		TDSCDMA
			<u> </u>		• WDS_BEARER_TECH_RAT_EX_
					3GPP_WLAN (0x05) – 3GPP WLAN
					• WDS_BEARER_TECH_RAT_EX_
					3GPP_MAX (0x64) – 3GPP maximum
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_1X (0x65) – 3GPP2 1X
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_HRPD (0x66) – 3GPP2 HRPD
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP2_EHRPD (0x67) - 3GPP2$
					EHRPD
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_WLAN (0x68) – 3GPP2 WLAN
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_MAX (0xC8) – 3GPP2
					maximum

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
		mask	so_mask	8	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – SO mask unspecified
					•
					3GPP SO mask:
					• 0x01 – WCDMA
					• 0x02 – HSDPA
					• 0x04 – HSUPA
					• 0x08 – HSDPAPLUS
					• 0x10 – DC HSDPAPLUS
					• 0x20 – 64 QAM
					• 0x40 – HSPA
					• 0x80 – GPRS
				"	• 0x100 – EDGE
				1	• 0x200 – GSM
				_	• 0x400 – S2B
				0	• 0x800 – LTE limited service
				3	• 0x1000 – LTE FDD
			0.	0. 00	• 0x2000 – LTE TDD
			00.	E.J.	• 0x4000 – TDSCDMA
			5° 26		• 0x8000 – DC HSUPA
		1	2016.05.12.00.10		3GPP2 SO mask:
			16, 14g		• 0x01000000 – 1X IS95
			30,00		• 0x02000000 – 1X IS2000
			Se		• 0x04000000 – 1X IS2000 • 0x04000000 – 1X IS2000 REL A
					• 0x08000000 – HDR REV0 DPA
					• 0x10000000 – HDR REVA DPA
					• 0x20000000 – HDR REVB DPA
					• 0x40000000 – HDR REVA MPA
					• 0x80000000 – HDR REVB MPA
					• 0x100000000 – HDR REVA EMPA
					• 0x200000000 – HDR REVB EMPA
					• 0x400000000 – HDR REVB MMPA
					• 0x800000000 – HDR EVDO FMC
Туре	0x11			1	Last Call Bearer Technology
Length	16			2	
Value	\rightarrow	enum	technology	4	Technology type. Values:
					• WDS_BEARER_TECH_NETWORK_
					3GPP (0) – 3GPP
					• WDS_BEARER_TECH_NETWORK_
					3GPP2 (1) – 3GPP2

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)	·	
		enum	rat_value	4	RAT value. Values:	
					• WDS_BEARER_TECH_RAT_EX_	
					NULL_BEARER (0x00) – NULL bearer	
					• WDS_BEARER_TECH_RAT_EX_	
					$3GPP_WCDMA(0x01) - 3GPP$	
					WCDMA	
					• WDS_BEARER_TECH_RAT_EX_	
					3GPP_GERAN (0x02) – 3GPP GERAN	
					• WDS_BEARER_TECH_RAT_EX_	
					3GPP_LTE (0x03) – 3GPP LTE	
					WDS_BEARER_TECH_RAT_EX_	
					3GPP_TDSCDMA (0x04) – 3GPP	
					TDSCDMA	
					• WDS_BEARER_TECH_RAT_EX_	
					$3GPP_WLAN (0x05) - 3GPP WLAN$	
				3"	• WDS_BEARER_TECH_RAT_EX_	
					3GPP_MAX (0x64) – 3GPP maximum	
					• WDS_BEARER_TECH_RAT_EX_	
				0	3GPP2_1X (0x65) – 3GPP2 1X	
				27 3	• WDS_BEARER_TECH_RAT_EX_	
				0. '0//	3GPP2_HRPD (0x66) – 3GPP2 HRPD	
			00:	04.	• WDS_BEARER_TECH_RAT_EX_	
			19 25		$3GPP2_EHRPD (0x67) - 3GPP2$	
			500		EHRPD	
		1	6.0 halls		• WDS_BEARER_TECH_RAT_EX_	
			2016-05-12-00-18-0		3GPP2_WLAN (0x68) – 3GPP2 WLAN	
			780		• WDS_BEARER_TECH_RAT_EX_	
			· ·		$3GPP2_MAX (0xC8) - 3GPP2$	
					maximum	

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)	•	
		mask	so_mask	8	SO mask to indicate the service option or	
					type of application.	
					An SO mask value of zero indicates that	
					this field is ignored. Values:	
					• 0x00 – SO mask unspecified	
					3GPP SO mask:	
					• 0x01 – WCDMA	
					• 0x02 – HSDPA	
					• 0x04 – HSUPA	
					• 0x08 – HSDPAPLUS	
					• 0x10 – DC HSDPAPLUS	
					• 0x20 – 64 QAM	
				-	• 0x40 – HSPA	
					• 0x80 – GPRS	
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• 0x100 – EDGE	
					• 0x200 – GSM	
				_	• 0x400 – S2B	
				0	• 0x800 – LTE limited service	
				3	• 0x1000 – LTE FDD	
			0	0. 00	• 0x2000 – LTE TDD	
			00.	E. J.	• 0x4000 – TDSCDMA	
			10 No. 10		• 0x8000 – DC HSUPA	
			5 0		2000	
			6. 412		3GPP2 SO mask:	
			20,50		• 0x01000000 – 1X IS95	
			Cole of Thandoas		• 0x02000000 – 1X IS2000	
					• 0x04000000 – 1X IS2000 REL A	
					• 0x08000000 – HDR REV0 DPA	
					• 0x10000000 – HDR REVA DPA	
					• 0x20000000 – HDR REVB DPA	
					 0x40000000 – HDR REVA MPA 0x80000000 – HDR REVB MPA 	
					• 0x100000000 – HDR REVB MPA • 0x1000000000 – HDR REVA EMPA	
					• 0x100000000 – HDR REVA EMPA • 0x200000000 – HDR REVB EMPA	
					• 0x200000000 – HDR REVB EMPA • 0x400000000 – HDR REVB MMPA	
					• 0x400000000 – HDR REVB MMPA • 0x800000000 – HDR EVDO FMC	
					VAOUUUUUUU – FIDK EVDU FIVIC	

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Data bearer technology cannot be returned, because the call
	is not up
QMI_ERR_INFO_UNAVAILABLE	Data bearer technology information is unavailable at this
	point

3.96.3 Description of QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_EX REQ/RESP

This command queries the current data bearer technology. The data connection must be established to obtain a valid current data bearer technology.



3.97 QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM

Queries the maximum number of attached PDNs supported.

WDS message ID

0x0092

Version introduced

Major - 1, Minor - 43

3.97.1 Request - QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.97.2 Response - QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.43	1.43

Name	Version introduced	Version last modified
Maximum Number of Attach PDNs Supported	1.43	1.43

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Maximum Number of Attach PDNs
					Supported
Length	1			2	
Value	\rightarrow	uint8	max_attach_pdn_num	1	Maximum number of attached PDNs
					supported by the device.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	27 54

3.97.3 Description of QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM REQ/RESP

This command returns the maximum number of attached PDNs supported by the device. The client must query the number of attached PDNs supported before it can set the new attached PDN list using the QMI_WDS_SET_LTE_ATTACH_PDN_LIST command. If the request exceeds this number, QMI_ERR_REQUESTED_NUM_UNSUPPORTED error is returned.

QMI_WDS_SET_LTE_ATTACH_PDN_LIST 3.98

Sets the LTE attach PDN list.

WDS message ID

0x0093

Version introduced

Major - 1, Minor - 43

Request - QMI_WDS_SET_LTE_ATTACH_PDN_LIST_REQ 3.98.1

Message type

Mandatory TLVs

Request			
Sender		G.	
Control point			
Mandatory TLVs		06.3 LPL 144	
	Name	Version introduced	Version last modified
Attach PDN List		1.43	1.43

Field	Field	Field	Parameter	Size	Description
	value	type	180	(byte)	
Туре	0x01			1	Attach PDN List
Length	Var			2	
Value	\rightarrow	uint8	attach_pdn_list_len	1	Number of sets of the following
					elements:
					• attach_pdn_list
		uint16	attach_pdn_list	Var	PDN profile IDs to attach to, listed in
					order of decreasing priority.

Optional TLVs

None

Response - QMI WDS SET LTE ATTACH PDN LIST RESP 3.98.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.43	1.43

Optional TLVs

Error codes

Optional TLVs	40/
None	
Error codes	6.31 ED 144
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	
QMI_ERR_REQUESTED_NUM_	Requested attach PDN number not supported by the device
UNSUPPORTED	
QMI_ERR_INVALID_PROFILE	Invalid profiles specified in the request

Description of QMI WDS SET LTE ATTACH PDN LIST 3.98.3 **REQ/RESP**

This command sets the LTE attach PDN list specified by the control point. The Attach PDN List TLV contains a list of profile IDs. The control point must specify the list of LTE attach PDN profile IDs in order of decreasing priority.

The number of profiles in attach_pdn_list must not exceed the maximum number of attach PDNs supported by the device. Therefore, querying the maximum number of attach PDNs supported by the device must be done with the QMI_WDS_GET_LTE_MAX_ATTACH_PDN_NUM command before the QMI WDS SET LTE ATTACH PDN LIST REQ request is issued. If the number of profiles in attach pdn list exceeds the maximum number of allowed PDNs, a QMI_ERR_REQUESTED_NUM_UNSUPPORTED error is returned.

The device does not use any APNs that are currently blocked by the network, and selects the unblocked APN based on the priority for the next LTE attach. If all the attach profiles are currently blocked by the

network, the UE disables LTE. If any attach profile is unblocked, the UE enables LTE if it currently blocked. This command does not trigger an attach operation and the Attach PDN List TLV applies to any subsequent LTE attach. Similarly, LTE detach is not triggered by any alteration in the list because of this request.

The list is stored in persistent memory on the device and prior entries are replaced with the new list each time.



3.99 QMI_WDS_GET_LTE_ATTACH_PDN_LIST

Queries the attach PDN list.

WDS message ID

0x0094

Version introduced

Major - 1, Minor - 43

3.99.1 Request - QMI_WDS_GET_LTE_ATTACH_PDN_LIST_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.99.2 Response - QMI_WDS_GET_LTE_ATTACH_PDN_LIST_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.43	1.43

Name	Version introduced	Version last modified
LTE Attach PDN List	1.43	1.43

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	LTE Attach PDN List
Length	Var			2	
Value	\rightarrow	uint8	attach_pdn_list_len	1	Number of sets of the following
					elements:
					attach_pdn_list
		uint16	attach_pdn_list	Var	PDN profile IDs to attach to, listed in
					order of decreasing priority.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	00.04.0

3.99.3 Description of QMI_WDS_GET_LTE_ATTACH_PDN_LIST REQ/RESP

This command returns the list of profile IDs of LTE attach PDNs configured on the device. If there is no LTE attach PDN list configured on the device, the default profile ID is returned to the control point.

3.100 QMI WDS LTE ATTACH PDN LIST IND

Indicates a change in the list of LTE attach PDNs.

WDS message ID

0x0095

Version introduced

Major - 1, Minor - 43

3.100.1 Indication - QMI_WDS_LTE_ATTACH_PDN_LIST_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

Name	Version introduced	Version last modified
Changed LTE Attach PDN List	1.43	1.43

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Changed LTE Attach PDN List
Length	Var			2	
Value	\rightarrow	uint8	attach_pdn_list_len	1	Number of sets of the following
					elements:
					attach_pdn_list
		uint16	attach_pdn_list	Var	PDN profile IDs to attach to, listed in
					order of decreasing priority.

3.100.2 Description of QMI_WDS_LTE_ATTACH_PDN_LIST_IND

This indication is sent whenever the LTE attach PDN list stored on the device changes and whenever the control point registers for the indication using QMI_WDS_INDICATION_REGISTER. The Changed LTE Attach PDN List TLV contains a list of profile IDs that are currently configured to attach to LTE in order of decreasing priority.

The indication is sent to all control points that registered for the indication via the QMI_WDS_INDICATION_REGISTER command with the Changed LTE Attach PDN List TLV set to TRUE.



3.101 QMI WDS SET LTE DATA RETRY

Enables or disables retrying an LTE data attach.

WDS message ID

0x0096

Version introduced

Major - 1, Minor - 44

Request - QMI_WDS_SET_LTE_DATA_RETRY_REQ

Message type

Mandatory TLVs

Request		
Sender	60.	
Control point	an'	
Mandatory TLVs	06.3.2 on th	
Name	Version introduced	Version last modified
LTE Data Retry Setting	1.44	1.44

Field	Field	Field	Parameter	Size	Description
	value	type	180	(byte)	
Туре	0x01		~	1	LTE Data Retry Setting
Length	1			2	
Value	\rightarrow	boolean	lte_data_retry	1	Whether to retry an LTE data attach on a different PDN. Values: • 0 – Do not retry in case of failure • 1 – Retry in case of failure

Optional TLVs

None

Response - QMI WDS SET LTE DATA RETRY RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.44	1.44

Optional TLVs

Error codes

Optional TLVs	^O ,
None	
Error codes	6.31 kg tan
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

Description of QMI_WDS_SET_LTE_DATA_RETRY REQ/RESP 3.101.3

The control point sends the request to the modem to control whether to retry an LTE attach with a different PDN if the attach fails on the current PDN. If the LTE Data Retry Setting TLV is enabled, the modem is instructed to re-attach on a different PDN. If the LTE Data Retry Setting TLV is disabled, the modem does not attempt to re-attach on a different PDN. This command dynamically overrides the NV setting that controls the same behavior. However the value is not written to NV and does not persist beyond a power cycle.

3.102 QMI_WDS_GET_LTE_DATA_RETRY

Retrieves the current LTE data retry setting.

WDS message ID

0x0097

Version introduced

Major - 1, Minor - 44

3.102.1 Request - QMI_WDS_GET_LTE_DATA_RETRY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.102.2 Response - QMI_WDS_GET_LTE_DATA_RETRY_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.44	1.44

Name	Version introduced	Version last modified
LTE Data Retry Setting	1.44	1.44

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	LTE Data Retry Setting
Length	1			2	
Value	\rightarrow	boolean	lte_data_retry	1	Whether to retry an LTE data attach on a
					different PDN. Values:
					• 0 – Do not retry in case of failure
					• 1 – Retry in case of failure

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	26.3 M.

3.102.3 Description of QMI_WDS_GET_LTE_DATA_RETRY REQ/RESP

The control point sends the request to the modem to retrieve the current LTE data retry setting. If QMI_WDS_SET_LTE_DATA_RETRY has not been previously sent, QMI_WDS_GET_LTE_DATA_RETRY returns the NV setting.

3.103 QMI WDS SET LTE ATTACH TYPE

Sets whether the attach to be performed is initial or handoff.

WDS message ID

0x0098

Version introduced

Major - 1, Minor - 44

Request - QMI_WDS_SET_LTE_ATTACH_TYPE_REQ

Mandatory TLVs

	Name	Ver	sion introduced	Version last modified
LTE Attach Type		20 m25	1.44	1.44

Message type						
Request						
Sender				O.		
Control	point) S		
Mandato	ory TLVs		IIP.	26.3°CM	en en	
		N	ame	Version	on introduced	Version last modified
LTE Attach Type			Nº 63	5	1.44	1.44
Field	Field value	Field type	Parameter	Size (byte)		Description
	Field	Field type	Parameter	Size (byte)		
Field	Field value		Parameter	(byte)	LTE Attach Typ	

Optional TLVs

None

Response - QMI_WDS_SET_LTE_ATTACH_TYPE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Error codes

Optional TLVs	
None	
Error codes	CO,
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	V.

Description of QMI WDS SET LTE ATTACH TYPE REQ/RESP 3.103.3

The control point sends the request to the modem to control whether it is to perform an initial attach or handoff attach on LTE. This value must be set before the modem attempts an attach to LTE for it to take effect. It does not affect existing data calls. If not explicitly set, the default value is WDS_LTE_ATTACH_TYPE_INITIAL. This setting is not persistent.

3.104 QMI WDS GET LTE ATTACH TYPE

Retrieves the current LTE attach type.

WDS message ID

0x0099

Version introduced

Major - 1, Minor - 44

3.104.1 Request - QMI_WDS_GET_LTE_ATTACH_TYPE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.104.2 Response - QMI_WDS_GET_LTE_ATTACH_TYPE_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified	
Result Code	1.44	1.44	

Name	Version introduced	Version last modified
LTE Attach Type	1.44	1.44

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	LTE Attach Type
Length	4			2	
Value	\rightarrow	enum	lte_attach_type	4	Whether the attach is initial or handoff.
					Values:
					• WDS_LTE_ATTACH_TYPE_INITIAL
					(0) – LTE initial attach is to be
					performed
					• WDS_LTE_ATTACH_TYPE_
					HANDOFF (1) – LTE handoff attach is
				3	to be performed

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	

3.104.3 Description of QMI_WDS_GET_LTE_ATTACH_TYPE REQ/RESP

This command retrieves the current LTE attach type: initial or handoff.

3.105 QMI_WDS_REVERSE_IP_TRANSPORT_FILTER_SETUP_IND

Indicates that a reverse IP transport filter must be set up. (Deprecated)

WDS message ID

0x009A

Version introduced

Major - 1, Minor - 44

Version deprecated

Major - 1, Minor - 85

3.105.1 Indication - QMI_WDS_REVERSE_IP_TRANSPORT_FILTER_- SETUP_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

Name	Version introduced	Version last modified	
Filter Type	1.44	1.44	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Filter Type
Length	4			2	
Value	\rightarrow	enum	filter_type	4	Type of filter to set up. Values:
					• WDS_REVERSE_IP_TRANSPORT_
					ESP_SPI_FILTER (0) – ESP SPI filter

Name	Version introduced	Version last modified	
Security Parameter Index	1.44	1.44	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Security Parameter Index
Length	4			2	
Value	\rightarrow	uint32	spi	4	Security parameter index.

3.105.2 Description of QMI_WDS_REVERSE_IP_TRANSPORT_FILTER_-SETUP_IND

This indication is sent when a reverse IP transport filter must be set up on the TE to route downlink data packets to the modem. The Filter Type TLV indicates what kind of filter is applicable. If the filter_type is WDS_REVERSE_IP_TRANSPORT_ESP_SPI_FILTER, the optional Security Parameter Index TLV is present and contains the Security Parameter Index (SPI) that pertains to the Encapsulating Security Payload (ESP) protocol. Refer to RFC 2401 and RFC 4303 for more information on SPI and ESP.

3.106 QMI WDS HANDOFF INFORMATION IND

Indicates that a handoff is in progress or has been completed.

WDS message ID

0x009B

Version introduced

Major - 1, Minor - 44

Indication - QMI_WDS_HANDOFF_INFORMATION_IND

Message type

Mandatory TLVs

Indication	N					
Sender) ,					
Service						
Scope	26.3. CM. 124					
Unicast (per control point)	20,00					
Mandatory TLVs						
Name	Version introduced	Version last modified				
Handoff Information	1.44	1.44				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Handoff Information
Length	4			2	
Value	\rightarrow	enum	handoff_information	4	Handoff information. Values:
					• WDS_HANDOFF_INIT (0) – Handoff
					has started
					• WDS_HANDOFF_SUCCESS (1) –
					Handoff is successful
					• WDS_HANDOFF_FAILURE (2) –
					Handoff failed

Name	Version introduced	Version last modified	
Handoff Event Information	1.91	1.91	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Handoff Event Information
					This TLV contains the source RAT and
					target RAT information when a handoff
					event occurs.
Length	8			2	
Value	\rightarrow	enum	srat	4 _	Source RAT value. Values:
					• WDS_BEARER_TECH_RAT_EX_
					NULL_BEARER (0x00) – NULL bearer
					• WDS_BEARER_TECH_RAT_EX_
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	$3GPP_WCDMA(0x01) - 3GPP$
					WCDMA
					• WDS_BEARER_TECH_RAT_EX_
				0	3GPP_GERAN (0x02) – 3GPP GERAN
				27 "	• WDS_BEARER_TECH_RAT_EX_
				0. '0//	3GPP_LTE (0x03) – 3GPP LTE
			00.	04.	• WDS_BEARER_TECH_RAT_EX_
			19 AS		3GPP_TDSCDMA (0x04) – 3GPP
			5 10		TDSCDMA
			6.0 halls		• WDS_BEARER_TECH_RAT_EX_
			07.77		3GPP_WLAN (0x05) – 3GPP WLAN
			2016-05-12-00-15 OO-15-15-00-15-00-15-0		• WDS_BEARER_TECH_RAT_EX_
			Ų.		3GPP_MAX (0x64) – 3GPP maximum
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_1X (0x65) – 3GPP2 1X
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_HRPD (0x66) – 3GPP2 HRPD
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_EHRPD (0x67) – 3GPP2
					EHRPD
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_WLAN (0x68) – 3GPP2 WLAN
					• WDS_BEARER_TECH_RAT_EX_
					3GPP2_MAX (0xC8) – 3GPP2
					maximum

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	-
		enum	trat	4	Target RAT value. Values:
					• WDS_BEARER_TECH_RAT_EX_
					NULL_BEARER (0x00) – NULL bearer
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP_WCDMA(0x01) - 3GPP$
					WCDMA
					• WDS_BEARER_TECH_RAT_EX_
					3GPP_GERAN (0x02) – 3GPP GERAN
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP_LTE(0x03) - 3GPPLTE$
					WDS_BEARER_TECH_RAT_EX_
					3GPP_TDSCDMA (0x04) – 3GPP
					TDSCDMA
					• WDS_BEARER_TECH_RAT_EX_
					$3GPP_WLAN (0x05) - 3GPP WLAN$
				3"	WDS_BEARER_TECH_RAT_EX_
					3GPP_MAX (0x64) – 3GPP maximum
				_	• WDS_BEARER_TECH_RAT_EX_
				00	3GPP2_1X (0x65) – 3GPP2 1X
				27 "	• WDS_BEARER_TECH_RAT_EX_
				0.00	$3GPP2_HRPD (0x66) - 3GPP2 HRPD$
			0.5	34.	• WDS_BEARER_TECH_RAT_EX_
			19 25		$3GPP2_EHRPD (0x67) - 3GPP2$
			65, 76		EHRPD
		1	2016-05-12-00-18-0		• WDS_BEARER_TECH_RAT_EX_
					$3GPP2_WLAN (0x68) - 3GPP2 WLAN$
			V 200		• WDS_BEARER_TECH_RAT_EX_
			0		$3GPP2_MAX (0xC8) - 3GPP2$
					maximum

3.106.2 Description of QMI_WDS_HANDOFF_INFORMATION_IND

This indication is sent when a handoff is in progress for the existing data call on the port. The indication with WDS_HANDOFF_INIT is sent when a handoff has just been initiated. WDS_HANDOFF_SUCCESS or WDS_HANDOFF_FAILURE is sent on success or failure of the handoff.

The optional Handoff Event Information TLV is included to convey source RAT and target RAT information to the control point when a handoff event occurs.

3.107 QMI_WDS_SET_DATA_PATH

Sets the client data path.

WDS message ID

0x009C

Version introduced

Major - 1, Minor - 51

Request - QMI_WDS_SET_DATA_PATH_REQ 3.107.1

Message type

Mandatory TLVs

Request		and a	
Sender		ζO,	
Control point		301	
Mandatory TLVs		06.31 Pr. In	
	Name	Version introduced	Version last modified
Sets Data Path		1.51	1.51

Field	Field	Field	Parameter	Size	Description
	value	type	120	(byte)	
Туре	0x01			1	Sets Data Path
Length	4			2	
Value	\rightarrow	enum	data_path	4	Values:
					• WDS_DATA_PATH_HW (0) –
					Hardware data path
					• WDS_DATA_PATH_SW (1) –
					Software data path

Optional TLVs

None

Response - QMI_WDS_SET_DATA_PATH_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.51	1.51

Optional TLVs

Error codes

Optional TLVs	^O ,
None	
Error codes	-6:31 ED 144
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
90	disconnected
QMI_ERR_NO_EFFECT	Request has no effect because of conflict with system setting
QMI_ERR_OP_DEVICE_	Operation is not supported for the requested technology type
UNSUPPORTED	
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.107.3 Description of QMI_WDS_SET_DATA_PATH REQ/RESP

This command allows a control point to set the data path of the current data connection.

The request can fail if the requested setting is conflicting with the system level setting. This system level setting can be invoked by using the QMI_WDA_PACKET_FILTER_ENABLE or QMI_WDA_PACKET_FILTER_DISABLE command. These two QMI_WDA commands may change the data path setting to software or hardware respectively on all the PDNs. A QMI_ERR_NO_EFFECT error is returned if changing the data path is not allowed.

The QMI_WDA_PACKET_FILTER_ENABLE and QMI_WDA_PACKET_FILTER_DISABLE requests overwrite any previous data path request that was set by the QMI_WDS_SET_DATA_PATH command. In this case the client must invoke QMI_SET_DATA_PATH again if it wants to force the data path of this PDN to differ from the system setting.

If the request is made outside a data call, a QMI_ERR_OUT_OF_CALL error is returned. QMI_ERR_OP_DEVICE_UNSUPPORTED is returned if the request is made for invalid technology types.

If the request succeeded, the data path change requested by the client takes effect immediately and QMI_ERR_NONE is returned.

3.108 QMI_WDS_GET_DATA_PATH

Queries the current modem data path.

WDS message ID

0x009D

Version introduced

Major - 1, Minor - 51

3.108.1 Request - QMI_WDS_GET_DATA_PATH_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.108.2 Response - QMI_WDS_GET_DATA_PATH_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.51	1.51

Name	Version introduced	Version last modified
Current Data Path	1.51	1.51

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Current Data Path
Length	4			2	
Value	\rightarrow	enum	data_path	4	Values:
					• WDS_DATA_PATH_HW (0) –
					Hardware data path
					• WDS_DATA_PATH_SW (1) –
					Software data path

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.108.3 Description of QMI_WDS_GET_DATA_PATH REQ/RESP

This command returns the data path of the current data connection.

If the request is made outside a data call, a QMI_ERR_OUT_OF_CALL error is returned.

3.109 QMI_WDS_UPDATE_LTE_ATTACH_PDN_LIST_PROFILES

Triggers the modem to update the profile parameters.

WDS message ID

0x009F

Version introduced

Major - 1, Minor - 48

3.109.1 Request - QMI_WDS_UPDATE_LTE_ATTACH_PDN_LIST_-PROFILES REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.109.2 Response - QMI_WDS_UPDATE_LTE_ATTACH_PDN_LIST_-PROFILES_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.48	1.48

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	(b)

3.109.3 Description of QMI_WDS_UPDATE_LTE_ATTACH_PDN_LIST_-PROFILES REQ/RESP

This command triggers the modem to update the profiles parameters in the LTE attach PDN list that were previously set by the QMI_WDS_SET_LTE_ATTACH_PDN_LIST command.

If there is any update to the profile parameters, control points can use this command to request the modem to read the updated values for all the profiles used in the LTE attach PDN list.

If the control point does not request the modem to refresh these parameters by using this command, the subsequent LTE attach may fail.

This command does not trigger an attach operation and the request to read the updated profile settings applies only to any subsequent LTE attach. Similarly, LTE detach is not triggered by any alteration in the profile settings because of this request.

3.110 QMI_WDS_EMBMS_SAI_LIST_QUERY

Queries the Service Area Identity (SAI) list.

WDS message ID

0x00A0

Version introduced

Major - 1, Minor - 49

3.110.1 Request - QMI_WDS_EMBMS_SAI_LIST_QUERY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.110.2 Response - QMI_WDS_EMBMS_SAI_LIST_QUERY_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Optional TLVs

Name	Version introduced	Version last modified
SAI List	1.49	1.49
Extended SAI List	1.62	1.62

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	SAI List
Length	Var			2	
Value	\rightarrow	uint8	freq_sai_list_len	1	Number of sets of the following
					elements:
					• frequency
					• is_serving_frequency
					• sai_list_len
					• sai_list
		uint16	frequency	2	Frequency associated with sai_list.
		boolean	is_serving_frequency	1	Indicates whether this is a serving
					frequency.
		uint8	sai_list_len	1	Number of sets of the following
					elements:
					• sai_list
		uint32	sai_list	Var	Service area identity for this frequency.
Туре	0x11			1	Extended SAI List
Length	Var			2	
Value	\rightarrow	uint8	freq_sai_list_ex_len	1 _<	Number of sets of the following
				0	elements:
				3	frequency
			0.	0. 600	• is_serving_frequency
			00.	E.J.	• sai_list_len
			19 AS		• sai_list
		uint32	frequency	4	Frequency associated with sai_list.
		boolean	is_serving_frequency	1	Indicates whether this is a serving
			207.07		frequency.
		uint8	sai_list_len	1	Number of sets of the following
			~		elements:
					• sai_list
		uint32	sai_list	Var	Service area identity for this frequency.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_OUT_OF_CALL	Request was issued when the eMBMS packet data session
	was not connected
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_NO_EFFECT	Query request is already pending
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.110.3 Description of QMI_WDS_EMBMS_SAI_LIST_QUERY REQ/RESP

This command queries the available SAI list configured in the device. The response returns the available SAI list per frequency.

The SAIs belonging to a 16-bit frequency are reported using the SAI List TLV. The SAIs belonging to both 16-bit and 32-bit frequencies are reported using the Extended SAI List TLV. Control points are expected to learn whether the modem supports 16-bit or 32-bit frequencies via the

QMI_WDS_GET_CAPABILITIES_REQ message with the eMBMS Extended EARFCN List TLV set to TRUE.



3.111 QMI_WDS_EMBMS_SAI_LIST_IND

Indicates the currently available SAI list.

WDS message ID

0x00A1

Version introduced

Major - 1, Minor - 49

3.111.1 Indication - QMI_WDS_EMBMS_SAI_LIST_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

Name	Version introduced	Version last modified
SAI List	1.49	1.49
Transaction ID	1.49	1.49
Extended SAI List	1.62	1.62

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	SAI List
Length	Var			2	
Value	\rightarrow	uint8	freq_sai_list_len	1	Number of sets of the following
					elements:
					• frequency
					• is_serving_frequency
					• sai_list_len
					• sai_list
		uint16	frequency	2	Frequency associated with sai_list.
		boolean	is_serving_frequency	1	Indicates whether this is a serving
					frequency.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint8	sai_list_len	1	Number of sets of the following
					elements:
					• sai_list
		uint32	sai_list	Var	Service area identity for this frequency.
Туре	0x11			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	SAI transaction ID for the indication.
Туре	0x12			1	Extended SAI List
Length	Var			2	(b)
Value	\rightarrow	uint8	freq_sai_list_ex_len	1	Number of sets of the following
					elements:
					• frequency
					• is_serving_frequency
					• sai_list_len
					• sai_list
		uint32	frequency	4	Frequency associated with sai_list.
		boolean	is_serving_frequency	1	Indicates whether this is a serving
				_<	frequency.
		uint8	sai_list_len	100	Number of sets of the following
				3	elements:
			0.	0. 01,	• sai_list
		uint32	sai_list	Var	Service area identity for this frequency.

3.111.2 Description of QMI_WDS_EMBMS_SAI_LIST_IND

This indication returns the currently available SAI list. This indication is sent when there is a change to the SAI list, such as when the UE moves to a new cell, or the network updates the system information causing the SAI list to change. The indication is sent to all control points that have registered for the indication via the QMI_WDS_INDICATION_REGISTER command with the Report eMBMS SAI List Changes TLV set to TRUE.

The SAIs belonging to a 16-bit frequency are reported using the SAI List TLV. The SAIs belonging to both 16-bit and 32-bit frequencies are reported using the Extended SAI List TLV. Control points are expected to learn whether the modem supports 16-bit or 32-bit frequencies via the

QMI_WDS_GET_CAPABILITIES_REQ message with the eMBMS Extended EARFCN List TLV set to TRUE.

QMI WDS BIND MUX DATA PORT

Binds a control point to a muxed data port.

WDS message ID

0x00A2

Version introduced

Major - 1, Minor - 54

Request - QMI_WDS_BIND_MUX_DATA_PORT_REQ

Message type

Optional TLVs

oooligo typo					
Request					
Sender					
Control point	200				
Mandatory TLVs	Mandatory TLVs				
None	0,00				
Mandatory TLVs None Optional TLVs					
Name	Version introduced	Version last modified			
Peripheral End Point ID	1.54	1.77			
Mux ID	1.54	1.54			
Reversed RmNet Flag	1.54	1.54			
Client Type	1.61	1.61			

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Peripheral End Point ID
					Peripheral end point (physical data
					channel) to which the client binds.
Length	8			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum	ep_type	4	Peripheral end point type. Values:
					• DATA_EP_TYPE_RESERVED (0x00)
					– Reserved
					• DATA_EP_TYPE_HSIC (0x01) –
					HSIC
					• DATA_EP_TYPE_HSUSB (0x02) –
					HSUSB
					• DATA_EP_TYPE_PCIE (0x03) – PCIE
					 DATA_EP_TYPE_EMBEDDED
					(0x04) – Embedded
					DATA_EP_TYPE_BAM_DMUX
					(0x05) – BAM DMUX
					All other values are reserved and are
					ignored by service or clients.
		uint32	iface_id	4	Peripheral interface number.
Туре	0x11			1	Mux ID
Length	1			2	
Value	\rightarrow	uint8	mux_id	1	Mux ID of the logical data channel to
				16/	which the client binds. The default value
_	0.10			37	is 0.
Туре	0x12			2	Reversed RmNet Flag
Length	1	1 1	000	(C)	D'o la tara a conserva I Doo Nat Alata o ant
Value	\rightarrow	boolean	reversed	1	Binds to a reversed RmNet data port.
		1	05 3110		Values:
			10, The		• 0x00 – FALSE (default) • 0x01 – TRUE
Туре	0x13		20,000	1	Client Type
Length	4		8	2	Chefit Type
Value	\rightarrow	enum	client_type	4	Type of the client that requests the
	′	0110111		·	binding. Values:
					• WDS_CLIENT_TYPE_RESERVED
					(0) – Reserved
					• WDS_CLIENT_TYPE_TETHERED
					(1) – Tethered
					All other values are reserved and are
					ignored by service.

Response - QMI WDS BIND MUX DATA PORT RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.54	1.54

Optional TLVs

Error codes

Optional TLVs	√O ,
None	
Error codes	6.3 100
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_NO_EFFECT	Binding has no effect
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.112.3 Description of QMI WDS BIND MUX DATA PORT REQ/RESP

This command binds the control point to a specified data channel. The Peripheral End Point ID TLV identifies the physical data channel, and the Mux ID TLV identifies the logical data channel to which the client binds. By default a client is bound to a default physical data channel associated with the QMI control channel from which the client allocation request is received.

After binding is complete, all the messages sent from or received on this control point are for the specified data port instead of the default data port. This command must be sent immediately after the client ID is assigned. If other control messages are sent before the bind request, the service may return a QMI_ERR_NO_EFFECT error and ignore the bind request.

The Client Type TLV specifies the type of client that requests the binding. By default the client type is not set.

The bind command resets the client state. The QMI_WDS_RESET command does not reset the binding.

3.113 QMI WDS SET THROUGHPUT INFO IND FREQ

Sets the timer for generating a throughput information indication.

WDS message ID

0x00A3

Version introduced

Major - 1, Minor - 55

Request - QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ_REQ 3.113.1

Message type

Optional TLVs

Request		26	
Sender		0,	
Control point			
Mandatory TLVs		E. Think	
None	200	Skey Contra	
Optional TLVs	05-1800		
	Name	Version introduced	Version last modified
Report Interval	1,50,	1.55	1.55

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Report Interval
Length	4			2	
Value	\rightarrow	uint32	report_interval	4	Period at which throughput information
					is generated, in milliseconds.

Response - QMI WDS SET THROUGHPUT INFO IND FREQ -3.113.2 **RESP**

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.55	1.55

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request	
QMI_ERR_INTERNAL	Unexpected error occurred during processing	
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point	
	or the message was corrupted during transmission	
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response	
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request	
QMI_ERR_INVALID_ARG	Specified value is invalid	

3.113.3 Description of QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ REQ/RESP

Using the Report Interval TLV, the control point sends the request to specify the interval at which throughput information is generated. In absence of this TLV, a default value of 1 sec is used to generate the QMI_WDS_THROUGHPUT_INFO_IND indication. If the request is sent with a timer duration of zero, the timer is stopped and no indication is sent. The minimum timer interval that can be specified in the request is 50 ms. If the request is smaller than 50 ms (other than zero), a QMI_ERR_INVALID_ARG error is returned to the control point. If multiple clients registered for the indication using this request, the report_interval field specified in the last request is used to generate the indication.

3.114 QMI_WDS_GET_LAST_THROUGHPUT_INFO

Queries for the last reported throughput information.

WDS message ID

0x00A4

Version introduced

Major - 1, Minor - 55

3.114.1 Request - QMI_WDS_GET_LAST_THROUGHPUT_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.114.2 Response - QMI_WDS_GET_LAST_THROUGHPUT_INFO_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.55	1.55

Name	Version introduced	Version last modified
Throughput Information	1.55	1.77

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Throughput Information
Length	Var			2	
Value	\rightarrow	uint8	throughput_info_len	1	Number of sets of the following
					elements:
					• apn_string_len
					• apn_string
					• ip_type
					• tech_type
					• subscription
					• uplink_actual_rate
					uplink_allowed_rate
				_	• uplink_queue_size
				0	throughput_signal
				3	valid_port
			0.	0. 500.	• data_port
			00.	E. J.	• ep_type
			20 000		• iface_id
			5,00		• mux_id
			6. drain		• bearer_rlp_mac_id
			20,00		• uplink_actual_rate
			800		• uplink_queue_size
			~		• is_primary
		uint8	apn_string_len	1	Number of sets of the following
					elements:
					• apn_string
		string	apn_string	Var	String representing the APN. Maximum
					length is 100 bytes.
		enum	ip_type	4	IP type. Values:
					• WDS_IP_TYPE_IPV4 (0) – IPv4
			1		• WDS_IP_TYPE_IPV6 (1) – IPv6
		enum	tech_type	4	Technology type. Values:
					• WDS_TECHNOLOGY_TYPE_3GPP
					(0) – 3GPP
					• WDS_TECHNOLOGY_TYPE_3GPP2
					(1) - 3GPP2

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum	subscription	4	Subscription to which the APN is bound.
					Values:
					• WDS_DEFAULT_SUBS (0x0000) –
					Default data subscription
					• WDS_PRIMARY_SUBS (0x0001) -
					Primary
					• WDS_SECONDARY_SUBS (0x0002)
					- Secondary
					• WDS_TERTIARY_SUBS (0x0003) -
					Tertiary
					• WDS_DONT_CARE_SUBS (0x00FF)
					– Default value used in the absence of
					explicit binding
		uint32	uplink_actual_rate	4	Uplink actual rate in kbits per second.
		uint32	uplink_allowed_rate	4	Uplink allowed rate per UE in kbits per
			40	3"	second.
		uint32	uplink_queue_size	4	Number of bytes pending in the uplink
				/	queue.
		enum	throughput_signal	4,0	Indicates whether the UE can have a
				2	better throughput rate than the
				9. 101	throughput reported currently.
			00.	e. y.	• WDS_HIGHER_THROUGHPUT_
			19 and		UNKNOWN (0) – Throughput quality is
			5 36		unknown
		1	5. Charles		• WDS_HIGHER_THROUGHPUT_
			throughput_signal		NOT_POSSIBLE (1) – Best throughput
			1201		possible
			Ů,		• WDS_HIGHER_THROUGHPUT_
					POSSIBLE (2) – Better throughput than
					current throughput is possible
		enum	valid_port	4	Indicates which of the following IDs are
					valid:
					• WDS_SIO_PORT_ID (0) – Data_port
					field is used
					• WDS_END_POINT_ID (1) – Ep_type,
					iface_id, and mux_id fields are used
		uint16	data_port	2	SIO data port to which the client binds.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum	ep_type	4	Peripheral end point type. Values:
					• DATA_EP_TYPE_RESERVED (0x00)
					– Reserved
					• DATA_EP_TYPE_HSIC (0x01) -
					HSIC
					• DATA_EP_TYPE_HSUSB (0x02) –
					HSUSB
					• DATA_EP_TYPE_PCIE (0x03) – PCIE
					DATA_EP_TYPE_EMBEDDED
					(0x04) – Embedded
					DATA_EP_TYPE_BAM_DMUX
					(0x05) - BAM DMUX
					All other values are reserved and are
					ignored by service or clients.
		uint32	iface_id	4	Peripheral interface number.
		uint8	mux_id	1	Mux ID of the RmNet instance where
					the data call is already present.
		uint8	bearer_rlp_mac_id_	1 _	Number of sets of the following
			throughput_info_len	0	elements:
				3	• bearer_rlp_mac_id
			0	0. 00	• uplink_actual_rate
			00.	E. J.	• uplink_queue_size
			, & , S	h	• is_primary
		uint32	bearer_rlp_mac_id	4	Bearer ID representing the bearer, or
			6. hall		RLP_MAC ID for which the throughput
			207.07		is being reported.
		uint32	uplink_actual_rate	4	Uplink actual rate in kbits per second
			~		corresponding to the bearer or
			11.1	4	RLP_MAC ID.
		uint32	uplink_queue_size	4	Number of bytes pending in the uplink
					queue corresponding to the bearer or
					RLP_MAC ID.
		boolean	is_primary	1	Boolean value to determine if the bearer
					or RLP_MAC ID is the default.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INFO_UNAVAILABLE	Throughput information is unavailable

3.114.3 Description of QMI_WDS_GET_LAST_THROUGHPUT_INFO REQ/RESP

This command queries the last reported throughput information. The list of APNs with active data calls (at the time of reporting) along with their actual and allowed throughput information is returned in the response. The valid_port field indicates whether the port ID or end point ID is used. The control point is expected to read the corresponding fields accordingly. The APN name is ignored for 1X and HDR technology types. If throughput information was never reported (since there were previously no data calls), a QMI_ERR_INFO_UNAVAILABLE error is returned to the control point.



3.115 QMI_WDS_THROUGHPUT_INFO_IND

Indicates throughput information.

WDS message ID

0x00A5

Version introduced

Major - 1, Minor - 55

3.115.1 Indication - QMI_WDS_THROUGHPUT_INFO_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Name	Version introduced	Version last modified
Throughput Information	1.55	1.77

Field	Field value	Field type	Parameter	Size (byte)	Description
Туре	0x10	.,,,,		1	Throughput Information
Length	Var			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	uint8	throughput_info_len	1	Number of sets of the following
					elements:
					• apn_string_len
					• apn_string
					• ip_type
					• tech_type
					• subscription
					• uplink_actual_rate
					• uplink_allowed_rate
					• uplink_queue_size
					• throughput_signal
					• valid_port
					data_port
					• ep_type
					• iface_id
			4	30	• mux_id
					• bearer_rlp_mac_id
				,	• uplink_actual_rate
				~Ô	• uplink_queue_size
				~ ~ *	• is_primary
		uint8	apn_string_len	5 1/0	Number of sets of the following
			1 = 3=	7.00	elements:
			80 4	- C.	• apn_string
		string	apn_string	Var	String representing the APN. Maximum
		C	0, 40,		length is 100 bytes.
		enum	ip_type	4	IP type. Values:
			1=11		• WDS_IP_TYPE_IPV4 (0) – IPv4
			85		• WDS_IP_TYPE_IPV6 (1) – IPv6
		enum	tech_type	4	Technology type. Values:
			_ 71		• WDS_TECHNOLOGY_TYPE_3GPP
					(0) - 3GPP
					• WDS_TECHNOLOGY_TYPE_3GPP2
					(1) – 3GPP2
		enum	subscription	4	Subscription to which the APN is bound.
				-	Values:
					• WDS_DEFAULT_SUBS (0x0000) –
					Default data subscription
					• WDS_PRIMARY_SUBS (0x0001) -
					Primary
					• WDS_SECONDARY_SUBS (0x0002)
					- Secondary
					• WDS_TERTIARY_SUBS (0x0003) -
					Tertiary
					• WDS_DONT_CARE_SUBS (0x00FF)
					- Default value used in the absence of
					explicit binding
		uint32	uplink_actual_rate	4	Uplink actual rate in kbits per second.
		umtsz	upillik_actual_fate	4	opinik actual fate ili kults per secolid.

uint32 uint32 enum	uplink_allowed_rate uplink_queue_size throughput_signal	4 4	Uplink allowed rate per UE in kbits per second. Number of bytes pending in the uplink queue. Indicates whether the UE can have a better throughput rate than the throughput reported currently. • WDS_HIGHER_THROUGHPUT_ UNKNOWN (0) – Throughput quality is
uint32	uplink_queue_size	4	second. Number of bytes pending in the uplink queue. Indicates whether the UE can have a better throughput rate than the throughput reported currently. • WDS_HIGHER_THROUGHPUT_
	• •		Number of bytes pending in the uplink queue. Indicates whether the UE can have a better throughput rate than the throughput reported currently. • WDS_HIGHER_THROUGHPUT_
	• •		queue. Indicates whether the UE can have a better throughput rate than the throughput reported currently. • WDS_HIGHER_THROUGHPUT_
enum	throughput_signal	4	Indicates whether the UE can have a better throughput rate than the throughput reported currently. • WDS_HIGHER_THROUGHPUT_
Chum	unougnput_signai	•	better throughput rate than the throughput reported currently. • WDS_HIGHER_THROUGHPUT_
			throughput reported currently. • WDS_HIGHER_THROUGHPUT_
			• WDS_HIGHER_THROUGHPUT_
			8 T 1
			unknown
			WDS_HIGHER_THROUGHPUT_
			NOT_POSSIBLE (1) – Best throughput
			possible
		800	• WDS_HIGHER_THROUGHPUT_
			POSSIBLE (2) – Better throughput than
			current throughput is possible
enum	valid_port	4	Indicates which of the following IDs are
		/	valid:
		00	• WDS_SIO_PORT_ID (0) – Data_port
		27 "	field is used
		5.00	• WDS_END_POINT_ID (1) – Ep_type,
	0:5	34.	iface_id, and mux_id fields are used
	A. Y (2)./		SIO data port to which the client binds.
enum	ep_type	4	Peripheral end point type. Values:
1	6. Hall		• DATA_EP_TYPE_RESERVED (0x00)
	20,20		- Reserved
	200		• DATA_EP_TYPE_HSIC (0x01) –
			HSIC
			• DATA_EP_TYPE_HSUSB (0x02) –
			HSUSB • DATA_EP_TYPE_PCIE (0x03) – PCIE
			• DATA_EP_TYPE_EMBEDDED
			(0x04) – Embedded
			• DATA_EP_TYPE_BAM_DMUX
			(0x05) – BAM DMUX
			All other values are reserved and are
			ignored by service or clients.
uint32	iface id	4	Peripheral interface number.
		1	Mux ID of the RmNet instance where
	· <u>-</u>	_	the data call is already present.
uint8	bearer_rlp mac id	1	Number of sets of the following
	_		elements:
	<i>O</i> 1 ···= ···=		• bearer_rlp_mac_id
			• uplink_actual_rate
			• uplink_queue_size
			• is_primary
ı	uint16 enum uint32 uint8	uint16 data_port enum ep_type uint32 iface_id uint8 mux_id	uint16 data_port 2 enum ep_type 4 uint32 iface_id 4 uint8 mux_id 1 uint8 bearer_rlp_mac_id_ 1

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	bearer_rlp_mac_id	4	Bearer ID representing the bearer, or
					RLP_MAC ID for which the throughput
					is being reported.
		uint32	uplink_actual_rate	4	Uplink actual rate in kbits per second
					corresponding to the bearer or
					RLP_MAC ID.
		uint32	uplink_queue_size	4	Number of bytes pending in the uplink
					queue corresponding to the bearer or
					RLP_MAC ID.
		boolean	is_primary	1	Boolean value to determine if the bearer
					or RLP_MAC ID is the default.

3.115.2 Description of QMI_WDS_THROUGHPUT_INFO_IND

This indication is sent to the control point whenever the timer for generating throughput information expires. The timer interval is set by the control point using the

QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ_REQ request. This indication is sent to all control points that are registered via the QMI_WDS_INDICATION_REGISTER command with the Report Uplink Throughput Information TLV set to TRUE.

The list of APNs with an active data call along with their actual and allowed throughput information is returned in the response. The valid_port field indicates whether the port ID or end point ID is used. The control point is expected to read the appropriate fields accordingly. The APN is ignored for 1X and HDR technology types.

This indication is not sent if there is no active data call even if a valid timer is set for generating the indication via the QMI_WDS_SET_THROUGHPUT_INFO_IND_FREQ_REQ request. Attach PDN on LTE is an exception, where an indication is generated by default if a valid timer is set.

3.116 QMI_WDS_INITIATE_ESP_REKEY

Initiates an ESP rekey.

WDS message ID

0x00A6

Version introduced

Major - 1, Minor - 56

3.116.1 Request - QMI_WDS_INITIATE_ESP_REKEY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.116.2 Response - QMI_WDS_INITIATE_ESP_REKEY_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified	
Result Code	1.56	1.56	

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the IP transport was not
	established

3.116.3 Description of QMI_WDS_INITIATE_ESP_REKEY REQ/RESP

This command initiates an ESP rekey. It results in the IPSec tunnel parameters for the IWLAN_S2B call being reestablished. If the rekey succeeds, the static SAs on the AP side must be reconfigured. This reconfiguration is achieved by sending the

QMI_WDS_REVERSE_IP_TRANSPORT_CONNECTION_IND indication with

WDS_REVERSE_IP_TRANSPORT_DISCONNECTED followed by

WDS_REVERSE_IP_TRANSPORT_CONNECTED. If the rekey fails, the IWLAN_S2B call is torn down.

QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST

Registers for profile change events.

WDS message ID

0x00A7

Version introduced

Major - 1, Minor - 59

Request - QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST_REQ 3.117.1

Message type

Request	W.					
Sender	O ,					
Control point						
Mandatory TLVs	Mandatory TLVs					
Iandatory TLVs Vone						
Optional TLVs						
Name	Version introduced	Version last modified				
Profile Event Registration	1.59	1.59				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Event Registration
Length	Var			2	
Value	\rightarrow	uint8	profile_event_register_len	1	Number of sets of the following
					elements:
					profile_type
					• profile_index
		enum8	profile_type	1	Identifies the technology type of the
					profile. Values:
					• 0x00 – 3GPP
					• $0x01 - 3GPP2$
					• 0x02 – EPC
					• 0xFF – All technologies
					Value 0xFF is reserved; this value is used
					to register for profile change events for
					all technologies, such as 3GPP, 3GPP2,
					and EPC.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint8	profile_index	1	The index of the configured profile on
					which data call parameters are based
					(other TLVs present override the profile
					settings).
					Value 0xFF is reserved; this value is used
					to register for profile change events for
					all profiles tied to the technology type
					provided in the profile_type field. If
					profile_type is specified as 0xFF, the
					profile_index field is ignored.

3.117.2 Response - QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST_- RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.59	1.59

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_INVALID_ARG	Value exceeds the allowed range
QMI_ERR_ARG_TOO_LONG	Argument passed in a TLV is larger than the available
	storage in the device
QMI_ERR_INVALID_PROFILE	Specified configured profile index or profile type does not
	exist

3.117.3 Description of QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST REQ/RESP

This command allows a control point to request the QMI_WDS_PROFILE_CHANGED_IND indication whenever the profile contents of an interested profile change.

The control point must explicitly register for each profile event indications by providing the correct profile_id and profile_tech_type. The control point must also enable the Boolean value for report_profile_change_events via the QMI_WDS_INDICATION_REGISTER command to enable indications.

A control point can register for a maximum of 255 profile changes at a time using this command. If a control point sends this command more than once, previously configured values using this command are updated to the new values being passed.

A control point can register for profile change events for all technologies with a reserved value of 0xFF for the profile_type field. If this value is present in the list, it overrides any value passed for the profile_index field in the list and any change to profiles present in any technology are reported.

A control point can register for profile change events for all profiles in a specific technology with a reserved value of 0xFF for the profile_index field. If this value (0xFF) is present in the list, it overrides any other value passed for the profile_index field in the list for a specific technology.

A control point can deregister for all profile change events, by sending a QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST_REQ message without any TLVs.

3.118 QMI_WDS_PROFILE_CHANGED_IND

Indicates a change in the profile configured for reporting of change events.

WDS message ID

0x00A8

Version introduced

Major - 1, Minor - 59

3.118.1 Indication - QMI_WDS_PROFILE_EVENT_REGISTER_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Name	Version introduced	Version last modified
Profile Event Registration Indication	1.59	1.78

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Profile Event Registration Indication
Length	3			2	
Value	\rightarrow	enum8	profile_type	1	Identifies the technology type of the profile. Values: • WDS_PROFILE_TYPE_3GPP (0x00) - 3GPP • WDS_PROFILE_TYPE_3GPP2 (0x01) - 3GPP2 • WDS_PROFILE_TYPE_EPC (0x02) - EPC
		uint8	profile_index	1	Index of the configured profile on which data call parameters are based.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		enum8	profile_change_evt	1	Identifies the profile event that caused a
					change in the profile. Values:
					• WDS_PROFILE_CREATE_PROFILE_
					EVENT (0x01) – Create profile event
					• WDS_PROFILE_DELETE_PROFILE_
					EVENT (0x02) – Delete profile event
					• WDS_PROFILE_MODIFY_PROFILE_
					EVENT (0x03) – Modify profile event
					WDS_PROFILE_SUBSCRIPTION_
					CHANGE_EVENT (0x04) –
					Subscription changed event

3.118.2 Description of QMI_WDS_PROFILE_CHANGED_IND

This indication returns the profile change event that occurred for the specified profile. This indication is sent to control points that have configured a list of profiles using the

QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST_REQ request and have also registered for the indication via the QMI_WDS_INDICATION_REGISTER command with the Report Profile Changes TLV set to TRUE.

If a control point registers for more than one profile for change notification via the QMI_WDS_CONFIGURE_PROFILE_EVENT_LIST_REQ request, the control point receives a separate indication for each of the changed profiles for which it registered for.

If a WDS_PROFILE_SUBSCRIPTION_CHANGE_EVENT is received by the control point, indications for old subscription are no longer sent and the control point must deregister itself from all profile related indications on the old subscription.

3.119 QMI_WDS_GET_CAPABILITIES

Queries the modem capabilites.

WDS message ID

0x00A9

Version introduced

Major - 1, Minor - 62

Request - QMI_WDS_GET_CAPABILITIES_REQ 3.119.1

Message type

Request	M.	
Sender		
Control point		
Mandatory TLVs	36.3. POLIN	
None	20,10	
Optional TLVs	5 .	
Name	Version introduced	Version last modified
eMBMS Extended EARFCN List	1.62	1.62

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	eMBMS Extended EARFCN List
Length	1			2	
Value	\rightarrow	boolean	extended_embms_	1	Supported frequency values. Values:
			frequency		• 0 – 16-bit frequency
					• 1 – Extended frequencies (32-bit
					values)

3.119.2 Response - QMI_WDS_GET_CAPABILITIES_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.62	1.62

Optional TLVs

Name	Version introduced	Version last modified
eMBMS Extended EARFCN List	1.62	1.62

Field	Field	Field	Parameter	Size	Description
	value	type	4 4	(byte)	
Туре	0x10		6,7,00	1	eMBMS Extended EARFCN List
Length	1	1	C. Valley	2	
Value	\rightarrow	boolean	extended_embms_	1	Supported frequency values. Values:
			frequency		• 0 – 16-bit frequency
			Q.		• 1 – Extended frequencies (32-bit
					values)

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.119.3 Description of QMI_WDS_GET_CAPABILITIES REQ/RESP

This command queries the modem capabilites.

The control point can enable the eMBMS Extended EARFCN List TLV to query whether the modem supports 16-bit or 32-bit frequencies for eMBMS TMGI activation/deactivation and SAI list indication. The response returns TRUE if extended frequencies (32-bit values) are supported, and FALSE if only 16-bit frequency values are supported.

3.120 QMI WDS GET ROAMING INFO

Retrieves APN names during roaming.

WDS message ID

0x00AA

Version introduced

Major - 1, Minor - 63

3.120.1 Request - QMI_WDS_GET_ROAMING_INFO_REQ

Message type

Request

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

None

3.120.2 Response - QMI_WDS_GET_ROAMING_INFO_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.63	1.63

Optional TLVs

Name	Version introduced	Version last modified
APN Name List	1.63	1.63

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	APN Name List
Length	Var			2	
Value	\rightarrow	uint8	roaming_apn_name_list_	1	Number of sets of the following
			len		elements:
					• apn_name_len
				-	• apn_name
		uint8	apn_name_len	1	Number of sets of the following
					elements:
					• apn_name
		string	apn_name	Var	String parameter that is a logical name
					used to select the GGSN and external
				_	packet data network.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_INFO_UNAVAILABLE	Roaming information is unavailable

3.120.3 Description of QMI_WDS_GET_ROAMING_INFO REQ/RESP

This command queries the configured APN(s) in the device that are present in Roaming mode. A list of APNs is returned as part of the response. An empty list in the response to the control point indicates that all of the APNs configured in the device are available to bring up a data call and there are no APNs currently in Roaming mode.

If there is no information available regarding the Roaming mode of the APN(s), QMI ERR INFO UNAVAILABLE is returned to the control point.

3.121 QMI_WDS_ROAMING_INFO_IND

Indicates APN names during roaming.

WDS message ID

0x00AB

Version introduced

Major - 1, Minor - 63

3.121.1 Indication - QMI_WDS_ROAMING_INFO_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Name	Version introduced	Version last modified
APN Name List	1.63	1.63

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	APN Name List
Length	Var			2	
Value	\rightarrow	uint8	roaming_apn_name_list_	1	Number of sets of the following
			len		elements:
					• apn_name_len
					• apn_name
		uint8	apn_name_len	1	Number of sets of the following
					elements:
					• apn_name
		string	apn_name	Var	String parameter that is a logical name
					used to select the GGSN and external
					packet data network.

3.121.2 Description of QMI_WDS_ROAMING_INFO_IND

This indication is sent to all control points that are registered for the indication via the QMI_WDS_INDICATION_REGISTER command with the Report APN List in Roaming TLV set to TRUE. The indication returns a list of all of the APNs currently in Roaming mode.

This indication is generated whenever there is a change in Roaming mode of any of the configured APNs on the device. An empty indication sent to the registered control points indicates that all the APNs configured in the device are available to bring up a data call and no APNs are currently in Roaming mode.



QMI_WDS_GET_DELEGATED_IPV6_PREFIX

Queries the delegated IPv6 prefix.

WDS message ID

0x00AC

Version introduced

Major - 1, Minor - 64

Request - QMI_WDS_GET_DELEGATED_IPV6_PREFIX_REQ

Message type

Mandatory TLVs

Request		
Sender	ζΟ,	
Control point		
Mandatory TLVs	.06.3.1 Pr. In	
Name	Version introduced	Version last modified
Source IPv6 Address	1.64	1.64

Field	Field	Field	Parameter	Size	Description
	value	type	750	(byte)	
Туре	0x01			1	Source IPv6 Address
Length	16			2	
Value	\rightarrow	uint8	src_ipv6_addr	16	Link local address of the client IPv6 address (in network byte order). The address is a 16-element array of 8-bit numbers, each of which is in big-endian format.

Optional TLVs

None

Response - QMI_WDS_GET_DELEGATED_IPV6_PREFIX_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.64	1.64

Optional TLVs

Optiona	l TLVs),		
		N	ame			Versio	n introduced	Version last modified
IPv6 P	refix and	d Prefix L	ength			00	1.64	1.64
26.3. Jul. 1.11								
Field	Field	Field		Parameter	~0.	Size		Description

Field	Field	Field	Parameter	Size	Description
	value	type	4 4	(byte)	
Туре	0x10		-6/ \@°	1	IPv6 Prefix and Prefix Length
Length	17		C. Value	2	
Value	\rightarrow	uint8	ipv6_addr	16	IPv6 address (in network byte order).
			2,50		The address is an 16-element array of
			0		8-bit numbers, each of which is in
					big-endian format.
		uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits.
					Range: 0 to 128.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INSUFFICIENT_	Modem cannot generate any more delegated prefixes
RESOURCES	

3.122.3 Description of QMI_WDS_GET_DELEGATED_IPV6_PREFIX REQ/RESP

This command requests a delegated prefix to assign to the control point. The control point specifies its link local IPv6 address using the Source IPv6 Address TLV in the request message. The service generates the delegated prefix and returns it in the response with the prefix length. If the service cannot generate anymore delegated prefixes, QMI_ERR_INSUFFICIENT_RESOURCES is returned.



3.123 QMI_WDS_REMOVE_DELEGATED_IPV6_PREFIX

Removes the delegated IPv6 prefix.

WDS message ID

0x00AD

Version introduced

Major - 1, Minor - 64

3.123.1 Request - QMI_WDS_REMOVE_DELEGATED_IPV6_PREFIX_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Name	Version introduced	Version last modified
IPv6 Prefix and Prefix Length	1.64	1.64
Host Link Local IPv6 Address	1.69	1.69

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	IPv6 Prefix and Prefix Length
Length	17			2	
Value	\rightarrow	uint8	ipv6_addr	16	IPv6 address (in network byte order).
					The address is an 16-element array of
					8-bit numbers, each of which is in
					big-endian format.
		uint8	ipv6_prefix_length	1	IPv6 prefix length in number of bits.
					Range: 0 to 128.
Туре	0x11			1	Host Link Local IPv6 Address
Length	16			2	
Value	\rightarrow	uint8	host_ll_addr	16	Link local address of the IPv6 client for which the matching delegated prefix is to be removed (in network byte order). The address is a 16-element array of 8-bit
					numbers, each of which is in big-endian format.

Response - QMI WDS REMOVE DELEGATED IPV6 PREFIX -**RESP**

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.64	1.64

Optional TLVs

Error codes

Optional TLVs	
None	ROT
Error codes	0.06.3.1 EV. IM
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
07	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INVALID_ARG	Specified prefix and/or host address is invalid
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

Description of QMI_WDS_REMOVE_DELEGATED_IPV6_PREFIX 3.123.3 **REQ/RESP**

The control point sends the request to remove the delegated IPv6 prefix. The IPv6 Prefix and Prefix Length TLV specifies the prefix to be deleted. If multiple prefixes are to be removed, the control point is expected to send this request once for each prefix to be removed.

The Host Link Local Address TLV indicates the link local address of the host for which the matching delegated prefix is to be removed. If both the IPv6 Prefix and Prefix Length and Host Link Local Address TLVs are specified but do not match, QMI ERR INVALID ARG is returned.

3.124 QMI WDS ABORT GO DORMANT

Aborts the previously issued QMI_WDS_GO_DORMANT command.

WDS message ID

0x00AE

Version introduced

Major - 1, Minor - 71

3.124.1 Request - QMI_WDS_ABORT_GO_DORMANT_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.124.2 Response - QMI_WDS_ABORT_GO_DORMANT_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.71	1.71

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_NO_EFFECT	Control point has already triggered dormancy
QMI_ERR_INVALID_OPERATION	This client did not trigger dormancy

3.124.3 Description of QMI WDS ABORT GO DORMANT REQ/RESP

This command aborts a previously issued QMI_WDS_GO_DORMANT request command. The abort takes effect only if the delay timer specified in the Delay Time in Milliseconds TLV in the previously issued QMI_WDS_GO_DORMANT_REQ request is still running and dormancy has not been triggered yet. The abort command must be issued by the same control point that issued the QMI_WDS_GO_DORMANT_REQ command.

3.125 QMI WDS BIND SUBSCRIPTION

Binds the control point to the specified subscription.

WDS message ID

0x00AF

Version introduced

Major - 1, Minor - 76

Request - QMI_WDS_BIND_SUBSCRIPTION_REQ 3.125.1

Mandatory TLVs

Name	Version introduced	Version last modified
Subscription Identifier	1.76	1.76

Message	ge type					
Request						
Sender				J.		
Control 1	point) 		
Mandato	ry TLVs	i		63 COKU	and	
			ame	Version	n introduced	Version last modified
Subscri	iption Id	lentifier	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2	1.76	1.76
			6.05 Hallida			
Field	Field	Field	Parameter	Size	Į	Description
	value	type	200	(byte)		
Туре	0x01			1	Subscription Id	entifier
Length	4			2		
Value	\rightarrow	enum	subscription	4	•	which the client is
					bound. Values:	
						JLT_SUBS (0x0000) –
					Default data su	•
					_	ARY_SUBS (0x0001) -
					Primary	NDARY_SUBS (0x0002)
					- Secondary	NDAKI_SUBS (0x0002)
						ARY_SUBS (0x0003) -
					Tertiary	AR1_30D3 (0x0003) =
					_	_CARE_SUBS (0x00FF)
					_	used in the absence of
					explicit binding	
					TAPHOLOGIAMIS	•

Optional TLVs

None

Response - QMI WDS BIND SUBSCRIPTION RESP 3.125.2

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.76	1.76

Optional TLVs

Error codes

Result Code	1.76	1.76			
Optional TLVs None Error codes					
None	0.00,00				
Error codes	5 And Cathe				
QMI_ERR_NONE	No error in the request				
QMI_ERR_INTERNAL	Unexpected error occurred during p	processing			
QMI_ERR_MALFORMED_MSG	Message was not formulated correc	tly by the control point			
	or the message was corrupted durin	g transmission			
QMI_ERR_INVALID_ARG	Specified value is invalid				
QMI_ERR_NO_MEMORY	Device could not allocate memory t	to formulate a response			
QMI_ERR_MISSING_ARG	One or more required TLVs were m	nissing in the request			

Description of QMI WDS BIND SUBSCRIPTION REQ/RESP 3.125.3

This command sets the control point's data subscription. All further client related operations are applied on this subscription.

If the client binds explicitly to a default subscription (WDS_DEFAULT_SUBS), all operations for this client are resolved using the current default data subscription on the modem.

If the client does not bind to a subscription using this request, the subscription of the client is unknown (WDS_DONT_CARE_SUBS). All data call related operations (for example,

QMI_WDS_GO_DORMANT_REQ) for this client are resolved by using the subscription ID of the current data session. Data call unrelated operation are resolved using the current default data subscription (for example, QMI_WDS_SET_LTE_ATTACH_PDN_LIST_REQ)

The QMI WDS RESET command resets the client's subscription binding to WDS DONT CARE SUBS.

3.126 QMI_WDS_GET_BIND_SUBSCRIPTION

Queries for the current subscription of the control point.

WDS message ID

0x00B0

Version introduced

Major - 1, Minor - 76

3.126.1 Request - QMI_WDS_GET_BIND_SUBSCRIPTION_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.126.2 Response - QMI_WDS_GET_BIND_SUBSCRIPTION_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.76	1.76

Optional TLVs

Name	Version introduced	Version last modified
Subscription	1.76	1.76

Field	Field	Field	Parameter	Size	Description	
	value	type		(byte)		
Туре	0x10			1	Subscription	
Length	4			2		
Value	\rightarrow	enum	subscription	4	Subscription to which the client is	
					bound. Values:	
					• WDS_DEFAULT_SUBS (0x0000) -	
					Default data subscription	
				- 1	• WDS_PRIMARY_SUBS (0x0001) –	
					Primary	
					• WDS_SECONDARY_SUBS (0x0002)	
				3	Secondary	
					• WDS_TERTIARY_SUBS (0x0003) -	
				_	Tertiary	
				0	• WDS_DONT_CARE_SUBS (0x00FF)	
				3	 Default value used in the absence of 	
			0	0. 00	explicit binding	
Error co	irror codes					
OMI EDD NONE No array in the request						

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

Description of QMI_WDS_GET_BIND_SUBSCRIPTION REQ/RESP 3.126.3

This command queries for the control point's current data subscription.

QMI_WDS_SET_LTE_DATA_CALL_TYPE

Sets the data call type for an active LTE call.

WDS message ID

0x00B1

Version introduced

Major - 1, Minor - 79

Request - QMI_WDS_SET_LTE_DATA_CALL_TYPE_REQ 3.127.1

Message type

Mandatory TLVs

Request		
Sender	60.	
Control point	opt	
Mandatory TLVs	06.31 m	
Name	Version introduced	Version last modified
LTE Data Call Type Identifier	1.79	1.79

Field	Field	Field	Parameter	Size	Description
	value	type	1,50,	(byte)	
Туре	0x01			1	LTE Data Call Type Identifier
Length	4			2	
Value	\rightarrow	enum	call_type	4	Type of LTE data call that must be set.
					Values:
					• WDS_LTE_CALL_TYPE_DEFAULT
					(0) – Default LTE data call type
					• WDS_LTE_CALL_TYPE_VOLTE (1)
					 Voice over LTE data call type

Optional TLVs

None

Response - QMI WDS SET LTE DATA CALL TYPE RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.79	1.79

Optional TLVs

Error codes

Optional TLVs	√O ,
None	
Error codes	6.3 ED in
QMI_ERR_NONE	No error in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	~ \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_INVALID_OPERATION	Invalid operation if the call is not of the type LTE
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
80	disconnected

Description of QMI_WDS_SET_LTE_DATA_CALL_TYPE 3.127.3 **REQ/RESP**

This command sets the control point's data call type for an active LTE packet data session.

QMI WDS SET DOWNLINK THROUGHPUT INFO IND FREQ 3.128

Sets the timer for generating the QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND indication.

WDS message ID

0x00B2

Version introduced

Major - 1, Minor - 80

Request - QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND_-3.128.1 FREQ REQ

Message type

Mandatory TLVs

Message type				
Request	/(D ,		
Sender	10	_		
Control point				
Mandatory TLVs	00:	20. Cou.		
Name	N 63	Version introduced	Version last modified	
Downlink Throughput Report Interval	0, 20	1.80	1.80	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Downlink Throughput Report Interval
Length	4			2	
Value	\rightarrow	uint32	downlink_report_interval	4	Integer multiple of the minimun
					reporting period at which downlink
					throughput information is generated.

Optional TLVs

None

3.128.2 Response - QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND_-FREQ_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.80	1.80

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
0,5	or the message was corrupted during transmission
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request

3.128.3 Description of QMI_WDS_SET_DOWNLINK_THROUGHPUT_-INFO_IND_FREQ REQ/RESP

The control point sends the request to specify the interval at which downlink throughput information is reported using the Downlink Throughput Report Interval TLV. The minimum timer interval can be queried using the QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_PARAMS_REQ request message. The rate at which the downlink throughput information is generated is an integer multiple of the minimum timer interval and the value specified using the Downlink Throughput Report Interval TLV. For example, if the minimum timer interval is 512 ms, and the Downlink Throughput Report Interval is 2, the OMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND indication is generated every 1024 ms.

A report interval value of zero disables the timer and no more indications are sent. By default, and in the absence of an explicit request using this message, the timer is disabled.

If multiple clients registered for the indication using this request, the minimum interval requested is used to generate the indication. When the client is released, the timer interval set by the client is no longer used.

3.129 QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND

Indicates downlink throughput information.

WDS message ID

0x00B3

Version introduced

Major - 1, Minor - 80

3.129.1 Indication - QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Name	Version introduced	Version last modified	
Downlink Allowed Rate	1.80	1.80	
Confidence Level	1.80	1.80	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Downlink Allowed Rate
Length	4			2	
Value	\rightarrow	uint32	downlink_allowed_rate	4	The downlink rate per UE in kbps.
Туре	0x11			1	Confidence Level
Length	1			2	
Value	\rightarrow	uint8	confidence_level	1	Level of accuracy at which the throughput information is generated on a scale of 0 through 7. 0 indicates the least accuracy and 7 indicates the highest accuracy of reporting.

3.129.2 Description of QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND

This indication is sent to the control point when the timer for generating throughput information expires. The timer interval is set by the control point using the

QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND_FREQ_REQ request message. This indication is sent to all control points that are registered via the QMI_WDS_INDICATION_REGISTER command with the Report Downlink Throughput Information TLV set to TRUE.

This indication is not sent if there is no active data call even if a valid timer is set for generating the indication via the QMI_WDS_SET_DOWNLINK_THROUGHPUT_INFO_IND_FREQ_REQ request message. If the current technology does not support throughpout reporting, then no indication is sent. Attach PDN on LTE is an exception, where an indication is generated by default if a valid timer is set.

2016.05.11.800.06:31.EDT.IN

3.130 QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_PARAMS

Queries for the downlink throughout information parameters.

WDS message ID

0x00B4

Version introduced

Major - 1, Minor - 80

3.130.1 Request - QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_-PARAMS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.130.2 Response - QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_-PARAMS_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.80	1.80

Optional TLVs

Name	Version introduced	Version last modified	
Downlink Minimum Timer Interval	1.80	1.80	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Downlink Minimum Timer Interval
Length	4			2	
Value	\rightarrow	uint32	min_dl_interval	4	Minimum downlink interval in
					milliseconds.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response

3.130.3 Description of QMI_WDS_GET_DOWNLINK_THROUGHPUT_INFO_PARAMS REQ/RESP

This command queries for the downlink throughput information parameters.

The Downlink Minimum Timer Interval TLV specifies the minimum timer interval in milliseconds at which the QMI_WDS_DOWNLINK_THROUGHPUT_INFO_IND indication is generated.

3.131 QMI_WDS_EMBMS_CONTENT_DESC_UPDATE

Updates eMBMS content description parameters.

WDS message ID

0x00B5

Version introduced

Major - 1, Minor - 88

Request - QMI_WDS_EMBMS_CONTENT_DESC_UPDATE_REQ

Message type

Mandatory TLVs

Request			
Sender	60.		
Control point	and the		
Mandatory TLVs	.06.3.1 m.m		
Name	Version	introduced	Version last modified
Temporary Mobile Group Identity	20 m25	1.88	1.88
Transaction ID	5 .00	1.88	1.88

Field	Field	Field	Parameter	Size	Description
	value	type	0	(byte)	
Туре	0x01			1	Temporary Mobile Group Identity
Length	8			2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
					• 0 – Not valid
					• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.
Туре	0x02			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request.

Name	Version introduced	Version last modified
Object Delivery Duration	1.88	1.88
Session FEC Redundancy Level	1.88	1.88
Service Type	1.88	1.88
Priority	1.88	1.88
Media Data Rate 1	1.88	1.88
Media Data Rate 2	1.88	1.88
Media Data Rate 3	1.88	1.88
Media Data Rate 4	1.88	1.88
Transport Session Identifier	1.88	1.88
Transport Object Identifier	1.88	1.88
Object Size	1.88	1.88
Symbol Size	1.88	1.88
Object FEC Redundancy Level	1.88	1.88
Status Transport Session Identifier	1.88	1.88
Status Transport Object Identifier	1.88	1.88
Status	1.88	1.88
Status Last Decoding ESI	1.88	1.88

Field	Field	Field	Parameter	Size	Description
	value	type	000	(byte)	
Туре	0x10		1 1 0 m	1	Object Delivery Duration
Length	4	1	05 940	2	
Value	\rightarrow	uint32	obj_delivery_duration	4	Segment duration for streaming; time in milliseconds.
Туре	0x11		200	1	Session FEC Redundancy Level
Length	4			2	
Value	\rightarrow	uint32	session_fec_redundancy_ lvl	4	Ratio of repair to source symbols; percentage in hundreds of a percent.
Туре	0x12			1	Service Type
Length	4			2	
Value	\rightarrow	enum	service_type	4	Service Type. Values: • WDS_EMBMS_SERVICE_DASH (0) – DASH streaming • WDS_EMBMS_SERVICE_FILE_ DELIVERY (1) – File delivery
Type	0x13			1	Priority
Length	4			2	
Value	\rightarrow	uint32	priority	4	Priority level vs. tune-away; 0 indicates no priority.
Туре	0x14			1	Media Data Rate 1
Length	4			2	
Value	\rightarrow	uint32	media_data_rate_1	4	Data rate (in kbps) for a representation.
Туре	0x15			1	Media Data Rate 2
Length	4			2	
Value	\rightarrow	uint32	media_data_rate_2	4	Data rate (in kbps) for a representation.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x16			1	Media Data Rate 3
Length	4			2	
Value	\rightarrow	uint32	media_data_rate_3	4	Data rate (in kbps) for a representation.
Туре	0x17			1	Media Data Rate 4
Length	4			2	
Value	\rightarrow	uint32	media_data_rate_4	4	Data rate (in kbps) for a representation.
Туре	0x24			1	Transport Session Identifier
Length	4			2	
Value	\rightarrow	uint32	tsi	4	TSI of object.
Туре	0x25			1	Transport Object Identifier
Length	4			2	
Value	\rightarrow	uint32	toi	4	TOI of object.
Туре	0x26			1	Object Size
Length	4			2	
Value	\rightarrow	uint32	obj_size	4	Object size in bytes.
Туре	0x27			1	Symbol Size
Length	4			2	
Value	\rightarrow	uint32	symbol_size	4 <	Object symbol size in bytes.
Туре	0x28			18	Object FEC Redundancy Level
Length	4			32	
Value	\rightarrow	uint32	obj_fec_redundancy_lvl	4	Ration of repair to source symbols for
			00,	54.	the object; overrides session FEC
			Nº 64		redundancy level if present. Percentage
			05 240		in hundreds of a percent.
Туре	0x29		10 TH.	1	Status Transport Session Identifier
Length	4		20,000	2	
Value	\rightarrow	uint32	status_tsi	4	TSI of object for which status is
					provided. If this parameter is present, it
					is always followed by the Status
					Transport Object Identifier TLV and
					Status TLV.
Туре	0x2A			1	Status Transport Object Identifier
Length	4			2	
Value	\rightarrow	uint32	status_toi	4	TOI of object for which status is
					provided.
Туре	0x2B			1	Status
Length	4			2	
Value	\rightarrow	uint32	status	4	Success and failure indication. Values:
					• 0 – Success
					• >=1 – Failure
Туре	0x2C			1	Status Last Decoding ESI
Length	4			2	
Value	\rightarrow	uint32	status_last_decoding_esi	4	ESI of the last symbol used for decoding
			_		the current object. Sent only for
			I.	1	successfully decoded objects.

Response - QMI WDS EMBMS CONTENT DESC UPDATE -3.131.2 **RESP**

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.88	1.88

Optional TLVs

Error codes

	40°
Optional TLVs	. C
None	C. I. P. D. T. W.
Error codes	00.06.3com
QMI_ERR_NONE	No error in the request
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
01	disconnected
QMI_ERR_INTERNAL	Unexpected error occurred during processing

3.131.3 Description of QMI_WDS_EMBMS_CONTENT_DESC_UPDATE **REQ/RESP**

This command updates eMBMS content description parameters.

3.132 QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND

Indicates eMBMS content description settings.

WDS message ID

0x00B6

Version introduced

Major - 1, Minor - 88

3.132.1 Indication - QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

Name	Version introduced	Version last modified
Temporary Mobile Group Identity	1.88	1.88

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Temporary Mobile Group Identity
Length	8			2	
Value	\rightarrow	uint8	tmgi	6	TMGI
		boolean	session_id_valid	1	Session ID valid flag. Values:
					• 0 – Not valid
					• 1 – Valid
		uint8	session_id	1	Session ID.
					Note: Valid if the session_id_valid flag
					is one.

Optional TLVs

Name	Version introduced	Version last modified
Transaction ID	1.88	1.88
Per Object Content Control	1.88	1.88
Per Object Status Control	1.88	1.88

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Transaction ID
Length	2			2	
Value	\rightarrow	int16	tranx_id	2	eMBMS transaction ID for the request
					(default is -1).
Туре	0x11			1	Per Object Content Control
Length	4			2	
Value	\rightarrow	enum	content_control	4	Per object content control. Values:
					• WDS_EMBMS_CC_DISABLE (0) –
				7	Disable
				_	• WDS_EMBMS_CC_ENABLE_START_
				60	OBJ (1) – Enable at the start of objects
				3	WDS_EMBMS_CC_ENABLE_START_
			0.	0. 50%	VIDEO_OBJ (2) – Enable at the start of
			00.	E.J.	video objects
Туре	0x12		\$ 645	1	Per Object Status Control
Length	4		5,70	2	
Value	\rightarrow	enum	status_control	4	Per object status control. Values:
			20, 20,		• WDS_EMBMS_SU_DISABLE (0) –
			825		Disable
					• WDS_EMBMS_SU_ENABLE_OBJ
					(1) – Enable for objects
					• WDS_EMBMS_SU_ENABLE_VIDEO_
					OBJ (2) – Enable for video objects

3.132.2 Description of QMI_WDS_EMBMS_CONTENT_DESC_CONTROL_IND

This indication is sent from the service to control eMBMS content description update settings. Control points must register for this indication via QMI_WDS_INDICATION_REGISTER to receive the indication.

3.133 QMI_WDS_POLICY_REFRESH

Refreshes the specified policy.

WDS message ID

0x00B7

Version introduced

Major - 1, Minor - 89

Request - QMI_WDS_POLICY_REFRESH_REQ

Message type

Mandatory TLVs

Request			
Sender		60.	
Control point		and the second	
Mandatory TLVs		06.31 rn.tm	
	Name	Version introduced	Version last modified
Policy Type		1.89	1.89

Field	Field	Field	Parameter	Size	Description
	value	type	750	(byte)	
Туре	0x01			1	Policy Type
Length	4			2	
Value	\rightarrow	enum	policy_type	4	Policy type that must be refreshed.
					Values:
					• WDS_POLICY_TYPE_ANDSF (0) –
					ANDSF

Optional TLVs

None

Response - QMI WDS POLICY REFRESH RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.89	1.89

Optional TLVs

Error codes

Optional TLVs	40 ,
None	
Error codes	6.3 160 14
QMI_ERR_NONE	No error in the request
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_INVALID_OPERATION	Invalid operation was performed by the client
0,,	

Description of QMI_WDS_POLICY_REFRESH REQ/RESP 3.133.3

This command triggers the modem to refresh the contents of the policy that has been specified in the Policy Type TLV. The control point is expected to process the subsequent

QMI_WDS_POLICY_REFRESH_RESULT_IND indication to learn of success or failure. If the command is sent when a refresh request is already in process, a QMI ERR INVALID OPERATION error is returned.

3.134 QMI WDS POLICY REFRESH RESULT IND

Indicates the result of the attempt to refresh the policy.

WDS message ID

0x00B7

Version introduced

Major - 1, Minor - 89

Indication - QMI_WDS_POLICY_REFRESH_RESULT_IND

Message type

Indication	N							
Sender) ,							
Service								
Scope	6324194							
Unicast (per control point)	Scope Unicast (per control point)							
Mandatory TLVs								
Name	Version introduced	Version last modified						
Policy Refresh Status	Unknown	1.89						

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Policy Refresh Status
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	enum	status	4	Values:
					• WDS_POLICY_REFRESH_RESULT_
					SUCCESS (0) – Success
					• WDS_POLICY_REFRESH_RESULT_
					HTTP_FAILURE (1) – HTTP failure
					• WDS_POLICY_REFRESH_RESULT_
					NW_BRINGUP_FAILURE (2) –
					Network bringup failure
					• WDS_POLICY_REFRESH_RESULT_
					START_FTP_SERVER_FAILURE (3) –
					Start FTP server failure
					• WDS_POLICY_REFRESH_RESULT_
					LL_IFACE_DOWN_FAILURE (4) –
					Link local IFACE down
					• WDS_POLICY_REFRESH_RESULT_
				7	OTHER_FAILURE (5) – Other
					unknown error

Optional TLVs

None

3.134.2 Description of QMI_WDS_POLICY_REFRESH_RESULT_IND

This indication is sent to the control point to indicate whether the policy refresh request sent using QMI_WDS_POLICY_REFRESH_REQ was processed successfully or not. The control point must monitor the QMI_WDS_POLICY_READY_IND indication to learn when the policy is ready.

QMI_WDS_POLICY_READY_IND 3.135

Indicates that a policy file is ready.

WDS message ID

0x00B8

Version introduced

Major - 1, Minor - 89

Indication - QMI_WDS_POLICY_READY_IND

Message type

Mandatory TLVs

O ,	
632 Min	
20,	
5,	
Version introduced	Version last modified
1.89	1.89

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	Policy Type
Length	4			2	
Value	\rightarrow	enum	policy_type	4	Type of policy that is ready for transfer.
					Values:
					• WDS_POLICY_TYPE_ANDSF (0) –
					ANDSF

Name	Version introduced	Version last modified
FTP Server IPv6 Address	1.89	1.89
TCP Port	1.89	1.89
Policy File Name	1.89	1.89

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	FTP Server IPv6 Address
Length	16			2	
Value	\rightarrow	uint8	ftp_ipv6_addr	16	IPv6 address of the FTP server on the
					modem.
Туре	0x11			1	TCP Port
Length	2			2	
Value	\rightarrow	uint16	tcp_port	2	TCP Port of the FTP server.
Туре	0x12			1	Policy File Name
Length	Var			2	
Value	\rightarrow	string	policy_file_name	Var	File name.

3.135.2 Description of QMI WDS POLICY READY IND

This indication is sent when a policy file has been successfully refreshed. The policy might have been refreshed due to an explicit request from the control point via QMI_WDS_POLICY_REFRESH_REQ, or the policy refresh can be triggered from the network.

3.136 QMI_WDS_APN_PARAM_INFO_CHANGE_IND

Indicates old and new APN parameter information for an active data call.

WDS message ID

0x00B9

Version introduced

Major - 1, Minor - 90

3.136.1 Indication - QMI_WDS_APN_PARAM_INFO_CHANGE_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

Mandatory TLVs

None

Name	Version introduced	Version last modified
Old and New APN String Information	1.90	1.90
Old and New PDP Type Information	1.90	1.90

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Old and New APN String Information
					Array containing old and new APN
					string information. The first value of the
					array points to an old APN string; the
					second value of the array points to a new
					APN string.
Length	Var			2	
Value	\rightarrow	uint8	apn_string_len	1	Number of sets of the following
					elements:
					• apn_string
		string	apn_string	Var	String parameter to store the APN string.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x11			1	Old and New PDP Type Information
Length	2			2	
Value	\rightarrow	enum8	changed_pdp_type_info	2	Container to store the old and new PDN
					IP type. The first value of the array
					points to the old PDN IP type; the
					second value of the array points to the
					new PDN IP type. Values:
					• WDS_PDP_TYPE_PDP_IPV4 (0x00)
					- IPv4
					• WDS_PDP_TYPE_PDP_PPP (0x01) -
					PPP
					• WDS_PDP_TYPE_PDP_IPV6 (0x02)
					- IPv6
					• WDS_PDP_TYPE_PDP_IPV4V6
					(0x03) – IPv4 and IPv6

3.136.2 Description of QMI_WDS_APN_PARAM_INFO_CHANGE_IND

This indication is sent to all control points that are registered for the indication via the QMI_WDS_INDICATION_REGISTER command with the Report APN Parameter Change Information TLV set to TRUE. The indication returns old and new APN parameter information related to APN string and PDP type if either of them changes from the network for a given data call. The first element of the array of each optional TLV contains the old parameter and the second element consists of the new changed parameter.

This indication is generated whenever there is a change in APN parameter information from the network with respect to an active data call.

QMI_WDS_SET_SILENT_REDIAL 3.137

Notifies the modem to perform silent redial.

WDS message ID

0x00BA

Version introduced

Major - 1, Minor - 90

Request - QMI_WDS_SET_SILENT_REDIAL_REQ 3.137.1

Message type

Request		M	
Sender		Ο,	
Service			
Mandatory TLVs		of 3 contra	
None	00	100 CO.	
Optional TLVs	(5,18) (6,18) (6,18)		
	Name	Version introduced	Version last modified
Set Silent Redial	2,400	1.90	1.90

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Set Silent Redial
Length	1			2	
Value	\rightarrow	boolean	set_silent_redial	1	Value to specify whether silent redial is
					required or not. Values:
					• 0 – Not required
					• 1 – Required.

Response - QMI WDS SET SILENT REDIAL RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.90	1.90

Optional TLVs

Error codes

Optional TLVs	40 ,
None	
Error codes	6:31/10/10
QMI_ERR_NONE	No error in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	~ ~ ~ @^
QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
20.00	disconnected
0	

Description of QMI WDS SET SILENT REDIAL REQ/RESP 3.137.3

This command is used to configure if the modem should perform silent redial for an active packet data session following QMI_WDS_APN_PARAM_INFO_CHANGE_IND.

By default the modem performs the silent redial after a predetermined time period following QMI_WDS_APN_PARAM_INFO_CHANGE_IND. If the Set Silent Redial TLV is enabled, the modem performs a silent redial immediately. If the Set Silent Redial TLV is disabled, the modem does not perform a silent redial and the client has to tear down the call.

This command has no effect if called before QMI_WDS_APN_PARAM_INFO_CHANGE_IND is received.

For dual-IP data calls, a silent redial is to be triggered when this command is received from either the IPv4 or IPv6 clients; if a silent redial is not desired in such a scenario, the control point must terminate both IPv4 and IPv6 data calls.

3.138 QMI_WDS_REFRESH_DHCP_CONFIG_INFO

Refreshes the DHCP configuration information.

WDS message ID

0xFFFB

Version introduced

Major - 1, Minor - 52

3.138.1 Request - QMI_WDS_REFRESH_DHCP_CONFIG_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.138.2 Response - QMI_WDS_REFRESH_DHCP_CONFIG_INFO_RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.52	1.52

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_INTERNAL	Unexpected error occurred during processing

3.138.3 Description of QMI_WDS_REFRESH_DHCP_CONFIG_INFO REQ/RESP

This command triggers the DHCP in the background. The QMI_WDS_INTERNAL_IFACE_EV_IND indication with the Extended IP Configuration TLV is sent to indicate either success or failure of the DHCP refresh configuration operation.

3.139 QMI WDS SET INTERNAL RUNTIME SETTINGS

Sets/modifies internal packet data session settings.

WDS message ID

0xFFFC

Version introduced

Major - 1, Minor - 52

Request - QMI_WDS_SET_INTERNAL_RUNTIME_SETTINGS_REQ 3.139.1

Message type

Message type					
Request					
Sender	O ,				
Control point					
Mandatory TLVs	632/10/14				
Mandatory TLVs None Optional TLVs					
NOTIC	L. C.				
Optional TLVs	The state of the s				
Optional TLVs Name	Version introduced	Version last modified			
61 421		Version last modified			
Name	Version introduced				
Name Enable Hold Down	Version introduced 1.52	1.52			
Name Enable Hold Down 1X Dorm Timer	Version introduced 1.52 1.52	1.52 1.52			
Name Enable Hold Down 1X Dorm Timer 1X Session Timer	Version introduced 1.52 1.52 1.52	1.52 1.52 1.52			
Name Enable Hold Down 1X Dorm Timer 1X Session Timer HDR-1X Hand Down Option	1.52 1.52 1.52 1.52 1.52	1.52 1.52 1.52 1.52			
Name Enable Hold Down 1X Dorm Timer 1X Session Timer HDR-1X Hand Down Option Hysteresis Activation Timer	Version introduced 1.52 1.52 1.52 1.52 1.52 1.52	1.52 1.52 1.52 1.52 1.52			

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Enable Hold Down
Length	1			2	
Value	\rightarrow	boolean	enable_1x_holddown	1	Enable hold down. Values:
					• $0x00$ – Disable
					• 0x01 – Enable
Туре	0x11			1	1X Dorm Timer
Length	4			2	
Value	\rightarrow	uint32	dorm_timer	4	1X dorm timer value.
Туре	0x12			1	1X Session Timer
					1X session timer value.

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Length	3			2	
Value	\rightarrow	enum8	timer_select	1	Values:
					• WDS_SESSION_TIMER_DO (0x01)
					– Session timer DO
					• WDS_SESSION_TIMER_1X (0x02) -
					Session timer 1X
					• WDS_SESSION_TIMER_1X_
					AND_DO $(0x03)$ – Session timer 1X
					and DO
		int16	timer_val	2	Timer value
Туре	0x13			1	HDR-1X Hand Down Option
Length	1			2	
Value	\rightarrow	boolean	hdr_1x_handdown_option	1	HDR-1X hand down option. Values:
					• 0x00 – Disable
					• 0x01 – Enable
Туре	0x14			1	Hysteresis Activation Timer
Length	4			2	
Value	\rightarrow	int32	hysterisis_act_timer	4 <	Hysteresis activation timer.
Туре	0x15			1¢°	HDR Slotted Mode (Deprecated)
Length	1			2	7
Value	\rightarrow	enum8	slotted_mode_option	o. 100	Slot cycle value. This TLV is deprecated.
			00.	E. J.	Control points should use
		1	20 000		QMI_WDS_SET_EVDO_
			5,00		PAGE_MONITOR_PERIOD_REQ
			slotted_mode_option		instead.
Туре	0x16		20,000	1	Enable HDR HPT Mode
Length	1		900	2	
Value	\rightarrow	boolean	enable_hdr_hpt	1	Values:
			_		• 0x00 – Disable (FALSE)
					• 0x01 – Enable (TRUE)
Туре	0x17			1	Enable HDR Rev0 Rate Inertia
Length	1			2	
Value	\rightarrow	boolean	enable_hdr_rev0_rate_	1	Values:
			inertia		• 0x00 – Disable (FALSE)
					• 0x01 – Enable (TRUE)

3.139.2 Response - QMI_WDS_SET_INTERNAL_RUNTIME_SETTINGS_- RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.52	1.52

Optional TLVs

Name	Version introduced	Version last modified
Operation Failure	1.52	1.52

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0xE1			1 <	Operation Failure
Length	Var			20	e).
Value	\rightarrow	uint8	operation_failure_len	312	Number of sets of the following
			.0.	0. 50%	elements:
			00.	Ey.	• tlv_type
			5° 65		• error_value
		uint8	tlv_type	1	TLV type in the request that elicited the
			6. Mai		error.
		int16	error_value	2	Error obtained from the operation; a data
			750		services error value returned by the
					lower layers.

Error codes

QMI_ERR_NONE	No error in the request
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_OP_PARTIAL_FAILURE	One or more requested operations failed
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

3.139.3 Description of QMI_WDS_SET_INTERNAL_RUNTIME_SETTINGS REQ/RESP

A QMI_WDS_SET_INTERNAL_RUNTIME_SETTINGS_RESP response, which is sent in response to the requests to enable the HDR Rev0 rate inertia and/or HDR Slotted mode via the Enable HDR Rev0 Rate Inertia and HDR Slotted Mode TLVs, indicates that the request was sent successfully. The success or failure of these operations is indicated by the corresponding QMI_WDS_INTERNAL_IFACE_EV_IND indication (one per operation).

The Operation Failure TLV is sent when the error code is QMI_ERR_OP_PARTIAL_FAILURE. This TLV contains the list of TLV types in the request that failed along with the corresponding error value for the failure.

2016.05.18.00:06:31.ppf.in

3.140 QMI WDS GET INTERNAL RUNTIME SETTINGS

Retrieves internal packet data session settings currently in use.

WDS message ID

0xFFFD

Version introduced

Major - 1, Minor - 52

Request - QMI_WDS_GET_INTERNAL_RUNTIME_SETTINGS_-3.140.1 REQ

ne c		
Message type	M	
Request		
Sender	- A	
Control point	312034	
Mandatory TLVs	26:31 PD 34	
None	34	
Optional TLVs		
Name	Version introduced	Version last modified
Requested Internal Settings	1.52	1.52
Session Timer Select	1.52	1.52
Requested SDB Flags	1.52	1.52

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Requested Internal Settings
Length	4			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	\rightarrow	mask32	requested_internal_settings	4	Requested internal settings bitmask. Values:
					• QMI WDS MASK REQ OPER
					RF_CONDITIONS (0x01) – RF
					conditions
					• QMI_WDS_MASK_REQ_OPER_
					$1X_DORM_TIMER (0x02) - 1X dorm$
					timer
					• QMI_WDS_MASK_REQ_OPER_ 1X_SESSION_TIMER (0x04) – 1X
					session timer
					• QMI_WDS_MASK_REQ_OPER_
					HDR_1X_HANDDOWN_OPT (0x08) -
					HDR-1X hand down option
					• QMI_WDS_MASK_REQ_OPER_
					HYSTERISIS_ACTIVATION_TIMER
				5	(0x10) – Hysteresis activation timer
					• QMI_WDS_MASK_REQ_OPER_
				V 6/2	HDR_EIDLE_SM_OPT (0x20) – HDR EIDLE Slotted Mode option
				3	QMI_WDS_MASK_REQ_OPER_
			0.0	, , ,	SDB_SUPPORT (0x40) – SDB support
			2016-05-18-00-18-0		SDB_SCITCKI (OX 10) SDB support
			The state of the s		Each bit set causes the corresponding
		1	0, 3413		optional TLV to be sent in the
			010 11		QMI_WDS_GET_INTERNAL_
			N. 50/1		RUNTIME_SETTINGS_RESP
			0		response. All unlisted bits are reserved
					for future use and must be set to zero.
Туре	0x11			1	Session Timer Select
Length	1	-		2	***
Value	\rightarrow	enum8	timer_select	1	Values:
					• WDS_SESSION_TIMER_DO (0x01) – Session timer DO
					• WDS_SESSION_TIMER_1X (0x02) –
					Session timer 1X
					• WDS_SESSION_TIMER_1X_
					AND_DO (0x03) – Session timer 1X
					and DO
Туре	0x12			1	Requested SDB Flags
Length	4			2	-
Value	\rightarrow	mask32	flags	4	Requested SDB flags bitmask. Values:
					• QMI_WDS_MASK_SDB_FLAGS_
					MSG_EXPEDITE (0x01) – Expedite the
					message
					• QMI_WDS_MASK_SDB_FLAGS_
					MSG_FAST_EXPEDITE (0x02) – Fast
					expedite the message

3.140.2 Response - QMI_WDS_GET_INTERNAL_RUNTIME_SETTINGS_-RESP

Message type

Response

Sender

Service

Mandatory TLVs

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.52	1.52

Name	Version introduced	Version last modified
RF Conditions	1.52	1.52
1X Dorm Timer	1.52	1.52
1X Session Timer	1.52	1.52
HDR-1X Hand Down Option	1.52	1.52
Hysteresis Activation Timer	1.52	1.52
HDR EIDLE Slotted Mode Option	1.52	1.52 (Deprecated)
SDB Support	1.52	1.52
Operation Failure	1.52	1.52

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	RF Conditions
Length	10			2	
Value	\rightarrow	enum8	db_current_nw	1	Current network type of data bearer.
					Values:
					WDS_CURRENT_NETWORK_
					UNKNOWN (0x00) – Unknown
					• WDS_CURRENT_NETWORK_3GPP2
					(0x01) - 3GPP2
					• WDS_CURRENT_NETWORK_3GPP
					(0x02) - 3GPP

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
		uint32	db_rat_mask	4	RAT mask to indicate the type of
					technology. A RAT mask value of zero
					indicates that this field is ignored.
					Values:
					• 0x00 – DONT_CARE
					• 0x8000 – NULL_BEARER
					CDMA RAT mask:
					• 0x01 – CDMA_1X
					• 0x02 – EVDO REV0
					• 0x04 – EVDO_REVA
					• 0x08 – EVDO_REVB
					• 0x10 – EHRPD
					• 0x20 – FMC
					AD ATTO DATE
					UMTS RAT mask:
				5	• 0x01 – WCDMA
				_	• 0x02 – GPRS
				0	• 0x04 – HSDPA
				3	• 0x08 – HSUPA
			0.	0.00	• 0x10 – EDGE
			00.	E. J.	• 0x20 – LTE
			30 005	h.	• 0x40 – HSDPA+
			5'100		• 0x80 – DC_HSDPA+
		1	S. Mall		• 0x100 – 64_QAM
			07 77		• 0x200 – TDSCDMA

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	·
		uint32	db_so_mask	4	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					CDMA 1X SO mask:
					• 0x01 – CDMA_1X_IS95
					• 0x02 – CDMA_1X_IS2000
					• 0x04 – CDMA_1X_IS2000_REL_A
					CDMA EV-DO Rev 0 SO mask:
				1	• 0x01 – DPA
					CDMA EV-DO Rev A SO mask:
					• 0x01 – DPA
					• 0x02 – MFPA
					• 0x04 – EMPA
				~	• 0x08 – EMPA_EHRPD
				~~~	sh -
				3 10	CDMA EV-DO Rev B SO mask:
			0:0	3.00	• 0x01 – DPA
			202	2.0	• 0x02 – MFPA
			77.62		• 0x04 – EMPA
		1	0, 340		• 0x08 – EMPA_EHRPD
			70. Tu		• 0x10 – MMPA
			2016.05.18.00°.25		• 0x20 – MMPA_EHRPD
		enum8	rf_cond	1	Values:
			_		• WDS_RF_CONDITIONS_INVALID
					(0) – Invalid
					• WDS_RF_CONDITIONS_BAD (1) -
					Bad
					• WDS_RF_CONDITIONS_GOOD (2)
					- Good
					• WDS_RF_CONDITIONS_DONT_
					CARE (3) – Do not care
Туре	0x11			1	1X Dorm Timer
Length	4			2	
Value	$\rightarrow$	uint32	dorm_timer	4	1X dorm timer.
Туре	0x12			1	1X Session Timer
Length	2			2	
Value	$\rightarrow$	int16	session_timer_value	2	1X session timer.
Туре	0x13		<del>-</del>	1	HDR-1X Hand Down Option
Length	1			2	1
Value	$\rightarrow$	boolean	hdr_1x_handdown_option	1	Values:
	,	2 C C C C C C C C C C C C C C C C C C C	m_madown_option	_	• 0x00 – FALSE
					• 0x00 – TRUE
				l	UNUI IROL

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x14			1	Hysteresis Activation Timer
Length	4			2	
Value	$\rightarrow$	int32	hysterisis_act_timer	4	Hysteresis activation timer.
Туре	0x15			1	HDR EIDLE Slotted Mode Option
					(Deprecated)
Length	1			2	
Value	$\rightarrow$	enum8	slotted_mode_option	1	This TLV is deprecated. Control points
					must use
					QMI_WDS_GET_EVDO_PAGE_
					MONITOR_PERIOD_RESP instead.
Туре	0x16			1	SDB Support
Length	1			2	
Value	$\rightarrow$	boolean	sdb_support	1	Values:
					• 0x00 – FALSE
					• 0x01 – TRUE
Туре	0xE1			1	Operation Failure
Length	Var			2	
Value	$\rightarrow$	uint8	operation_failure_len	1 <	Number of sets of the following
				80	elements:
				3	• bit_number
			0.	0. 00	• error_value
		uint8	bit_number	© ³ 1	Bit in the requested_internal_settings
		1	100 000		mask for which the operation failed.
		int16	error_value	2	Error obtained from the operation; a data
			16 Mail		services error value returned by the
			20, 20,		lower layers.

#### **Error codes**

QMI_ERR_NONE	No error in the request
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_OP_DEVICE_	Operation is not supported by the device
UNSUPPORTED	
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was
	disconnected
QMI_ERR_OP_PARTIAL_FAILURE	One or more requested operations failed
QMI_ERR_INCOMPATIBLE_STATE	Request from a client whose subscription does not match the
	subscription of the current data session (incompatible
	subscription)

## 3.140.3 Description of QMI_WDS_GET_INTERNAL_RUNTIME_SETTINGS REQ/RESP

The Operation Failure TLV is sent when the error code is QMI_ERR_OP_PARTIAL_FAILURE. This TLV contains the list of bit numbers in the Requested Internal Settings bitmask for which the operations failed along with the corresponding error value for the failure.

The Session Timer Select TLV must be present in the request when the bit corresponding to the 1X session timer is set in the Requested Internal Settings TLV, the absence of which returns the Operation Failure TLV with an error value of DS_EINVAL. The 1X Session Timer TLV session_timer_value field is sent in response to this request.

The Requested SDB Flags TLV must be present in the request when the bit corresponding to SDB support is set in the Requested Internal Settings TLV, the absence of which returns the Operation Failure TLV with an error value of DS_EINVAL. The SDB Support TLV is sent in response to this request.

A QMI_WDS_GET_INTERNAL_RUNTIME_SETTINGS_RESP response, which is sent in response to the requests to retrieve the HDR EIDLE Slotted mode option via the Slotted Mode Option TLV, indicates that the request was sent successfully. The success or failure of this operation is indicated by a corresponding QMI_WDS_INTERNAL_IFACE_EV_IND indication (with the HDR Set EIDLE Slotted Mode Success or Failure event).

#### 3.141 QMI WDS INTERNAL IFACE EV REGISTER

Registers for IFACE events.

WDS message ID

0xFFFE

**Version introduced** 

Major - 1, Minor - 52

## Request - QMI_WDS_INTERNAL_IFACE_EV_REGISTER_REQ

#### **Mandatory TLVs**

Name	Version introduced	Version last modified
Event Registration Mask	1.52	1.52

		•		_		LGISTEN_NEQ
Messag	e type			1		
Request				7		
Sender	Sender					
Control	point			Ó		
Mandato	ory TLVs			63,50	CZy.	
				C. C.		
		Name	00	Version	on introduced	Version last modified
Event 1	Registrat	Name	75,00	Versio	on introduced	Version last modified 1.52
Event 1	Registrat		15 Oct 15	Version		
Event 1	Registrat <b>Field</b>		Parameter	Version	1.52	
		ion Mask	(5,15,10) (2) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5	5	1.52	1.52
	Field	ion Mask Field	(5,15,10) (2) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5	Size	1.52	1.52  Description

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value		mask32	event_registration_mask	4 Portion	Requested event bitmask. Values:  • QMI_WDS_MASK_EVT_OUTAGE_ NOTIFICATION (0x01) – Outage notification  • QMI_WDS_MASK_EVT_EXT_ IPCONFIG (0x02) – Extended IP configuration (deprecated as described in Section 3.141.3)  • QMI_WDS_MASK_EVT_HDR_ RATE_INERTIA_SUCCESS (0x04) – HDR Rev0 rate inertia success  • QMI_WDS_MASK_EVT_HDR_ RATE_INERTIA_FAILURE (0x08) – HDR Rev0 rate inertia failure  • QMI_WDS_MASK_EVT_HDR_ SM_SUCCESS (0x10) – HDR set EIDLE Slotted Mode success (deprecated as described in Section 3.141.3)  • QMI_WDS_MASK_EVT_HDR_ SM_FAILURE (0x20) – HDR set EIDLE Slotted Mode failure (deprecated as described in Section 3.141.3)  • QMI_WDS_MASK_EVT_HDR_ SM_SESS_CHANGE (0x40) – HDR set EIDLE Slotted Mode session change (deprecated as described in Section 3.141.3)  • QMI_WDS_MASK_EVT_HDR_ SM_SESS_CHANGE (0x40) – HDR set EIDLE Slotted Mode session change (deprecated as described in Section 3.141.3)  • QMI_WDS_MASK_EVT_RF_ CONDITIONS (0x80) – RF conditions change  • QMI_WDS_MASK_EVT_DOS_ACK (0x100) – DOS ACK event  Each bit set causes the corresponding optional TLV to be sent in the QMI_WDS_INTERNAL_IFACE_EV_ IND indication. All unlisted bits are reserved for future use and must be set to zero.

### **Optional TLVs**

None



## 3.141.2 Response - QMI_WDS_INTERNAL_IFACE_EV_REGISTER_RESP

#### Message type

Response

#### Sender

Service

#### **Mandatory TLVs**

The Result Code TLV (defined in Section 2.3.1) is always present in the response.

Name	Version introduced	Version last modified
Result Code	1.52	1.52

#### **Optional TLVs**

None

#### **Error codes**

QMI_ERR_NONE	No error in the request
QMI_ERR_MALFORMED_MSG	Message was not formulated correctly by the control point
	or the message was corrupted during transmission
QMI_ERR_MISSING_ARG	One or more required TLVs were missing in the request

# 3.141.3 Description of QMI_WDS_INTERNAL_IFACE_EV_REGISTER REQ/RESP

The control point's IFACE event registration internal state variables are modified according to the settings specified in the TLVs included in the request message. The service maintains a set of internal state variables for each control point. See Section 2.5.2 for more details regarding control point state variables. IFACE events of interest are communicated to the registered WDS control point via the QMI_WDS_INTERNAL_IFACE_EV_IND indication. The command does not support deregistering for events.

The HDR Set EIDLE Slotted Mode Success, HDR Set EIDLE Slotted Mode Failure, and HDR Set EIDLE Slotted Mode Session Change registrations are deprecated. Control points must use the EV-DO Page Monitor Period Change Indicator TLV within QMI_WDS_SET_EVENT_REPORT instead. The Extended IP Configuration registration is deprecated. Control points must use the Extended IP Configuration Change TLV within QMI_WDS_INDICATION_REGISTER instead.

## 3.142 QMI_WDS_INTERNAL_IFACE_EV_IND

Indicates the occurrence of IFACE events.

WDS message ID

0xFFFE

**Version introduced** 

Major - 1, Minor - 52

## 3.142.1 Indication - QMI_WDS_INTERNAL_IFACE_EV_IND

Message type

Indication

Sender

Service

Scope

Unicast (per control point)

#### **Mandatory TLVs**

Name	Version introduced	Version last modified
IFACE Event	1.52	1.52

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x01			1	IFACE Event
Length	2			2	

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	$\rightarrow$	enum16	iface_event_name	2	Values:
					<ul><li>WDS_IFACE_EVENT_OUTAGE_</li></ul>
					NOTIFICATION (0x0001) – Outage
					notification
					<ul><li>WDS_IFACE_EVENT_EXT_</li></ul>
					IPCONFIG (0x0002) – Extended IP
					configuration (deprecated as described in
					Section 3.141.3)
					• WDS_IFACE_EVENT_HDR_RATE_
					INERTIA_SUCCESS (0x0003) – HDR
					Rev0 rate inertia success
					<ul><li>WDS_IFACE_EVENT_HDR_RATE_</li></ul>
					INERTIA_FAILURE (0x0004) – HDR
					Rev0 rate inertia failure
					• WDS_IFACE_EVENT_HDR_SM_
					SUCCESS (0x0005) – HDR Set EIDLE
				ï	Slotted Mode success (deprecated as
				_	described in Section 3.141.3)
				80	• WDS_IFACE_EVENT_HDR_SM_
				3	FAILURE (0x0006) – HDR Set EIDLE
			.0	0. 00,	Slotted Mode failure (deprecated as
			2016-05-18-00:5	E.J.	described in Section 3.141.3)
			5° 65		• WDS_IFACE_EVENT_HDR_SM_
			5 10		SESS_CHANGE (0x0007) – HDR Set
			6.4121		EIDLE Slotted Mode session change
			20, 20,		(deprecated as described in Section
			750		3.141.3
					• WDS_IFACE_EVENT_RF_
					CONDITIONS (0x0008) – RF
					conditions change
					• WDS_IFACE_EVENT_DOS_ACK
					(0x0009) – DOS ACK event

## **Optional TLVs**

Name	Version introduced	Version last modified
Outage	1.52	1.52
Extended IP Configuration Status	1.52	1.52
HDR Rev0 Rate Inertia Failure Code	1.52	1.52
HDR Set EIDLE Slotted Mode Failure Code	1.52	1.52
HDR Set EIDLE Slotted Mode Session Changed	1.52	1.52
RF Conditions	1.52	1.52
DOS ACK Information	1.52	1.52

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Туре	0x10			1	Outage
Length	8			2	
Value	$\rightarrow$	uint32	time_to_outage	4	Milliseconds in which the HDR outage starts
		uint32	duration	4	Milliseconds for which the HDR outage lasts
Туре	0x11			1	Extended IP Configuration Status
Length	1			2	
Value	$\rightarrow$	boolean	extended_ip_config_status	1	Values: • $0x00$ – Failure • $0x01$ – Success
Туре	0x12			1 💣	HDR Rev0 Rate Inertia Failure Code
Length	1			2	
Value	→ 0x13	enum8	hdr_rate_intertia_fail	1	Values:  • WDS_HDR_REV0_RATE_INERTIA_ REQUEST_REJECTED (0) – Request rejected  • WDS_HDR_REV0_RATE_INERTIA_ REQUEST_FAILED_TX (1) – Request failed Tx  • WDS_HDR_REV0_RATE_INERTIA_ NOT_SUPPORTED (2) – Not supported  • WDS_HDR_REV0_RATE_INERTIA_ NO_NET (3) – No net  HDR Set EIDLE Slotted Mode Failure
	1		20,001	2	Code
Length	1	0	1.1	2	V/-1
Value	$\rightarrow$	enum8	hdr_sm_fail	1	Values:  • WDS_HDR_SLOTTED_MODE_ REQUEST_REJECTED (0) – Request rejected  • WDS_HDR_SLOTTED_MODE_ REQUEST_FAILED_TX (1) – Request failed Tx  • WDS_HDR_SLOTTED_MODE_ NOT_SUPPORTED (2) – Not supported  • WDS_HDR_SLOTTED_MODE_ NO_NET (3) – No net
Туре	0x14			1	HDR Set EIDLE Slotted Mode Session Changed
Length	1			2	
Value	$\rightarrow$	enum8	slot_cycle_changed	1	Slot cycle changed by the network.
Туре	0x15	_	- <b>, ,</b>	1	RF Conditions
Length	10			2	
_59	10				

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	
Value	$\rightarrow$	enum8	db_current_nw	1	Current network type of data bearer.
					Values:
					• WDS_CURRENT_NETWORK_
					UNKNOWN (0x00) – Unknown
					• WDS_CURRENT_NETWORK_3GPP2
					(0x01) - 3GPP2
					• WDS_CURRENT_NETWORK_3GPP
					(0x02) - 3GPP
		uint32	db_rat_mask	4	RAT mask to indicate the type of
					technology. A RAT mask value of zero
					indicates that this field is ignored.
					Values:
					• 0x00 – DONT_CARE
					• 0x8000 – NULL_BEARER
			40	3"	CDMA RAT mask:
					• 0x01 – CDMA_1X
				_	• 0x02 – EVDO_REV0
				00	• 0x04 – EVDO_REVA
				27 "	• 0x08 – EVDO_REVB
				6.00	• 0x10 – EHRPD
			20:0	a. Hi	• 0x20 – FMC
			2016.05.18.00.25 2016.05.18.00.25		
			5,7,0		UMTS RAT mask:
		1	C.O. Value		• 0x01 – WCDMA
			010 11		• 0x02 – GPRS
			2, 8011		• 0x04 – HSDPA
			0		• 0x08 – HSUPA
					• 0x10 – EDGE
					• 0x20 – LTE
					• 0x40 – HSDPA+
					• 0x80 – DC_HSDPA+
					$\bullet 0x100 - 64_QAM$
					• 0x200 – TDSCDMA

Field	Field	Field	Parameter	Size	Description
	value	type		(byte)	•
		uint32	db_so_mask	4	SO mask to indicate the service option or
					type of application.
					An SO mask value of zero indicates that
					this field is ignored. Values:
					• 0x00 – DONT_CARE
					CDMA 1X SO mask:
					• 0x01 – CDMA_1X_IS95
					• 0x02 – CDMA_1X_IS2000
					• 0x04 – CDMA_1X_IS2000_REL_A
					CDMA EV-DO Rev 0 SO mask:
					• 0x01 – DPA
					CDMA EV-DO Rev A SO mask:
					• 0x01 – DPA
					• 0x02 – MFPA
				_	• 0x04 – EMPA
				160	• 0x08 – EMPA_EHRPD
				3	CDMA EV-DO Rev B SO mask:
				, 0,	• 0x01 – DPA
			200	5,4	$\bullet 0x01 - DTA$ $\bullet 0x02 - MFPA$
			1 1 1 0 0 to		$\bullet$ 0x04 – EMPA
			05 3119		• 0x08 – EMPA_EHRPD
			76. Tue		• 0x10 – MMPA
			30,000		• 0x20 – MMPA_EHRPD
		enum8	rf_cond	1	Values:
			_		• WDS_RF_CONDITIONS_INVALID
					(0) – Invalid
					• WDS_RF_CONDITIONS_BAD (1) -
					Bad
					• WDS_RF_CONDITIONS_GOOD (2)
					- Good
					• WDS_RF_CONDITIONS_DONT_
					CARE (3) – Do not care
Туре	0x16			1	DOS ACK Information
Length	10			2	
Value	$\rightarrow$	uint16	handle	2	DOS ACK handle
		uint32	overflow	4	Set to a nonzero value when the number
					of outstanding SDB/DOS packets (the
					packets for which the mobile is still
					waiting for an ACK) is more than that
					the mobile can handle.

## 3.142.2 Description of QMI_WDS_INTERNAL_IFACE_EV_IND

This indication is sent by the service to interested control points when the device state corresponding to any TLV listed above changes. Interested control points are those that previously registered for the corresponding IFACE event to be reported using the

QMI_WDS_INTERNAL_IFACE_EV_REGISTER_REQ request.

The Outage Information TLV is sent along with the mandatory iface_event_name field set to WDS_IFACE_EVENT_OUTAGE_NOTIFICATION when the control point registers for the Outage Notification IFACE event with the event_registration_mask's bit 0 set to one.

The Extended IP Configuration Status TLV is sent along with the mandatory iface_event_name field set to WDS_IFACE_EVENT_EXT_IPCONFIG when the control point registers for the Extended IP Configuration IFACE event with the event_registration_mask's bit 1 set to one. The extended IP configuration registration is deprecated as described in Section 3.141.3.

The HDR Rev0 Rate Inertia Failure Code TLV is sent along with the mandatory iface_event_name field set to WDS_IFACE_EVENT_HDR_RATE_INERTIA_FAILURE when the control point registers for the HDR Rev0 Rate Inertia Failure event with the event_registration_mask's bit 3 set to one.

The HDR Set EIDLE Slotted Mode Failure Code TLV is sent along with the mandatory iface_event_name field set to WDS_IFACE_EVENT_HDR_SM_FAILURE when the control point registers for the HDR Set EIDLE Slotted Mode Failure event with the event_registration_mask's bit 5 set to one. The HDR Set EIDLE Slotted Mode Failure registration is deprecated as described in Section 3.141.3.

The HDR Set EIDLE Slotted Mode Session Changed TLV is sent along with the mandatory iface_event_name field set to WDS_IFACE_EVENT_HDR_SM_SESS_CHANGE when the control point registers for the HDR Set EIDLE Slotted Mode Session Changed event with the event_registration_mask's bit 6 is set to one. The HDR Set EIDLE Slotted Mode Session Change registration is deprecated as described in Section 3.141.3.

The RF Conditions TLV is sent along with the mandatory iface_event_name field set to WDS_IFACE_EVENT_RF_CONDITIONS when the control point registers for the RF Conditions event with the event_registration_mask's bit 7 set to one.

The DOS ACK information TLV is sent along with the iface_event_name field set to WDS_IFACE_EVENT_DOS_ACK when the TLVs are sent for the DOS ACK event with the event_registration_mask's bit 8 set to one.

No optional TLVs are sent when the iface_event_name field is either 0x0003 or 0x0005, that is, when the control point registers for either the HDR Rev0 Rate Inertia Success or HDR Set EIDLE Slotted Mode Success event with the event_registration mask's bits 2 or 4 set to one.

## A Call End Reasons

This appendix lists the error code names, values, and descriptions of possible network errors resulting from attempts to establish a network connection, or a connection being terminated.

Table A-1 Technology-agnostic call end reasons

Value	Name	Description
1	QMI_WDS_CALL_END_REASON_	Reason unspecified
	UNSPECIFIED	
2	QMI_WDS_CALL_END_REASON_CLIENT_	Client ended the call
	END	
3	QMI_WDS_CALL_END_REASON_NO_SRV	Phone has no service
4	QMI_WDS_CALL_END_REASON_FADE	Call ended abnormally
5	QMI_WDS_CALL_END_REASON_REL_	Received release from BS; no reason
	NORMAL	given
6	QMI_WDS_CALL_END_REASON_ACC_IN_	Access attempt already in progress;
	PROG	SD2.0 only
7	QMI_WDS_CALL_END_REASON_ACC_FAIL	Access failure for reason other than the
	0, 410	above
8	QMI_WDS_CALL_END_REASON_REDIR_	Call rejected because of redirection or
	OR_HANDOFF	handoff
9	QMI_WDS_CALL_END_REASON_CLOSE_	Call failed because close is in progress
	IN_PROGRESS	
10	QMI_WDS_CALL_END_REASON_AUTH_	Authentication failed
	FAILED	
11	QMI_WDS_CALL_END_REASON_	Call ended because of an internal error
	INTERNAL_CALL_END	

Table A-2 CDMA call end reasons

Value	Name	Description	
500	QMI_WDS_CALL_END_REASON_CDMA_	Phone is CDMA-locked until a power	
	LOCK	cycle	
501	QMI_WDS_CALL_END_REASON_	Received intercept from the BS;	
	INTERCEPT	origination only	
502	QMI_WDS_CALL_END_REASON_REORDER	Received reorder from the BS;	
		origination only	
503	QMI_WDS_CALL_END_REASON_REL_	Received release from the BS; SO reject	
	SO_REJ		
504	QMI_WDS_CALL_END_REASON_INCOM_	Received incoming call from the BS	
	CALL		

## Table A-2 CDMA call end reasons (cont.)

Value	Name	Description
505	QMI_WDS_CALL_END_REASON_ALERT_	Received alert stop from the BS;
	STOP	incoming only
506	QMI_WDS_CALL_END_REASON_	Received end activation; OTASP call
	ACTIVATION	only
507	QMI_WDS_CALL_END_REASON_MAX_	Maximum access probes transmitted
	ACCESS_PROBE	
508	QMI_WDS_CALL_END_REASON_CCS_	Concurrent service is not supported by
	NOT_SUPPORTED_BY_BS	the base station
509	QMI_WDS_CALL_END_REASON_NO_	No response received from the base
	RESPONSE_FROM_BS	station
510	QMI_WDS_CALL_END_REASON_	Call rejected by the base station; CDMA
	REJECTED_BY_BS	only
511	QMI_WDS_CALL_END_REASON_	Concurrent services requested were not
	INCOMPATIBLE	compatible; CDMA-only
512	QMI_WDS_CALL_END_REASON_	Corresponds to
	ALREADY_IN_TC	CM_CALL_ORIG_ERR_ALREADY_
		IN_TC
513	QMI_WDS_CALL_END_REASON_USER_	Used if CM is ending a GPS call in favor
	CALL_ORIG_DURING_GPS	of a user call
514	QMI_WDS_CALL_END_REASON_USER_	Used if CM is ending an SMS call in
	CALL_ORIG_DURING_SMS	favor of a user call
515	QMI_WDS_CALL_END_REASON_NO_	CDMA only; phone has no service
	CDMA_SRV	

## Table A-3 WCDMA/GSM call end reasons

Value	Name	Description	
1000	QMI_WDS_CALL_END_REASON_CONF_	Call origination request failed;	
	FAILED	WCDMA/GSM only	
1001	QMI_WDS_CALL_END_REASON_INCOM_	Client rejected the incoming call;	
	REJ	WCDMA/GSM only	
1002	QMI_WDS_CALL_END_REASON_NO_GW_	Phone has no service; WCDMA/GSM	
	SRV	only	
1003	QMI_WDS_CALL_END_REASON_	Network ended the call, look in	
	NETWORK_END	cc_cause; WCDMA/GSM only	
1004	QMI_WDS_CALL_END_REASON_LLC_	LLC or SNDCP failure	
	SNDCP_FAILURE		
1005	QMI_WDS_CALL_END_REASON_	Insufficient resources	
	INSUFFICIENT_RESOURCES		
1006	QMI_WDS_CALL_END_REASON_OPTION_	Service option temporarily out of order	
	TEMP_OOO		
1007	QMI_WDS_CALL_END_REASON_NSAPI_	NSAPI already used	
	ALREADY_USED		
1008	QMI_WDS_CALL_END_REASON_	Regular PDP context deactivation	
	REGULAR_DEACTIVATION		
1009	QMI_WDS_CALL_END_REASON_	Network failure	
	NETWORK_FAILURE		

Table A-3 WCDMA/GSM call end reasons (cont.)

Value	Name	Description
1010	QMI_WDS_CALL_END_REASON_UMTS_	Reactivation requested
	REATTACH_REQ	_
1011	QMI_WDS_CALL_END_REASON_	Protocol error, unspecified
	PROTOCOL_ERROR	_
1012	QMI_WDS_CALL_END_REASON_	Operator-determined barring
	OPERATOR_DETERMINED_BARRING	
1013	QMI_WDS_CALL_END_REASON_	Unknown or missing access point name
	UNKNOWN_APN	
1014	QMI_WDS_CALL_END_REASON_	Unknown PDP address or PDP type
	UNKNOWN_PDP	
1015	QMI_WDS_CALL_END_REASON_GGSN_	Activation rejected by GGSN
	REJECT	
1016	QMI_WDS_CALL_END_REASON_	Activation rejected, unspecified
	ACTIVATION_REJECT	
1017	QMI_WDS_CALL_END_REASON_OPTION_	Service option not supported
	NOT_SUPPORTED	
1018	QMI_WDS_CALL_END_REASON_OPTION_	Requested service option not subscribed
	UNSUBSCRIBED	
1019	QMI_WDS_CALL_END_REASON_QOS_	QoS not accepted
	NOT_ACCEPTED	
1020	QMI_WDS_CALL_END_REASON_TFT_	Semantic error in the TFT operation
	SEMANTIC_ERROR	
1021	QMI_WDS_CALL_END_REASON_TFT_	Syntactical error in the TFT operation
	SYNTAX_ERROR	
1022	QMI_WDS_CALL_END_REASON_	Unknown PDP context
	UNKNOWN_PDP_CONTEXT	
1023	QMI_WDS_CALL_END_REASON_FILTER_	Semantic errors in packet filter(s)
	SEMANTIC_ERROR	
1024	QMI_WDS_CALL_END_REASON_FILTER_	Syntactical error in packet filter(s)
	SYNTAX_ERROR	
1025	QMI_WDS_CALL_END_REASON_PDP_	PDP context without TFT already
	WITHOUT_ACTIVE_TFT	activated
1026	QMI_WDS_CALL_END_REASON_INVALID_	Invalid transaction identifier value
	TRANSACTION_ID	
1027	QMI_WDS_CALL_END_REASON_	Semantically incorrect message
	MESSAGE_INCORRECT_SEMANTIC	
1028	QMI_WDS_CALL_END_REASON_INVALID_	Invalid mandatory information
	MANDATORY_INFO	
1029	QMI_WDS_CALL_END_REASON_	Message type nonexistent or not
	MESSAGE_ TYPE_UNSUPPORTED	implemented
1030	QMI_WDS_CALL_END_REASON_MSG_	Message not compatible with state
	TYPE_NONCOMPATIBLE_STATE	
1031	QMI_WDS_CALL_END_REASON_	Information element nonexistent or not
	UNKNOWN_INFO_ELEMENT	implemented
1032	QMI_WDS_CALL_END_REASON_	Conditional IE error
	CONDITIONAL_IE_ERROR	

## Table A-3 WCDMA/GSM call end reasons (cont.)

Value	Name	Description
1033	QMI_WDS_CALL_END_REASON_MSG_	Message not compatible with protocol
	AND_PROTOCOL_STATE_UNCOMPATIBLE	state
1034	QMI_WDS_CALL_END_REASON_APN_	APN restriction value incompatible with
	TYPE_CONFLICT	active PDP context
1035	QMI_WDS_CALL_END_REASON_NO_	No GPRS context present
	GPRS_CONTEXT	
1036	QMI_WDS_CALL_END_REASON_	Requested feature not supported
	FEATURE_NOT_SUPPORTED	

## Table A-4 1xEV-DO call end reasons

Value	Name	Description
1500	QMI_WDS_CALL_END_REASON_CD_GEN_	Abort connection setup due to the
	OR_BUSY	reception of a ConnectionDeny message
	A( )*	with deny code = general or network
		busy
1501	QMI_WDS_CALL_END_REASON_CD_BILL_	Abort connection setup due to the
	OR_AUTH	reception of a ConnectionDeny message
		with deny code = billing or
	26:300	authentication failure
1502	QMI_WDS_CALL_END_REASON_CHG_HDR	Change HDR system due to redirection
	3 3512	or PRL not preferred
1503	QMI_WDS_CALL_END_REASON_EXIT_HDR	Exit HDR due to redirection or PRL not
	E.O. Valley	preferred
1504	QMI_WDS_CALL_END_REASON_HDR_	No HDR session
	NO_SESSION	
1505	QMI_WDS_CALL_END_REASON_HDR_	Used if CM is ending an HDR call
	ORIG_DURING_GPS_FIX	origination in favor of GPS fix
1506	QMI_WDS_CALL_END_REASON_HDR_CS_	Connection setup timeout
	TIMEOUT	
1507	QMI_WDS_CALL_END_REASON_HDR_	CM released HDR call so 1X call can
	RELEASED_BY_CM	continue

## B Verbose Call End Reasons

This appendix lists the verbose error code names and values of possible network errors that result from attempts to establish a network connection, or from a connection that is being terminated. Verbose call end reasons are conveyed as 4 bytes. Refer to the Verbose Call End Reason TLV (0x11) in QMI_WDS_START_NETWORK_INTERFACE_RESP and QMI_WDS_PKT_SRVC_STATUS_IND messages, which contain the following two fields:

- Call end reason type Table B-1 lists the possible values for call end reason types
- Call end reason Table B-2 through Table B-8 lists the possible values for call end reasons of each type

A verbose call end reason of zero indicates that the reason is not specified.

ValueName1Mobile IP2Internal3Call Manager defined63GPP specification defined7PPP8EHRPD9IPv6

Table B-1 Call end reason type

Table B-2 Mobile IP call end reasons (Type = 1)

Value	Name	Description	Failure type	Recovery mechanism
64	MIP_FA_ERR_	Foreign agent rejected the	Permanent	Check with the network
	REASON_	MIP registration for an		provider
	UNSPECIFIED	unspecified reason		
65	MIP_FA_ERR_	Foreign agent	Permanent	Check with the network
	ADMINISTRATIVE-	administratively		provider
	LY_PROHIBITED	prohibited the MIP		
		registration		
66	MIP_FA_ERR_	Insufficient resources	Permanent	Check with the network
	INSUFFICIENT_			provider
	RESOURCES			
67	MIP_FA_ERR_	MN-AAA authenticator is	Permanent	Retry call origination
	MOBILE_NODE_	incorrect		after correctly
	AUTHENTICATION_			provisioning the device
	FAILURE			with MIP information

Table B-2 Mobile IP call end reasons (Type = 1) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
68	MIP_FA_ERR_HA_ AUTHENTICATION_ FAILURE	Home agent authentication failure	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
69	MIP_FA_ERR_ REQUESTED_ LIFETIME_ TOO_LONG	Requested lifetime is too long	Temporary	Retry call origination; the FA proposes an acceptable lifetime in the AAM during the next MIP call bring up
70	MIP_FA_ERR_ MALFORMED_ REQUEST	Malformed request	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
71	MIP_FA_ERR_ MALFORMED_ REPLY	Malformed reply	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
72	MIP_FA_ERR_ ENCAPSULATION_ UNAVAILABLE	Requested encapsulation is unavailable	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
73	MIP_FA_ERR_VJHC_ UNAVAILABLE	VJ header compression is unavailable	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
74	MIP_FA_ERR_ REVERSE_ TUNNEL_ UNAVAILABLE	Reverse tunnel is unavailable	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
75	MIP_FA_ERR_ REVERSE_ TUNNEL_IS_ MANDATORY_ AND_T_BIT_NOT_ SET	Reverse tunnel is mandatory but not requested by the device	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
79	MIP_FA_ERR_ DELIVERY_STYLE_ NOT_SUPPORTED	Delivery style is not supported	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information

Table B-2 Mobile IP call end reasons (Type = 1) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
97	MIP_FA_ERR_ MISSING_NAI	Missing NAI	Permanent	Retry call origination after correctly provisioning the device with MIP information
98	MIP_FA_ERR_ MISSING_HA	Missing home agent	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
99	MIP_FA_ERR_ MISSING_ HOME_ADDR	Missing home address	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
104	MIP_FA_ERR_ UNKNOWN_ CHALLENGE	Unknown challenge	Temporary	Retry call origination; the next MIP call bring up obtains a correct challenge in the AAM/RRP
105	MIP_FA_ERR_ MISSING_ CHALLENGE	Missing challenge	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
106	MIP_FA_ERR_ STALE_CHALLENGE	Stale challenge	Temporary	Retry call origination, the next MIP call bring up obtains a correct challenge in the AAM/RRP
128	MIP_HA_ERR_ REASON_ UNSPECIFIED	Unspecified reason	Permanent	Check with the network provider
129	MIP_HA_ERR_ ADMINISTRATIVE LY_PROHIBITED	Data call bring up fails in the MIP setup phase since the home agent administratively prohibited the MIP registration	Permanent	Check with the network provider
130	MIP_HA_ERR_ INSUFFICIENT_ RESOURCES	Insufficient resources	Permanent	Check with the network provider
131	MIP_HA_ERR_ MOBILE_NODE_ AUTHENTICATION_ FAILURE	MN-HA authenticator is incorrect	Permanent	Retry call origination after correctly provisioning the device with MIP information

Table B-2 Mobile IP call end reasons (Type = 1) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
132	MIP_HA_ERR_FA_ AUTHENTICATION_ FAILURE	FA authentication failure	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
133	MIP_HA_ERR_ REGISTRATION_ID_ MISMATCH	Registration ID mismatch	Temporary	Retry call origination
134	MIP_HA_ERR_ MALFORMED_ REQUEST	Malformed request	Permanent	Retry call origination after correctly provisioning the device with MIP information
136	MIP_HA_ERR_ UNKNOWN_ HA_ADDR	Unknown home agent address; this code is returned by a home agent when the mobile node is performing a dynamic home agent address resolution as described in [RFC 3220], Sections 3.6.1.1 and 3.6.1.2	Permanent	Check with the network provider
137	MIP_HA_ERR_ REVERSE_ TUNNEL_ UNAVAILABLE	Reverse tunnel is unavailable	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
138	MIP_HA_ERR_ REVERSE_ TUNNEL_ IS_MANDATORY_ AND_ T_BIT_NOT_SET	Reverse tunnel is mandatory but not requested by device	Permanent	Check with the network provider; retry call origination after correctly provisioning the device with MIP information
139	MIP_HA_ERR_ ENCAPSULATION_ UNAVAILABLE	Encapsulation is unavailable	Permanent	Retry call origination after correctly provisioning the device with MIP information
-1	MIP_ERR_REASON_ UNKNOWN	Data call bring up fails in the MIP setup phase with unknown reason	Permanent	Unknown

## Table B-3 Internal call end reasons (Type = 2)

Value	Name	Description	Failure type	Recovery mechanism
201	INTERNAL_ERROR	Unspecified internal error	Permanent	Unknown
202	CALL_ENDED	Call ended	Temporary	Retry call

Table B-3 Internal call end reasons (Type = 2) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
203	INTERNAL_ UNKNOWN_ CAUSE_CODE	Unknown cause	Permanent	Unknown
204	UNKNOWN_CAUSE_ CODE	Unknown error	Permanent	Unknown
205	CLOSE_IN_ PROGRESS	Data call tear down is in progress	Temporary	Client may retry once call end notification is returned when tear down is complete
206	NW_INITIATED_ TERMINATION	Data call was brought down by the network	Permanent	Unknown
207	APP_PREEMPTED	Application was preempted	Temporary	Client can retry when other application stops using the data call
208	ERR_PDN_IPV4_ CALL_DISALLOWED	IPv4 PDN is in a throttled state due to the network providing only the IPv6 address during the previous VSNCP bring up (subs_limited_to_v6). The amount of time the IPv4 PDN is throttled is determined by the IPv4 throttling timers maintained in the profile.	Temporary	Retry call origination after the IPv6 interface is brought down and the IPv4 throttling timer expires
209	ERR_PDN_IPV4_ CALL_THROTTLED	IPv4 PDN is in a throttled state due to previous VSNCP bring up failure(s). The amount of time the IPv4 PDN is throttled is determined by the IPv4 throttling timers maintained in the profile.	Temporary	Retry call origination after the IPv4 throttling timer expires
210	ERR_PDN_IPV6_ CALL_DISALLOWED	IPv6 PDN is in a throttled state due to the network providing only the IPv4 address during the previous VSNCP bring up (subs_limited_to_v4). The amount of time the IPv6 PDN is throttled is determined by the IPv6 throttling timers maintained in the profile.	Temporary	Retry call origination after the IPv4 interface is brought down and the IPv6 throttling timer expires

Table B-3 Internal call end reasons (Type = 2) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
211	ERR_PDN_IPV6_ CALL_THROTTLED	IPv6 PDN is in a throttled state due to previous	Temporary	Retry call origination after the IPv6 throttling
	_	VSNCP bring up		timer expires
		failure(s). The amount of time the IPv6 PDN is		
		throttled is determined by		
		the IPv6 throttling timers		
212	MODEM RESTART	maintained in the profile.  Modem restart	Temporary	Retry call origination
212	MODEM_RESIDENT	naodom restant	remperary	after the modem restart is complete
213	PDP_PPP_NOT_	PDP PPP calls are not	Temporary	Clients may need to
	SUPPORTED	supported		change the Profile PDP type and retry
214	UNPREFERRED_RAT	RAT on which the data call is	Temporary	Retry call origination on the new preferred RAT
		attempted/connected is no longer the preferred RAT		reported by the data system determination module
215	PHYS_LINK_CLOSE_	Physical link is in the	Temporary	Retry call origination
213	IN_PROGRESS	process of cleanup	Temporary	Retry can origination
216	APN_PENDING_	Interface bring up is	Temporary	Retry call origination
	HANDOVER	attempted for an APN that		
		is yet to be handed over to		
217	PROFILE_BEARER_	the target RAT	Тотоположи	Clients can abone the
217	INCOMPATIBLE	APN bearer type in the profile does not match the preferred network mode	Temporary	Clients can change the APN bearer type and retry
218	MMGSDI_CARD_ EVT	Card was refreshed or removed	Temporary	Retry call origination; in the case of card removal, the card must be reinserted into the device
219	LPM_OR_PWR_ DOWN	Device is going into a lower power mode or is powering down	Permanent	Retry call origination after the device comes out of lower power mode or
221	MPIT_EXPIRED	Maximum PPP inactivity timer has expired	Temporary	Retry call origination
222	IPV6_ADDR_	IPv6 address transfer	Temporary	Retry call origination
	TRANSFER_FAILED	failed	Temporary	immediately on the current system
223	TRAT_SWAP_FAILED	Target RAT swap failed	Temporary	Retry call origination immediately on the current system

Table B-3 Internal call end reasons (Type = 2) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
224	EHRPD_TO_HRPD_	Device falls back from	Temporary	Retry call origination
	FALLBACK	eHRPD to HRPD (not		after the data system
		because of OOS on		determination module
		eHRPD but due to		reports the preferred
		operator or specification		system as HRPD
		driven eHRPD to HRPD		
		fallback requirements)		
225	MANDATORY_APN_	Returned when any	Permanent	Retry call origination
	DISABLED	mandatory APN is	9	after enabling the
		disabled, and the		mandatory APN(s)
		MinApnList Disallow call		
		configuration item is set		
		to TRUE in the device		
226	MIP_CONFIG_	UE is in MIP-only	Permanent	Retry call origination
	FAILURE	configuration (QCMIP=2)		after correctly
		but the MIP configuration		provisioning the device
		fails on call bring up due		with MIP information
		to incorrect provisioning		
227	INTERNAL_PDN_	PDN inactivity timer	Temporary	Retry call origination
	INACTIVITY_	expired due to no data		immediately because it
	TIMER_ EXPIRED	transmission in a		was brought down due to
		configurable duration of		PDN inactivity timer
		time		expiration
228	MAX_V4_	IPv4 data call bring up is	Temporary	Retry call origination
	CONNECTIONS	rejected because the UE		after disconnecting
		already maintains the		existing IPv4 call(s)
		allotted maximum		
		number of IPv4 data		
		connections		
229	MAX_V6_	IPv6 data call bring up is	Temporary	Retry call origination
	CONNECTIONS	rejected because the UE		after disconnecting
		already maintains the		existing IPv6 call(s)
		allotted maximum		8
		number of IPv6 data		
		connections		
230	APN_MISMATCH	New PDN bring up is	Temporary	Retry call origination
		rejected during interface		after disconnecting
		selection because the UE		existing PDN(s)
		has already allotted the		emsung 1 2 1 ((e)
		available interfaces for		
		other PDNs		
231	IP_VERSION_	New call bring up is	Temporary	Retry call origination
201	MISMATCH	rejected because the	lomporary	after disconnecting the
		existing data call IP type		existing call
		does not match the		Oxiding can
		requested IP type		
		requested if type		

Table B-3 Internal call end reasons (Type = 2) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
232	DUN_CALL_	DUN call bring up is	Temporary	Retry DUN call
	DISALLOWED	rejected because the UE is		origination after the UE
		in eHRPD RAT		transitions to 1X/HRPD
233	INVALID_PROFILE	Call bring up was	Temporary	Retry call origination
		requested with an invalid		using a correct profile
		profile		
234	INTERNAL_EPC_	Data call is rejected or	Temporary	Retry call origination
	NONEPC_	brought down because the	40	after the UE settles down
	TRANSITION	UE is in transition		on the new RAT
		between EPC and		
		non-EPC RAT		
235	INVALID_PROFILE_	Call bring up was	Temporary	Retry the call using a
	ID	requested with an invalid		profile number that is
		profile ID		created on the modem.
		4( )		For emergency calls, the
				profile number passed by
				the application should
		.0	•	always be nonzero. For
			27	non-emergency calls, if
		63 40		the profile number passed
		0.0 4.0		by the application is zero,
		80 TES.		the UE brings up a call
		, , , , , , , , , , , , , , , , , , ,		using the default profile
236	INTERNAL_CALL_	Returned when a data call	Temporary	Retry call origination on a
	ALREADY_	with the same policy is		different RmNet instance
	PRESENT	already connected or in		
		the process of bring up on		
		another RmNet instance		
237	IFACE_IN_USE	Returned when the	Temporary	Retry call origination
		current IFACE is in use		after disconnecting the
				existing call
238	IP_PDP_MISMATCH	Returned when a PPP call	Temporary	Retry call origination
		is attempted on a PDP		using the correct profile
		profile		ID

Table B-3 Internal call end reasons (Type = 2) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
239	APN_DISALLOWED_	PDN connection to the	Temporary	Retry using an APN name
	ON_ROAMING	APN is disallowed on the		that is not blocked or retry
		roaming network. The DS		when the UE returns to
		generates		the home network
		DS_SYS_EVENT_		
		3GPP_ROAM-		
		ING_DISALLOWED_		
		INFO to inform clients of		
		the APNs that must	9	
		deregister and disconnect		
		(if the PDN is up) while		
		the UE is on the roaming		
		network. Clients must		
		deregister or disconnect if		
		the APN name		
		corresponding to the		
		client is listed in this		
		system event. Clients can		
		register again if the APN	le	
		name corresponding to		
		the client is not listed in		
		this system event.		
240	APN_PARAM_	Failure to reestablish the	Temporary	Retry immediately to
	CHANGE	PDN with the changed		establish a connection
		parameters; when		
		APN-related parameters		
		are changed, the PDN		
		associated with the		
		parameters must be		
		brought down and		
		reestablished with the		
0.11	TEL CE DI VICE	changed parameters		
241	IFACE_IN_USE_	Returned when the IFACE	Temporary	Retry call origination
	CFG_MATCH	is already in use with a		after disconnecting the
2.12	NILII I A DNI	matching configuration	<b>T</b>	existing call
242	NULL_APN_	Returned when a PDN is	Temporary	Retry immediately with a
	DISALLOWED	attempted to be brought		non-NULL APN to
		up with a NULL APN and		establish a connection
		when a NULL APN is not		
242	THEDMAI	supported	T	A1'
243	THERMAL_	Returned when the	Temporary	Application can retry after
	MITIGATION	thermal level increases		thermal level resumes to
		and causes calls to be torn		normal
		down when normal mode		
		of operation is not		
		allowed		

Table B-3 Internal call end reasons (Type = 2) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
244	SUBS_ID_	Returned when a new call	Temporary	Retry call origination
	MISMATCH	bring up is rejected due to		using the correct subs_id
		a mismatch between the		
		subs_id in the profile and		
		the subs_id in the ACL		
		policy information		
245	DATA_SETTINGS_	Returned when the PDN	Temporary	Application can retry with
	DISABLED	connection to a given		the same APN if the data
		APN is disallowed	(5)	connection is re-enabled
		because data is disabled		from the UI and the data
		from the device user		roaming connection is
		interface (UI) settings		enabled from the UI or
				the UE is on the home
				network
246	DATA_ROAMING_	Returned when the PDN	Temporary	Application can retry with
	SET-	Connection to a given		the same APN if the data
	TINGS_DISABLED	APN is disallowed		connection is enabled on
		because data roaming is		the UI and the data
		disabled from the device	ls.	roaming connection is
		UI settings and the UE is		re-enabled from the UI or
		roaming		the UE moves back to the
		00, 1504.		home network
247	APN_FORMAT_	Returned when the APN	Temporary	Retry call origination
	INVALID	specified in the policy		
		does not follow the format		
		specified in the 3GPP		
		Specification		
248	DDS_CALL_ABORT	Returned when a DDS	Temporary	Retry call origination
		switch occurs; the data		
		call is brought down with		
		the DDS abort reason		
249	VALIDATION_	Returned when a data call	Temporary	Retry after a back-off
	FAILURE	is brought down due to an		time period
		internal validation failure		

Table B-4 Call Manager defined call end reasons (Type = 3)

Value	Name	Description	Failure type	Recovery mechanism
500	CDMA_LOCK	Traffic channel was	Permanent	Power cycle the device
		rejected or released by		and retry call origination
		CM due to the device in		
		CDMA locked state		
501	INTERCEPT	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM due to receiving an		
		intercept order from the		
		base station		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
502	REORDER	Traffic channel request	Temporary	Retry call origination
		was rejected by CM due		
		to receiving a reorder		
		from the base station		
503	REL_SO_REJ	Traffic channel was	Permanent	Check with the network
		rejected or released by		provider
		CM due to receiving a		
		release from the base		
		station with an SO Reject		
		reason		
504	INCOM_CALL	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM due to receiving an		
		incoming call from the		
		base station		
505	ALERT_STOP	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM due to RL/FL fade or		
		receiving a call release	le	
		from the base station		
506	ACTIVATION	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM due to channel		
		acquisition failures,		
		indicating that the device		
		failed at acquiring all the		
		channels in the PR		
507	MAX_ACCESS_	Traffic channel request	Temporary	Retry call origination
	PROBE	was rejected by CM due		
		to maximum access		
		probes transmitted		
508	CCS_NOT_	Traffic channel request	Permanent	Check with the network
	SUPPORTED_	was rejected by CM		provider
	BY_BS	because concurrent		
		service is not supported		
		by the base station		
509	NO_RESPONSE_	Traffic channel request	Temporary	Retry call origination
	FROM_BS	was rejected by CM		
		because there was no		
		response received from		
		the base station		
510	REJECTED_BY_BS	Traffic channel request	Permanent	Check with the network
		was rejected by CM due		provider
		to the base station		
		rejecting the call		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
511	INCOMPATIBLE	Traffic channel was	Permanent	Check with the network
		rejected or released by		provider
		CM because the		
		concurrent services		
		requested were not		
		compatible		
512	ALREADY_IN_TC	Traffic channel request	Temporary	Retry call origination
		was rejected by CM	<i>(</i> )	
		because the traffic		
		channel was already up		
		for voice calls		
514	USER_CALL_ORIG_	Traffic channel request	Temporary	Retry call origination
	DURING_SMS	was rejected because		after SMS is complete
		SMS is ongoing		
515	NO_CDMA_SRV	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM because the the		
		device does not have	•	
		CDMA service	42	
516	MC_ABORT	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM because the MC		
		aborted the origination		
515	DOLOT NO	conversation		75
517	PSIST_NG	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM due to persistent test		
£10	LIIM NOT DECENT	failure	D	Determination
518	UIM_NOT_PRESENT	Traffic channel was	Permanent	Retry call origination
		rejected or released by		after inserting the UIM
		CM due to RUIM not		card
<b>510</b>	DETDY ODDED	being present	Т	Datus call anicipation
519	RETRY_ORDER	Traffic channel request	Temporary	Retry call origination
		was rejected by CM due		
		to receiving a retry order from the base station		
520	ACCECC DI OCK	Traffic channel was	Тотот отот	Datus call anicipation
520	ACCESS_BLOCK	rejected or released due to	Temporary	Retry call origination
		3		
		access blocked by the base station		
521	ACCESS_BLOCK_	Traffic channel was	Temporary	Retry call origination
321	ACCESS_BLOCK_	rejected due to access	remporary	Ken y can ongmation
	ALL	blocked by the base		
		station for all mobile		
		devices		
		uevices		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
522	IS707B_MAX_ACC	Traffic channel request was rejected by CM due to maximum access probes for the IS-707B call	Temporary	Retry call origination
523	THERMAL_ EMERGENCY	Traffic channel was rejected or released by CM to put the device in thermal emergency	Permanent	Retry call origination after the device cools down
524	CALL_ORIG_ THROTTLED	Traffic channel request was rejected by CM because the call origination was throttled by the DCTM module	Temporary	Retry call origination after CM unthrottles call origination
535	USER_CALL_ORIG_ DURING_VOICE_ CALL	Traffic channel was released by CM in favor of a voice call or SMS when concurrent voice and data are not supported	Temporary	Retry call origination after the SMS or voice call is complete
1000	CONF_FAILED	Data call origination request failed by CM	Temporary	Retry call origination
1001	INCOM_REJ	Data call was brought down because the other clients rejected the incoming call	Temporary	Retry call origination
1002	NEW_NO_GW_SRV	No service on the GW	Temporary	Retry call after service becomes available
1003	NEW_NO_GPRS_ CONTEXT	GPRS context is not available	Temporary	Retry call origination
1004	NEW_ILLEGAL_MS	Network refuses service to the MS because either an identity of the MS is not acceptable to the network or the MS does not pass the authentication check	Permanent	None
1005	NEW_ILLEGAL_ME	ME could not be authenticated and the ME used is not acceptable to the network	Permanent	None
1006	NEW_GPRS_ SERVICES_ AND_NON_GPRS_ SERVICES_NOT_ ALLOWED	Not allowed to operate either GPRS or non-GPRS services	Permanent	None

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1007	NEW_GPRS_	MS is not allowed to	Permanent	None
	SERVICES_	operate GPRS services		
	NOT_ALLOWED			
1008	NEW_MS_IDENTITY_	No matching identity or	Temporary	Retry after a back-off
	CANNOT_BE_	context could be found in		period
	DERIVED_BY_	the network		
	THE_NETWORK			
1009	NEW_IMPLICITLY_	Mobile reachable timer	Temporary	Retry after a back-off
	DETACHED	has expired, or the GMM	07	period
		context data related to the		
		subscription dose not		
		exist in the SGSN		
1010	NEW_PLMN_NOT_	UE requests GPRS	Permanent	None
	ALLOWED	service, or the network		
		initiates a detach request		
		in a PLMN which does		
		not offer roaming for		
		GPRS services to that MS		
1011	NEW_LA_NOT_	MS requests service, or	Permanent	None
	ALLOWED	the network initiates a		
		detach request, in a		
		location area where the		
		HPLMN determines that		
		the MS, by subscription,		
		is not allowed to operate		
1012	NEW_GPRS_	UE requests GPRS	Permanent	None
	SERVICES_	service or the network		
	NOT_ALLOWED_IN_	initiates a detach request		
	THIS_PLMN	in a PLMN that does not		
		offer roaming for GPRS		
		services		
1013	NEW_PDP_	PDP context already	Temporary	Retry call origination with
	DUPLICATE	exists; PDP context was		a different APN
		rejected		
1014	NEW_UE_RAT_	RAT change on the UE	Temporary	UE can retry
	CHANGE			
1015	NEW_CONGESTION	Network cannot serve a	Temporary	UE can retry
		request from the MS due		
		to congestion		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1016	NEW_NO_PDP_	MS requests an	Temporary	UE can retry
	CONTEXT_	establishment of the radio		
	ACTIVATED	access bearers for all		
		active PDP contexts by		
		sending a service request		
		message indicating data to		
		the network, but the		
		SGSN does not have any		
		active PDP context		
1017	NEW_ACCESS_	Access class blocking	Temporary	UE can retry
	CLASS_	restrictions for the current		
	DSAC_REJECTION	camped cell		
1018	PDP_ACTIVATE_	SM attempts PDP	Temporary	UE can retry
	MAX_RETRY_	activation for a maximum		
	FAILED	of four attempts		
1019	RAB_FAILURE	RAB failure	Temporary	UE can retry
1025	ESM_UNKNOWN_	Invalid EPS bearer	Temporary	UE can retry
	EPS_BEARER_	identity in the request		
	CONTEXT	, °°	le le	
1026	DRB_RELEASED_	DRB is released by the	Temporary	UE can retry
	AT_RRC	RRC for internal reasons		
		or there is a mismatch		
		scenario where the UE		
		has more DRBs than the		
		network		
1027	NAS_SIG_CONN_	Indicates the connection	Temporary	UE can retry
	RELEASED	was released		
1028	REASON_EMM_	UE is detached	Temporary	UE can retry
	DETACHED			
1029	EMM_ATTACH_	Attach procedure is	Temporary	UE can retry
	FAILED	rejected by the network		
1030	EMM_ATTACH_	Attach procedure is	Temporary	UE can retry
	STARTED	started for EMC purposes		
1031	LTE_NAS_	Service request procedure	Temporary	UE can retry
	SERVICE_	failure		
	REQ_FAILED			
1032	ESM_ACTIVE_	ACT dedication bearer	Temporary	UE can retry
	DEDICATED_	was requested using the		
	BEARER_	same default bearer ID		
	REACTIVATED_			
	BY_NW			
1033	ESM_LOWER_	Collision scenarios for the	Temporary	UE can retry
	LAYER_FAILURE	UE and network-initiated		
		procedures		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1034	ESM_SYNC_UP_	Bearer must be	Temporary	UE can retry
	WITH_NW	deactivated to		
		synchronize with the		
		network		
1035	ESM_NW_	ACT dedication bearer	Temporary	UE can retry
	ACTIVATED_DED_	was requested for an		-
	BEARER_WITH_	existing default bearer		
	ID_OF_DEF_			
	BEARER		9	
1036	ESM_BAD_OTA_	Aborts ongoing procedure	Temporary	UE can retry
	MESSAGE	in the DS if a bad OTA		3
		message is received from		
		the network		
1037	ESM_DS_	DS rejected the call	Temporary	UE can try again
	REJECTED_			
	THE_CALL			
1038	ESM_CONTEXT_	PDN was disconnected by	Temporary	UE can try again
1020	TRANSFERED	the DS due to IRAT	Temperary	ez cun try ugum
	DUE_TO_IRAT	the BS due to Ha II		
1039	DS_EXPLICIT_	Dedicated bearer will be	Temporary	UE can retry
1037	DEACT	deactivated regardless of	Temporary	of can leavy
	DEFICI	the network response		
1040	ESM_LOCAL_	No specific local cause is	Temporary	UE can retry
1040	CAUSE_NONE	mentioned, usually a valid	Temporary	of can leary
	CAUSE_NONE	OTA cause		
1041	LTE_NAS_SERVICE_	Throttling is not needed	Temporary	UE can retry
10+1	REQ_FAILED_NO_	for this service request	Temporary	OL can icu y
	THROTTLE	failure		
1042	ACL_FAILURE	ACL check failure at the	Temporary	UE can retry
1042	ACL_PAILURE	lower layer	Temporary	OL can icu y
1043	LTE_NAS_	Service is not allowed on	Temporary	UE can retry
1043			Temporary	OE can retry
	SERVICE_REQ_ FAILED_DS_	the requested PLMN		
	DISALLOW			
1044		T2417 agriculture of the	Татататат	LIE con notwo
1044	EMM_T3417_ EXPIRED	T3417 expiration of the	Temporary	UE can retry
1045		service request procedure ESR fails due to	Т	LIE con nature
1045	EMM_T3417_EXT_		Temporary	UE can retry
	EXPIRED	expiration of the T3417		
1046	I DDC III DATA	EXT timer	Trans	LIE
1046	LRRC_UL_DATA_	Transmission failure of	Temporary	UE can retry
1047	CNF_FAILURE_TXN	uplink data		III
1047	LRRC_UL_DATA_	Uplink data failed to be	Temporary	UE can retry
	CNF_FAILURE_HO	delivered due to a		
		handover		
1048	LRRC_UL_DATA_	Uplink data failed to be	Temporary	UE can retry
	CNF_FAILURE_	delivered due to a		
	CONN_REL	connection release		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1049	LRRC_UL DATA_ CNF_FAILURE_RLF	Uplink data failed to be delivered due to a radio link failure	Temporary	UE can retry
1050	LRRC_UL_ DATA_CNF_ FAILURE_CTRL_ NOT_CONN	RRC is not connected but the NAS sends an uplink data request	Temporary	UE can retry
1051	LRRC_CONN_EST_ FAILURE	Connection failure at access stratum	Temporary	UE can retry
1052	LRRC_CONN_EST_ FAILURE_ ABORTED	Connection establishment is aborted due to another procedure	Temporary	UE can retry
1053	LRRC_CONN_EST_ FAILURE_ ACCESS_BARRED	Connection establishment failed due to a lower layer RRC connection failure	Temporary	UE can retry
1054	LRRC_CONN_EST_ FAILURE_ CELL_RESEL	Connection establishment failed due to cell reselection at access stratum	Temporary	UE can retry
1055	LRRC_CONN_EST_ FAILURE_CONFIG_ FAILURE	Connection establishment failed due to configuration failure at the RRC	Temporary	UE can retry
1056	LRRC_CONN_EST_ FAILURE_TIMER_ EXPIRED	Connection could not be established in the time limit	Temporary	UE can retry
1057	LRRC_CONN_EST_ FAILURE_LINK_ FAILURE	Connection establishment failed due to a link failure at the RRC	Temporary	UE can retry
1058	LRRC_CONN_ EST_FAILURE_ NOT_CAMPED	Connection establishment failed as the RRC is not camped on any cell	Temporary	UE can retry
1059	LRRC_CONN_ EST_FAILURE_ SI_FAILURE	Connection establishment failed due to a SI failure at the RRC	Temporary	UE can retry
1060	LRRC_CONN_ EST_FAILURE_ CONN_REJECT	Connection establishment failed due to the network rejecting the UE connection request	Temporary	UE can retry
1061	LRRC_CONN_ REL_NORMAL	Normal connection release	Temporary	UE can retry
1062	LRRC_CONN_ REL_RLF	Connection release failed due to RLF conditions	Temporary	UE can retry
1063	LRRC_CONN_ REL_CRE_ FAILURE	Connection reestablishment failure	Temporary	UE can retry
1064	LRRC_CONN_ REL_OOS_ DURING_CRE	UE is OOS during the call register; the connection is released	Temporary	UE can retry

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1065	LRRC_CONN_	Connection has been	Temporary	UE can retry
	REL_ABORTED	released by the RRC due		
		to an abort request		
1066	LRRC_CONN_	Connection released due	Temporary	UE can retry
	REL_SIB_	to an SIB read error		•
	READ_ERROR			
1067	DETACH_WITH_	Network-initiated detach	Temporary	UE can retry
	REATTACH_LTE_	with reattach	l r r s s	
	NW_DETACH		_	
1068	DETACH_WITH_	Network-initiated detach	Temporary	UE can retry
1000	OUT_REATTACH_	without reattach	Temporary	on reary
	LTE_NW_ DETACH	without reattach		
1060		ECM and a draw	Т	LIE con notes
1069	ESM_PROC_	ESM procedure	Temporary	UE can retry
	TIME_OUT	maximum attempt		
		timeout failure	_	
1070	INVALID_	No PDP exists with the	Temporary	Retry call origination
	CONNECTION_ID	given connection ID		
		while modifying or		
		deactivating or activation	S)	
		for an already active PDP		
1071	INVALID_NSAPI	Maximum NSAPIs have	Temporary	Retry call origination
		been exceeded during		
		PDP activation. Invalid		
		modify or deactivation		
		request by CM for ConId.		
		While activating the		
		secondary when the PDP		
		is already active with the		
		same connection ID,		
		reject the activate request.		
1072	INVALID_PRI_	Primary context for	Temporary	Retry call origination
1072			Temporary	Retry can origination
	NSAPI	NSAPI does not exist;		
		reject the SEC activate		
1052	DILLI DE EVEL D	request con_id		5 11 11
1073	INVALID_FIELD	Unable to encode the	Temporary	Retry call origination
		OTA message for MT		
		PDP or deactivate PDP		
1074	RAB_SETUP_	RAB is not established by	Temporary	Retry call origination
	FAILURE	the lower layers during		
		activation, modification,		
		or deactivation		
1075	PDP_ESTABLISH_	Expiration of the PDP	Temporary	Retry call origination
	MAX_TIMEOUT	establish timer with a		
		maximum of five retries		
1076	PDP_MODIFY_	Expiration of the PDP	Temporary	Retry call origination
-	MAX_TIMEOUT	modify timer with a		, , , , , , , , , , , , , , , , , , ,
		maximum of four retries		
		maximum of four retries		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1077	PDP_INACTIVE_	Expiration of the PDP	Temporary	Retry call origination
	MAX_TIMEOUT	deactivate timer with a		
		maximum of four retries		
1078	PDP_LOWERLAYER_	PDP activation failed due	Temporary	Retry call origination
	ERROR	to RRC_ABORT or a		
		forbidden PLMN		
1079	PPD_UNKNOWN_	Local deactivation	Temporary	Retry call origination
	REASON	• SM_NATIONAL_		, c
		ROAMING_	0	
		NOT_ALLOWED:		
		Roaming not allowed	6-7	
		• SM_NO_SUITABLE_		
		CELLS_IN_LA: No		
		suitable cells in the		
		location area		
1080	PDP_MODIFY_	MO PDP modify collision	Temporary	Retry call origination
1000	COLLISION	when the MT PDP is	remporary	Retry can origination
	COLLISION	already in progress		
1081	PDP_MBMS_	PDP_MBMS_REQUEST	Temporary	Retry call origination
1001	REQUEST_	received when PDP	Temporary	Ketry can origination
	COLLISION			
	COLLISION	activation is already		
		PDP_ACTIVE_PENDING		
		on the same connection ID		
1082	MBMS_DUPLICATE	MBMS activation is	Temporary	Retry call origination
		already pending and		
		PDP_MBMS_REQUEST		
		is triggered		
1083	SM_PS_ DETACHED	Internal cause for call end	Temporary	Retry call origination
		due to a PS detach	1 3	, .
1084	SM_NO_RADIO_	Radio resource is not	Temporary	Retry call origination
	AVAILABLE	available	1 3	, .
1085	SM ABORT	Abort due to service not	Temporary	Retry call origination
	SERVICE_NOT_	available	F	
	AVAILABLE			
1086	MESSAGE_EXCEED_	Maximum size of the L3	Temporary	UE can retry
1000	MAX_L2_LIMIT	message was exceeded	romp orang	= = = = = = = = = = = = = = = = = = =
1087	SM_NAS_SRV_REQ_	NAS/lower layers service	Temporary	Retry call origination
1001	FAILURE	request was rejected by	2011porury	Titaly van origination
	THECKE	the network		
1088	RRC_CONN_EST_	RRC connection	Temporary	Retry after a back-off
1000	FAILURE_	establishment failure due	Temporary	time period
	REQ_ERROR	to an error in the request		unic period
	VEA TWOK	_		
		message		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1089	RRC_CONN_EST_	RRC connection	Temporary	Retry after a back-off
	FAILURE_	establishment failure due		time period
	TAI_CHANGE	to a change in the tracking		
		area ID		
1090	RRC_CONN_EST_	RRC connection	Temporary	Retry after a back-off
	FAILURE_RF_	establishment failure		time period
	UNAVAILABLE	because the RF was		•
		unavailable		
1091	RRC_CONN_REL_	Connection was aborted	Temporary	Retry after a back-off
	ABORTED_IRAT_	before deactivating the		time period or after a
	SUCCESS	LTE stack due to a		WCDMA/GSM/
		successful L→X IRAT		TD-SCDMA system
		(e.g., after IRAT		status indication is
		handovers)		received
1092	RRC_CONN_REL_	If the UE has an LTE RLF	Temporary	Retry after a back-off
10,2	RLF_SEC_NOT_	before security is	Temperary	time period
	ACTIVE	established, the		viiio periou
	1101112	connection must be		
		released and the UE must		
		return to idle	20	
1093	RRC_CONN_REL_	Connection was aborted	Temporary	Retry after a back-off
1075	IRAT_TO_LTE_	by the NAS after an IRAT	Temporary	time period
	ABORTED	to LTE IRAT handover		time period
1094	RRC_CONN_REL_	Connection was aborted	Temporary	Retry after a back-off
1074	IRAT_FROM_LTE_	before deactivating the	Temporary	time period or after a
	TO_G_CCO_	LTE stack after a		GSM/EDGE system
	SUCCESS	successful L→R IRAT		status indication is
	SUCCESS	CCO procedure		received by the client
1095	RRC_CONN_REL_	Connection was aborted	Temporary	Retry after a back-off
1093	IRAT_FROM_LTE_	in the middle of a $L\rightarrow G$	Temporary	time period or after a
	TO_G_CCO_	IRAT CCO		GSM/EDGE system
	ABORTED	IKAI CCO		status indication is
	ADORTED			received by the client
1096	IMSI_UNKNOWN_	IMSI present in the UE is	Тотогот	Retry after a back-off
1090	IN_HSS	unknown in the HSS	Temporary	time period
1097		IMEI of the UE is not	Dammanant	None
1097	IMEI_NOT_		Permanent	None
1000	ACCEPTED	accepted by the network	<b>D</b> .	NT
1098	EPS_SERVICES_	EPS and non-EPS	Permanent	None
	AND_NON_EPS_	services are not allowed		
	SERVICES_NOT_	by the network		
1000	ALLOWED NOT	TDG :	<b>D</b>	N
1099	EPS_SERVICES_NOT	EPS services are not	Permanent	None
	_ALLOWED_	allowed in the PLMN		
	IN_PLMN			
1100	MSC_TEMPORARILY	MSC is temporarily	Temporary	Retry after a back-off
	_NOT_REACHABLE	unreachable		time period

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1101	CS_DOMAIN_NOT_	CS domain is not	Temporary	Retry after a back-off
	AVAILABLE	available		period
1102	ESM_FAILURE	ESM level failure	Temporary	Retry after a back-off period
1103	MAC_FAILURE	MAC level failure	Temporary	Retry after a back-off period
1104	SYNCH_FAILURE	Synchronization failure	Temporary	Retry after a back-off time period
1105	UE_SECURITY_ CAPABILITIES_ MISMATCH	UE security capabilities mismatch	Temporary	Retry after a back-off time period
1106	SECURITY_MODE_ REJ_UNSPECIFIED	Unspecified security mode reject	Temporary	Retry after a back-off time period
1107	NON_EPS_AUTH_ UNACCEPTABLE	Unacceptable non-EPS authentication	Temporary	Retry after a back-off period
1108	CS_FALLBACK_ CALL_EST_NOT_ ALLOWED	CS fallback call establishment is not allowed	Temporary	Retry after a back-off time period
1109	NO_EPS_BEARER_ CONTEXT_ ACTIVATED	No EPS bearer context was activated	Temporary	Retry after a back-off time period
1110	EMM_INVALID_ STATE	Call ended due to an invalid EMM state	Temporary	Retry after a back-off time period
1111	NAS_LAYER_ FAILURE	Non-Access Spectrum layer failure	Temporary	Retry after a back-off time period
1112	MULTI_PDN_NOT_ ALLOWED	Multiple PDP call feature is disabled	Temporary	UE can retry after the active PDP call has ended
1113	EMBMS_NOT_ ENABLED	Data call has been brought down because EMBMS is not enabled at the RRC layer	Temporary	UE can retry after EMBMS has been enabled
1114	PENDING_REDIAL_ CALL_CLEANUP	Data call has been brought down if it is found in a stale state because the data call was unsuccessfully transferred during the IRAT handover	Temporary	Retry after a back-off time period
1115	EMBMS_REGULAR_ DEACTIVATION	EMBMS data call has been successfully brought down	Temporary	Client can retry
1116	TLB_REGULAR_ DEACTIVATION	Test loop-back data call has been successfully brought down	Temporary	Client can retry
1117	LOWER_LAYER_ REGISTRATION_ FAILURE	Data call is brought down when the lower layer registration fails	Temporary	Retry after a back-off time period

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1515	UNSUPPORTED_1X_	P_rev supported by 1 base	Permanent	Move to a BS that
	PREV	station is less than 6,		supports p_rev >= 6
		which is not supported for		
		a 1X data call; the UE		
		must be in the footprint of		
		BS which has p_rev >= 6		
		to support this SO33 call		
1500	CD_GEN_OR_BUSY	Traffic channel was	Temporary	Retry call origination
		rejected or released by	(5)	
		CM due to the reception		
		of a connection deny		
		message with a deny code		
		of general or network		
		busy		
1501	CD_BILL_OR_AUTH	Traffic channel was	Permanent	Check with the network
		rejected or released by		provider
		CM due to the reception		
		of a connection deny		
		message with a deny code	ls.	
		of billing failure or		
		authentication failure		
1502	CHG_HDR	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM due to a change to the		
		HDR system due to		
		redirection or the PRL		
		was not preferred		
1503	EXIT_HDR	Traffic channel was	Temporary	Retry call origination
		rejected or released by		
		CM because the device		
		exited HDR due to		
		redirection or the PRL		
		was not preferred		
1504	HDR_NO_SESSION	Traffic channel was	Temporary	Retry call origination
		rejected or released by		after the device opens an
		CM because the device		HDR session
		does not have an HDR		
		session		
1505	HDR_ORIG_	Traffic channel request	Temporary	Retry call origination
	DURING_GPS_FIX	was rejected by CM		
		because it is ending an		
		HDR call origination in		
		favor of a GPS fix		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
1506	HDR_CS_TIMEOUT	Traffic channel request was rejected by CM	Temporary	Retry call origination
		because the connection setup on the HDR system timed out		
1507	HDR_RELEASED_ BY_CM	Traffic channel was rejected or released by CM to release an HDR call so that a 1X call can	Temporary	Retry call origination after the 1X call is brought down
1508	COLLOC_ACQ_FAIL	continue Traffic channel was	Temporary	Retry call origination over
		rejected or released by CM when the device failed to acquire a co-located HDR for origination	Temporary	1X
1509	OTASP_COMMIT_ IN_PROG	Traffic channel was rejected or released by CM because an OTASP commit is in progress	Temporary	Retry call origination
1510	NO_HYBR_HDR_SRV	Traffic channel was rejected or released by CM because the device has no hybrid HDR service	Temporary	Retry call origination
1511	HDR_NO_LOCK_ GRANTED	Traffic channel was rejected or released by CM because the HDR module could not obtain the RF lock	Temporary	Retry call origination
1512	HOLD_OTHER_IN_ PROG	DBM or SMS is in progress	Temporary	Retry call origination
1513	HDR_FADE	Traffic channel was rejected or released by CM because the HDR module released the call due to fade	Temporary	Retry call origination
1514	HDR_ACC_FAIL	Traffic channel was rejected or released by CM due to an HDR system access failure	Temporary	Retry call origination
2000	CLIENT_END	Client ended the data call	NA	NA
2001 2002	NO_SRV FADE	Device has no service  Device lost the system	Temporary Temporary	Retry call origination Retry call origination
		due to fade		

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
2003	REL_NORMAL	Traffic channel was rejected or released by	Temporary	Retry call origination
		CM due to receiving a		
		release from the base		
		station with no reason		
2004	ACC_IN_PROG	Access attempt is already in progress	Temporary	Retry call origination
2005	ACC_FAIL	Access failure	Temporary	Retry call origination
2006	REDIR_OR_	Device is in the process of	Temporary	Retry call origination
	HANDOFF	redirecting or handing off		after the device settles
		to a different target system	2	down on the new system
2007	CM_UNKNOWN_ ERROR	Data call is brought down due to some unknown reason from lower layers	Temporary	Retry after a back-off period
2500	OFFLINE	Device went offline	Permanent	Retry call origination after the device goes online
2501	EMERGENCY_MODE	Device is operating in Emergency mode	Permanent	Retry call origination after the device comes out of Emergency mode
2502	PHONE_IN_USE	Device is in use (e.g., voice call)	Temporary	Retry call origination
2503	INVALID_MODE	Device operational mode is different from the mode requested in the traffic channel bring up	Permanent	Retry call origination after correcting the device mode preference
2504	INVALID_SIM_STATE	SIM was marked by the network as invalid for the circuit and/or packet service domain	Permanent	Check with the network provider; check the SIM validity
2505	NO_COLLOC_HDR	Data call was brought down due to a traffic channel rejection or release by CM because there is no co-located HDR	Temporary	Retry call origination
2506	CALL_CONTROL_	Call control module	Permanent	Check the UIM
	REJECTED	rejected the request		configuration

Table B-5 3GPP specification defined call end reasons (Type = 6)

Value	Name	Description	Failure type	Recovery mechanism
8	OPERATOR_	Posted by the MME to	Temporary	If PDN throttling is
	DETERMINED_	indicate that the operator	if	enabled, see [a]. If the
	BARRING	has barred the UE. In the	PDN	PDN is throttled, the
		LTE mode of operation,	throt-	client waits the
		this is a PDN throttling	tling	corresponding time period
		cause code, meaning the	ap-	before retrying the call. If
		UE may throttle further	plies;	the PDN is not throttled,
		requests to the same APN.	other-	the client may retry
			wise	immediately. If PDN
			per-	throttling does not apply,
			ma-	contact the network
			nent	provider.
14	NAS_SIGNALLING_	Posted by the NAS to	Temporary	Client may retry
	ERROR	indicate to higher layers		
		that the network has		
		triggered deactivation		
25	LLC_SNDCP_	Network cannot provide	Temporary	Client may retry
	FAILURE	the requested service and		
		PDP context is	27	
		deactivated because of		
		LLC or SNDCP failure		
26	INSUFFICIENT_	Network cannot provide	Temporary	Client may retry
	RESOURCES	the requested service due		
		to insufficient resources	_	
27	UNKNOWN_APN	APN was required and not	Permanent	See [a]. If the PDN is
		specified or the APN		throttled, the client waits
		could not be resolved; in		the corresponding time
		the LTE mode of		period before retrying the
		operation this is a PDN		call. If the PDN is not
		throttling cause code,		throttled, the client may
		meaning the UE may		retry immediately. If PDN
		throttle further requests to		throttling does not apply,
		the same APN		the client may retry with a
				different APN name or
				profile. On further failure
				with the same cause code,
				check with the network
20	LINIUNIOUNI DDD	DDM town a rough	Damasarit	provider.
28	UNKNOWN_PDP	PDN type was not	Permanent	Client may retry with a
		recognized		different IP type

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
29	AUTH_FAILED	Authentication failed; in	Permanent	See [a]. If the PDN is
		the LTE mode of		throttled, the client waits
		operation this is a PDN		the corresponding time
		throttling cause code,		period before retrying the
		meaning the UE may		call. If the PDN is not
		throttle further requests to		throttled, the client may
		the same APN		retry immediately. The
				client may retry with a
			0	different set of
				authentication
				parameters/algorithm.
30	GGSN_REJECT	Request was rejected by	Temporary	See [a]. If the PDN is
		the serving GW or PDN		throttled, the client waits
		GW; in the LTE mode of		the corresponding time
		operation this is a PDN		period before retrying the
		throttling cause code,		call. If the PDN is not
		meaning the UE may		throttled, the client may
		throttle further requests to		retry immediately.
		the same APN	le	
31	ACTIVATION_	Request is rejected by the	Temporary	See [a]. If the PDN is
	REJECT	network due to		throttled, the client waits
		unspecified reasons; in the		the corresponding time
		LTE mode of operation		period before retrying the
		this is a PDN throttling		call. If the PDN is not
		cause code, meaning the		throttled, the client may
		UE may throttle further		retry immediately.
		requests to the same APN		
32	OPTION_NOT_	UE requested a service	Temporary	See [a]. If the PDN is
	SUPPORTED	not supported by the		throttled, the client waits
		PLMN; in the LTE mode		the corresponding time
		of operation this is a PDN		period before retrying the
		throttling cause code,		call. If the PDN is not
		meaning the UE may		throttled, the client may
		throttle further requests to		retry immediately. The
		the same APN		client may also retry after
				a change in the PLMN.

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
33	OPTION_	UE requested a service	Temporary	See [a]. If the PDN is
	UNSUBSCRIBED	option for which it has no	if	throttled, the client waits
		subscription; in the LTE	PDN	the corresponding time
		mode of operation this is	throt-	period before retrying the
		a PDN throttling cause	tling	call. If the PDN is not
		code, meaning the UE	ap-	throttled, the client may
		may throttle further	plies;	retry immediately. If PDN
		requests to the same APN	per-	throttling does not apply,
		•	ma-	check the device
			nent	configuration or check
			other-	with the network provider.
			wise	•
34	OPTION_TEMP_OOO	Network is temporarily	Temporary	See [a]. If the PDN is
		out of resources to service	1 7	throttled, the client waits
		the request; in the LTE		the corresponding time
		mode of operation this is		period before retrying the
		a PDN throttling cause		call. If the PDN is not
		code, meaning the UE		throttled, the client may
		may throttle further	4	retry immediately.
		requests to the same APN		
35	NSAPI_ALREADY_	PTI used in the request is	Temporary	Client may retry
	USED	already active via another		
		UE-requested procedure		
36	REGULAR_	Regular release of bearer	Temporary	Client may retry
	DEACTIVATION	resources		
37	QOS_NOT_	QOS requested by the UE	Temporary	Client may retry with a
	ACCEPTED	could not be accepted		different QOS
38	NETWORK_FAILURE	Error occurred in the	Temporary	See [a]. If the PDN is
		network; in the LTE mode		throttled, the client waits
		of operation this is a PDN		the corresponding time
		throttling cause code,		period before retrying the
		meaning the UE may		call. If the PDN is not
		throttle further requests to		throttled, the client may
		the same APN		retry immediately.
39	UMTS_	Network request for	Temporary	Client must retry
	REACTIVATION_	bearer reactivation; may		
	REQ	be posted during network		
		congestion		
40	FEATURE_NOT_	Feature is not supported	Permanent	Client may retry after
	SUPPORTED	by the network		ensuring that the feature is
				supported by the network
41	TFT_SEMANTIC_	Semantic error(s) in the	Permanent	Client may retry with a
	ERROR	TFT operation included in		different TFT
		the request		
42	TFT_SYNTAX_	Syntactic error(s) in the	Permanent	Client may retry with a
	ERROR	TFT operation included in		different TFT
		the request		

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
43	UNKNOWN_PDP_ CONTEXT	Bearer identity (or linked bearer identity) in the request is invalid (or inactive)	Permanent	Client may retry
44	FILTER_SEMANTIC_ ERROR	Semantic error(s) in the packet filter(s) associated with a TFT	Permanent	Client may retry with a different TFT
45	FILTER_SYNTAX_ ERROR	Syntactic error(s) in the packet filter(s) associated with a TFT	Permanent	Client may retry with a different TFT
46	PDP_WITHOUT_ ACTIVE_TFT	UE requested more than one PDP connection without a TFT	Permanent	Client may retry with a TFT
49	LAST_PDN_ DISCONN_NOT_ ALLOWED	UE sent a PDN disconnect request; this can happen when the network and UE are out of synchronization	Temporary	Client may attempt a call again
50	IP_V4_ONLY_ ALLOWED	Network supports IPv4 PDP type only. IPv6 is not allowed. In the LTE mode of operation, this is a PDN throttling cause code, meaning the UE may throttle further requests to the same APN.	Permanent	See [a]. If the PDN is throttled, the client waits the corresponding time period before retrying the call. If the PDN is not throttled, the client may retry immediately. The PDP type during retry must be set to IPv4.
51	IP_V6_ONLY_ ALLOWED	Network supports IPv6 PDP type only, IPv4 is not allowed; in the LTE mode of operation this is a PDN throttling cause code, meaning the UE may throttle further requests to the same APN	Permanent	See [a]. If the PDN is throttled, the client waits the corresponding time period before retrying the call. If the PDN is not throttled, the client may retry immediately. The PDP type during retry must be set to IPv6.
52	SINGLE_ADDR_ BEARER_ONLY	Network supports single address bearers only; dual IP bearers are not supported	Permanent	Client may retry the request and specify a single IP bearer
53	ESM_INFO_NOT_ RECEIVED	PDN connection request was rejected because the ESM information was not received	Temporary	Client may retry

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
54	PDN_CONN_DOES_	Posted by the network	Temporary	Client may retry
	NOT_EXIST	during a handover from a		
		non-3GPP network to		
		indicate that the MME		
		does not have any		
		information regarding the		
		requested PDN		
		connection		
55	MULTI_CONN_TO_	UE is already connected	Permanent	NV item 67248 allows the
	SAME_PDN_NOT_	to the requested APN via		UE to be configured to
	ALLOWED	another PDN/PDN		send multiple PDN
		connection		connection requests to the
				same APN. Check the NV
				to ensure that it is
				synchronized with the
				network capabilities.
65	MAX_ACTIVE_PDP_	Maximum number of	Temporary	Retry after the client
	CONTEXT_	active PDP contexts per		brings down one of the
	REACHED	UE has been reached	lz	active PDNs
66	UNSUPPORTED_	APN is not supported in	Permanent	Client may retry after a
	APN_IN_CURRENT_	the current RAT and		change in either the
	PLMN	PLMN		PLMN or RAT
81	INVALID_	PTI used in the request is	Temporary	Client may retry
	TRANSACTION_ID	unassigned or reserved		
95	MESSAGE_	Receipt of an invalid	Permanent	See [a]. If the PDN is
	INCORRECT_	message; in the LTE		throttled, the client waits
	SEMANTIC	mode of operation this is		the corresponding time
		a PDN throttling cause		period before retrying the
		code, meaning the UE		call. If the PDN is not
		may throttle further		throttled, the client may
		requests to the same APN		retry immediately. If PDN
				throttling does not apply,
				the client may not retry.
				Check with Eureka for a
06	INIVAL ID	D :	T	resolution.
96	INVALID_	Receipt of a message with	Temporary	See [a]. If the PDN is
	MANDATORY_INFO	a semantic error in a	if	throttled, the client waits
		mandatory information	PDN	the corresponding time
		element; in the LTE mode	throt-	period before retrying the
		of operation this is a PDN	tling	call. If the PDN is not
		throttling cause code,	ap-	throttled, the client may
		meaning the UE may	plies;	retry immediately. If PDN
		throttle further requests to	per-	throttling does not apply,
		the same APN	ma-	the client may not retry.
			nent	Check with Eureka for
			other-	resolution.
			wise	

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
97	MESSAGE_TYPE_	Receipt of a message that	Temporary/	See [a]. If the PDN is
	UNSUPPORTED	was either undefined or	perm-	throttled, the client waits
		defined but not	anent	for the corresponding
		implemented by the		time period before
		equipment sending the		retrying the call. If the
		ESM cause; in the LTE		PDN is not throttled, the
		mode of operation this is		client may retry
		a PDN throttling cause		immediately. If PDN
		code, meaning the UE	(3)	throttling does not apply,
		may throttle further		the client may not retry.
		requests to the same APN		Check with the network
				provider.
98	MSG_TYPE_	Receipt of a message type	Temporary	See [a]. If the PDN is
	NONCOMPATIBLE_	that cannot be handled in		throttled, the client waits
	STATE	the current network		the corresponding time
		protocol state; in the LTE		period before retrying the
		mode of operation this is		call. If the PDN is not
		a PDN throttling cause		throttled, the client may
		code, meaning the UE	le	retry immediately.
		may throttle further		
		requests to the same APN		
99	UNKNOWN_INFO_	Receipt of a message that	Temporary/	See [a]. If the PDN is
	ELEMENT	included an information	perm-	throttled, the client waits
		element that was either	anent	the corresponding time
		not defined or defined but		period before retrying the
		not implemented by the		call. If the PDN is not
		equipment sending the		throttled, the client may
		ESM cause. In the LTE		retry immediately. If PDN
		mode of operation this is		throttling does not apply,
		a PDN throttling cause		client may retry after a
		code, meaning the UE		change in PLMN.
		may throttle further		
		requests to the same APN.		
100	CONDITIONAL_IE_	Receipt of a message that	Temporary/	See [a]. If the PDN is
	ERROR	included a syntactically	perm-	throttled, the client waits
		incorrect information	anent	the corresponding time
		element; this message is		period before retrying the
		ignored by the network.		call. If the PDN is not
		In the LTE mode of		throttled, the client may
		operation this is a PDN		retry immediately. If PDN
		throttling cause code,		throttling does not apply,
		meaning the UE may		the client may not retry.
		throttle further requests to		Check with Eureka for a
		the same APN.		resolution.

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
101	MSG_AND_ PROTOCOL_STATE_ INCOMPATIBLE	Receipt of a message that cannot be handled in the current network protocol state. In the LTE mode of operation, this is a PDN throttling cause code, meaning the UE may throttle further requests to	Temporary	See [a]. If the PDN is throttled, the client waits the corresponding time period before retrying the call. If the PDN is not throttled, the client may retry immediately.
111	PROTOCOL_ERROR	the same APN.  Protocol error when no other error applies. In the LTE mode of operation, this is a PDN throttling cause code, meaning the UE may throttle further requests to the same APN.	Temporary if PDN throt- tling ap- plies; per- ma- nent other- wise	See [a]. If the PDN is throttled, the client waits the corresponding time period before retrying the call. If the PDN is not throttled, the client may retry immediately. If PDN throttling does not apply, the client may not retry. Check with the network provider.
112	APN_TYPE_ CONFLICT	EPS bearer has an APN restriction value that cannot be used in conjunction with existing EPS bearers. In the LTE mode of operation this is a PDN throttling cause code, meaning the UE may throttle further requests to the same APN.	Temporary if PDN throt- tling ap- plies; per- ma- nent other- wise	See [a]. If the PDN is throttled, the client waits the corresponding time period before retrying the call. If the PDN is not throttled, the client may retry immediately. If PDN throttling does not apply, the client may not retry. Check the device configuration.
113	INVALID_PCSCF_ ADDRESS	Posted by the UE when it tears down a PDN for not receiving a mandatory P-CSCF address	Permanent	Client may retry with a different profile

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
114	INTERNAL_CALL_	Data call was brought	Permanent	Client may retry after the
	PREEMPT_BY_	down due to insufficient		higher priority data call is
	HIGH_PRIO_APN	resources to bring up		brought down
		another prioritized data		
		call. This reason is posted		
		in the LTD mode of		
		operation while bringing		
		down an ongoing PDN		
		connection when the	(5)	
		device runs out of bearer		
		resources to bring up a		
		prioritized PDN		
		connection.		
115	EMM_ACCESS_	RRC failure of NAS	Temporary	Client may retry after
	BARRED	signaling, which results in		RRC has been established
		the rejection of a		
		connection establishment		
		by the network		
116	EMERGENCY_IFACE	Indicates that IFACE can	Temporary	UE can retry
	_ONLY	only support Emergency		
	4	IFACE		
117	IFACE_MISMATCH	Indicates an IFACE	Temporary	UE can retry using a
		mismatch between the		correct IFACE
		requested and received		
		IFACE		
118	COMPANION_IFACE	Indicates that a	Temporary	UE can use another
	_IN_USE	companion IFACE is in		profile that matches the IP
		use		type
119	IP_ADDRESS_	Indicates an IP address	Temporary	UE can try again
	MISMATCH	mismatch between the		
		profile and PDN context		
120	IFACE_AND_POL_	Indicates that the IFACE	Temporary	UE can retry with another
	FAMILY_	and policy IP types do not		profile
	MISMATCH	match		
121	EMM_ACCESS_	Indicates an RRC failure	Temporary	Client may retry after
	BARRED_INFINITE_	of NAS signaling that		RRC has been established
	RETRY	results in network		
		rejection of connection		
		establishment with an		
		access barring timer value		
		set to 20 ms		

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
122	AUTH_FAILURE_	Returned when active data	Temporary	UE can retry after the
	ON_EMERGENCY_	calls are brought down		emergency call has ended
	CALL	due to authentication		
		failure on an emergency		
		call. Data calls can be		
		brought up after the		
		emergency call has ended.		

[a] DSS clients can obtain information about PDN throttling by invoking a DS SYS IOCTL, DS_SYS_IOCTL_PDN_THROTTLE_INFO. QMI clients can use QMI_WDS_GET_PDN_THROTTLE_INFO.

Table B-6 PPP call end reasons (Type = 7)

Value	Name	Description	Failure type	Recovery mechanism
1	TIMEOUT	Data call bring up fails in	Temporary	Retry call origination
		the PPP setup due to a		
		timeout (e.g., an LCP		
		conf ack was not received	,cl	
		from the network)		
2	AUTH_FAILURE	Data call bring up fails in	Permanent	Retry call origination
		the PPP setup due to an		after correctly
		option mismatch (e.g.,		provisioning the device
		authorization is required,		with authentication
		but not negotiated with		credentials
		the network during an		
		LCP phase)		
3	OPTION_MISMATCH	Data call bring up fails in	Permanent	Retry call origination
		the PPP setup due to an		after comparing the PPP
		option mismatch (e.g.,		configurations in the
		authorization is required,		device and network
		but not negotiated with		
		the network during an		
		LCP phase)		
31	PAP_FAILURE	Data call bring up fails in	Permanent	Retry call origination
		the PPP setup due to a		after correctly
		PAP failure		provisioning the device
				with PAP credentials
32	CHAP_FAILURE	Data call bring up fails in	Permanent	Retry call origination
		the PPP setup due to a		after correctly
		CHAP failure		provisioning the device
				with CHAP credentials
33	CLOSE_IN_	Data call bring up fails in	Temporary	Retry call origination
	PROGRESS	the PPP setup because the		
		PPP is in the process of		
		cleaning the previous PPP		
		session		

#### Table B-6 PPP call end reasons (Type = 7) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
34	NV_REFRESH_IN_	Returned when the data	Temporary	Retry call origination
	PROGRESS	call bring up fails in the		
		bring up phase while an		
		NV refresh is in progress		

#### Table B-7 3GPP specification defined call end reasons (Type = 8)

Value	Name	Description	Failure type	Recovery mechanism
1	SUBS_LIMITED_TO_ V4	IPv6 interface bring up fails because the network provided only the IPv4 address for the upcoming	Permanent	Client can reattempt a IPv6 call bring up after the IPv4 interface is also brought down; however,
		PDN		there is no guarantee that the network will provide a IPv6 address
2	SUBS_LIMITED_TO_ V6	IPv4 interface bring up fails because the network provided only the IPv6 address for the upcoming PDN	Permanent	Client can reattempt a IPv4 call bring up after the IPv6 interface is also brought down; however there is no guarantee that the network will provide a IPv4 address
4	VSNCP_TIMEOUT	Data call bring up fails in the VSNCP phase due to a VSNCP timeout error	Temporary	Retry call origination
6	VSNCP_3GPP2I_ GEN_ERROR	Data call bring up fails in the VSNCP phase due to a general error	Permanent	Check with the network provider
7	VSNCP_3GPP2I_ UNAUTH_APN	Data call bring up fails in the VSNCP phase due to a network rejection of the VSNCP configuration request because the requested APN is unauthorized	Permanent	Check with the network provider for an authorized list of APNs
8	VSNCP_3GPP2I_ PDN_LIMIT_EXCEED	Data call bring up fails in the VSNCP phase due to a network rejection of the VSNCP configuration request because the PDN limit has been exceeded	Permanent	Check the network for any stale PDN connections maintained for the device, or check the maximum number of PDN connections allowed by the device/network, or power cycle the device

Table B-7 3GPP specification defined call end reasons (Type = 8) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
9	VSNCP_3GPP2I_	Data call bring up fails in	Permanent	Check with the network
	NO_PDN_GW	the VSNCP phase		provider
		because the network		
		rejected the VSNCP		
		configuration request due		
		to no PDN gateway		
10	VSNCP_3GPP2I_	Data call bring up fails in	Permanent	Check with the network
	PDN_GW_UNREACH	the VSNCP phase due to		provider
		a network rejection of the	0	
		VSNCP configuration		
		request because the PDN		
		gateway is unreachable		
11	VSNCP_3GPP2I_	Data call bring up fails in	Permanent	Check with the network
	PDN_GW_REJ	the VSNCP phase due to		provider
		a network rejection of the		
		VSNCP configuration		
		request due to a PDN		
		gateway reject		
12	VSNCP_3GPP2I_	Data call bring up fails in	Permanent	Retry call origination
	INSUFF_PARAM	the VSNCP phase due to		after correctly
		a network rejection of the		provisioning the device
		VSNCP configuration		with the VSNCP
		request with the reason of		information
		insufficient parameter		
13	VSNCP_3GPP2I_	Data call bring up fails in	Permanent	Check with the network
	RESOURCE_	the VSNCP phase due to		provider
	UNAVAIL	network rejection of the		
		VSNCP configuration		
		request with the reason of		
	TIGNIGE AGENTAL	resource unavailable		
14	VSNCP_3GPP2I_	Data call bring up fails in	Permanent	Check with the network
	ADMIN_PROHIBIT	the SNCP phase due to		provider
		network rejection of the		
		VSNCP configuration		
		request with the reason of		
1.5	MONOD 2CDD21	admin prohibited	T	D ( 11 ) ( )
15	VSNCP_3GPP2I_	Data call bring up fails in	Temporary	Retry call origination
	PDN_ID_IN_USE	the VSNCP phase due to		after the entire PPP
		network rejection due to		session is brought down
		PDN ID in use, or all		in the device
		existing PDNs are brought down with this end reason		
		because one of the PDN		
		bring ups was rejected by the network with the		
		reason of PDN ID in use		
		reason of 1 DN 1D in use		

Table B-7 3GPP specification defined call end reasons (Type = 8) (cont.)

Value	Name	Description	Failure type	Recovery mechanism
16	VSNCP_3GPP2I_ SUBSCR_ LIMITATION	Data call bring up fails in the VSNCP phase due to network rejection of the VSNCP configuration request for the reason of subscriber limitation	Permanent	Check with the network provider
17	VSNCP_3GPP2I_ PDN_EXISTS_FOR_ THIS_APN	Data call bring up fails in the VSNCP phase due to network rejection of the VSNCP configuration request because the PDN exists for this APN	Permanent	Check with the network provider. The device does not have the PDN context for the APN but the network is still maintaining the PDN context.
19	VSNCP_3GPP2I_ RECONNECT_NOT_ ALLOWED	Data call bring up fails in the VSNCP phase due to network rejection of the VSNCP configuration request with reconnect to this PDN not allowed, or an active data call is terminated by the network because reconnection to this PDN is not allowed. Upon receiving this error code from the network, the modem infinitely throttles the PDN until the next power cycle.	Permanent	Power cycle

#### Table B-8 IPv6 call end reasons (Type = 9)

Value	Name	Description	Failure type	Recovery mechanism
1	IPV6_ERR_PREFIX_	IPv6 data call was	Temporary	Retry call origination
	UNAVAILABLE	brought down due to		after the IPv6 throttling
		device failure to obtain		timer expires. The
		the prefix from the		throttling timer is
		network		maintained in the profile.
2	IPV6_ERR_HRPD_	IPv6 data call bring up	Permanent	Retry IPv6 call
	IPV6_DISABLED	was rejected because IPv6		origination after enabling
		is disabled in 1X/HRPD		IPv6 on HRPD
		mode		configuration (NV item
				65677)
3	IPV6_DISABLED	IPv6 data call bring up	Permanent	Retry call origination
		has been rejected because		after enabling NV1896
		NV1896 (IPV6 enable) is		
		disabled		

## C DS Profile Extended Error Codes

Table C-1 lists the error code names, values, and descriptions of possible errors resulting from attempts to create, modify, or delete 3GPP/3GPP2 profiles.

Table C-1 DS profile extended error codes

Value	Name	Description
1	DS_PROFILE_REG_RESULT_FAIL	General failure
2	DS_PROFILE_REG_RESULT_ERR_INVAL_	Request contains an invalid profile
	HNDL	handle
3	DS_PROFILE_REG_RESULT_ERR_INVAL_	Invalid operation was requested
	OP	
4	DS_PROFILE_REG_RESULT_ERR_INVAL_	Request contains an invalid technology
	PROFILE_TYPE	type
5	DS_PROFILE_REG_RESULT_ERR_INVAL_	Request contains an invalid profile
	PROFILE_NUM	number
6	DS_PROFILE_REG_RESULT_ERR_INVAL_	Request contains an invalid profile
	IDENT	identifier
7	DS_PROFILE_REG_RESULT_ERR_INVAL	Request contains an invalid argument
	70 11	other than profile number and profile
	3, ou,	identifier received
8	DS_PROFILE_REG_RESULT_ERR_LIB_NOT_	Profile registry has not been initialized
	INITED	yet
9	DS_PROFILE_REG_RESULT_ERR_LEN_	Request contains a parameter with
	INVALID	invalid length
10	DS_PROFILE_REG_RESULT_LIST_END	End of the profile list was reached while
		searching for the requested profile
11	DS_PROFILE_REG_RESULT_ERR_INVAL_	Request contains an invalid subscription
	SUBS_ID	identifier
12	DS_PROFILE_REG_INVAL_PROFILE_	Request contains an invalid profile
400=	FAMILY	family
4097	DS_PROFILE_REG_3GPP_INVAL_	Request contains an invalid 3GPP profile
4000	PROFILE_FAMILY	family
4098	DS_PROFILE_REG_3GPP_ACCESS_ERR	Error was encountered while accessing
4000		the 3GPP profiles
4099	DS_PROFILE_REG_3GPP_CONTEXT_NOT_	Specified 3GPP profile does not have a
4100	DEFINED	valid context
4100	DS_PROFILE_REG_3GPP_VALID_FLAG_	Specified 3GPP profile is marked invalid.
4101	NOT_SET	g is lagpe si i
4101	DS_PROFILE_REG_3GPP_READ_ONLY_	Specified 3GPP profile is marked
	FLAG_SET	read-only

Table C-1 DS profile extended error codes (cont.)

Value	Name	Description
4102	DS_PROFILE_REG_3GPP_ERR_OUT_OF_	Creation of a new 3GPP profile failed
	PROFILES	because the limit of 16 profiles has
		already been reached
4353	DS_PROFILE_REG_3GPP2_ERR_INVALID_	Invalid profile identifier was received as
	IDENT_FOR_PROFILE	part of the 3GPP2 profile modification
		request
4354	DS_PROFILE_REG_3GPP2_ERR_OUT_OF_	Creation of a new 3GPP2 profile failed
	PROFILES	because the limit has already been
		reached



# D IPSec Cryptographic Algorithms

Table D-1 lists the enumeration of IPSec cryptographic algorithms.

#### Table D-1 IPSec cryptographic algorithms

Value	Name	Description
0x00	WDS_IPSEC_CRYPTO_ALGO_NULL_KEY_X	No key exchange protocol used
0x01	WDS_IPSEC_CRYPTO_ALGO_MODEXP	Generic modulo exponentiation
0x02	WDS_IPSEC_CRYPTO_ALGO_DIFFIE_	Diffie-Hellman key exchange protocol
	HELLMAN	
0x03	WDS_IPSEC_CRYPTO_ALGO_RSA	RSA encryption/key exchange protocol
0x04	WDS_IPSEC_CRYPTO_ALGO_NULL_HASH	No simultaneous hash with
		encryption/decryption
0x05	WDS_IPSEC_CRYPTO_ALGO_SHA	SHA-1 hash function
0x06	WDS_IPSEC_CRYPTO_ALGO_SHA256	SHA-256 hash function
0x07	WDS_IPSEC_CRYPTO_ALGO_MD5	MD5 hash function
0x08	WDS_IPSEC_CRYPTO_ALGO_NULL_	No encryption selected
	CIPHER	
0x09	WDS_IPSEC_CRYPTO_ALGO_DES	DES encryption/decryption function
0x0A	WDS_IPSEC_CRYPTO_ALGO_3DES	3DES encryption/decryption function
0x0B	WDS_IPSEC_CRYPTO_ALGO_ARC4	ARC4 encryption/decryption function
0x0C	WDS_IPSEC_CRYPTO_ALGO_AES128	AES cipher; 128-bit key
0x0D	WDS_IPSEC_CRYPTO_ALGO_C2	C2 cipher
0x0E	WDS_IPSEC_CRYPTO_ALGO_AES128_	128-bit AES in CMAC mode
	CMAC	
0x0F	WDS_IPSEC_CRYPTO_ALGO_SNOW3G_	UEA2 SNOW 3G encryption algorithm
	UEA2	
0x10	WDS_IPSEC_CRYPTO_ALGO_SNOW3G_	UIA2 SNOW 3G integrity algorithm
	UIA2	
0x11	WDS_IPSEC_CRYPTO_ALGO_ZUC_	UEA3 ZUC encryption algorithm
	CIPHER	
0x12	WDS_IPSEC_CRYPTO_ALGO_ZUC_	UIA3 ZUC integrity algorithm
	INTEGRITY	
0x13	WDS_IPSEC_CRYPTO_ALGO_AES256	AES cipher; 256-bit key

# E Deprecated QMI_WDS Messages

Table E-1 lists the deprecated QMI_WDS messages and their replacements.

Table E-1 Deprecated QMI_WDS messages

Message	Replacement
QMI_WDS_GET_DATA_BEARER_	QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_EX
TECHNOLOGY	– Queries the data bearer technology.
QMI_WDS_GET_DUN_CALL_INFO	None.
QMI_WDS_CALL_HISTORY_LIST	None.
QMI_WDS_CALL_HISTORY_READ	None.
QMI_WDS_CALL_HISTORY_DELETE	None.
QMI_WDS_CALL_HISTORY_MAX_	None.
SIZE	1,2,4
QMI_WDS_FMC_SET_	None.
TUNNEL_PARAMS	0.04
QMI_WDS_FMC_CLEAR_	None.
TUNNEL_PARAMS	>, © 2,
QMI_WDS_FMC_GET_	None.
TUNNEL_PARAMS	
QMI_WDS_GET_DNS_SETTINGS	None.
QMI_WDS_SET_DNS_SETTINGS	None.
QMI_WDS_GET_PREFERRED_DATA_	QMI_DSD_GET_SYSTEM_STATUS – Queries the
SYSTEM	current system status.
QMI_WDS_SET_ADDITIONAL_PDN_	None.
FILTER	
QMI_WDS_REMOVE_ADDITIONAL_	None.
PDN_FILTER	
QMI_WDS_REVERSE_IP_	QMI_DFS_REVERSE_IP_TRANSPORT_FILTERS_
TRANSPORT_FILTER_SETUP_IND	UPDATED_IND – Informs the TE about changes in the
	reverse IP transport connection filters.

## F References

### **F.1** Related Documents

Title	Number
Qualcomm Technologies	
QMI Client API Interface Specification	80-N1123-1
QMI Common Service Interface API Interface Specification	80-N1123-2
Standards	
3rd Generation Partnership Project; Technical Specification Group	3GPP TS 27.007
Terminals; AT command set for User Equipment (UE) (Release 1999)	
Data Service Options for Spread Spectrum Systems: AT Command	3GPP2 C.S0017-003-A
Processing and the Rm Interface	
Data Transmission Systems and Equipment - Extensions to Serial	TIA/EIA/IS-131
Asynchronous Dialing and Control	
RFC 2002 IP Mobility Support	RFC 2002
3rd Generation Partnership Project; Technical Specification Group Core	3GPP TS 24.008
Network; Mobile Radio Interface Layer 3 Specification; Core Network	
Protocols; Stage 3 (Release 1999)	
RFC 5996 Internet Key Exchange Protocol Version 2 (IKEv2)	RFC 5996
RFC 2401 Security Architecture for the Internet Protocol	RFC 2401
RFC 4303 IP Encapsulating Security Payload (ESP)	RFC 4303
RFC 3220 IP Mobility Support for IPv4	RFC 3220

(3)

### F.2 Acronyms and Terms

Acronym or term	Definition
AAA	address assignment acknowledgment
AAM	agent advertisement message
ACC	asynchronous communication channel
ACL	access control list
AES	Advanced Encryption Standard
AP	application processor
APN	access point name
BS	base station
CAM	channel assignment message
CBC	cipher block chaining
CCO	cell change order
СНАР	Challenge Handshake Authentication Protocol
CN	core network

Acronym or term	Definition
CS	content server
CTR	counter
DCTM	data call throttling manager
DBM	data burst messaging
DHCP	Dynamic Host Configuration Protocol
DL	download
DNS	domain name server
DO	data optmizer
DOS	data over signaling
DPA	default packet application
DRB	Data Radio Bearer
DS	download server
DTC	dedicated traffic channel
DUN	dial-up networking
EARFCN	E-UTRA Absolute Radio Frequency Channel Number
eHRPD	Evolved High Rate Packet Data
eMBMS	evolved multimedia broadcast/multicast services
EMC	electromagnetic compatibility
EMM	EPS Mobility Management
EMPA	enhanced multiflow packet application
EPC	Evolved Packet Core
ePDG	evolved packet data gateway
EPS	evolved packet system
ESM	Event Signaling Message
ESP	encapsulating security payload
FA	foreign agent
FDD	frequency division duplex
FEC	forward error correction
FMC	Fixed Mobile Convergence
GGSN	gateway GPRS support node
GMM	GPRS mobility management
GPRS	general packet radio services
GW	gateway
HA	home agent
HDR	high data rate
HPT	high priority traffic
HSIC	high-speed inter-chip interface
HSS	home subscriber server
HSUSB	high-speed universal serial bus
IM	instant messenger
IMEI	international mobile equipment identification
IMSI	International Mobile Station/Subscriber Identity
IPCP	Internet Protocol Control Protocol
IPSec	Internet Protocol security
IRAT	Inter Radio Access Technology
LBS	location-based services
LCP	link control protocol

Acronym or term	Definition
LLC	logical link control
LTE	long term evolution
MAC	message authentication code
MBMS	multimedia broadcast/multicast services
MC	multicell
MCC	mobile country code
ME	mobile equipment
MNC	mobile network code
MFPA	multiflow packet application
MIP	Mobile Interface Protocol
MMPA	multilink multiflow packet application
MN	mobile network
MO	Mobile originating call (originating a call)
MS	mobile station
MSC	mobile switching center
MT	Mobile terminating call (receiving a call)
MTU	maximum transmission unit
NAI	network access identifier
NAS	Network Access Service
NAT	network address translation
NBNS	NetBIOS name server
NV	nonvolatile
OOS	out of service
OTA	over the air
OTASP	over the air service provisioning
PAP	Password Authentication Protocol
PCIE	peripheral component interconnect express
PCO	protocol configuration option
P-CSCF	proxy call session control function
PDP	Packet Data Protocol
PDN	packet data network
PDSN	packet data serving node
PDP	Packet Data Protocol
PLMN	public land mobile network
PPP	Point-to-Point Protocol
PR	Parameter Retrieval
PRL	preferred roaming list
PTI	procedure transaction ID
QMI	Qualcomm Messaging Interface
QOS	quality of service
RAB	radio access bearer
RAT	radio access technology
RD	reduced dormancy
RF	radio frequency
RLF	radio link failure
RLP	Radio Link Protocol
RRC	radio resource control
MC	radio resource control

Acronym or term	Definition
RRP	registration reply
RUIM	removable user identity module
Rx	receive
SA	security association
SAI	service area identity
SCI	slot cycle index
SCRM	supplemental channel request message
SDU	service data unit
SGSN	Serving GPRS Service Node
SI	service interval
SIB	system information block
SIM	subscriber identity module
SIP	session initiation protocol
SMS	short message service
SNDCP	Subnetwork-Dependent Convergence Protocol
SO	service option
SPC	service programming code
SPI	security parameter index
TDD	time division duplex
TDSCDMA	test data service code division multiple access
TE	terminal equipment
TFT	traffic flow template
TLV	type-length-value
TMGI	temporary mobile group identity
TOI	transport object identifier
TSI	transport session identifier
Tx	transmit
UD	unsolicited data
UE	user equipment
UIM	user identity module
UL	upload
UMTS	universal mobile telecommunications system
WDA	Wireless Data Administrative
WDS	Wireless Data Service
WWAN	wireless wide area network