



QMI Wireless Data Service (QMI_WDS)

Major Version 1, Minor Version 18

Specification

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Revision History

Revision	Date	Description
A	Apr 2006	Initial release.
B	Dec 2007	Added message to get runtime settings in Section 3.17; corrected error in TLV types in Sections 3.14.2 and 3.15.2; updated description in Section 3.10.3
C	May 2008	Added the following: <ul style="list-style-type: none"> • Authenticating state for the device • Indication of dormancy status change via event reporting • New messages for querying dormancy status and to command the device to go dormant • New messages for querying and modifying Mobile IP settings of the device • Call-end reason support • New TLVs in QMI_WDS_CREATE_PROFILE and QMI_WDS_GET_RUNTIME_SETTINGS to support P-CSCF address using PCO Flag • Corrected error codes in QMI_WDS_START_NETWORK_INTERFACE • Corrected channel rate TLVs in QMI_WDS_EVENT_REPORT_IND to indicate that it reports max channel rates instead of instantaneous channel rates • QMI_WDS_GET_CURRENT_CHANNEL_RATE returns 0xFFFFFFFF when current channel rates are not available from the device while in a call
D	Aug 2008	Added the following: <ul style="list-style-type: none"> • New messages for querying the call duration and current data-bearer technology • New TLV in QMI_WDS_SET_EVENT_REPORT and QMI_WDS_EVENT_REPORT_IND to report change in current data-bearer technology change; deprecated the old data-bearer tech TLV • WDS message ID replaced NAS message ID in Sections 3.19 and 3.20
E	Aug 2008	Revised Appendix A table numbering; added more call end reasons to Table A-1 and Table A-3
F	Oct 2008	Corrected descriptions in tables in: <ul style="list-style-type: none"> • Section 3.5.1 - Technology preference TLV 0x30 • Section 3.12.1 - Authentication preference TLV 0x1D • Section 3.18.2 - Applicable technologies for username and authentication protocol TLVs
G	Feb 2010	Updates for this revision include minor version 8. Updated: <ul style="list-style-type: none"> • Corrected type of current data bearer technology indicator in QMI_WDS_SET_EVENT_REPORT_REQ message from 0x14 to 0x15 • Added new TLVs in QMI_WDS_START_NETWORK_INTERFACE, QMI_WDS_PKT_SRVC_STATUS_IND, QMI_WDS_GET_RUNTIME_SETTINGS, and QMI_WDS_GET_CALL_DURATION • Added QMI_WDS_GO_ACTIVE and Appendix A.2
H	Feb 2010	Correction to a Rev G update for QMI_WDS_GET_RUNTIME_SETTINGS message in Section 3.19.1

Revision	Date	Description
J	Jun 2010	Updates for this version include QMI_WDS minor version 9; new message to allow clients to set IP preference; added new TLV in QMI_WDS_PKT_SRVC_STATUS_IND
K	Jun 2010	Updated Table 3-1 and Section 3.13 to Section 3.18
L	Aug 2010	Updated to conform to Qualcomm standards, updated Section 3.19.2
M	Oct 2010	<p>Updates for this version include minor version 10.</p> <ul style="list-style-type: none"> Added new TLVs in QMI_WDS_EVENT_REPORT_IND and QMI_WDS_GET_PKT_STATISTICS to return the Tx and Rx byte counts Added new values to Current Data Bearer Technology TLV in QMI_WDS_EVENT_REPORT_IND and QMI_WDS_GET_CURRENT_DATA_BEARE_TECHNOLOGY messages Added new PPP call end reasons to section A.2 (Table A-10)
N	Mar 2011	<p>Updates for this version include QMI_WDS minor version 12. Updated existing and added new profile-related messages.</p> <ul style="list-style-type: none"> Added support for P-CSCF IPv6 server address list in QMI_WDS_GET_RUNTIME_SETTINGS message. Added autoconnect, DUN call info, MIP profile/settings, call history, and manual DNS messages
P	Oct 2011	<p>Updates for this version include QMI_WDS minor version 13 and minor version 14. Added and updated TLVs in:</p> <ul style="list-style-type: none"> QMI_WDS_CREATE_PROFILE_REQ QMI_WDS_MODIFY_PROFILE_SETTINGS_REQ QMI_WDS_GET_PROFILE_SETTINGS_RESP QMI_WDS_GET_DEFAULT_SETTINGS_RESP QMI_WDS_SET_EVENT_REPORT_REQ QMI_WDS_EVENT_REPORT_IND <p>Added new messages:</p> <ul style="list-style-type: none"> QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS QMI_WDS_SET_CAM_TIMER QMI_WDS_GET_CAM_TIMER QMI_WDS_SET_SCRM QMI_WDS_GET_SCRM QMI_WDS_SET_RDUD QMI_WDS_GET_RDUD QMI_WDS_GET_CALL_THROTTLE_INFO QMI_WDS_GET_NSAPI QMI_WDS_GET_SIP_MIP_CALL_TYPE QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD QMI_WDS_SET_DUN_CTRL_PREF QMI_WDS_GET_DUN_CTRL_INFO QMI_WDS_SET_DUN_CTRL_EVENT_REPORT QMI_WDS_DUN_CTRL_EVENT_REPORT_IND QMI_WDS_CONTROL_PENDING_DUN_CALL <p>Added verbose call-end reason codes to session B (Table B-4, B-6)</p>

Revision	Date	Description
R	Nov 2011	Updates for this version include QMI_WDS minor version 15, updates to the format of some enumeration values.
T	Nov 2011	Updates for this version include QMI_WDS minor version 16, added TLVs to: <ul style="list-style-type: none">• QMI_WDS_SET_EVENT_REPORT• QMI_WDS_EVENT_REPORT_IND Added new messages: <ul style="list-style-type: none">• QMI_WDS_GET_PREFERRED_DATA_SYSTEM• QMI_WDS_GET_LAST_DATA_CALL_STATUS
U	Dec 2011	Updates for this version include QMI_WDS minor versions 17 and minor version 18. Added new TLVs: <ul style="list-style-type: none">• Technology name TLV in PKT_SRVC_STATUS_IND• Data system status TLV in SET_EVENT_REPORT and EVENT_REPORT_IND Added new messages: <ul style="list-style-type: none">• QMI_WDS_INDICATION_REGISTER• eMBMS messages (3.63-3.66)• QMI_WDS_GET_CURRENT_DATA_SYSTEM_STATUS• QMI_WDS_GET_PDN_THROTTLE_INFO

Note: There is no Rev. I, O, Q, S, X, or Z per Mil. standards.

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, e.g., connection managers and/or device drivers on the Terminal Equipment (TE), use QMI_WDS to access this functionality on the MSM[®] device.

QMI_WDS is a QMI native service that conforms to the generalized behavior defined for QMI services, as defined in [\[Q2\]](#).

1.2 Scope

This document is intended for software developers who are developing code to interact with the Qualcomm MSM device from a Host processor for IP connectivity-related operations. This document provides the following details about the QMI_WDS:

- Theory of operation – Chapter 2 provides the theory of operation of QMI_WDS. This 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.

1.3 Conventions

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

An asterisk (*) in a TLV indicates that it is applicable only for 3GPP2.

A double asterisk (**) in a TLV indicates that it is applicable only for 3GPP.

Parameter types are indicated by arrows:

- Designates an input parameter
- ← Designates an output parameter
- ↔ Designates a parameter used for both input and output

1.4 References

Table 1-2 lists reference documents, which may include Qualcomm documents and non-Qualcomm standards and resources. Reference documents that are no longer applicable are deleted from this table; therefore, reference numbers might not be sequential.

Table 1-2 Reference documents and standards

Ref.	Document	
Qualcomm		
Q1	Application Note: Software Glossary for Customers	CL93-V3077-1
Q2	QUALCOMM® MSM™ Interface (QMI) Architecture	80-VB816-1
Q3	PDP Profiles: Definition and Access	80-V7786-1
Standards		
S1	3rd Generation Partnership Project; Technical Specification Group Terminals; AT command set for User Equipment (UE) (Release 1999)	3GPP TS 27.007
S2	Data Service Options for Spread Spectrum Systems: AT Command Processing and the Rm Interface	3GPP2 C.S0017-003-A
S3	Data Transmission Systems and Equipment - Extensions to Serial Asynchronous Dialing and Control	TIA/EIA/IS-131
S4	RFC 2002 IP Mobility Support	RFC2002

1.5 Technical Assistance

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

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

1.6 Acronyms

For definitions of terms and abbreviations, see [Q1]. Table 1-3 lists terms that are specific to this document.

Table 1-3 Acronyms

Acronym	Definition
AAA	address assignment acknowledgment
APN	access point name
BS	base station
CAM	channel assignment message
CHAP	Challenge Handshake Authentication Protocol
CN	core network
DHCP	Dynamic Host Configuration Protocol
DL	download
DNS	domain name server
DO	data optimizer
DS	download server
DUN	dial-up networking
eMBMS	evolved multimedia broadcast/multicast services
GGSN	gateway GPRS support node
GPRS	general packet radio services
HA	home agent
IM	instant messenger
IPCP	Internet Protocol Control Protocol
IPSEC	Internet Protocol security
LBS	location-based services
LCP	link control protocol
LTE	long term evolution
MIP	Mobile Interface Protocol
MN	mobile network
MTU	maximum transmission unit
NAI	network access identifier
NAS	Network Access Service
NBNS	NetBIOS name server
PAP	Password Authentication Protocol
PCO	protocol configuration option
P-CSCF	proxy call session control function
PDN	packed data network
PDSN	packet data serving node
PDP	Packet Data Protocol
PPP	Point-to-Point Protocol
QMI	Qualcomm Messaging Interface
QOS	quality of service
RAT	radio access technology
RD	reduced dormancy
Rx	receive
SCI	slot cycle index
SCRM	supplemental channel request message

Table 1-3 Acronyms (cont.)

Acronym	Definition
SDU	service data unit
SIP	session initiation protocol
SPC	service programming code
SPI	security parameter index
TE	terminal equipment
TFT	traffic flow template
TLV	type-length-value
TMGI	temporary mobile group identity
Tx	transmit
UD	unsolicited data
UE	user equipment
UL	upload
UMTS	universal mobile telecommunications system
WWAN	wireless wide area network

2 Theory of Operation

2.1 Generalized QMI Service Compliance

The QMI_WDS service complies with the generalized QMI service specification, including the rules for messages, indications and responses, byte ordering, arbitration, constants, result, and error code values described in [Q2]. 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 last modified
Result Code	Corresponding messages Version Introduced

Field	Field value	Parameter	Size (byte)	Description
Type	0x02		1	Result Code
Length	4		2	
Value	→	qmi_result	2	Result code <ul style="list-style-type: none">• QMI_RESULT_SUCCESS• QMI_RESULT_FAILURE
		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. The meanings of these parameters are further explained in [Q3]. To date, only primary PDP profiles are supported.

2.5 Service State Variables

2.5.1 Shared State Variables

Name	Description	Possible values	Default values	Arbitration
packet_data_connection_state	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Connected Not connected Authenticating Suspended 	Not connected when the device is initialized unless autoconnect is enabled and proper state conditions are met	<ul style="list-style-type: none"> 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 values	Default values
report_channel_rate	Whether change in data channel Rx or Tx rate is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE
pkt_stats_report_period	Period in seconds between transfer statistic reports	<ul style="list-style-type: none"> 0 – Do not report 1 to 255 (sec) 	0
pkt_stats_report_mask	Which packet statistics to be reported (bit mask)	0x00 to 0x3F	0x00
report_data_bearer_tech	Whether change in data-bearer technology is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE
report_dormancy_status	Whether change in traffic-channel state is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE
report_mip_status	Whether change in MIP status is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE
report_current_data_bearer_tech	Whether change in current data-bearer technology is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE
report_evdo_page_monitor_period_change	Whether EV-DO page monitor period change event is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE
report_data_call_status	Whether change in data call status is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE)
report_preferred_data_system	Whether change in preferred data system is reported to control point	<ul style="list-style-type: none"> FALSE TRUE 	FALSE)

Name	Description	Possible values	Default values
report_data_system_status	Whether change in data system status is reported to control point	<ul style="list-style-type: none">• FALSE• TRUE	FALSE

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 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 QMI_WDS indications for the requesting control point.
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_RATE	0x0023	Queries the current bit rate of the packet 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.
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.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
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 mode setting from the device.
QMI_WDS_GET_DORMANCY_STATUS	0x0030	Queries the current traffic channel status.
QMI_WDS_GET_AUTOCONNECT_SETTING	0x0034	Queries autoconnect settings.
QMI_WDS_GET_CALL_DURATION	0x0035	Queries the duration of the current call.
QMI_WDS_GET_DATA_BEARER_TECHNOLOGY	0x0037	Queries the current data bearer technology.
QMI_WDS_GET_DUN_CALL_INFO	0x0038	Queries the current modem connection status.
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.
QMI_WDS_GET_LAST_MIP_STATUS	0x0042	Queries the last mobile IP status from the device.
QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOLOGY	0x0044	Queries the current data bearer technology.
QMI_WDS_CALL_HISTORY_LIST	0x0045	Queries a list of call history records from the device.
QMI_WDS_CALL_HISTORY_READ	0x0046	Queries a call history record from the device.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
QMI_WDS_CALL_HISTORY_DELETE	0x0047	Clears the call history records from the device.
QMI_WDS_CALL_HISTORY_MAX_SIZE	0x0048	Requests the maximum number of call history records that can be stored in the device.
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 technology.
QMI_WDS_RESET_PROFILE_TO_DEFAULT	0x004B	Resets all the parameters of the specified profile and technology to default values.
QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID	0x004C	Resets the specified profile parameter type for the specified technology to invalid.
QMI_WDS_SET_CLIENT_IP_FAMILY_PREF	0x004D	Sets the control point IP preference.
QMI_WDS_SET_AUTOCONNECT_SETTINGS	0x0051	Sets the autoconnect settings.
QMI_WDS_GET_DNS_SETTINGS	0x0052	Queries the current DNS settings for the device.
QMI_WDS_SET_DNS_SETTINGS	0x0053	Sets the current DNS settings for the device.
QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS	0x0054	Retrieves the packet data session information before dormancy.
QMI_WDS_SET_CAM_TIMER	0x0055	Sets the Chatty App Manager timer value.
QMI_WDS_GET_CAM_TIMER	0x0056	Queries the Chatty App Manager timer value.
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.

Table 3-1 QMI_WDS messages (cont.)

Command	ID	Description
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 for the TMGI list.
QMI_WDS_EMBMS_TMGI_LIST_IND	0x0068	Indicates the currently active or available TMGI list.
QMI_WDS_GET_PREFERRED_DATA_SYSTEM	0x0069	Queries the preferred data system.
QMI_WDS_GET_LAST_DATA_CALL_STATUS	0x006A	Queries the last reported data call status.
QMI_WDS_GET_CURRENT_DATA_SYSTEM_STATUS	0x006B	Queries the current data system status.
QWI_WDS_GET_PDN_THROTTLE_INFO	0x006C	Queries the PDN throttle information.

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

3.2.1 Request - QMI_WDS_SET_EVENT_REPORT_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

Name	Version last modified
Current Channel Rate Indicator	1.0
Transfer Statistics Indicator	1.10
Data Bearer Technology Indicator. Note: This TLV is deprecated from QMI WDS version 1.4	1.4
Dormancy Status indicator	1.3
MIP Status Indicator	1.12
Current Data Bearer Technology Indicator	1.4
Data Call Status Change Indicator	1.16
Current Preferred Data System Indicator	1.16
EV-DO Page Monitor Period Change Indicator	1.14
Data System Status Change Indicator	1.18

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Current Channel Rate Indicator
Length	1		2	
Value	→	report_channel_rate	1	Values: • 0 – Do not report • 1 – Report channel rate when it changes
Type	0x11		1	Transfer Statistics Indicator
Length	5		2	
Value	→	stats_period	1	Period between transfer statistics reports. Values: • 0 – Do not report • Other – Period between reports (seconds)
		stats_mask	4	Requested statistic bit mask. 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 • 0x00000080 – Rx bytes OK Each bit set causes the corresponding optional TLV to be sent in QMI_WDS_EVENT_REPORT_IND. All unlisted bits are reserved for future use and must be set to zero.
Type	0x12		1	Data Bearer Technology Indicator. Note: This TLV is deprecated from QMI WDS version 1.4
Length	1		2	
Value	→	report_data_bearer_tech	1	Values: • 0 – Do not report • 1 – Report radio interface used for data transfer when it changes
Type	0x13		1	Dormancy Status indicator
Length	1		2	
Value	→	report_dormancy_status	1	Values: • 0 – Do not report • 1 – Report traffic channel state of interface used for data connection
Type	0x14		1	MIP Status Indicator
Length	1		2	
Value	→	report_mip_status	1	Values: • 0 – Do not report • 1 – Report MIP status
Type	0x15		1	Current Data Bearer Technology Indicator
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	report_current_data_bearer_tech	1	Values: • 0 – Do not report • 1 – Report current data bearer technology when it changes
Type	0x17		1	Data Call Status Change Indicator
Length	1		2	
Value	→	report_data_call_status_change	1	Values: • 0 – Do not report • 1 – Report data call status change when it changes
Type	0x18		1	Current Preferred Data System Indicator
Length	1		2	
Value	→	report_preferred_data_system	1	Values: • 0 – Do not report • 1 – Report preferred data system when it changes
Type	0x19		1	EV-DO Page Monitor Period Change Indicator
Length	1		2	
Value	→	report_evdo_page_monitor_period_change	1	Values: • 0 – Do not report • 1 – Report EV-DO page monitor period change event
Type	0x1A		1	Data System Status Change Indicator
Length	1		2	
Value	→	report_data_system_status	1	Values: • 0 – Do not report • 1 – Report data system status change event

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 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	Some TLV was 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 message.

The AT command equivalents to this command are AT+CMER, AT+CIND, and AT+CIEV (see [S1]).

3.2.4 Indication - QMI_WDS_EVENT_REPORT_IND

Message type

Indication

Sender

Service

Indication scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

This TLV is deprecated from QMI WDS version 1.4

Name	Version last modified
Tx Packets OK	1.0
Rx Packets OK	1.0
Tx Packet Errors	1.0
Rx Packet Errors	1.0
Tx Overflows	1.0
Rx Overflows	1.0
Channel Rate	1.0
Data Bearer Technology.	1.0
Dormancy Status	1.3
Tx Bytes OK	1.10
Rx Bytes OK	1.10
MIP Status	1.12
Current Data Bearer Technology	1.10
Data Call Status Change	1.16
Current Preferred Data System	1.16
Data Call Type	1.16
EV-DO Page Monitor Period Change	1.14
Data System Status	1.18

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Tx Packets OK
Length	4		2	
Value	→	tx_ok_count	4	Number of packets transmitted without error.
Type	0x11		1	Rx Packets OK
Length	4		2	
Value	→	rx_ok_count	4	Number of packets received without error.
Type	0x12		1	Tx Packet Errors
Length	4		2	
Value	→	tx_err_count	4	Number of outgoing packets with framing errors.
Type	0x13		1	Rx Packet Errors
Length	4		2	
Value	→	rx_err_count	4	Number of incoming packets with framing errors.
Type	0x14		1	Tx Overflows
Length	4		2	
Value	→	tx_ofl_count	4	Number of packets dropped because Tx buffer overflowed (out of memory).
Type	0x15		1	Rx Overflows
Length	4		2	
Value	→	rx_ofl_count	4	Number of packets dropped because Rx buffer overflowed (out of memory).
Type	0x16		1	Channel Rate
Length	8		2	
Value	→	current_channel_tx_rate	4	Max channel Tx rate in bits per second.
		current_channel_rx_rate	4	Max channel Rx rate in bits per second.

Field	Field value	Parameter	Size (byte)	Description
Type	0x17		1	Data Bearer Technology.
Length	1		2	
Value	→	data_bearer_tech	1	Values: <ul style="list-style-type: none"> • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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_HSDAP+ and HSUPA • -1 – Unknown
Type	0x18		1	Dormancy Status
Length	1		2	
Value	→	dormancy_status	1	Values: <ul style="list-style-type: none"> • 1 – Traffic channel dormant • 2 – Traffic channel active
Type	0x19		1	Tx Bytes OK
Length	8		2	
Value	→	tx_ok_bytes_count	8	Number of bytes transmitted without error
Type	0x1A		1	Rx Bytes OK
Length	8		2	
Value	→	rx_ok_bytes_count	8	Number of bytes received without error
Type	0x1B		1	MIP Status
Length	1		2	
Value	→	mip_status	1	Status of the last MIP call (or attempt). Values: <ul style="list-style-type: none"> • 0x00 – Success • 0 – Error code (as defined in [S4])
Type	0x1D		1	Current Data Bearer Technology
Length	9		2	
Value	→	current_nw	1	Current network type of data bearer. Values: <ul style="list-style-type: none"> • 0 – UNKNOWN • 1 – 3GPP2 • 2 – 3GPP

Field	Field value	Parameter	Size (byte)	Description
		rat_mask	4	Radio access technology (RAT) mask to indicate the type of technology. A RAT mask value of zero indicates that this field is ignored. Values: <ul style="list-style-type: none"> • 0x00 – DONT_CARE • 0x8000 – NULL_BEARER CDMA RAT mask: <ul style="list-style-type: none"> • 0x01 – CDMA_1X • 0x02 – EVDO_REV0 • 0x04 – EVDO_REVA UMTS RAT mask: <ul style="list-style-type: none"> • 0x01 – WCDMA • 0x02 – GPRS • 0x04 – HSDPA • 0x08 – HSUPA • 0x10 – EDGE • 0x20 – LTE • 0x40 – HSDPA+ • 0x80 – DC_HSDPA+
		so_mask	4	Service Option (SO) mask to indicate the service option or type of application. SO mask value of zero indicates that this field is ignored. Values: <ul style="list-style-type: none"> • 0x00 – DONT_CARE CDMA 1X SO mask: <ul style="list-style-type: none"> • 0x01 – CDMA_1X_IS95 • 0x02 – CDMA_1X_IS2000 • 0x04 – CDMA_1X_IS2000_REL_A CDMA EV-DO Rev A SO mask: <ul style="list-style-type: none"> • 0x01 – EVDO_REVA_DPA • 0x02 – EVDO_REVA_MFPA • 0x04 – EVDO_REVA_EMPA • 0x08 – EVDO_REVA_EMPA_EHRPD
Type	0x1F		1	Data Call Status Change
Length	1		2	
Value	→	data_call_status	1	Values: <ul style="list-style-type: none"> • 0x01 – Data call activated • 0x02 – Data call terminated
Type	0x20		1	Current Preferred Data System
Length	4		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	current_sys	4	Values: <ul style="list-style-type: none"> • 0x00 – Unknown • 0x01 – CMDA_1X • 0x02 – EVDO • 0x03 – GPRS • 0x04 – WCDMA • 0x05 – LTE
Type	0x22		1	Data Call Type
Length	2		2	
Value	→	data_call_type	1	Values: <ul style="list-style-type: none"> • 0x01 – Embedded call • 0x02 – Tethered call
		tethered_call_type	1	Values: <ul style="list-style-type: none"> • 0x00 – Non-tethered call • 0x01 – RmNet call • 0x02 – DUN call
Type	0x23		1	EV-DO Page Monitor Period Change
Length	2		2	
Value	→	evdo_page_monitor_period_change	1	EV-DO slot cycle and long sleep info.
		evdo_force_long_sleep	1	Set to 1 if EV-DO is currently forced to ignore the slot cycle setting and instead sleep for long periods, potentially missing pages
Type	0x24		1	Data System Status
Length	Var		2	
Value	→	preferred_network	1	Values: <ul style="list-style-type: none"> • 0 – 3GPP • 1 – 3GPP2
		network_info_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • network • rat_mask • so_mask
		network	1	Values: <ul style="list-style-type: none"> • 0 – 3GPP • 1 – 3GPP2

Field	Field value	Parameter	Size (byte)	Description
		rat_mask	4	<p>Radio access technology (RAT) mask to indicate the type of technology. A RAT mask value of zero indicates that this field is ignored. Values:</p> <ul style="list-style-type: none"> • 0x00 – DONT_CARE • 0x8000 – NULL_BEARER <p>CDMA RAT mask:</p> <ul style="list-style-type: none"> • 0x01 – CDMA_1X • 0x02 – EVDO_REV0 • 0x04 – EVDO_REVA • 0x08 – EVDO_REVB • 0x10 – EHRPD <p>UMTS RAT mask:</p> <ul style="list-style-type: none"> • 0x01 – WCDMA • 0x02 – GPRS • 0x04 – HSDPA • 0x08 – HSUPA • 0x10 – EDGE • 0x20 – LTE • 0x40 – HSDPA+ • 0x80 – DC_HSDPA+ • 0x100 – 64_QAM

Field	Field value	Parameter	Size (byte)	Description
		so_mask	4	<p>Service option (SO) mask to indicate the service option or type of application. An SO mask value of zero indicates that this field is ignored. Values:</p> <ul style="list-style-type: none"> • 0x00 – DONT_CARE <p>CDMA 1X SO mask:</p> <ul style="list-style-type: none"> • 0x01 – CDMA_1X_IS95 • 0x02 – CDMA_1X_IS2000 • 0x04 – CDMA_1X_IS2000_REL_A <p>CDMA EV-DO Rev 0 SO mask:</p> <ul style="list-style-type: none"> • 0x01 – DPA <p>CDMA EV-DO Rev A SO mask:</p> <ul style="list-style-type: none"> • 0x01 – DPA • 0x02 – MFPA • 0x04 – EMPA • 0x08 – EMPA_EHRPD <p>CDMA EV-DO Rev B SO mask:</p> <ul style="list-style-type: none"> • 0x01 – DPA • 0x02 – MFPA • 0x04 – EMPA • 0x08 – EMPA_EHRPD • 0x10 – MMPA • 0x20 – MMPA_EHRPD

3.2.5 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 3.8.3).

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 e.g. 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, i.e., a new packet data call is established or a packet data call is terminated. An additional Data Call Type TLV indicates the type of the data call that has been established or terminated. The two TLVs in conjunction indicate whether a new packet data call has been established or an existing data call has been terminated.

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 currently 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 (e.g., during handoff process). The indication has the system status information about the preferred network and the RAT and SO mask for all the networks.

The AT command equivalents of this command are AT+CMER, AT+CIND, and AT+CIEV defined in [S1].

3.3 QMI_WDS_ABORT

Aborts a previously issued QMI_WDS command.

WDS message ID

0x0002

Version introduced

Major - 1, Minor - 0

3.3.1 Request - QMI_WDS_ABORT_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
TX_ID	1.0

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	TX_ID
Length	2		2	
Value	→	tx_id	2	Transaction ID of the request to be aborted.

Optional TLVs

None

3.3.2 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 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	Some TLV was missing in the request
QMI_ERR_INVALID_TX_ID	TX_ID supplied in the request does not match any pending transaction in WDS, i.e., either the transaction was not received or it has already been executed by the device

3.3.3 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

3.4 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

3.4.1 Request - QMI_WDS_INDICATION_REGISTER_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

Name	Version last modified
eMBMS TMGI List	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	eMBMS TMGI List
Length	1		2	
Value	→	report_embms_tmgi_list	1	Values: • 0 - Do not report • 1 - Report eMBMS TMGI list

3.4.2 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 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 response

3.4.3 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 message.

3.5 QMI_WDS_START_NETWORK_INTERFACE

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

3.5.1 Request - QMI_WDS_START_NETWORK_INTERFACE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

Name	Version last modified
Primary DNS Address Preference	1.1
Secondary DNS Address Preference	1.1
Primary NetBIOS Name Server Address Preference	1.1
Secondary NBNS Address Preference	1.1
Context Access Point Node Name	1.1
IP Address Preference	1.1
Authentication Preference	1.1
Username	1.1
Password	1.1
IP Family Preference	1.7
Technology Preference	1.1
3GPP Configured Profile Identifier	1.1
3GPP2 Configured Profile Identifier	1.6
Enable Autoconnect	1.12

Name	Version last modified
Extended Technology Preference	1.17
Call Type Identifier	1.8

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Primary DNS Address Preference
Length	4		2	
Value	→	primary_DNS_IPv4_address_preference	4	This value is 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 host via DHCP.
Type	0x11		1	Secondary DNS Address Preference
Length	4		2	
Value	→	secondary_DNS_IPv4_address_preference	4	This value is 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.
Type	0x12		1	Primary NetBIOS Name Server (NBNS) Address Preference
Length	4		2	
Value	→	primary_nbns_address_pref	4	The primary NBNS address. The specified IPv4 address is requested as the primary NBNS server during data session establishment. If it is not provided, the primary NBNS server address is obtained automatically from the network. The result of negotiation (the assigned address) is provided to the host via DHCP
Type	0x13		1	Secondary NBNS Address Preference
Length	4		2	
Value	→	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.
Type	0x14		1	Context Access Point Node (APN) Name
Length	Var		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	apn_name	Var	Access point name – A string parameter that is a logical name used to select GGSN and external packet data network. If the value is NULL or omitted, then 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, i.e., the APN name cannot be overridden.
Type	0x15		1	IP Address Preference
Length	4		2	
Value	→	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.
Type	0x16		1	Authentication Preference
Length	1		2	
Value	→	authentication_preference	1	A bit map that indicates the authentication algorithm preference. Values: Bit 0 – PAP preference: <ul style="list-style-type: none"> • 0 – PAP is never performed • 1 – PAP may be performed Bit 1 – CHAP preference: <ul style="list-style-type: none"> • 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.
Type	0x17		1	Username
Length	Var		2	
Value	→	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.
Type	0x18		1	Password
Length	Var		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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.
Type	0x19		1	IP Family Preference
Length	1		2	
Value	→	ip_family_preference	1	IP Family Preference. Values: <ul style="list-style-type: none"> • 4 – IPV4 • 6 – IPV6 • 8 – UNSPECIFIED If this TLV is absent, the device attempts to bring up a call on default IP preference (currently IPv4, so as to maintain current behavioral backward compatability).
Type	0x30		1	Technology Preference
Length	1		2	
Value	→	technology_preference	1	Bitmap that indicates the technology preference. A single connection is attempted using the following specified technology preferences: <ul style="list-style-type: none"> • 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 bit mask is set, then the device attempts to use that technology. If two or more bits in the technology preference bit mask are set, then the device determines which technology to use from those specified. If this TLV is absent, the device assumes all supported technologies are acceptable.
Type	0x31		1	3GPP Configured Profile Identifier
Length	1		2	
Value	→	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, then the data call parameters are based on device default settings for each parameter.
Type	0x32		1	3GPP2 Configured Profile Identifier
Length	1		2	
Value	→	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, then data call parameters are based on device default settings for each parameter.
Type	0x33		1	Enable Autoconnect

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	enable_autoconnect	1	If set to 1 (TRUE), the device attempts to bring up a call automatically. The default is FALSE. Note: When this TLV is used, the override parameters passed in other TLVs in this message are ignored by the device.
Type	0x34		1	Extended Technology Preference
Length	2		2	
Value	→	ext_technology_preference	2	The technology preference used while attempting a packet data connection. Values: <ul style="list-style-type: none"> • -32767 – CDMA • -32764 – UMTS • -30590 – eMBMS
Type	0x35		1	Call Type Identifier
Length	1		2	
Value	→	call_type	1	Type of call to be originated. Values: <ul style="list-style-type: none"> • 0 – LAPTOP CALL • 1 – EMBEDDED CALL If this TLV is not present, by default the call is considered to be a laptop call.

3.5.2 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 last modified
Packet Data Handle	1.0

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

Field	Field value	Parameter	Size (byte)	Description
Value	→	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.

Optional TLVs

Name	Version last modified
Call End Reason	1.3
Verbose Call End Reason	1.8

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Call End Reason
Length	2		2	
Value	→	call_end_reason	2	Reason the call ended; see Appendix A for the definition of these values
Type	0x11		1	Verbose Call End Reason
Length	4		2	
Value	→	call_end_reason_type	2	Call end reason type; see Appendix B for the definition of these values. <ul style="list-style-type: none"> • 0 – Unspecified • 1 – Mobile IP • 2 – Internal • 3 – Call Manager defined • 6 – 3GPP Specification defined • 7 – PPP • 8 – EHRPD • 9 – IPV6
		call_end_reason	2	Reason the call ended (verbose); see Appendix B for the definition of these values

Error codes

QMI_ERR_NONE	No error in 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_PREF	Invalid IP family preference

3.5.3 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 3.43.3) 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 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 Appendix 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.

The AT command equivalents of this command are ATD and AT+CGACT defined in [S1], [S2], and [S3].

3.6 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

3.6.1 Request - QMI_WDS_STOP_NETWORK_INTERFACE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Packet Data Handle	1.0

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Packet Data Handle
Length	4		2	
Value	→	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 last modified
Disable Autoconnect	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Disable Autoconnect
Length	1		2	
Value	→	disable_autoconnect	1	If set to 1 (TRUE), the device disables autoconnect, i.e., 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.

3.6.2 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 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	Some TLV is missing
QMI_ERR_INVALID_HANDLE	Packet_data_handle provided in the request is not valid, i.e., it is not assigned to the control point

3.6.3 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 (0xFFFFFFFF) 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 3.43.3) to modify autoconnect settings.

The AT command equivalents of this command are `ATD` and `AT+CGACT` defined in [S1], [S2], and [S3].

3.7 QMI_WDS_GET_PKT_SRVC_STATUS

Queries the current packet data connection status.

WDS message ID

0x0022

Version introduced

Major - 1, Minor - 0

3.7.1 Request - QMI_WDS_GET_PKT_SRVC_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.7.2 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 last modified
Connection status.	1.0

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Connection status.
Length	1		2	
Value	→	connection_status	1	Current link status. Values: <ul style="list-style-type: none"> • 1 – DISCONNECTED • 2 – CONNECTED • 3 – SUSPENDED • 4 – AUTHENTICATING

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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

3.7.3 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 may 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 [S1], [S2], and [S3].

3.7.4 Indication - QMI_WDS_PKT_SRVC_STATUS_IND

Message type

Indication

Sender

Service

Indication scope

Broadcast

Mandatory TLVs

Name	Version last modified
Packet Service Status	1.0

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Packet Service Status
Length	2		2	
Value	→	connection_status	1	Current link status. Values: <ul style="list-style-type: none"> • 1 – DISCONNECTED • 2 – CONNECTED • 3 – SUSPENDED • 4 – AUTHENTICATING
		reconfiguration_required	1	Indicates if the network interface on the host needs to be reconfigured. Values: <ul style="list-style-type: none"> • 0 – No need to reconfigure • 1 – Reconfiguration required

Optional TLVs

Name	Version last modified
Call End Reason	1.3
Verbose Call End Reason	1.8
IP Family	1.9
Technology Name	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Call End Reason

Field	Field value	Parameter	Size (byte)	Description
Length	2		2	
Value	→	call_end_reason	2	See Appendix A for the definition of these values.
Type	0x11		1	Verbose Call End Reason
Length	4		2	
Value	→	call_end_reason_type	2	Call end reason type; see Appendix B for the definition of these values. <ul style="list-style-type: none"> • 0 – Unspecified • 1 – Mobile IP • 2 – Internal • 3 – Call Manager defined • 6 – 3GPP Specification defined • 7 – PPP • 8 – EHRPD • 9 – IPV6
		call_end_reason	2	Reason the call ended (verbose); see Appendix B for the definition of these values
Type	0x12		1	IP Family
Length	1		2	
Value	→	ip_family	1	IP family of the packet data connection. Values: <ul style="list-style-type: none"> • 4 – IPV4 • 6 – IPV6
Type	0x13		1	Technology Name
Length	2		2	
Value	→	tech_name	2	Technology name of the packet data connection. Values: <ul style="list-style-type: none"> • -32767 – CDMA • -32764 – UMTS • -30592 – EPC • -30590 – EMBMS

3.7.5 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, then 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 is included in the indication to convey the IP type of the packet data

connection.

3.8 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

3.8.1 Request - QMI_WDS_GET_CURRENT_CHANNEL_RATE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.8.2 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 last modified
Channel Rate.	1.0

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

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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

3.8.3 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 0xFFFFFFFF is returned.

The AT command is roughly based on AT+CHSC, defined in [S2]. It also applies to packet data service rather than circuit-switched data.

3.9 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

3.9.1 Request - QMI_WDS_GET_PKT_STATISTICS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Packet Statistics Mask	1.10

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Packet Statistics Mask
Length	4		2	
Value	→	stats_mask	4	Values: <ul style="list-style-type: none"> • 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 • 0x00000080 – Rx bytes OK All unlisted bits are reserved for future use and must be set to zero unless recognized by issuer.

Optional TLVs

None

3.9.2 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 last modified
Tx Packets OK	1.0
Rx Packets OK	1.0
Tx Packet Errors	1.0
Rx Packet Errors	1.0
Tx Overflows	1.0
Rx Overflows	1.0
Tx Bytes OK	1.10
Rx Bytes OK	1.10
Last Call Tx Bytes OK	1.12
Last Call Rx Bytes OK	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Tx Packets OK
Length	4		2	
Value	→	tx_ok_count	4	Number of packets transmitted without error.
Type	0x11		1	Rx Packets OK
Length	4		2	
Value	→	rx_ok_count	4	Number of packets received without error.
Type	0x12		1	Tx Packet Errors
Length	4		2	
Value	→	tx_err_count	4	Number of outgoing packets with framing errors.
Type	0x13		1	Rx Packet Errors

Field	Field value	Parameter	Size (byte)	Description
Length	4		2	
Value	→	rx_err_count	4	Number of incoming packets with framing errors.
Type	0x14		1	Tx Overflows
Length	4		2	
Value	→	tx_ofl_count	4	Number of packets dropped because Tx buffer overflowed (out of memory).
Type	0x15		1	Rx Overflows
Length	4		2	
Value	→	rx_ofl_count	4	Number of packets dropped because Rx buffer overflowed (out of memory).
Type	0x19		1	Tx Bytes OK
Length	8		2	
Value	→	tx_ok_bytes_count	8	Number of bytes transmitted without error.
Type	0x1A		1	Rx Bytes OK
Length	8		2	
Value	→	rx_ok_bytes_count	8	Number of bytes received without error.
Type	0x1B		1	Last Call Tx Bytes OK
Length	8		2	
Value	→	last_call_tx_ok_bytes_count	8	Number of bytes transmitted without error 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).
Type	0x1C		1	Last Call Rx Bytes OK
Length	8		2	
Value	→	last_call_rx_ok_bytes_count	8	Number of bytes received without error 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).

Error codes

QMI_ERR_NONE	No error in 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	Some TLV is missing
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

3.9.3 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 bit mask 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).

3.10 QMI_WDS_GO_DORMANT

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

WDS message ID

0x0025

Version introduced

Major - 1, Minor - 3

3.10.1 Request - QMI_WDS_GO_DORMANT_REQ

Message type

Request

Sender

Control Point

Mandatory TLVs

None

Optional TLVs

None

3.10.2 Response - QMI_WDS_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.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNsupported	Operation is not supported by the device

3.10.3 Description of QMI_WDS_GO_DORMANT REQ/RESP

This command forces the device to drop the traffic channel.

The channel can be reactivated as soon as data is sent over the network interface. There is no assurance that the channel remains dormant for any guaranteed period.

3.11 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

3.11.1 Request - QMI_WDS_GO_ACTIVE_REQ

Message type

Request

Sender

Control Point

Mandatory TLVs

None

Optional TLVs

None

3.11.2 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 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_UNSUPPORTED	Operation is not supported

3.11.3 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.

3.12 QMI_WDS_CREATE_PROFILE

Creates a configured profile with specified settings.

WDS message ID

0x0027

Version introduced

Major - 1, Minor - 1

3.12.1 Request - QMI_WDS_CREATE_PROFILE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Type	1.13

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Type
Length	1		2	
Value	→	profile_type	1	Identifies the technology type of the profile. Values: • 0x00 – 3GPP • 0x01 – 3GPP2

Optional TLVs

Name	Version last modified
Profile Name **	1.1
PDP Type **	1.11
PDP Header Compression Type **	1.11
PDP Data Compression Type To Use **	1.11

Name	Version last modified
Context Access Point Node Name **	1.1
Primary DNS IPv4 Address Preference **	1.1
Secondary DNS IPv4 Address Preference **	1.1
UMTS Requested QoS **	1.1
UMTS Minimum QoS **	1.1
GPRS Requested QoS **	1.1
GRPS Minimum Qos **	1.1
Username **	1.1
Password **	1.1
Authentication Preference **	1.1
IPv4 Address Preference **	1.1
PCSCF Address Using PCO Flag **	1.3
PDP Access Control Flag **	1.11
PCSCF Address Using DHCP **	1.11
IM CN flag **	1.11
Traffic Flow Template ID1 Parameters **	1.11
TFT ID2 Parameters **	1.11
PDP Context Number **	1.11
PDP Context Secondary Flag **	1.11
PDP Context Primary ID **	1.11
IPv6 Address Preference **	1.11
UMTS Requested QoS with Signaling Indication Flag **	1.11
UMTS Minimum QoS with Signaling Indication **	1.11
Primary DNS IPv6 Address Preference **	1.11
Secondary DNS IPv6 Address Preference **	1.11
DHCP/NAS Preference **	1.11
3GPP LTE QoS Parameters **	1.11
APN Disabled Flag **	1.13
PDN Inactivity Timeout **	1.13
APN Class **	1.13
Profile Persistence Flag * **	1.13
Negotiate DNS Server Preference *	1.13
PPP Session Close Timer for DO *	1.13
PPP Session Close Timer for 1X *	1.13
Allow/Disallow Lingering of Interface *	1.13
LCP ACK Timeout *	1.13
IPCP ACK Timeout *	1.13
AUTH Timeout *	1.13
LCP Configuration Request Retry Count Value *	1.13
IPCP Configuration Request Retry Count *	1.13
AUTH Retry *	1.13
Authentication Protocol *	1.13
User ID *	1.13
Authentication Password *	1.13
Data Rate *	1.13

Name	Version last modified
Application Type *	1.13
Data Mode *	1.13
Application Priority *	1.13
APN String *	1.13
PDN Type *	1.13
Is PCSCF Address Needed *	1.13
IPv4 Primary DNS Address *	1.13
IPv4 Secondary DNS Address *	1.13
Primary IPv6 DNS Address *	1.13
Secondary IPv6 DNS Address *	1.13
RAT Type *	1.13
APN Enabled *	1.13
PDN Inactivity Timeout *	1.13
APN Class *	1.13

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Profile Name **
Length	Var		2	
Value	→	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.
Type	0x11		1	PDP Type **
Length	1		2	
Value	→	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: <ul style="list-style-type: none"> • 0 – PDP-IP (IPv4) • 1 – PDP-PPP • 2 – PDP-IPV6 • 3 – PDP-IPV4V6
Type	0x12		1	PDP Header Compression Type **
Length	1		2	
Value	→	pdp_hdr_compression_type	1	Values: <ul style="list-style-type: none"> • 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
Type	0x13		1	PDP Data Compression Type To Use **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	pdp_data_compression_type	1	Values: <ul style="list-style-type: none"> • 0 – PDP data compression is off • 1 – Manufacturer preferred compression • 2 – V.42BIS data compression • 3 – V.44 data compression
Type	0x14		1	Context Access Point Node (APN) Name **
Length	Var		2	
Value	→	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.
Type	0x15		1	Primary DNS IPv4 Address Preference **
Length	4		2	
Value	→	primary_DNS_IPv4_address_preference	4	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.
Type	0x16		1	Secondary DNS IPv4 Address Preference **
Length	4		2	
Value	→	secondary_DNS_IPv4_address_preference	4	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.
Type	0x17		1	UMTS Requested QoS **
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off

Field	Field value	Parameter	Size (byte)	Description
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
Type	0x18		1	UMTS Minimum QoS **
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background

Field	Field value	Parameter	Size (byte)	Description
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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 value	Parameter	Size (byte)	Description
		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.
Type	0x19		1	GPRS Requested QoS **
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1A		1	GRPS Minimum Qos **
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1B		1	Username **
Length	Var		2	
Value	→	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.
Type	0x1C		1	Password **
Length	Var		2	
Value	→	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.
Type	0x1D		1	Authentication Preference **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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, e.g. the device can have a policy to select the most secure authentication mechanism.
Type	0x1E		1	IPv4 Address Preference **
Length	4		2	
Value	→	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.
Type	0x1F		1	PCSCF Address Using PCO Flag **
Length	1		2	
Value	→	pcscf_addr_using_pco	1	Values: • 1 – (TRUE) request PCSCF address using PCO • 0 – (FALSE) do not request By default the value is 0.
Type	0x20		1	PDP Access Control Flag **
Length	1		2	
Value	→	pdp_access_control_flag	1	Values: • 0 – PDP access control none • 1 – PDP access control reject • 2 – PDP access control permission
Type	0x21		1	PCSCF Address Using DHCP **
Length	1		2	
Value	→	pcscf_addr_using_dhcp	1	Values: • 1 – (TRUE) – Request PCSCF address using DHCP • 0 – (FALSE) – Do not request By default the value is 0.
Type	0x22		1	IM CN flag **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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
Type	0x23		1	Traffic Flow Template (TFT) ID1 Parameters **
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x24		1	TFT ID2 Parameters **
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x25		1	PDP Context Number **
Length	1		2	
Value	→	pdp_context	1	PDP context number

Field	Field value	Parameter	Size (byte)	Description
Type	0x26		1	PDP Context Secondary Flag **
Length	1		2	
Value	→	secondary_flag	1	Values: • 1 – (TRUE) – This is secondary profile • 0 – (FALSE) – This is not secondary profile
Type	0x27		1	PDP Context Primary ID **
Length	1		2	
Value	→	primary_id	1	PDP context number primary ID.
Type	0x28		1	IPv6 Address Preference **
Length	16		2	
Value	→	ipv6_address_preference	16	Preferred IPv6 address 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.
Type	0x29		1	UMTS Requested QoS with Signaling Indication Flag **
Length	34		2	
Value	→	traffic_class	1	Traffic class. Values: • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1

Field	Field value	Parameter	Size (byte)	Description
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: <ul style="list-style-type: none"> • 0 – Signaling indication off • 1 – Signaling indication on
Type	0x2A		1	UMTS Minimum QoS with Signaling Indication **
Length	34		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.

Field	Field value	Parameter	Size (byte)	Description
		qos_delivery_order	1	Values: • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		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
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: • 0 – Signaling indication off • 1 – Signaling indication on

Field	Field value	Parameter	Size (byte)	Description
Type	0x2B		1	Primary DNS IPv6 Address Preference **
Length	16		2	
Value	→	primary_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 DHCP
Type	0x2C		1	Secondary DNS IPv6 Address Preference **
Length	16		2	
Value	→	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 DHCP
Type	0x2D		1	DHCP/NAS Preference **
Length	1		2	
Value	→	addr_allocation_preference	1	This enumerated value can be used to indicate the address allocation preference. Values: <ul style="list-style-type: none"> • 0 – NAS signaling is used for address allocation • 1 – DHCP is used for address allocation
Type	0x2E		1	3GPP LTE QoS Parameters **
Length	17		2	
Value	→	qci	1	For LTE, the requested QOS must be specified using the QOS Class Identifier (QOS). Values: <ul style="list-style-type: none"> • 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.
		g_dl_bit_rate	4	Guaranteed DL bit rate.
		max_dl_bit_rate	4	Maximum DL bit rate.
		g_ul_bit_rate	4	Guaranteed UL bit rate.
		max_ul_bit_rate	4	Maximum UL bit rate.
Type	0x2F		1	APN Disabled Flag **
Length	1		2	
Value	→	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: <ul style="list-style-type: none"> • 0 – FALSE (default) • 1 – TRUE
Type	0x30		1	PDN Inactivity Timeout **

Field	Field value	Parameter	Size (byte)	Description
Length	4		2	
Value	→	pdn_inactivity_timeout	4	Duration of the inactivity timer in seconds. If a PDP context/PDN connection is inactive (i.e., 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.
Type	0x31		1	APN Class **
Length	1		2	
Value	→	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, but is not used by the modem.
Type	0x8F		1	Profile Persistence Flag * **
Length	1		2	
Value	→	persistent	1	Boolean value used to control whether the profile to be created is persistent or not. The default is persistent. Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Profile is persistent • 0 – (FALSE) – Profile is not persistent
Type	0x90		1	Negotiate DNS Server Preference *
Length	1		2	
Value	→	negotiate_dns_server_preference	1	The default value is TRUE. Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request DNS address from the PDSN • 0 – (FALSE) – Do not request DNS address from the PDSN
Type	0x91		1	PPP Session Close Timer for DO *
Length	4		2	
Value	→	ppp_session_close_timer_DO	4	Timer value (in seconds) on DO indicating how long the PPP session must linger before closing down.
Type	0x92		1	PPP Session Close Timer for 1X *
Length	4		2	
Value	→	ppp_session_close_timer_1x	4	Timer value (in seconds) on 1X indicating how long the PPP session must linger before closing down.
Type	0x93		1	Allow/Disallow Lingering of Interface *
Length	1		2	
Value	→	allow_linger	1	Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Allow lingering • 0 – (FALSE) – Do not allow lingering
Type	0x94		1	LCP ACK Timeout *
Length	2		2	
Value	→	lcp_ack_timeout	2	Value of LCP ACK timeout in milliseconds.

Field	Field value	Parameter	Size (byte)	Description
Type	0x95		1	IPCP ACK Timeout *
Length	2		2	
Value	→	ipcp_ack_timeout	2	Value of IPCP ACK timeout in milliseconds.
Type	0x96		1	AUTH Timeout *
Length	2		2	
Value	→	auth_timeout	2	Value of authentication timeout in milliseconds.
Type	0x97		1	LCP Configuration Request Retry Count Value *
Length	1		2	
Value	→	lcp_creq_retry_count	1	LCP configuration request retry count value.
Type	0x98		1	IPCP Configuration Request Retry Count *
Length	1		2	
Value	→	ipcp_creq_retry_count	1	IPCP configuration request retry count value.
Type	0x99		1	AUTH Retry *
Length	1		2	
Value	→	auth_retry_count	1	Authentication retry count value.
Type	0x9A		1	Authentication Protocol *
Length	1		2	
Value	→	auth_protocol	1	Values: • 1 – PAP • 2 – CHAP • 3 – PAP or CHAP
Type	0x9B		1	User ID *
Length	Var		2	
Value	→	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.
Type	0x9C		1	Authentication Password *
Length	Var		2	
Value	→	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.
Type	0x9D		1	Data Rate *
Length	1		2	
Value	→	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.
Type	0x9E		1	Application Type *
Length	4		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	app_type	4	Values: <ul style="list-style-type: none"> • 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.
Type	0x9F		1	Data Mode *
Length	1		2	
Value	→	data_mode	1	Values: <ul style="list-style-type: none"> • 0 – CDMA or HDR (Hybrid 1X/1xEV-DO) • 1 – CDMA only (1X only) • 2 – HDR only (1xEV-DO only) Note: Default is 0.
Type	0xA0		1	Application Priority *
Length	1		2	
Value	→	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 currently listed for future extensibility of profile ID search based on application priority.
Type	0xA1		1	APN String *
Length	Var		2	
Value	→	apn_string	Var	String representing the APN; maximum length allowed is 100 bytes. QMI_ERR_ARG_TOO_LONG is returned if the APN name is too long.
Type	0xA2		1	PDN Type *
Length	1		2	
Value	→	pdn_type	1	Values: <ul style="list-style-type: none"> • 0 – IPv4 PDN type • 1 – IPv6 PDN type • 2 – IPv4 or IPv6 PDN type • 3 – Unspecified PDN type (implying no preference)
Type	0xA3		1	Is PCSCF Address Needed *
Length	1		2	
Value	→	is_pcscf_address_needed	1	This boolean value is used to control whether the PCSCF address is requested from PDSN. Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request the PCSCF value from the PDSN • 0 – (FALSE) – Do not request the PCSCF value from the PDSN

Field	Field value	Parameter	Size (byte)	Description
Type	0xA4		1	IPv4 Primary DNS Address *
Length	4		2	
Value	→	primary_v4_dns_address	4	The primary IPv4 DNS address that can be statically assigned to the UE.
Type	0xA5		1	IPv4 Secondary DNS Address *
Length	4		2	
Value	→	secondary_v4_dns_address	4	The secondary IPv4 DNS address that can be statically assigned to the UE.
Type	0xA6		1	Primary IPv6 DNS Address *
Length	16		2	
Value	→	primary_v6_dns_address	16	The primary IPv6 DNS address that can be statically assigned to the UE.
Type	0xA7		1	Secondary IPv6 DNS Address *
Length	16		2	
Value	→	secondary_v6_dns_address	16	The secondary IPv6 DNS address that can be statically assigned to the UE.
Type	0xA8		1	RAT Type *
Length	1		2	
Value	→	rat_type	1	Values: • 1 – HRPD • 2 – EHRPD • 3 – HRPD_EHRPD
Type	0xA9		1	APN Enabled *
Length	1		2	
Value	→	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 – Disabled
Type	0xAA		1	PDN Inactivity Timeout *
Length	4		2	
Value	→	pdn_inactivity_timeout_3gpp2	4	The duration of the inactivity timer in minutes. If a PDP context/PDN connection is inactive (i.e., 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.
Type	0xAB		1	APN Class *
Length	1		2	
Value	→	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, but is not used by the modem.

3.12.2 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 last modified
Profile Identifier	1.13

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Identifier
Length	2		2	
Value	→	profile_type	1	Identifies the type of the profile. Values: <ul style="list-style-type: none"> • 0 – 3GPP • 1 – 3GPP2
		profile_index	1	Index identifying the profile.

Optional TLVs

Name	Version last modified
Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended Error Code
Length	2		2	
Value	→	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 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	Some TLV was missing
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

3.12.3 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.

For a more detailed description of 3GPP Context parameter definitions, see [\[Q3\]](#).

The AT command equivalent of this command is AT+CGDCONT defined in [\[S1\]](#).

3.13 QMI_WDS_MODIFY_PROFILE_SETTINGS

Changes the settings in a configured profile.

WDS message ID

0x0028

Version introduced

Major - 1, Minor - 1

3.13.1 Request - QMI_WDS_MODIFY_PROFILE_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Identifier	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Identifier
Length	2		2	
Value	→	profile_type	1	Identifies the type of the profile. Values: • 0 – 3GPP • 1 – 3GPP2
		profile_index	1	Index identifying the profile.

Optional TLVs

Name	Version last modified
Profile Name **	1.11
PDP Type **	1.11
PDP Header Compression Type **	1.11
PDP Data Compression Type **	1.11

Name	Version last modified
Context Access Point Node Name **	1.11
Primary DNS IPv4 Address Preference **	1.11
Secondary DNS IPv4 Address Preference **	1.11
UMTS Requested QoS **	1.11
UMTS Minimum QoS **	1.11
GPRS Requested QoS **	1.11
GRPS Minimum Qos **	1.11
Username **	1.11
Password **	1.11
Authentication Preference **	1.11
IPv4 Address Preference **	1.11
PCSCF Address Using PCO Flag **	1.3
PDP Access Control Flag **	1.11
PCSCF Address Using DHCP **	1.11
IM CN flag **	1.11
Traffic Flow Template ID1 Parameters **	1.11
TFT ID2 Parameters **	1.11
PDP Context Number **	1.11
PDP Context Secondary Flag **	1.11
PDP Context Primary ID **	1.11
IPv6 Address Preference **	1.11
UMTS Requested QoS with Signaling Indication Flag **	1.11
UMTS Minimum QoS with Signaling Indication **	1.11
Primary DNS IPv6 Address Preference **	1.11
Secondary DNS IPv6 Address Preference **	1.11
DHCP/NAS Preference **	1.11
3GPP LTE QoS Parameters **	1.11
APN Disabled Flag **	1.13
PDN Inactivity Timeout **	1.13
APN Class **	1.13
Negotiate DNS Server Preference *	1.11
PPP Session Close Timer for DO *	1.11
PPP Session Close Timer for 1X *	1.11
Allow/Disallow Lingering of Interface *	1.11
LCP ACK Timeout *	1.11
IPCP ACK Timeout *	1.11
Authentication Timeout *	1.11
LCP Configuration Request Retry Count Value *	1.11
IPCP Configuration Request Retry Count *	1.11
AUTH Retry *	1.11
Authentication Protocol *	1.11
User ID *	1.11
Authentication Password *	1.11
Data Rate *	1.11
Application Type *	1.11

Name	Version last modified
Data Mode *	1.11
Application Priority *	1.11
APN String *	1.11
PDN Type *	1.11
Is PCSCF Address Needed *	1.11
IPv4 Primary DNS Address *	1.11
IPv4 Secondary DNS Address *	1.11
Primary IPv6 DNS Address *	1.11
Secondary IPv6 DNS address *	1.11
RAT Type *	1.13
APN Enabled *	1.13
PDN Inactivity Timeout *	1.13
APN Class 3GPP2 *	1.13

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Profile Name **
Length	Var		2	
Value	→	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.
Type	0x11		1	PDP Type **
Length	1		2	
Value	→	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: <ul style="list-style-type: none"> • 0 – PDP-IP (IPv4) • 1 – PDP-PPP • 2 – PDP-IPV6 • 3 – PDP-IPV4V6
Type	0x12		1	PDP Header Compression Type **
Length	1		2	
Value	→	pdp_hdr_compression_type	1	Values: <ul style="list-style-type: none"> • 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
Type	0x13		1	PDP Data Compression Type **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	pdp_data_compression_type	1	Values: <ul style="list-style-type: none"> • 0 – PDP data compression is off • 1 – Manufacturer preferred compression • 2 – V.42BIS data compression • 3 – V.44 data compression
Type	0x14		1	Context Access Point Node (APN) Name **
Length	Var		2	
Value	→	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, then the subscription default value is requested. QMI_ERR_ARG_TOO_LONG is returned if the APN name is too long.
Type	0x15		1	Primary DNS IPv4 Address Preference **
Length	4		2	
Value	→	primary_DNS_IPv4_address_preference	4	This 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.
Type	0x16		1	Secondary DNS IPv4 Address Preference **
Length	4		2	
Value	→	secondary_DNS_IPv4_address_preference	4	This 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.
Type	0x17		1	UMTS Requested QoS **
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off

Field	Field value	Parameter	Size (byte)	Description
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
Type	0x18		1	UMTS Minimum QoS **
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background

Field	Field value	Parameter	Size (byte)	Description
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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 value	Parameter	Size (byte)	Description
		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.
Type	0x19		1	GPRS Requested QoS **
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1A		1	GRPS Minimum Qos **
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1B		1	Username **
Length	Var		2	
Value	→	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.
Type	0x1C		1	Password **
Length	Var		2	
Value	→	password	Var	Password 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.
Type	0x1D		1	Authentication Preference **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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. 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.
Type	0x1E		1	IPv4 Address Preference **
Length	4		2	
Value	→	ipv4_address_preference	4	The preferred IPv4 address 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.
Type	0x1F		1	PCSCF Address Using PCO Flag **
Length	1		2	
Value	→	pcscf_addr_using_pco	1	Values: • 1 – (TRUE) – Request PCSCF address using PCO • 0 – (FALSE) – Do not request By default this value is 0.
Type	0x20		1	PDP Access Control Flag **
Length	1		2	
Value	→	pdp_access_control_flag	1	Values: • 0 – PDP access control none • 1 – PDP access control reject • 2 – PDP access control permission
Type	0x21		1	PCSCF Address Using DHCP **
Length	1		2	
Value	→	pcscf_addr_using_dhcp	1	Values: • 1 – (TRUE) – Request PCSCF address using the DHCP • 0 – (FALSE) – Do not request By default, the value is 0.
Type	0x22		1	IM CN flag **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	im_cn_flag	1	Values: • 1 – (TRUE) – Request the IM CN flag for this profile • 0 – (FALSE) – Do not request the IM CN flag for this profile
Type	0x23		1	Traffic Flow Template (TFT) ID1 Parameters **
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x24		1	TFT ID2 Parameters **
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x25		1	PDP Context Number **
Length	1		2	
Value	→	pdp_context	1	PDP Context Number

Field	Field value	Parameter	Size (byte)	Description
Type	0x26		1	PDP Context Secondary Flag **
Length	1		2	
Value	→	secondary_flag	1	Values: • 1 – (TRUE) – This is the secondary profile • 0 – (FALSE) – This is not the secondary profile
Type	0x27		1	PDP Context Primary ID **
Length	1		2	
Value	→	primary_id	1	PDP context number primary ID.
Type	0x28		1	IPv6 Address Preference **
Length	16		2	
Value	→	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.
Type	0x29		1	UMTS Requested QoS with Signaling Indication Flag **
Length	34		2	
Value	→	traffic_class	1	Traffic class. Values: • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1

Field	Field value	Parameter	Size (byte)	Description
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: <ul style="list-style-type: none"> • 0 – Signaling indication off • 1 – Signaling indication on
Type	0x2A		1	UMTS Minimum QoS with Signaling Indication **
Length	34		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.

Field	Field value	Parameter	Size (byte)	Description
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: <ul style="list-style-type: none"> • 0 – Signaling indication off • 1 – Signaling indication on

Field	Field value	Parameter	Size (byte)	Description
Type	0x2B		1	Primary DNS IPv6 Address Preference **
Length	16		2	
Value	→	primary_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 DHCP.
Type	0x2C		1	Secondary DNS IPv6 Address Preference **
Length	16		2	
Value	→	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 DHCP.
Type	0x2D		1	DHCP/NAS Preference **
Length	1		2	
Value	→	addr_allocation_preference	1	This enumerated value can be used to indicate the address allocation preference. Values: <ul style="list-style-type: none"> • 0 – NAS signaling is used for address allocation • 1 – DHCP is used for address allocation
Type	0x2E		1	3GPP LTE QoS Parameters **
Length	17		2	
Value	→	qci	1	For LTE, the requested QOS must be specified using the QOS Class Identifier (QOS). Values: <ul style="list-style-type: none"> • 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.
		g_dl_bit_rate	4	Guaranteed DL bit rate.
		max_dl_bit_rate	4	Maximum DL bit rate.
		g_ul_bit_rate	4	Guaranteed UL bit rate.
		max_ul_bit_rate	4	Maximum UL bit rate.
Type	0x2F		1	APN Disabled Flag **
Length	1		2	
Value	→	apn_disabled_flag	1	When this flag is set, the use of this profile for making a data call is disabled. Any data call with this profile fails locally. Values: <ul style="list-style-type: none"> • 0 – FALSE (default) • 1 – TRUE
Type	0x30		1	PDN Inactivity Timeout **

Field	Field value	Parameter	Size (byte)	Description
Length	4		2	
Value	→	pdn_inactivity_timeout	4	The duration of the inactivity timer in seconds. When a PDP context/PDN connection is inactive (i.e., 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.
Type	0x31		1	APN Class **
Length	1		2	
Value	→	apn_class	1	An opaque, numeric identifier representing the APN in the profile. This can be transparently set for any profile and queried later, but is not used by the modem.
Type	0x90		1	Negotiate DNS Server Preference *
Length	1		2	
Value	→	negotiate_dns_server_preference	1	Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request DNS address from the PDSN • 0 – (FALSE) – Do not request DNS addresses from the PDSN Note: Default value is 1 (TRUE).
Type	0x91		1	PPP Session Close Timer for DO *
Length	4		2	
Value	→	ppp_session_close_timer_DO	4	Timer value (in seconds) on the DO indicating how long the PPP session lingers before closing down.
Type	0x92		1	PPP Session Close Timer for 1X *
Length	4		2	
Value	→	ppp_session_close_timer_1x	4	Timer value (in seconds) on 1X indicating how long the PPP session lingers before closing down.
Type	0x93		1	Allow/Disallow Linger of Interface *
Length	1		2	
Value	→	allow_linger	1	Values: <ul style="list-style-type: none"> • 1 – (TRUE) — Allow lingering • 0 – (FALSE) – Do not allow lingering
Type	0x94		1	LCP ACK Timeout *
Length	2		2	
Value	→	lcp_ack_timeout	2	Value of LCP ACK timeout in milliseconds.
Type	0x95		1	IPCP ACK Timeout *
Length	2		2	
Value	→	ipcp_ack_timeout	2	Value of IPCP ACK timeout in milliseconds.
Type	0x96		1	Authentication Timeout *
Length	2		2	
Value	→	auth_timeout	2	Value of authentication timeout in milliseconds.
Type	0x97		1	LCP Configuration Request Retry Count Value *

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	lcp_creq_retry_count	1	LCP configuration request retry count value.
Type	0x98		1	IPCP Configuration Request Retry Count *
Length	1		2	
Value	→	ipcp_creq_retry_count	1	IPCP configuration request retry count value.
Type	0x99		1	AUTH Retry *
Length	1		2	
Value	→	auth_retry_count	1	Authentication retry count value.
Type	0x9A		1	Authentication Protocol *
Length	1		2	
Value	→	auth_protocol	1	Values: • 1 – PAP • 2 – CHAP • 3 – PAP or CHAP
Type	0x9B		1	User ID *
Length	Var		2	
Value	→	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.
Type	0x9C		1	Authentication Password *
Length	Var		2	
Value	→	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.
Type	0x9D		1	Data Rate *
Length	1		2	
Value	→	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.
Type	0x9E		1	Application Type *
Length	4		2	
Value	→	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.
Type	0x9F		1	Data Mode *

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	data_mode	1	Values: <ul style="list-style-type: none"> • 0 – CDMA or HDR (Hybrid 1X/1xEV-DO) • 1 – CDMA only (1X only) • 2 – HDR only (1xEV-DO only) Note: Default is 0.
Type	0xA0		1	Application Priority *
Length	1		2	
Value	→	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 currently listed for future extensibility of profile ID search based on application priority.
Type	0xA1		1	APN String *
Length	Var		2	
Value	→	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.
Type	0xA2		1	PDN Type *
Length	1		2	
Value	→	pdn_type	1	Values: <ul style="list-style-type: none"> • 0 – IPv4 PDN type • 1 – IPv6 PDN type • 2 – IPv4 or IPv6 PDN type • 3 – Unspecified PDN type (no preference)
Type	0xA3		1	Is PCSCF Address Needed *
Length	1		2	
Value	→	is_pcscf_address_needed	1	The boolean value is used to control whether the PCSCF address is requested from PDSN. Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request for PCSCF value from the PDSN • 0 – (FALSE) – Do not request for PCSCF value from the PDSN
Type	0xA4		1	IPv4 Primary DNS Address *
Length	4		2	
Value	→	primary_v4_dns_address	4	The primary IPv4 DNS address statically assigned to the UE.
Type	0xA5		1	IPv4 Secondary DNS Address *
Length	4		2	
Value	→	secondary_v4_dns_address	4	The secondary IPv4 DNS address statically assigned to the UE.
Type	0xA6		1	Primary IPv6 DNS Address *
Length	16		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	primary_v6_dns_address	16	The primary IPv6 DNS address statically assigned to the UE.
Type	0xA7		1	Secondary IPv6 DNS address *
Length	16		2	
Value	→	secondary_v6_dns_address	16	The secondary IPv6 DNS address statically assigned to the UE.
Type	0xA8		1	RAT Type *
Length	1		2	
Value	→	rat_type	1	Values: • 1 – HRPD • 2 – EHRPD • 3 – HRPD_EHRPD
Type	0xA9		1	APN Enabled *
Length	1		2	
Value	→	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 – Disabled
Type	0xAA		1	PDN Inactivity Timeout *
Length	4		2	
Value	→	pdn_inactivity_timeout_3gpp2	4	Duration of inactivity timer in minutes. If a PDP context/PDN connection is inactive (i.e., 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.
Type	0xAB		1	APN Class 3GPP2 *
Length	1		2	
Value	→	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, but is not used by the modem.

3.13.2 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 last modified
Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended Error Code
Length	2		2	
Value	→	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 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	Some TLV was missing
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

3.13.3 Description of QMI_WDS_MODIFY_PROFILE_SETTINGS REQ/RESP

Used to modify 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.

3.14 QMI_WDS_DELETE_PROFILE

Deletes a configured profile.

WDS message ID

0x0029

Version introduced

Major - 1, Minor - 1

3.14.1 Request - QMI_WDS_DELETE_PROFILE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Identifier	1.13

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Identifier
Length	2		2	
Value	→	profile_type	1	Identifies the type of the profile. Values: • 0 – 3GPP • 1 – 3GPP2
		profile_index	1	Index identifying the profile.

Optional TLVs

None

3.14.2 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 last modified
Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended Error Code
Length	2		2	
Value	→	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 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	Some TLV was missing
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

3.14.3 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.

3.15 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

3.15.1 Request - QMI_WDS_GET_PROFILE_LIST_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

Name	Version last modified
Profile Type	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Profile Type
Length	1		2	
Value	→	profile_type	1	Identifies the technology type of the profile. Values: • 0 – 3GPP • 1 – 3GPP2

3.15.2 Response - QMI_WDS_GET_PROFILE_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. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version last modified
Profile list	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile list
Length	Var		2	
Value	→	profile_list_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • profile_type • profile_index • profile_name_len • profile_name
		profile_type	1	Identifies the technology type of the profile. Values: <ul style="list-style-type: none"> • 0 – 3GPP • 1 – 3GPP2
		profile_index	1	Profile number identifying the profile.
		profile_name_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • profile_name
		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 last modified
Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended Error Code
Length	2		2	
Value	→	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 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

3.15.3 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 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.

3.16 QMI_WDS_GET_PROFILE_SETTINGS

Retrieves the settings from a configured profile

WDS message ID

0x002B

Version introduced

Major - 1, Minor - 1

3.16.1 Request - QMI_WDS_GET_PROFILE_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Identifier	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Identifier
Length	2		2	
Value	→	profile_type	1	Identifies the type of the profile. Values: <ul style="list-style-type: none"> • 0 – 3GPP • 1 – 3GPP2
		profile_index	1	Index identifying the profile.

Optional TLVs

None

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

Name	Version last modified
Primary DNS IPv6 Address Preference **	1.11
Secondary DNS IPv6 Address Preference **	1.11
DHCP/NAS Preference **	1.11
3GPP LTE QoS Parameters **	1.11
APN Disabled Flag **	1.13
PDN Inactivity Timeout **	1.13
APN Class **	1.13
Negotiate DNS Server Preference *	1.11
PPP Session Close Timer for DO *	1.11
PPP Session Close Timer for 1X *	1.11
Allow/Disallow Lingering of Interface *	1.11
LCP ACK Timeout *	1.11
IPCP ACK Timeout *	1.11
AUTH Timeout *	1.11
LCP Configuration Request Retry Count Value *	1.11
IPCP Configuration Request Retry Count *	1.11
Authentication Retry *	1.11
Authentication Protocol *	1.11
User ID *	1.11
Authentication Password *	1.11
Data Rate *	1.11
Application Type *	1.11
Data Mode *	1.11
Application Priority *	1.11
APN String *	1.11
PDN Type *	1.11
Is PCSCF Address Needed *	1.11
IPv4 Primary DNS Address *	1.11
IPv4 Secondary DNS Address *	1.11
Primary IPv6 DNS Address *	1.11
Secondary IPv6 DNS Address *	1.11
RAT Type *	1.13
APN Enabled *	1.13
PDN Inactivity Timeout *	1.13
APN Class *	1.13
Profile Extended Error Code *	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Profile Name **
Length	Var		2	
Value	→	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
Type	0x11		1	PDP Type **

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	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: <ul style="list-style-type: none"> • 0 – PDP-IP (IPv4) • 1 – PDP-PPP • 2 – PDP-IPV6 • 3 – PDP-IPV4V6
Type	0x12		1	PDP Header Compression Type **
Length	1		2	
Value	→	pdp_hdr_compression_type	1	Values: <ul style="list-style-type: none"> • 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
Type	0x13		1	PDP Data Compression Type to Use **
Length	1		2	
Value	→	pdp_data_compression_type	1	Values: <ul style="list-style-type: none"> • 0 – PDP data compression is off • 1 – Manufacturer preferred compression • 2 – V.42BIS data compression • 3 – V.44 data compression
Type	0x14		1	Context Access Point Node Name **
Length	Var		2	
Value	→	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.
Type	0x15		1	Primary DNS Address Preference **
Length	4		2	
Value	→	primary_DNS_IPv4_address_preference	4	Value 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.
Type	0x16		1	Secondary DNS Address Preference **
Length	4		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	secondary_DNS_IPv4_address_preference	4	Value 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.
Type	0x17		1	UMTS Requested QoS **
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8

Field	Field value	Parameter	Size (byte)	Description
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
Type	0x18		1	UMTS Minimum QoS **
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1

Field	Field value	Parameter	Size (byte)	Description
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
Type	0x19		1	GPRS Requested QoS **
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1A		1	GRPS Minimum Qos **
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1B		1	Username **
Length	Var		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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.
Type	0x1C		1	Password **
Length	Var		2	
Value	→	password	Var	Password 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.
Type	0x1D		1	Authentication Preference **
Length	1		2	
Value	→	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. 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 may have a policy to select the most secure authentication mechanism.
Type	0x1E		1	IPv4 Address Preference **
Length	4		2	
Value	→	ipv4_address_preference	4	Preferred IPv4 address assigned to the TE. 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.
Type	0x1F		1	PCSCF Address Using PCO Flag **
Length	1		2	
Value	→	pcscf_addr_using_pco	1	Values: • 1 – (TRUE) – Request PCSCF address using PCO • 0 – (FALSE) – Do not request By default this value is 0.
Type	0x20		1	PDP Access Control Flag **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	pdp_access_control_flag	1	PDP access control flag. Values: <ul style="list-style-type: none"> • 0 – PDP access control none • 1 – PDP access control reject • 2 – PDP access control permission
Type	0x21		1	PCSCF Address Using DHCP **
Length	1		2	
Value	→	pcscf_addr_using_dhcp	1	Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request PCSCF address using DHCP • 0 – (FALSE) – Do not request By default, value is 0.
Type	0x22		1	IM CN flag **
Length	1		2	
Value	→	im_cn_flag	1	Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request IM CN flag for this profile • 0 – (FALSE) – Do not request IM CN flag for this profile
Type	0x23		1	Traffic Flow Template (TFT) ID1 Parameters **
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: <ul style="list-style-type: none"> • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: <ul style="list-style-type: none"> • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x24		1	TFT ID2 Parameters **
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: <ul style="list-style-type: none"> • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: <ul style="list-style-type: none"> • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes

Field	Field value	Parameter	Size (byte)	Description
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x25		1	PDP Context Number **
Length	1		2	
Value	→	pdp_context	1	PDP context number.
Type	0x26		1	PDP Context Secondary Flag **
Length	1		2	
Value	→	secondary_flag	1	Values: • 1 – (TRUE) – This is secondary profile • 0 – (FALSE) – This is not secondary profile
Type	0x27		1	PDP Context Primary ID **
Length	1		2	
Value	→	primary_id	1	PDP context number primary ID.
Type	0x28		1	IPv6 Address Preference **
Length	16		2	
Value	→	ipv6_address_preference	16	Preferred IPv6 address to be assigned to the TE; actual assigned address is negotiated with the network and may differ from this value; if not specified, the IPv6 address is obtained automatically from the network.
Type	0x29		1	UMTS Requested QoS with Signaling Indication Flag **
Length	34		2	
Value	→	traffic_class	1	Traffic class. Values: • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.

Field	Field value	Parameter	Size (byte)	Description
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: <ul style="list-style-type: none"> • 0 – Signaling indication off • 1 – Signaling indication on
Type	0x2A		1	UMTS Minimum QoS with Signaling Indication **
Length	34		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered

Field	Field value	Parameter	Size (byte)	Description
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: • 0 – Signaling indication off • 1 – Signaling indication on
Type	0x2B		1	Primary DNS IPv6 Address Preference **
Length	16		2	
Value	→	primary_dns_ipv6_address_preference	16	The value is 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
Type	0x2C		1	Secondary DNS IPv6 Address Preference **
Length	16		2	
Value	→	secodnary_dns_ipv6_address_preference	16	The value is 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
Type	0x2D		1	DHCP/NAS Preference **
Length	1		2	
Value	→	addr_allocation_preference	1	This enumerated value is used to indicate the address allocation preference. Values: • 0 – NAS signaling is used for address allocation • 1 – DHCP is used for address allocation
Type	0x2E		1	3GPP LTE QoS Parameters **
Length	17		2	
Value	→	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.

Field	Field value	Parameter	Size (byte)	Description
		g_dl_bit_rate	4	Guaranteed DL bit rate.
		max_dl_bit_rate	4	Maximum DL bit rate.
		g_ul_bit_rate	4	Guaranteed UL bit rate.
		max_ul_bit_rate	4	Maximum UL bit rate.
Type	0x2F		1	APN Disabled Flag **
Length	1		2	
Value	→	apn_disabled_flag	1	If this flag is set, the use of this profile for making data calls is disabled. Any data call with this profile fails locally. Values: • 0 – FALSE (default) • 1 – TRUE
Type	0x30		1	PDN Inactivity Timeout **
Length	4		2	
Value	→	pdn_inactivity_timeout	4	Duration of inactivity timer in seconds. If a PDP context/PDN connection is inactive (i.e., 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.
Type	0x31		1	APN Class **
Length	1		2	
Value	→	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, but is not used by the modem.
Type	0x90		1	Negotiate DNS Server Preference *
Length	1		2	
Value	→	negotiate_dns_server_preference	1	Values: • 1 – (TRUE) – Request DNS address from the PDSN • 0 – (FALSE) – Do not request DNS address from the PDSN Note: Default value is 1 (TRUE).
Type	0x91		1	PPP Session Close Timer for DO *
Length	4		2	
Value	→	ppp_session_close_timer_do	4	Timer value (in seconds) on DO indicating how long the PPP session lingers before closing down.
Type	0x92		1	PPP Session Close Timer for 1X *
Length	4		2	
Value	→	ppp_session_close_timer_1x	4	Timer value (in seconds) on 1X indicating how long the PPP session lingers before closing down.
Type	0x93		1	Allow/Disallow Lingering of Interface *
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	allow_linger	1	Values: • 1 – (TRUE) – Allow lingering • 0 – (FALSE) – Do not allow lingering
Type	0x94		1	LCP ACK Timeout *
Length	2		2	
Value	→	lcp_ack_timeout	2	Value of LCP ACK timeout in milliseconds.
Type	0x95		1	IPCP ACK Timeout *
Length	2		2	
Value	→	ipcp_ack_timeout	2	Value of IPCP ACK timeout in milliseconds.
Type	0x96		1	AUTH Timeout *
Length	2		2	
Value	→	auth_timeout	2	Value of authentication timeout in milliseconds.
Type	0x97		1	LCP Configuration Request Retry Count Value *
Length	1		2	
Value	→	lcp_creq_retry_count	1	LCP configuration request retry count value.
Type	0x98		1	IPCP Configuration Request Retry Count *
Length	1		2	
Value	→	ipcp_creq_retry_count	1	IPCP configuration request retry count value.
Type	0x99		1	Authentication Retry *
Length	1		2	
Value	→	auth_retry_count	1	Authentication retry count value.
Type	0x9A		1	Authentication Protocol *
Length	1		2	
Value	→	auth_protocol	1	Values: • 1 – PAP • 2 – CHAP • 3 – PAP or CHAP
Type	0x9B		1	User ID *
Length	Var		2	
Value	→	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.
Type	0x9C		1	Authentication Password *
Length	Var		2	
Value	→	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.
Type	0x9D		1	Data Rate *
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	data_rate	1	Values: <ul style="list-style-type: none"> • 0 – Low (Low speed service options (SO15) only) • 1 – Medium (SO33 + low R-SCH) • 2 – High (SO33 + high R-SCH) Note: Default is 2.
Type	0x9E		1	Application Type *
Length	4		2	
Value	→	app_type	4	Values: <ul style="list-style-type: none"> • 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.
Type	0x9F		1	Data Mode *
Length	1		2	
Value	→	data_mode	1	Values: <ul style="list-style-type: none"> • 0 – CDMA or HDR (Hybrid 1X/1xEV-DO) • 1 – CDMA only (1X only) • 2 – HDR only (1xEV-DO only) Note: Default is 0.
Type	0xA0		1	Application Priority *
Length	1		2	
Value	→	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.
Type	0xA1		1	APN String *
Length	Var		2	
Value	→	apn_string	Var	String representing the access point name; maximum length allowed is 100 bytes. QMI_ERR_ARG_TOO_LONG is returned when the APN name is too long.
Type	0xA2		1	PDN Type *
Length	1		2	
Value	→	pdn_type	1	Values: <ul style="list-style-type: none"> • 0 – IPv4 PDN type • 1 – IPv6 PDN type • 2 – IPv4 or IPv6 PDN type • 3 – Unspecified PDN type (implying no preference)
Type	0xA3		1	Is PCSCF Address Needed *

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	is_pcscf_address_needed	1	This boolean value is 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
Type	0xA4		1	IPv4 Primary DNS Address *
Length	4		2	
Value	→	primary_v4_dns_address	4	The primary IPv4 DNS address that can be statically assigned to the UE.
Type	0xA5		1	IPv4 Secondary DNS Address *
Length	4		2	
Value	→	secondary_v4_dns_address	4	The secondary IPv4 DNS address that can be statically assigned to the UE.
Type	0xA6		1	Primary IPv6 DNS Address *
Length	16		2	
Value	→	primary_v6_dns_address	16	The primary IPv6 DNS address that can be statically assigned to the UE.
Type	0xA7		1	Secondary IPv6 DNS Address *
Length	16		2	
Value	→	secondary_v6_dns_address	16	The secondary IPv6 DNS address that can be statically assigned to the UE.
Type	0xA8		1	RAT Type *
Length	1		2	
Value	→	rat_type	1	Values: • 1 – HRPD • 2 – EHRPD • 3 – HRPD_EHRPD
Type	0xA9		1	APN Enabled *
Length	1		2	
Value	→	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 – Disabled
Type	0xAA		1	PDN Inactivity Timeout *
Length	4		2	
Value	→	pdn_inactivity_timeout_3gpp2	4	Duration of inactivity timer in minutes. If a PDP context/PDN connection is inactive (i.e., 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.
Type	0xAB		1	APN Class *

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	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, but is not used by the modem.
Type	0xE0		1	Profile Extended Error Code *
Length	2		2	
Value	→	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	An 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	Some TLV was missing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate the 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

3.16.3 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).

3.17 QMI_WDS_GET_DEFAULT_SETTINGS

Retrieves the default data session settings.

WDS message ID

0x002C

Version introduced

Major - 1, Minor - 1

3.17.1 Request - QMI_WDS_GET_DEFAULT_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Type	1.1

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Type
Length	1		2	
Value	→	profile_type	1	Identifies the technology type of the profile. Values: <ul style="list-style-type: none">• 0 – 3GPP• 1 – 2GPP2

Optional TLVs

None

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

Name	Version last modified
Secondary DNS IPv6 Address Preference	1.11
DHCP/NAS Preference	1.11
3GPP LTE QoS Parameters	1.11
APN Disabled Flag	1.13
PDN Inactivity Timeout	1.13
APN Class	1.13
Negotiate DNS Server Preference	1.11
PPP Session Close Timer for DO	1.11
PPP Session Close Timer for 1X	1.11
Allow/Disallow Lingering of Interface	1.11
LCP ACK Timeout	1.11
IPCP ACK Timeout	1.11
AUTH Timeout	1.11
LCP Configuration Request Retry Count Value	1.11
IPCP Configuration Request Retry Count	1.11
AUTH Retry	1.11
Authentication Protocol	1.11
User ID	1.11
Authentication Password	1.11
Data Rate	1.11
Application Type	1.11
Data Mode	1.11
Application Priority	1.11
APN String	1.11
PDN Type	1.11
Is PCSCF Address Needed	1.11
IPv4 Primary DNS Address	1.11
IPv4 Secondary DNS Address	1.11
Primary IPv6 DNS Address	1.11
Secondary IPv6 DNS Address	1.11
RAT Type	1.13
APN Enabled	1.13
PDN Inactivity Timeout	1.13
APN Class	1.13
Profile Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Profile Name
Length	Var		2	
Value	→	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.
Type	0x11		1	PDP Type
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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
Type	0x12		1	PDP Header Compression Type
Length	1		2	
Value	→	pdp_hdr_compression_type	1	Values: • 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
Type	0x13		1	PDP Data Compression Type
Length	1		2	
Value	→	pdp_data_compression_type	1	Values: • 0 – PDP data compression is off • 1 – Manufacturer preferred compression • 2 – V.42BIS data compression • 3 – V.44 data compression
Type	0x14		1	Context Access Point Node (APN) Name
Length	Var		2	
Value	→	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.
Type	0x15		1	Primary DNS Address Preference
Length	4		2	
Value	→	primary_DNS_IPv4_address_preference	4	Value is 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.
Type	0x16		1	Secondary DNS Address Preference
Length	4		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	secondary_DNS_IPv4_address_preference	4	Value is 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.
Type	0x17		1	UMTS Requested QoS
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8

Field	Field value	Parameter	Size (byte)	Description
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
Type	0x18		1	UMTS Minimum QoS
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1

Field	Field value	Parameter	Size (byte)	Description
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
Type	0x19		1	GPRS Requested QoS
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1A		1	GRPS Minimum Qos
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1B		1	Username
Length	Var		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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.
Type	0x1C		1	Password
Length	Var		2	
Value	→	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.
Type	0x1D		1	Authentication Preference
Length	1		2	
Value	→	authentication_preference	1	A bit map that indicates the authentication algorithm preference. Values: Bit 0 – PAP preference: <ul style="list-style-type: none"> • 0 – PAP is never performed • 1 – PAP may be performed Bit 1 – CHAP preference: <ul style="list-style-type: none"> • 0 – CHAP is never performed • 1 – CHAP may 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, then 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.
Type	0x1E		1	IPv4 Address Preference
Length	4		2	
Value	→	ipv4_address_preference	4	Preferred IPv4 address 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.
Type	0x1F		1	PCSCF Address Using PCO Flag
Length	1		2	
Value	→	pcscf_addr_using_pco	1	Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request PCSCF address using PCO • 0 – (FALSE) – Do not request By default this value is 0.
Type	0x20		1	PDP Access Control Flag
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	pdp_access_control_flag	1	Values: • 0 – PDP access control none • 1 – PDP access control reject • 2 – PDP access control permission
Type	0x21		1	PCSCF Address Using DHCP
Length	1		2	
Value	→	pcscf_addr_using_dhcp	1	Values: • 1 – (TRUE) – Request PCSCF address using DHCP • 0 – (FALSE) – Do not request By default, value is 0.
Type	0x22		1	IM CN Flag
Length	1		2	
Value	→	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
Type	0x23		1	Traffic Flow Template (TFT) ID1 Parameters
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x24		1	TFT ID2 Parameters
Length	39		2	
Value	→	filter_id	1	Filter identifier.
		eval_id	1	Evaluation precedence index.
		ip_version	1	IP version number. Values: • 4 – IPV4 • 6 – IPV6
		source_ip	16	Values: • IPv4 – Fill the first 4 bytes • IPv6 – Fill all the 16 bytes

Field	Field value	Parameter	Size (byte)	Description
		source_ip_mask	1	Mask value for the source address.
		next_header	1	Next header/protocol value.
		dest_port_range_start	2	Start value for the destination port range.
		dest_port_range_end	2	End value for the destination port range.
		src_port_range_start	2	Start value for the source port range.
		src_port_range_end	2	End value for the source port range.
		ipsec_spi	4	IPSEC security parameter index.
		tos_mask	2	TOS mask (traffic class for IPv6).
		flow_label	4	Flow label.
Type	0x25		1	PDP Context Number
Length	1		2	
Value	→	pdp_context	1	PDP context number.
Type	0x26		1	PDP Context Secondary Flag
Length	1		2	
Value	→	secondary_flag	1	Values: • 1 – (TRUE) – This is the secondary profile • 0 – (FALSE) – This is not the secondary profile
Type	0x27		1	PDP Context Primary ID
Length	1		2	
Value	→	primary_id	1	PDP context number primary ID.
Type	0x28		1	IPv6 Address Preference
Length	16		2	
Value	→	ipv6_address_preference	16	The preferred IPv6 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 IPv6 address is obtained automatically from the network.
Type	0x29		1	UMTS Requested QoS With Signaling Indication Flag
Length	34		2	
Value	→	traffic_class	1	Traffic class. Values: • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.

Field	Field value	Parameter	Size (byte)	Description
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: <ul style="list-style-type: none"> • 0 – Signaling indication off • 1 – Signaling indication on
Type	0x2A		1	UMTS Minimum QoS With Signaling Indication
Length	34		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered

Field	Field value	Parameter	Size (byte)	Description
		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.
		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.
		sig_ind	1	Signaling indication flag. Values: • 0 – Signaling indication off • 1 – Signaling indication on
Type	0x2B		1	Primary DNS IPv6 Address Preference
Length	16		2	
Value	→	primary_dns_ipv6_address_preference	16	The value is 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.
Type	0x2C		1	Secondary DNS IPv6 Address Preference
Length	16		2	
Value	→	secodnary_dns_ipv6_address_preference	16	The value is 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.
Type	0x2D		1	DHCP/NAS Preference
Length	1		2	
Value	→	addr_allocation_preference	1	This enumerated value is used to indicate the address allocation preference. Values: • 0 – NAS signaling is used for address allocation • 1 – DHCP is used for address allocation
Type	0x2E		1	3GPP LTE QoS Parameters
Length	17		2	
Value	→	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.

Field	Field value	Parameter	Size (byte)	Description
		g_dl_bit_rate	4	Guaranteed DL bit rate.
		max_dl_bit_rate	4	Maximum DL bit rate.
		g_ul_bit_rate	4	Guaranteed UL bit rate.
		max_ul_bit_rate	4	Maximum UL bit rate.
Type	0x2F		1	APN Disabled Flag
Length	1		2	
Value	→	apn_disabled_flag	1	When this flag is set, the use of this profile for making data calls is disabled. Any data call with this profile fails locally. Values: <ul style="list-style-type: none"> • 0 – FALSE (default) • 1 – TRUE
Type	0x30		1	PDN Inactivity Timeout
Length	4		2	
Value	→	pdn_inactivity_timeout	4	Duration of the inactivity timer in seconds. When a PDP context/PDN connection is inactive (i.e., 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.
Type	0x31		1	APN Class
Length	1		2	
Value	→	apn_class	1	An opaque, numeric identifier representing the APN in the profile. This can be transparently set for any profile and queried later, but is not used by the modem.
Type	0x90		1	Negotiate DNS Server Preference
Length	1		2	
Value	→	negotiate_dns_server_preference	1	Values: <ul style="list-style-type: none"> • 1 – (TRUE) – Request DNS address from the PDSN • 0 – (FALSE) – Do not request DNS addresses from the PDSN Note: Default value is 1 (TRUE).
Type	0x91		1	PPP Session Close Timer for DO
Length	4		2	
Value	→	ppp_session_close_timer_do	4	Timer value (in seconds) on the DO indicating how long the PPP session lingers before closing down.
Type	0x92		1	PPP Session Close Timer for 1X
Length	4		2	
Value	→	ppp_session_close_timer_1x	4	The timer value (in seconds) on 1X indicating how long the PPP session lingers before closing.
Type	0x93		1	Allow/Disallow Lingering of Interface
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	allow_linger	1	Values: • 1 – (TRUE) – Allow lingering • 0 – (FALSE) – Do not allow lingering
Type	0x94		1	LCP ACK Timeout
Length	2		2	
Value	→	lcp_ack_timeout	2	Value of LCP ACK timeout in milliseconds.
Type	0x95		1	IPCP ACK Timeout
Length	2		2	
Value	→	ipcp_ack_timeout	2	Value of IPCP ACK timeout in milliseconds.
Type	0x96		1	AUTH Timeout
Length	2		2	
Value	→	auth_timeout	2	Value of authentication timeout in milliseconds.
Type	0x97		1	LCP Configuration Request Retry Count Value
Length	1		2	
Value	→	lcp_creq_retry_count	1	LCP configuration request retry count value.
Type	0x98		1	IPCP Configuration Request Retry Count
Length	1		2	
Value	→	ipcp_creq_retry_count	1	IPCP configuration request retry count value.
Type	0x99		1	AUTH Retry
Length	1		2	
Value	→	auth_retry_count	1	Authentication retry count value.
Type	0x9A		1	Authentication Protocol
Length	1		2	
Value	→	auth_protocol	1	Values: • 1 – PAP • 2 – CHAP • 3 – PAP or CHAP
Type	0x9B		1	User ID
Length	Var		2	
Value	→	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.
Type	0x9C		1	Authentication Password
Length	Var		2	
Value	→	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.
Type	0x9D		1	Data Rate
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	data_rate	1	Values: <ul style="list-style-type: none"> • 0 – Low (Low speed service options (SO15) only) • 1 – Medium (SO33 + low R-SCH) • 2 – High (SO33 + high R-SCH) Note: Default is 2.
Type	0x9E		1	Application Type
Length	4		2	
Value	→	app_type	4	Values: <ul style="list-style-type: none"> • 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.
Type	0x9F		1	Data Mode
Length	1		2	
Value	→	data_mode	1	Values: <ul style="list-style-type: none"> • 0 – CDMA or HDR (Hybrid 1X/1xEV-DO) • 1 – CDMA only (1X only) • 2 – HDR only (1xEV-DO only) Note: Default is 0.
Type	0xA0		1	Application Priority
Length	1		2	
Value	→	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 currently listed for future extensibility of profile ID search based on application priority.
Type	0xA1		1	APN String
Length	Var		2	
Value	→	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.
Type	0xA2		1	PDN Type
Length	1		2	
Value	→	pdn_type	1	Values: <ul style="list-style-type: none"> • 0 – IPv4 PDN type • 1 – IPv6 PDN type • 2 – IPv4 or IPv6 PDN type • 3 – Unspecified PDN type (implying no preference)
Type	0xA3		1	Is PCSCF Address Needed

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	is_pcsf_address_needed	1	This boolean value is 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
Type	0xA4		1	IPv4 Primary DNS Address
Length	4		2	
Value	→	primary_v4_dns_address	4	The primary IPv4 DNS address that can be statically assigned to the UE.
Type	0xA5		1	IPv4 Secondary DNS Address
Length	4		2	
Value	→	secondary_v4_dns_address	4	The secondary IPv4 DNS address that can be statically assigned to the UE.
Type	0xA6		1	Primary IPv6 DNS Address
Length	16		2	
Value	→	primary_v6_dns_address	16	The primary IPv6 DNS address that can be statically assigned to the UE.
Type	0xA7		1	Secondary IPv6 DNS Address
Length	16		2	
Value	→	secondary_v6_dns_address	16	The secondary IPv6 DNS address that can be statically assigned to the UE.
Type	0xA8		1	RAT Type
Length	1		2	
Value	→	rat_type	1	Values: • 1 – HRPD • 2 – EHRPD • 3 – HRPD_EHRPD
Type	0xA9		1	APN Enabled
Length	1		2	
Value	→	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 – Disabled
Type	0xAA		1	PDN Inactivity Timeout
Length	4		2	
Value	→	pdn_inactivity_timeout_3gpp2	4	The duration of inactivity timer in minutes. When a PDP context/PDN connection is inactive (i.e., 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.
Type	0xAB		1	APN Class

Field	Field value	Parameter	Size (byte)	Description
Length	1		2	
Value	→	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, but is not used by the modem.
Type	0xE0		1	Profile Extended Error Code
Length	2		2	
Value	→	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	An 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	Some TLV was missing
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

3.17.3 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.

3.18 QMI_WDS_GET_RUNTIME_SETTINGS

Retrieves the packet data session settings currently in use.

WDS message ID

0x002D

Version introduced

Major - 1, Minor - 2

3.18.1 Request - QMI_WDS_GET_RUNTIME_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

Name	Version last modified
Requested Settings	1.3

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

Field	Field value	Parameter	Size (byte)	Description
Value	→	requested_settings	4	<p>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.</p> <p>Absence of this mask TLV results in the device returning all of the available information corresponding to bits 0 through 12. In cases where information from bit 13 or greater is required, this TLV with all desired bits set must be present in the request. Values:</p> <ul style="list-style-type: none"> • 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 info (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 15 – IP family • Bit 16 – IM_CM flag • Bit 17 – Technology name

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

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Profile Name **
Length	Var		2	
Value	→	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	→	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: <ul style="list-style-type: none"> • 0 – PDP-IP (IPv4) • 1 – PDP-PPP • 2 – PDP-IPV6 • 3 – PDP-IPV4V6
Type	0x14		1	Context Access Point Node (APN) Name **

Field	Field value	Parameter	Size (byte)	Description
Length	Var		2	
Value	→	apn_name	Var	Access point name – String parameter that is a logical name used to select the GGSN and external packet data network. If the value is NULL or omitted, then the subscription default value is requested. QMI_ERR_ARG_TOO_LONG is returned if the APN name is too long.
Type	0x15		1	Primary DNS Address Preference * **
Length	4		2	
Value	→	primary_DNS_IPv4_address_preference	4	Value 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.
Type	0x16		1	Secondary DNS Address Preference * **
Length	4		2	
Value	→	secondary_DNS_IPv4_address_preference	4	Value 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.
Type	0x17		1	UMTS Requested QoS **
Length	33		2	
Value	→	traffic_class	1	Traffic class. Values: <ul style="list-style-type: none"> • 0 – Subscribed • 1 – Conversational • 2 – Streaming • 3 – Interactive • 4 – Background
		max_uplink_bitrate	4	Maximum uplink bit rate in bits per second.
		max_downlink_bitrate	4	Maximum downlink bit rate in bits per second.
		guaranteed_uplink_bitrate	4	Guaranteed uplink bit rate in bits per second.
		guaranteed_downlink_bitrate	4	Guaranteed downlink bit rate in bits per second.
		qos_delivery_order	1	Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – Delivery order on • 2 – Delivery order off
		max_sdu_size	4	Maximum SDU size.

Field	Field value	Parameter	Size (byte)	Description
		sdu_error_ratio	1	Target value for the fraction of SDUs lost or detected as erroneous. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 1×10^2 • 2 – 7×10^3 • 3 – 1×10^3 • 4 – 1×10^4 • 5 – 1×10^5 • 6 – 1×10^6 • 7 – 1×10^1
		residual_bit_error_ratio	1	Target value for the undetected bit error ratio in the delivered SDUs. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – 5×10^2 • 2 – 1×10^2 • 3 – 5×10^3 • 4 – 4×10^3 • 5 – 1×10^3 • 6 – 1×10^4 • 7 – 1×10^5 • 8 – 1×10^6 • 9 – 6×10^8
		delivery_erroneous_SDUs	1	Delivery of erroneous SDUs. Indicates whether SDUs detected as erroneous are delivered or not. Values: <ul style="list-style-type: none"> • 0 – Subscribe • 1 – No detection • 2 – Erroneous SDU is delivered • 3 – Erroneous SDU is not delivered
		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.
		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.
Type	0x19		1	GPRS Requested QoS **
Length	20		2	
Value	→	precedence_class	4	Precedence class [Q3]
		delay_class	4	Delay class [Q3]
		reliability_class	4	Reliability class [Q3]
		peak_throughput_class	4	Peak throughput class [Q3]
		mean_throughput_class	4	Mean throughput class [Q3]
Type	0x1B		1	Username **

Field	Field value	Parameter	Size (byte)	Description
Length	Var		2	
Value	→	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.
Type	0x1D		1	Authentication Preference **
Length	1		2	
Value	→	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 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 may have a policy to select the most secure authentication mechanism.
Type	0x1E		1	IPv4 Address Preference * **
Length	4		2	
Value	→	ipv4_address_preference	4	Preferred IPv4 address 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.
Type	0x1F		1	Profile Identifier **
Length	2		2	
Value	→	profile_type	1	Values: • 0 – PROFILE_TYPE_3GPP – 3GPP
		profile_index	1	Index of the profile whose settings are loaded prior to session parameter negotiation for the current call; if this TLV is not present, the data call parameters are based on the device default settings for each parameter.
Type	0x20		1	IPv4 Gateway Address * **
Length	4		2	
Value	→	ipv4_gateway_addr	4	Gateway address.
Type	0x21		1	IPv4 Subnet Mask * **
Length	4		2	
Value	→	ipv4_subnet_mask	4	Subnet mask.
Type	0x22		1	PCSCF Address Using PCO Flag **
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	pcscf_addr_using_pco	1	Values: • 1 – (TRUE) – PCSCF address is requested using PCO • 0 – (FALSE) – It is not requested
Type	0x23		1	PCSCF IPv4 Server Address List ** PCSCF IPv4 server address.
Length	Var		2	
Value	→	pcscf_ipv4_addr_list_len	1	Number of sets of the following elements: • pcscf_ipv4_address
		pcscf_ipv4_address	4	PCSCF IPv4 server address.
Type	0x24		1	PCSCF FQDN List **
Length	Var		2	
Value	→	fqdn_list_len	1	Number of sets of the following elements: • fqdn_len • fqdn
		fqdn_len	2	Number of sets of the following elements: • fqdn
		fqdn	Var	FQDN string.
Type	0x25		1	IPv6 Address * **
Length	17		2	
Value	→	ipv6_addr	16	IPv6 address (in network byte order); this is an 8-element array of 16-bit numbers, each of which is in big-endian format.
		ipv6_prefix_length	1	IPv6 prefix length in number of bits; it can take a value between 0 and 128.
Type	0x26		1	IPv6 Gateway Address * **
Length	17		2	
Value	→	ipv6_addr	16	IPv6 address (in network byte order); this is an 8-element array of 16-bit numbers, each of which is in big-endian format.
		ipv6_prefix_length	1	IPv6 prefix length in number of bits; it can take a value between 0 and 128.
Type	0x27		1	Primary IPv6 DNS Address * **
Length	16		2	
Value	→	primary_dns_IPv6_address	16	Primary IPv6 DNS address (in network byte order); this is an 8-element array of 16-bit numbers, each of which is in big-endian format.
Type	0x28		1	Secondary IPv6 DNS Address * **
Length	16		2	
Value	→	secondary_dns_IPv6_address	16	Secondary IPv6 DNS address (in network byte order); this is an 8-element array of 16-bit numbers, each of which is in big-endian format.
Type	0x29		1	MTU * **
Length	4		2	
Value	→	mtu	4	MTU.
Type	0x2A		1	Domain Name List * **
Length	Var		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	domain_name_list_len	1	Number of sets of the following elements: • domain_name_len • domain_name
		domain_name_len	2	Number of sets of the following elements: • domain_name
		domain_name	Var	Domain name.
Type	0x2B		1	IP Family * **
Length	1		2	
Value	→	ip_family	1	Values: • 4 – IPV4_ADDR • 6 – IPV6_ADDR
Type	0x2C		1	IM CN Flag *
Length	1		2	
Value	→	im_cn_flag	1	Values: • 0 – FALSE • 1 – TRUE
Type	0x2D		1	Technology Name * **
Length	2		2	
Value	→	technology_name	2	Technology on which current packet data session is in progress. Values: • -32767 – CDMA • -32764 – UMTS • -30592 – EPC
Type	0x2E		1	PCSCF IPv6 Address List * ** PCSCF IPv6 server address (in network byte order); this is an 8-element array of 16-bit numbers, each of which is in big endian format.
Length	Var		2	
Value	→	pcscf_ipv6_addr_list_len	1	Number of sets of the following elements: • pcscf_ipv6_addr
		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 big-endian format

Error codes

QMI_ERR_NONE	No error in 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 response
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was disconnected

3.18.3 Description of QMI_WDS_GET_RUNTIME_SETTINGS REQ/RESP

This command retrieves the settings for the current data session. Note that these settings may 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, then there are no runtime settings. Password TLV is not returned.

3.19 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

3.19.1 Request - QMI_WDS_SET_MIP_MODE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Mobile IP Mode *	1.3

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Mobile IP Mode *
Length	1		2	
Value	→	mip_mode	1	Values: <ul style="list-style-type: none"> • 0 – MIP off (simple IP only) • 1 – MIP preferred • 2 – MIP only

Optional TLVs

None

3.19.2 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 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	Some TLV was missing in the request
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device
QMI_ERR_NO_EFFECT	Specified Mobile IP setting is already in effect

3.19.3 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.

3.20 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

3.20.1 Request - QMI_WDS_GET_MIP_MODE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.20.2 Response - QMI_WDS_GET_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. This TLV is present if the result code is QMI_RESULT_SUCCESS.

Name	Version last modified
Mobile IP Mode *	1.3

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Mobile IP Mode *
Length	1		2	
Value	→	mip_mode	1	Values: <ul style="list-style-type: none"> • 0 – MIP off (simple IP only) • 1 – MIP preferred • 2 – MIP only

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.20.3 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.

3.21 QMI_WDS_GET_DORMANCY_STATUS

Queries the current traffic channel status.

WDS message ID

0x0030

Version introduced

Major - 1, Minor - 3

3.21.1 Request - QMI_WDS_GET_DORMANCY_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.21.2 Response - QMI_WDS_GET_DORMANCY_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 last modified
Dormancy status	1.3

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Dormancy status
Length	1		2	
Value	→	dormancy_status	1	Values: • 1 – Traffic channel dormant • 2 – Traffic channel active

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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, since the call is not up
QMI_ERR_INFO_UNAVAILABLE	Dormancy status information is unavailable at this point

3.21.3 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.

3.22 QMI_WDS_GET_AUTOCONNECT_SETTING

Queries autoconnect settings.

WDS message ID

0x0034

Version introduced

Major - 1, Minor - 12

3.22.1 Request - QMI_WDS_GET_AUTOCONNECT_SETTING_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.22.2 Response - QMI_WDS_GET_AUTOCONNECT_SETTING_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 last modified
Autoconnect Setting	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Autoconnect Setting
Length	1		2	
Value	→	autoconnect_setting	1	Values: <ul style="list-style-type: none"> • 0x00 – Autoconnect disabled • 0x01 – Autoconnect enabled • 0x02 – Autoconnect paused (resume on power cycle)

Optional TLVs

Name	Version last modified
Autoconnect Roam Setting	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Autoconnect Roam Setting
Length	1		2	
Value	→	autoconnect_roam_setting	1	Values: <ul style="list-style-type: none"> • 0x00 – Autoconnect always allowed • 0x01 – Autoconnect while in home service area only Note: if inactive, this TLV is not be included in the response and the device defaults to use 0x00. Autoconnect is always allowed. Note: autoconnect_roam_setting is only used while autoconnect is enabled.

Error codes

QMI_ERR_NONE	No error in 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

3.22.3 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 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.

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.

3.23 QMI_WDS_GET_CALL_DURATION

Queries the duration of the current call.

WDS message ID

0x0035

Version introduced

Major - 1, Minor - 4

3.23.1 Request - QMI_WDS_GET_CALL_DURATION_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.23.2 Response - QMI_WDS_GET_CALL_DURATION_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 last modified
Call Duration	1.4

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Call Duration
Length	8		2	
Value	→	call_duration	8	Call duration in milliseconds

Optional TLVs

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

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Last Call Duration
Length	8		2	
Value	→	last_call_duration	8	Call duration in milliseconds of the last data call since device was powered up (zero if no call was made); returned only if not in a call.
Type	0x11		1	Call Active Duration
Length	8		2	
Value	→	call_active_duration	8	Duration that the current call was active, in milliseconds; returned only if in a call.
Type	0x12		1	Last Call Active Duration
Length	8		2	
Value	→	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 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, since the call is not up

3.23.3 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.

3.24 QMI_WDS_GET_DATA_BEARER_TECHNOLOGY

Queries the current data bearer technology.

WDS message ID

0x0037

Version introduced

Major - 1, Minor - 12

3.24.1 Request - QMI_WDS_GET_DATA_BEARER_TECHNOLOGY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.24.2 Response - QMI_WDS_GET_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 last modified
Data Bearer Technology	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Data Bearer Technology
Length	1		2	
Value	→	data_bearer_tech	1	Values: <ul style="list-style-type: none"> • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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_HSDAP+ and HSUPA • -1 – Unknown

Optional TLVs

Name	Version last modified
Last Call Data Bearer Technology	1.12

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

Field	Field value	Parameter	Size (byte)	Description
Value	→	last_call_data_bearer_tech	1	Values: <ul style="list-style-type: none"> • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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_HSDAP+ and HSUPA • -1 – Unknown 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).

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device
QMI_ERR_OUT_OF_CALL	Data bearer is not returned since a call is not active

3.24.3 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.

3.25 QMI_WDS_GET_DUN_CALL_INFO

Queries the current modem connection status.

WDS message ID

0x0038

Version introduced

Major - 1, Minor - 12

3.25.1 Request - QMI_WDS_GET_DUN_CALL_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Request Info	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Request Info
Length	4		2	
Value	→	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: <ul style="list-style-type: none"> • 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

Optional TLVs

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

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Connect Status Indicator
Length	1		2	
Value	→	report_connection_status	1	Values: • 0 – Do not report • 1 – Report connection status and call end reason
Type	0x11		1	Transfer Statistics Indicator
Length	5		2	
Value	→	stats_peroid	1	Peroid between transfer statistic reports. Values: • 0 – Do not report • Other – Peroid between reports (seconds)
		stats_mask	4	Requested statistic bit mask. Each bit set causes the corresponding optional TLV to be sent in the IND. All unlisted bits are reserved for future use and must be set to zero. Values: • 0x00000040 – Tx bytes OK • 0x00000080 – Rx bytes OK
Type	0x12		1	Dormancy Status Indicator
Length	1		2	
Value	→	report_dormancy_status	1	Values: • 0 – Do not report • 1 – Report traffic channel state of interface used for data connection
Type	0x13		1	Current Data Bearer Technology Indicator
Length	1		2	
Value	→	report_data_bearer_tech	1	Values: • 0 – Do not report • 1 – Report radio interface used for data transfer when it changes
Type	0x14		1	Channel Rate Indicator
Length	1		2	
Value	→	report_channel_rate	1	Values: • 0 – Do not report • 1 – Report channel rate

3.25.2 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 last modified
Connection Status	1.12
Last Modem Call End Reason	1.12
Tx Bytes OK	1.12
Rx Bytes OK	1.12
Dormancy Status	1.12
Data Bearer Technology	1.12
Channel Rate	1.12
Last Call Tx Bytes OK	1.12
Last Call Rx Bytes OK	1.12
Call Active Duration	1.12
Last Call Data Bearer Technology	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Connection Status
Length	9		2	
Value	→	modem_connection_status	1	Current link status. Values: <ul style="list-style-type: none"> • 0x01 – DISCONNECTED • 0x02 – CONNECTED
		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).
Type	0x11		1	Last Modem Call End Reason
Length	2		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	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.
Type	0x12		1	Tx Bytes OK
Length	8		2	
Value	→	tx_ok_bytes_count	8	Number of bytes transmitted without error. Returned only if a data call is up
Type	0x13		1	Rx Bytes OK
Length	8		2	
Value	→	rx_ok_bytes_count	8	Number of bytes received without error. Returned only if a data call is up
Type	0x14		1	Dormancy Status
Length	1		2	
Value	→	dormancy_status	1	Current traffic channel status. Returned only if a data call is up. Values: <ul style="list-style-type: none"> • 0x01 – Traffic channel dormant • 0x02 – Traffic channel active
Type	0x15		1	Data Bearer Technology
Length	1		2	
Value	→	data_bearer_tech	1	Current data bearer technology. Returned only if a data call is up. Values: <ul style="list-style-type: none"> • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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 • -1 – Unknown
Type	0x16		1	Channel Rate
Length	16		2	
Value	→	current_channel_tx_rate	4	Instantaneous channel Tx rate in bits per second.
		current_channel_rx_rate	4	Instantaneous channel Rx rate in bits per second.
		max_channel_tx_rate	4	Maximum Tx rate that can be assigned to the device by the serving system in bits per second.
		max_channel_rx_rate	4	Maximum Rx rate that can be assigned to the device by the serving system in bits per second.

Field	Field value	Parameter	Size (byte)	Description
Type	0x17		1	Last Call Tx Bytes OK
Length	8		2	
Value	→	last_call_tx_ok_bytes_count	8	Number of bytes transmitted without 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.
Type	0x18		1	Last Call Rx Bytes OK
Length	8		2	
Value	→	last_call_rx_ok_bytes_count	8	Number of bytes received without error during the last data call (0 if no call was made). Returned only if not in a call and the previous call was made using DUN.
Type	0x19		1	Call Active Duration
Length	8		2	
Value	→	modem_call_duration_active	8	Duration that the call is active in 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).
Type	0x20		1	Last Call Data Bearer Technology
Length	1		2	
Value	→	last_call_data_bearer_tech	1	Values: <ul style="list-style-type: none"> • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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 • -1 – Unknown Returned only if not in a call and when the previous call was made using DUN.

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.25.3 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](#).

3.25.4 Indication - QMI_WDS_DUN_CALL_INFO_IND

Message type

Indication

Sender

Service

Indication scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

Name	Version last modified
Connection Status	1.12
Last Modem Call End Reason	1.12

Name	Version last modified
Tx Bytes OK	1.12
Rx Bytes OK	1.12
Dormancy Status	1.12
Data Bearer Technology	1.12
Channel Rate	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Connection Status
Length	1		2	
Value	→	modem_connection_status	1	Current link status. Values: • 0x01 – DISCONNECTED • 0x02 – CONNECTED
Type	0x11		1	Last Modem Call End Reason
Length	2		2	
Value	→	call_end_reason	2	Reason the call ended; see Appendix A for the definition of these values.
Type	0x12		1	Tx Bytes OK
Length	8		2	
Value	→	tx_ok_bytes_count	8	Number of bytes transmitted without error.
Type	0x13		1	Rx Bytes OK
Length	8		2	
Value	→	rx_ok_bytes_count	8	Number of bytes received without error.
Type	0x14		1	Dormancy Status
Length	1		2	
Value	→	dormancy_status	1	Values: • 0x01 – Traffic channel dormant • 0x02 – Traffic channel active
Type	0x15		1	Data Bearer Technology
Length	1		2	
Value	→	data_beare_technology	1	Values: • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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_HSDAP+ and HSUPA • -1 – Unknown

Field	Field value	Parameter	Size (byte)	Description
Type	0x16		1	Channel Rate
Length	8		2	
Value	→	current_channel_tx_rate	4	Max channel Tx rate in bits per second.
		current_channel_rx_rate	4	Max channel Rx rate in bits per second.

3.25.5 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](#).

3.26 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

3.26.1 Request - QMI_WDS_GET_ACTIVE_MIP_PROFILE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.26.2 Response - QMI_WDS_GET_ACTIVE_MIP_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 last modified
Mobile IP Profile Identifier *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Mobile IP Profile Identifier *
Length	1		2	
Value	→	profile_index	1	Index of the active profile.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.26.3 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.

3.27 QMI_WDS_SET_ACTIVE_MIP_PROFILE

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

WDS message ID

0x003D

Version introduced

Major - 1, Minor - 12

3.27.1 Request - QMI_WDS_SET_ACTIVE_MIP_PROFILE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Mobile IP Profile Identifier *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Mobile IP Profile Identifier *
Length	7		2	
Value	→	spc	6	Service programming code in ASCII format (digits 0 to 9 only).
		profile_index	1	Index of the profile.

Optional TLVs

None

3.27.2 Response - QMI_WDS_SET_ACTIVE_MIP_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

None

Error codes

QMI_ERR_NONE	No error in 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	Some TLV was missing in the request
QMI_ERR_AUTHENTICATION_FAILED	Authentication of supplied SPC failed
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_UNSUPPORTED	Operation is not supported by the device

3.27.3 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.

3.28 QMI_WDS_READ_MIP_PROFILE

Queries a mobile IP profile from the device.

WDS message ID

0x003E

Version introduced

Major - 1, Minor - 12

3.28.1 Request - QMI_WDS_READ_MIP_PROFILE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Mobile IP Profile Identifier *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Mobile IP Profile Identifier *
Length	1		2	
Value	→	profile_index	1	Index of the profile to read.

Optional TLVs

None

3.28.2 Response - QMI_WDS_READ_MIP_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 last modified
Mobile IP Profile State	1.12
Mobile IP Profile Home Address	1.12
Mobile IP Profile HA Primary	1.12
Mobile IP Profile HA Secondary	1.12
Mobile IP Profile Reverse Tunneling Pref	1.12
Mobile IP Profile NAI	1.12
Mobile IP Profile HA SPI	1.12
Mobile IP Profile AAA SPI	1.12
Mobile IP Profile HA Key State *	1.12
Mobile IP Profile AAA Key State *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Mobile IP Profile State
Length	1		2	
Value	→	profile_state	1	Values: • 0x00 – Disabled • 0x01 – Enabled
Type	0x11		1	Mobile IP Profile Home Address
Length	4		2	
Value	→	home_address	4	Home address (IPv4 format).
Type	0x12		1	Mobile IP Profile HA Primary
Length	4		2	
Value	→	home_agent_priv	4	Primary home agent (HA) address (IPv4 format).
Type	0x13		1	Mobile IP Profile HA Secondary
Length	4		2	
Value	→	home_agent_sec	4	Secondary HA address (IPv4 format).
Type	0x14		1	Mobile IP Profile Reverse Tunneling Pref
Length	1		2	
Value	→	rev_tun_pref	1	Values: • 0x00 – Disable • 0x01 – Enable
Type	0x15		1	Mobile IP Profile NAI
Length	Var		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	nai	Var	NAI string in ASCII text. QMI_ERR_ARG_TOO_LONG is returned if the NAI is too long.
Type	0x16		1	Mobile IP Profile HA SPI
Length	4		2	
Value	→	mn_ha_spi	4	HA security parameter index.
Type	0x17		1	Mobile IP Profile AAA SPI
Length	4		2	
Value	→	mn_aaa_spi	4	AAA server security parameter index.
Type	0x1A		1	Mobile IP Profile HA Key State *
Length	1		2	
Value	→	mn_ha_key_state	1	Values: • 0x00 – Unset (empty) • 0x01 – Set but still default value • 0x02 – Set and modified from default value
Type	0x1B		1	Mobile IP Profile AAA Key State *
Length	1		2	
Value	→	mn_aaa_key_state	1	Values: • 0x00 – Unset (empty) • 0x01 – Set but still default value • 0x02 – Set and modified from default value

Error codes

QMI_ERR_NONE	No error in 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 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_UNSUPPORTED	Operation is not supported by the device

3.28.3 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.

3.29 QMI_WDS_MODIFY_MIP_PROFILE

Modifies a mobile IP profile on the device.

WDS message ID

0x003F

Version introduced

Major - 1, Minor - 12

3.29.1 Request - QMI_WDS_MODIFY_MIP_PROFILE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Mobile IP Profile Identifier *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Mobile IP Profile Identifier *
Length	7		2	
Value	→	spc	6	Service programming code in ASCII format (digits 0 to 9 only).
		profile_index	1	Index of the profile.

Optional TLVs

Name	Version last modified
Mobile IP Profile State *	1.12
Mobile IP Profile Home Address *	1.12
Mobile IP Profile HA Primary *	1.12
Mobile IP Profile HA Secondary *	1.12
Mobile IP Profile Reverse Tunneling Preference *	1.12

Name	Version last modified
Mobile IP Profile NAI *	1.12
Mobile IP Profile HA SPI *	1.12
Mobile IP Profile AAA SPI *	1.12
MN-HA Key *	1.12
MN-AAA Key *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Mobile IP Profile State *
Length	1		2	
Value	→	profile_state	1	Values: • 0x00 – Disabled • 0x01 – Enabled
Type	0x11		1	Mobile IP Profile Home Address *
Length	4		2	
Value	→	home_address	4	Home address (IPv4 format).
Type	0x12		1	Mobile IP Profile HA Primary *
Length	4		2	
Value	→	home_agent_priv	4	Primary home agent address (IPv4 format).
Type	0x13		1	Mobile IP Profile HA Secondary *
Length	4		2	
Value	→	home_agent_sec	4	Secondary home agent address (IPv4 format).
Type	0x14		1	Mobile IP Profile Reverse Tunneling Preference *
Length	1		2	
Value	→	rev_tun_pref	1	Values: • 0x00 – Disable • 0x01 – Enable
Type	0x15		1	Mobile IP Profile NAI *
Length	Var		2	
Value	→	nai	Var	NAI (network access identifier) string in ASCII text. QMI_ERR_ARG_TOO_LONG is returned if the NAI is too long.
Type	0x16		1	Mobile IP Profile HA SPI *
Length	4		2	
Value	→	mn_ha_spi	4	HA security parameter index.
Type	0x17		1	Mobile IP Profile AAA SPI *
Length	4		2	
Value	→	mn_aaa_spi	4	AAA server security parameter index.
Type	0x18		1	MN-HA Key *
Length	Var		2	
Value	→	mn_ha_key	Var	QMI_ERR_ARG_TOO_LONG is returned if the MN-HA key is too long.
Type	0x19		1	MN-AAA Key *
Length	Var		2	
Value	→	mn_aaa_key	Var	String containing MN-AAA key. QMI_ERR_ARG_TOO_LONG is returned if the MN-AAA key is too long.

3.29.2 Response - QMI_WDS_MODIFY_MIP_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

None

Error codes

QMI_ERR_NONE	No error in 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 response.
QMI_ERR_AUTHENTICATION_FAILED	Authentication of supplied SPC failed
QMI_ERR_AUTHENTICATION_LOCK	Maximum number of authentication failures has been 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_UNSUPPORTED	Operation is not supported by the device

3.29.3 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.

3.30 QMI_WDS_GET_MIP_SETTINGS

Queries the mobile IP settings from the device.

WDS message ID

0x0040

Version introduced

Major - 1, Minor - 12

3.30.1 Request - QMI_WDS_GET_MIP_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.30.2 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.

Optional TLVs

Name	Version last modified
Mobile IP Mode	1.12
Mobile IP Reg Retry Count	1.12
Mobile IP Reg Retry Interval	1.12
Mobile IP Re-Reg Period	1.12
Mobile IP Re-Reg if Traffic	1.12
Mobile IP QC Domant Handoff	1.12
Mobile IP RFC2002 MN-HA Auth	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Mobile IP Mode
Length	1		2	
Value	→	mip_mode	1	Mode: • 0x00 – MIP off (Simple IP only) • 0x01 – MIP preferred • 0x02 – MIP only
Type	0x11		1	Mobile IP Reg Retry Count
Length	1		2	
Value	→	mip_reg_retry_count	1	Mobile IP registration retry attempt limit.
Type	0x12		1	Mobile IP Reg Retry Interval
Length	1		2	
Value	→	mip_reg_retry_interval	1	Mobile IP initial interval modifier used to determine the time between registration attempts (valid range 0-4).
Type	0x13		1	Mobile IP Re-Reg Period
Length	1		2	
Value	→	mip_re_reg_peroid	1	Mobile IP period to attempt reregistration before current registration expires (in minutes).
Type	0x14		1	Mobile IP Re-Reg if Traffic
Length	1		2	
Value	→	mip_re_reg_if_traf	1	Mobile IP reregistration occurs only if there is traffic since the last attempt. Values: • 0x00 – Disabled • 0x01 – Enabled
Type	0x15		1	Mobile IP QC Domant Handoff
Length	1		2	
Value	→	mip_qc_handoff	1	Mobile IP MN-HA authenticator calculator. Values: • 0x00 – Disabled • 0x01 – Enabled
Type	0x16		1	Mobile IP RFC2002 MN-HA Auth
Length	1		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	mip_rfc2002bis	1	Mobile IP MN-HA authenticator calculation using RFC2002bis instead of RFC2002. Values: • 0x00 – Disabled • 0x01 – Enabled

Error codes

QMI_ERR_NONE	No error in 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 response
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device

3.30.3 Description of QMI_WDS_GET_MIP_SETTINGS REQ/RESP

This command queries the mobile IP setting for the device. See [S4] 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.

3.31 QMI_WDS_SET_MIP_SETTINGS

Sets the current mobile IP setting for the device.

WDS message ID

0x0041

Version introduced

Major - 1, Minor - 12

3.31.1 Request - QMI_WDS_SET_MIP_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Service Programming Authentication *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Service Programming Authentication *
Length	6		2	
Value	→	spc	6	SPC in ASCII format (digits 0 to 0 only).

Optional TLVs

Name	Version last modified
Mobile IP Mode *	1.12
Mobile IP Reg Retry Count *	1.12
Mobile IP Reg Retry Interval *	1.12
Mobile IP Re-Reg Period *	1.12
Mobile IP Re-Reg if Traffic *	1.12
Mobile IP QC Domant Handoff *	1.12
Mobile IP RFC2002 MN-HA Auth *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Mobile IP Mode *
Length	1		2	
Value	→	mip_mode	1	Values: • 0x00 – MIP off (Simple IP only) • 0x01 – MIP preferred • 0x02 – MIP only
Type	0x11		1	Mobile IP Reg Retry Count *
Length	1		2	
Value	→	mip_reg_retry_count	1	Mobile IP registration retry attempt limit.
Type	0x12		1	Mobile IP Reg Retry Interval *
Length	1		2	
Value	→	mip_reg_retry_interval	1	Mobile IP initial interval modifier used to determine time between registration attempts (valid range 0-4).
Type	0x13		1	Mobile IP Re-Reg Period *
Length	1		2	
Value	→	mip_re_reg_peroid	1	Mobile IP period to attempt reregistration before current registration expires (in minutes).
Type	0x14		1	Mobile IP Re-Reg if Traffic *
Length	1		2	
Value	→	mip_re_reg_if_traf	1	Mobile IP reregistration only if traffic since the last attempt. Values: • 0x00 – Disabled • 0x01 – Enabled
Type	0x15		1	Mobile IP QC Domant Handoff *
Length	1		2	
Value	→	mip_qc_handoff	1	Mobile IP MN-HA authenticator calculator. Values: • 0x00 – Disabled • 0x01 – Enabled
Type	0x16		1	Mobile IP RFC2002 MN-HA Auth *
Length	1		2	
Value	→	mip_rfc2002bis	1	Mobile IP MN-HA authenticator calculation using RFC2002bis instead of RFC2002. Values: • 0x00 – Disabled • 0x01 – Enabled

3.31.2 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

None

Error codes

QMI_ERR_NONE	No error in 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_FAILED	Authentication of supplied SPC failed
QMI_ERR_AUTHENTICATION_LOCK	Maximum number of authentication failures has been reached
QMI_ERR_MISSING_ARG	Mandatory TLV was not provided
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device

3.31.3 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. See [S4] 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.

3.32 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

3.32.1 Request - QMI_WDS_GET_LAST_MIP_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.32.2 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 last modified
Last MIP Status *	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Last MIP Status *
Length	1		2	
Value	→	mip_error	1	Status of the last MIP call (or attempt). Values: <ul style="list-style-type: none"> • 0x00 – Success • > 0 – Error code (as defined in [S4])

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.32.3 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.

3.33 QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOLOGY

Queries the current data bearer technology.

WDS message ID

0x0044

Version introduced

Major - 1, Minor - 4

3.33.1 Request - QMI_WDS_GET_CURRENT_DATA_BEARER_TECHNOLOGY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.33.2 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 last modified
Current Data Bearer Technology	1.10

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Current Data Bearer Technology
Length	9		2	
Value	→	current_nw	1	Current network type of data bearer. Values: <ul style="list-style-type: none"> • 0 – UNKNOWN • 1 – 3GPP2 • 2 – 3GPP
		rat_mask	4	Radio access technology (RAT) mask to indicate the type of technology. A RAT mask value of zero indicates that this field is ignored. Values: <ul style="list-style-type: none"> • 0x00 – DONT_CARE • 0x8000 – NULL_BEARER CDMA RAT mask: <ul style="list-style-type: none"> • 0x01 – CDMA_1X • 0x02 – EVDO_REV0 • 0x04 – EVDO_REVA UMTS RAT mask: <ul style="list-style-type: none"> • 0x01 – WCDMA • 0x02 – GPRS • 0x04 – HSDPA • 0x08 – HSUPA • 0x10 – EDGE • 0x20 – LTE • 0x40 – HSDPA+ • 0x80 – DC_HSDPA+

Field	Field value	Parameter	Size (byte)	Description
		so_mask	4	<p>Service Option (SO) mask to indicate the service option or type of application. SO mask value of zero indicates that this field is ignored. Values:</p> <ul style="list-style-type: none"> • 0x00 – DONT_CARE <p>CDMA 1X SO mask:</p> <ul style="list-style-type: none"> • 0x01 – CDMA_1X_IS95 • 0x02 – CDMA_1X_IS2000 • 0x04 – CDMA_1X_IS2000_REL_A <p>CDMA EV-DO Rev A SO mask:</p> <ul style="list-style-type: none"> • 0x01 – EVDO_REVA_DPA • 0x02 – EVDO_REVA_MFPA • 0x04 – EVDO_REVA_EMPA • 0x08 – EVDO_REVA_EMPA_EHRPD

Optional TLVs

Name	Version last modified
Last Call Bearer Technology	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Last Call Bearer Technology
Length	9		2	
Value	→	current_nw	1	<p>Current network type of data bearer. Values:</p> <ul style="list-style-type: none"> • 0 – UNKNOWN • 1 – 3GPP2 • 2 – 3GPP

Field	Field value	Parameter	Size (byte)	Description
		rat_mask	4	<p>Radio access technology (RAT) mask to indicate the type of technology. A RAT mask value of zero indicates that this field is ignored. Values:</p> <ul style="list-style-type: none"> • 0x00 – DONT_CARE • 0x8000 – NULL_BEARER <p>CDMA RAT mask:</p> <ul style="list-style-type: none"> • 0x01 – CDMA_1X • 0x02 – EVDO_REV0 • 0x04 – EVDO_REVA <p>UMTS RAT mask:</p> <ul style="list-style-type: none"> • 0x01 – WCDMA • 0x02 – GPRS • 0x04 – HSDPA • 0x08 – HSUPA • 0x10 – EDGE • 0x20 – LTE • 0x40 – HSDPA+ • 0x80 – DC_HSDPA+
		so_mask	4	<p>Service Option (SO) mask to indicate the service option or type of application. SO mask value of zero indicates that this field is ignored. Values:</p> <ul style="list-style-type: none"> • 0x00 – DONT_CARE <p>CDMA 1X SO mask:</p> <ul style="list-style-type: none"> • 0x01 – CDMA_1X_IS95 • 0x02 – CDMA_1X_IS2000 • 0x04 – CDMA_1X_IS2000_REL_A <p>CDMA EV-DO Rev A SO mask:</p> <ul style="list-style-type: none"> • 0x01 – EVDO_REVA_DPA • 0x02 – EVDO_REVA_MFPA • 0x04 – EVDO_REVA_EMPA • 0x08 – EVDO_REVA_EMPA_EHRPD

Error codes

QMI_ERR_NONE	No error in 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 the response
QMI_ERR_OUT_OF_CALL	Data bearer technology cannot be returned, since call is not up

QMI_ERR_INFO_UNAVAILABLE	Data bearer technology information is unavailable at this point
--------------------------	-----------------------------------------------------------------

3.33.3 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.

3.34 QMI_WDS_CALL_HISTORY_LIST

Queries a list of call history records from the device.

WDS message ID

0x0045

Version introduced

Major - 1, Minor - 12

3.34.1 Request - QMI_WDS_CALL_HISTORY_LIST_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.34.2 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.

Optional TLVs

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

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Full Call History List
Length	Var		2	
Value	→	full_call_history_len	2	Number of sets of the following elements: <ul style="list-style-type: none"> • call_record_id • call_type • call_data_bearer • call_timestamp • call_ip_addr • call_duration_total • call_duration_active • call_rx_ok_bytes • call_tx_ok_bytes • call_end_reason • call_phone_num_len • call_phone_num
		call_record_id	2	Unique record ID.
		call_type	1	Call type. Values: <ul style="list-style-type: none"> • 0x00 – RmNet • 0x01 – Dial Up Network (DUN)
		call_data_bearer	1	Data bearer technology. Values: <ul style="list-style-type: none"> • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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_HSDAP+ and HSUPA • -1 – Unknown
		call_timestamp	8	Call origination timestamp.
		call_ip_addr	4	Call IP address (IPv4 format). Note: this value is zero if the IP address cannot be determined.
		call_duration_total	8	Total duration of the call in milliseconds.
		call_duration_active	8	Duration the call is active in milliseconds.

Field	Field value	Parameter	Size (byte)	Description
		call_rx_ok_bytes	8	Number of bytes transmitted without error.
		call_tx_ok_bytes	8	Number of bytes received without error.
		call_end_reason	2	Reason the call ended.
		call_phone_num_len	1	Number of sets of the following elements: • call_phone_num
		call_phone_num	Var	Phone number.
Type	0x11		1	Record ID-Only Call History List
Length	Var		2	
Value	→	id_only_call_history_len	2	Number of sets of the following elements: • call_record_id
		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 the response
QMI_ERR_INVALID_ARG	Specified value is invalid
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device

3.34.3 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 may 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.

3.35 QMI_WDS_CALL_HISTORY_READ

Queries a call history record from the device.

WDS message ID

0x0046

Version introduced

Major - 1, Minor - 12

3.35.1 Request - QMI_WDS_CALL_HISTORY_READ_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Call History Record ID.	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Call History Record ID.
Length	2		2	
Value	→	call_record_id	2	Record ID of the call history record to read.

Optional TLVs

None

3.35.2 Response - QMI_WDS_CALL_HISTORY_READ_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 last modified
Call History Record	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Call History Record
Length	Var		2	
Value	→	call_type	1	Call type. Values: <ul style="list-style-type: none"> • 0x00 – RmNet • 0x01 – Dial Up Network (DUN)
		call_data_bearer	1	Data bearer technology. Values: <ul style="list-style-type: none"> • 0x01 – cdma2000 1X • 0x02 – cdma2000 HRPD (1xEV-DO) • 0x03 – GSM • 0x04 – UMTS • 0x05 – cdma200 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 • -1 – Unknown
		call_timestamp	8	Call origination timestamp.
		call_ip_addr	4	Call IP address (IPv4 format). Note: this value is zero if the IP address cannot be determined.
		call_duration_total	8	Total duration of the call in milliseconds.
		call_duration_active	8	Duration the call is active in milliseconds.
		call_rx_ok_bytes	8	Number of bytes transmitted without error.
		call_tx_ok_bytes	8	Number of bytes received without error.
		call_end_reason	2	Reason the call ended.
		call_phone_num_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • call_phone_num
		call_phone_num	Var	Phone number.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNsupported	Operation is not supported by the device

3.35.3 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 may 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.

3.36 QMI_WDS_CALL_HISTORY_DELETE

Clears the call history records from the device.

WDS message ID

0x0047

Version introduced

Major - 1, Minor - 12

3.36.1 Request - QMI_WDS_CALL_HISTORY_DELETE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.36.2 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.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNsupported	Operation is not supported by the device

3.36.3 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 may 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.

3.37 QMI_WDS_CALL_HISTORY_MAX_SIZE

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

WDS message ID

0x0048

Version introduced

Major - 1, Minor - 12

3.37.1 Request - QMI_WDS_CALL_HISTORY_MAX_SIZE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.37.2 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 last modified
Call History Size	1.12

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

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.37.3 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 may 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.

3.38 QMI_WDS_GET_DEFAULT_PROFILE_NUM

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

WDS message ID

0x0049

Version introduced

Major - 1, Minor - 8

3.38.1 Request - QMI_WDS_GET_DEFAULT_PROFILE_NUM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Type	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Type
Length	2		2	
Value	→	profile_type	1	Identifies the technology type of the profile. Values: • 0 – 3GPP • 1 – 3GPP2
		profile_family	1	Identifies the family of the profile. Values: • 1 – Sockets Family

Optional TLVs

None

3.38.2 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 last modified
Default Profile Number	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Default Profile Number
Length	1		2	
Value	→	profile_index	1	Profile number identifying the default profile.

Optional TLVs

Name	Version last modified
Extended error code.	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended error code.
Length	2		2	
Value	→	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 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

3.38.3 Description of QMI_WDS_GET_DEFAULT_PROFILE_NUM REQ/RESP

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

3.39 QMI_WDS_SET_DEFAULT_PROFILE_NUM

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

WDS message ID

0x004A

Version introduced

Major - 1, Minor - 8

3.39.1 Request - QMI_WDS_SET_DEFAULT_PROFILE_NUM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Identifier	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Identifier
Length	3		2	
Value	→	profile_type	1	Identifies the technology type of the profile. Values: • 0 – 3GPP • 1 – 3GPP2
		profile_family	1	Identifies the family of profile. Values: • 1 – Sockets family
		profile_index	1	Profile number to be set as default profile.

Optional TLVs

None

3.39.2 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 last modified
Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended Error Code
Length	2		2	
Value	→	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 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

3.39.3 Description of QMI_WDS_SET_DEFAULT_PROFILE_NUM REQ/RESP

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

3.40 QMI_WDS_RESET_PROFILE_TO_DEFAULT

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

WDS message ID

0x004B

Version introduced

Major - 1, Minor - 8

3.40.1 Request - QMI_WDS_RESET_PROFILE_TO_DEFAULT_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Identifier	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Identifier
Length	2		2	
Value	→	profile_type	1	Identifies the type of the profile. Values: • 0 – 3GPP • 1 – 3GPP2
		profile_index	1	Index identifying the profile.

Optional TLVs

None

3.40.2 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 last modified
Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended Error Code
Length	2		2	
Value	→	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 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

3.40.3 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.

3.41 QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID

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

WDS message ID

0x004C

Version introduced

Major - 1, Minor - 8

3.41.1 Request - QMI_WDS_RESET_PROFILE_PARAM_TO_INVALID_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Profile Parameter	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Profile Parameter
Length	6		2	
Value	→	profile_type	1	Identifies the technology type of the profile. Values: • 0 – 3GPP • 1 – 3GPP2
		profile_index	1	Profile number whose profile_param_id needs to be set to invalid.
		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

Optional TLVs

None

3.41.2 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 last modified
Extended Error Code	1.11

Field	Field value	Parameter	Size (byte)	Description
Type	0xE0		1	Extended Error Code
Length	2		2	
Value	→	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 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

3.41.3 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.

3.42 QMI_WDS_SET_CLIENT_IP_FAMILY_PREF

Sets the control point IP preference.

WDS message ID

0x004D

Version introduced

Major - 1, Minor - 9

3.42.1 Request - QMI_WDS_SET_CLIENT_IP_FAMILY_PREF_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
IP Family Preference	1.9

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	IP Family Preference
Length	1		2	
Value	→	ip_preference	1	Values: • 0x04 – IPV4 • 0x06 – IPV6

Optional TLVs

None

3.42.2 Response - QMI_WDS_SET_CLIENT_IP_FAMILY_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 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

3.42.3 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 (e.g., IPv4 and IPv6) on the same port.

3.43 QMI_WDS_SET_AUTOCONNECT_SETTINGS

Sets the autoconnect settings.

WDS message ID

0x0051

Version introduced

Major - 1, Minor - 12

3.43.1 Request - QMI_WDS_SET_AUTOCONNECT_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Autoconnect Setting	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Autoconnect Setting
Length	1		2	
Value	→	autoconnect_setting	1	Values: • 0x00 – Disabled • 0x01 – Enabled • 0x02 – Paused (resume on power cycle)

Optional TLVs

Name	Version last modified
Autoconnect Roam Setting	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Autoconnect Roam Setting
Length	1		2	
Value	→	autoconnect_roam_setting	1	Current autoconnect roaming status. Values: <ul style="list-style-type: none"> • 0x00 – Autoconnect always allowed • 0x01 – Autoconnect while in home service area only Note: Autoconnect roam setting is only used while autoconnect is enabled.

3.43.2 Response - QMI_WDS_SET_AUTOCONNECT_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 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	Some TLV was missing in the request
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device
QMI_ERR_NO_EFFECT	Specified mobile IP setting is already in effect

3.43.3 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.

3.44 QMI_WDS_GET_DNS_SETTINGS

Queries the current DNS settings for the device.

WDS message ID

0x0052

Version introduced

Major - 1, Minor - 12

3.44.1 Request - QMI_WDS_GET_DNS_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.44.2 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.

Optional TLVs

Name	Version last modified
Primary DNS IPv4 Address	1.12
Secondary DNS IPv4 Address	1.12
Primary IPv6 DNS address	1.12
Secondary IPv6 DNS Address	1.12

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Primary DNS IPv4 Address
Length	4		2	
Value	→	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.
Type	0x11		1	Secondary DNS IPv4 Address
Length	4		2	
Value	→	secondary_dns_ipv4_address	4	Secondary 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.
Type	0x12		1	Primary IPv6 DNS address
Length	16		2	
Value	→	primary_dns_ipv6_address	16	Primary IPv6 DNS address (in network byte order); this is 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.
Type	0x13		1	Secondary IPv6 DNS Address
Length	16		2	
Value	→	secondary_dns_ipv6_address	16	Secondary IPv6 DNS address (in network byte order); this is 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 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_UNSUPPORTED	Operation is not supported by the device

3.44.3 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.

3.45 QMI_WDS_SET_DNS_SETTINGS

Sets the current DNS settings for the device.

WDS message ID

0x0053

Version introduced

Major - 1, Minor - 12

3.45.1 Request - QMI_WDS_SET_DNS_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

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

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Primary DNS IPv4 Address
Length	4		2	
Value	→	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.
Type	0x11		1	Secondary DNS IPv4 Address
Length	4		2	

Field	Field value	Parameter	Size (byte)	Description
Value	→	secondary_dns_ipv4_address	4	Secondary DNS address reported from the device. Note: A value of 0.0.0.0 indicates that the network values are reported.
Type	0x12		1	Primary IPv6 DNS Address
Length	16		2	
Value	→	primary_dns_ipv6_address	16	Primary IPv6 DNS address (in network byte order); this is 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.
Type	0x13		1	Secondary IPv6 DNS Address
Length	16		2	
Value	→	secondary_dns_ipv6_address	16	Secondary IPv6 DNS address (in network byte order); this is 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.

3.45.2 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 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_UNSUPPORTED	Operation is not supported by the device

QMI_ERR_NO_EFFECT	Request to set the same values that are already active
QMI_ERR_MISSING_ARG	Some TLV was missing in the request

3.45.3 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.

3.46 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

3.46.1 Request - QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.46.2 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 last modified
Predormancy Settings	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Predormancy Settings
Length	3		2	
Value	→	service_option	2	Packet data call service option before dormancy. Values: <ul style="list-style-type: none"> • 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 when not currently in CDMA-1x data session)
		data_sess_nw	1	Data session network before dormancy. Values: <ul style="list-style-type: none"> • 0x00 – No service (returned when not currently in 3GPP2 data session) • 0x02 – CDMA • 0x04 – HDR

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.46.3 Description of QMI_WDS_GET_PRE_DORMANCY_CDMA_SETTINGS REQ/RESP

This command allows the control point to retrieve 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.

3.47 QMI_WDS_SET_CAM_TIMER

Sets the Chatty App Manager timer value.

WDS message ID

0x0055

Version introduced

Major - 1, Minor - 14

3.47.1 Request - QMI_WDS_SET_CAM_TIMER_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
CAM Timer	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	CAM Timer
Length	4		2	
Value	→	cam_timer	4	CAM timer value in seconds.

Optional TLVs

None

3.47.2 Response - QMI_WDS_SET_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.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNsupported	Operation is not supported by the device

3.47.3 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.

3.48 QMI_WDS_GET_CAM_TIMER

Queries the Chatty App Manager timer value.

WDS message ID

0x0056

Version introduced

Major - 1, Minor - 14

3.48.1 Request - QMI_WDS_GET_CAM_TIMER_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.48.2 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 last modified
CAM Timer	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	CAM Timer
Length	4		2	
Value	→	cam_timer	4	Retrieves the current value of the CAM timer, in seconds.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.48.3 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.

3.49 QMI_WDS_SET_SCRM

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

WDS message ID

0x0057

Version introduced

Major - 1, Minor - 14

3.49.1 Request - QMI_WDS_SET_SCRM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
SCRM	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	SCRM
Length	1		2	
Value	→	scrm	1	Values: • 0x00 – SCRM disabled • 0x01 – SCRM enabled

Optional TLVs

None

3.49.2 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 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_UNsupported	Operation is not supported by the device

3.49.3 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.

3.50 QMI_WDS_GET_SCRM

Retrieves whether SCRM support is enabled or disabled.

WDS message ID

0x0058

Version introduced

Major - 1, Minor - 14

3.50.1 Request - QMI_WDS_GET_SCRM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.50.2 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 last modified
SCRM	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	SCRM
Length	1		2	
Value	→	scrm	1	Values: • 0x00 – SCRM disabled • 0x01 – SCRM enabled

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.50.3 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.

3.51 QMI_WDS_SET_RDUD

Enables or disables reduced dormancy followed by unsolicited data.

WDS message ID

0x0059

Version introduced

Major - 1, Minor - 14

3.51.1 Request - QMI_WDS_SET_RDUD_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
RDUD	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	RDUD
Length	1		2	
Value	→	rdud	1	Values: • 0x00 – RDUD disabled • 0x01 – RDUD enabled

Optional TLVs

None

3.51.2 Response - QMI_WDS_SET_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.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.51.3 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.

3.52 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

3.52.1 Request - QMI_WDS_GET_RDUD_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.52.2 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 last modified
RDUD	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	RDUD
Length	1		2	
Value	→	rdud	1	Values: • 0x00 – Disabled • 0x01 – Enabled

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.52.3 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.

3.53 QMI_WDS_GET_SIP_MIP_CALL_TYPE

Queries the SIP/MIP call type.

WDS message ID

0x005B

Version introduced

Major - 1, Minor - 14

3.53.1 Request - QMI_WDS_GET_SIP_MIP_CALL_TYPE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.53.2 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 last modified
Call Type	1.14

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

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device
QMI_ERR_OUT_OF_CALL	Request was issued when the packet data session was disconnected

3.53.3 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.

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.

3.54 QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD

Sets the EV-DO slot cycle index.

WDS message ID

0x005C

Version introduced

Major - 1, Minor - 14

3.54.1 Request - QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
EV-DO Page Monitor Period	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	EV-DO Page Monitor Period
Length	1		2	
Value	→	evdo_page_monitor_period	1	If the service receives any value that can not be set, it returns QMI_ERR_INVALID_ARG and does not modify the EV-DO page monitor period. Using -1 sets the SCI to the default value.

Optional TLVs

None

3.54.2 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 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	Some TLV was missing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate a response
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device

3.54.3 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. QMI_ERR_INVALID_ARG is returned if any input value is outside the range understood by the service implementation.

3.54.4 Indication - QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND

Message type

Indication

Sender

Service

Indication scope

Unicast (per control point)

Mandatory TLVs

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

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	EV-DO Slot Cycle Set Result
Length	1		2	
Value	→	status	1	Values: 0x00 – SUCCESS 0x01 – FAIL REQUEST_REJECTED 0x02 – FAIL REQUEST_FAILED_TX 0x03 – FAIL NOT_SUPPORTED 0x04 – FAIL NO_NET

Optional TLVs

None

3.54.5 Description of QMI_WDS_EVDO_PAGE_MONITOR_PERIOD_RESULT_IND

This indication is sent to the control point to convey whether the setting using QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD was accepted by the network. Note that if the control point sends a second QMI_WDS_SET_EVDO_PAGE_MONITOR_PERIOD_REQ prior to 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.

3.55 QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP

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

WDS message ID

0x005D

Version introduced

Major - 1, Minor - 14

3.55.1 Request - QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Force Long Sleep Setting	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Force Long Sleep Setting
Length	1		2	
Value	→	force_evdo_long_sleep	1	Values: 0 – Do not force EV-DO long sleep 1 – Force EV-DO long sleep

Optional TLVs

None

3.55.2 Response - QMI_WDS_SET_EVDO_FORCE_LONG_SLEEP_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 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	Some TLV was missing
QMI_ERR_NO_MEMORY	Device could not allocate memory to formulate response
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device

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

3.56 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

3.56.1 Request - QMI_WDS_GET_EVDO_PAGE_MONITOR_PERIOD_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.56.2 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 last modified
EV-DO Page Monitor Period Details	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	EV-DO Page Monitor Period Details
Length	2		2	
Value	→	evdo_page_monitor_period_change	1	EV-DO slot cycle and long sleep info.
		evdo_force_long_sleep	1	Set to 1 if EV-DO is currently forced to ignore the slot cycle setting and instead sleep for long periods, potentially missing pages

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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 response
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device

3.56.3 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.

3.57 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

3.57.1 Request - QMI_WDS_GET_CALL_THROTTLE_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.57.2 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 last modified
Call Throttled	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Call Throttled
Length	8		2	
Value	→	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.
		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.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device

3.57.3 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.

3.58 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

3.58.1 Request - QMI_WDS_GET_NSAPI_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
APN	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	APN
Length	Var		2	
Value	→	apn	Var	Access point name.

Optional TLVs

None

3.58.2 Response - QMI_WDS_GET_NSAPI_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 last modified
NSAPI	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	NSAPI
Length	Var		2	
Value	→	nsapi_len	1	Number of sets of the following elements:
		nsapi	Var	• nsapi NSAPI.

Optional TLVs

None

Error codes

QMI_ERR_NONE	No error in 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_UNSUPPORTED	Operation is not supported by the device
QMI_ERR_INFO_UNAVAILABLE	NSAPI cannot be retrieved for the specified APN

3.58.3 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.

3.59 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

3.59.1 Request - QMI_WDS_SET_DUN_CTRL_PREF_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
DUN Control Preference	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	DUN Control Preference
Length	1		2	
Value	→	dun_control_preference	1	Values: • 0x00 – Relinquish control of DUN calls • 0x01 – Exercise control over DUN calls

Optional TLVs

Name	Version last modified
Allow DUN Calls	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Allow DUN Calls
Length	1		2	
Value	→	dun_allow_preference	1	Values: • 0x00 – Deny subsequent DUN calls by default • 0x01 – Allow subsequent DUN calls by default

3.59.2 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 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	Some TLV was missing
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_UNSUPPORTED	Operation is not supported by the device

3.59.3 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, then 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.

3.60 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

3.60.1 Request - QMI_WDS_GET_DUN_CTRL_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.60.2 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 last modified
DUN Control Status	1.14

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

Optional TLVs

Name	Version last modified
Allow DUN Calls	1.14
Current Control Point	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Allow DUN Calls
Length	1		2	
Value	→	allow_preference	1	Values: • 0x00 – Deny subsequent DUN calls by default • 0x01 – Allow subsequent DUN calls by default
Type	0x11		1	Current Control Point
Length	1		2	
Value	→	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

Error codes

QMI_ERR_NONE	No error in 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_UNsupported	Operation is not supported by the device
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3.60.3 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, and the Current Control Point TLV to convey whether the current control point holds control over DUN call requests.

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

3.61 QMI_WDS_SET_DUN_CTRL_EVENT_REPORT

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

WDS message ID

0x0063

Version introduced

Major - 1, Minor - 14

3.61.1 Request - QMI_WDS_SET_DUN_CTRL_EVENT_REPORT_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Enable DUN Call Notifications	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Enable DUN Call Notifications
Length	1		2	
Value	→	notify_dun_call	1	Values: • 0x00 – Disable DUN call notifications • 0x01 – Enable DUN call notifications

Optional TLVs

Name	Version last modified
Entitlement Notifications	1.14
Silent Redial Notifications	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Entitlement Notifications
Length	1		2	
Value	→	notify_entitlement	1	Values: • 0x00 – Disable entitlement notifications • 0x01 – Enable entitlement notifications
Type	0x11		1	Silent Redial Notifications
Length	1		2	
Value	→	notify_silent_redial	1	Values: • 0x00 – Disable silent redial notifications • 0x01 – Enable silent redial notifications

3.61.2 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 last modified
Accepted Event Report Mask	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Accepted Event Report Mask
Length	1		2	
Value	→	accepted_event_report_mask	1	Values: • 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 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	Some TLV was missing
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_UNSUPPORTED	Operation is not supported by the device

3.61.3 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 due to 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.

3.61.4 Indication - QMI_WDS_DUN_CTRL_EVENT_REPORT_IND

Message type

Indication

Sender

Service

Indication scope

Unicast (per control point)

Mandatory TLVs

Name	Version last modified
DUN Control Event	1.14

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

Optional TLVs

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

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	DUN Call Notification
Length	1		2	
Value	→	dun_call_notification	1	Values: • 0x00 – DUN call denied • 0x01 – DUN call allowed
Type	0x11		1	DUN Call Identifier
Length	1		2	
Value	→	dun_call_id	1	DUN call identifier.
Type	0x12		1	Previous DUN Attempt Failure Reason
Length	4		2	
Value	→	call_end_reason_type	2	Call end reason type; see Appendix B for the definition of these values. • 0 – Unspecified • 1 – Mobile IP • 2 – Internal • 3 – Call Manager defined • 6 – 3GPP Specification defined • 7 – PPP • 8 – EHRPD • 9 – IPV6
		call_end_reason	2	Reason the call ended (verbose); see Appendix B for the definition of these values

3.61.5 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.

3.62 QMI_WDS_CONTROL_PENDING_DUN_CALL

Allows or disallows a pending DUN call request.

WDS message ID

0x0064

Version introduced

Major - 1, Minor - 14

3.62.1 Request - QMI_WDS_CONTROL_PENDING_DUN_CALL_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
DUN Call Action	1.14
DUN Call Identifier	1.14

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	DUN Call Action
Length	1		2	
Value	→	dun_call_action	1	Allow DUN calls. Values: <ul style="list-style-type: none"> • 0x00 – Deny DUN call • 0x01 – Allow DUN call
Type	0x02		1	DUN Call Identifier
Length	1		2	
Value	→	dun_call_id	1	DUN call identifier.

Optional TLVs

None

3.62.2 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	Some TLV was missing
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 pending DUN call
QMI_ERR_INVALID_ID	Incorrect call identifier is sent
QMI_ERR_OP_DEVICE_UNSUPPORTED	Operation is not supported by the device

3.62.3 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.

3.63 QMI_WDS_EMBMS_TMGI_ACTIVATE

Activates the eMBMS Temporary Mobile Group Identity (TMGI).

WDS message ID

0x0065

Version introduced

Major - 1, Minor - 17

3.63.1 Request - QMI_WDS_EMBMS_TMGI_ACTIVATE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Temporary Mobile Group Identity	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Temporary Mobile Group Identity
Length	8		2	
Value	→	tmgi	6	TMGI
		session_id_valid	1	Session ID valid flag. Values: <ul style="list-style-type: none"> • 0 – Session ID is not valid • 1 – Session ID is valid
		session_id	1	Session ID. Note: Valid if the session_id_valid flag is one.

Optional TLVs

None

3.63.2 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 last modified
Extended Error Code	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Extended Error Code
Length	2		2	
Value	→	extended_error_code	2	Values: <ul style="list-style-type: none"> • 111 – Activation is in progress • 203 – Deactivation is in progress

Error codes

QMI_ERR_NONE	No error in 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 response
QMI_ERR_EXTENDED_INTERNAL	More error information will be indicated by the optional extended error code TLV

3.63.3 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 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 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.

3.63.4 Indication - QMI_WDS_EMBMS_TMGI_ACTIVATE_IND

Message type

Indication

Sender

Service

Indication scope

Unicast

Mandatory TLVs

Name	Version last modified
TMGI Activation Status	1.17
TMGI	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	TMGI Activation Status
Length	4		2	
Value	→	activate_status	4	Values: <ul style="list-style-type: none"> • 0x00000000 – Success • 0x00010000 – Failure – radio configuration • 0x00010001 – Failure – channel is unavailable • 0x00010002 – Failure – eMBMS is not enabled • 0x00010003 – Failure – out of coverage
Type	0x02		1	TMGI
Length	8		2	
Value	→	tmgi	6	TMGI

Field	Field value	Parameter	Size (byte)	Description
		session_id_valid	1	Session ID valid flag. Values: <ul style="list-style-type: none">• 0 – Session ID is not valid• 1 – Session ID is valid
		session_id	1	Session ID. Note: Valid if the session_id_valid flag is one.

Optional TLVs

None

3.63.5 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.

3.64 QMI_WDS_EMBMS_TMGI_DEACTIVATE

Deactivates an eMBMS TMGI.

WDS message ID

0x0066

Version introduced

Major - 1, Minor - 17

3.64.1 Request - QMI_WDS_EMBMS_TMGI_DEACTIVATE_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Temporary Mobile Group Identity	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Temporary Mobile Group Identity
Length	8		2	
Value	→	tmgi	6	TMGI
		session_id_valid	1	Session ID valid flag. Values: <ul style="list-style-type: none"> • 0 – Session ID is not valid • 1 – Session ID is valid
		session_id	1	Session ID. Note: Valid if the session_id_valid flag is one.

Optional TLVs

None

3.64.2 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 last modified
Extended Error Code	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Extended Error Code
Length	2		2	
Value	→	extended_error_code	2	Values: <ul style="list-style-type: none"> • 108 – Not supported; the control point did not activate the TMGI • 124 – Invalid; the TMGI did not activate • 203 – Deactivation is in progress

Error codes

QMI_ERR_NONE	No error in 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 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 response
QMI_ERR_EXTENDED_INTERNAL	More error information will be indicated by the optional extended error code TLV.

3.64.3 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 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_STATUS_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.

3.64.4 Indication - QMI_WDS_EMBMS_TMGI_DEACTIVATE_IND

Message type

Indication

Sender

Service

Indication scope

Unicast

Mandatory TLVs

Name	Version last modified
TMGI Deactivation Status	1.17
TMGI	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	TMGI Deactivation Status
Length	4		2	
Value	→	deactivate_status	4	Value: • 0x00000000 – Success
Type	0x02		1	TMGI
Length	8		2	
Value	→	tmgi	6	TMGI
		session_id_valid	1	Session ID valid flag. Values: • 0 – Session ID is not valid • 1 – Session ID is valid

Field	Field value	Parameter	Size (byte)	Description
		session_id	1	Session ID. Note: Valid if the session_id_valid flag is one.

Optional TLVs

None

3.64.5 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.

3.65 QMI_WDS_EMBMS_TMGI_LIST_QUERY

Queries for the TMGI list.

WDS message ID

0x0067

Version introduced

Major - 1, Minor - 17

3.65.1 Request - QMI_WDS_EMBMS_TMGI_LIST_QUERY_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
TMGI List Type	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	TMGI List Type
Length	1		2	
Value	→	list_type	1	Values: <ul style="list-style-type: none"> • 0x00 – Active TMGI list • 0x01 – Available TMGI list

Optional TLVs

None

3.65.2 Response - QMI_WDS_EMBMS_TMGI_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 last modified
TMGI List	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	TMGI List
Length	Var		2	
Value	→	list_type	1	TMGI list type. Values: <ul style="list-style-type: none"> • 0x00 – Active TMGI list • 0x01 – Available TMGI list
		tmgi_list_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • tmgi • session_id_valid • session_id
		tmgi	6	TMGI
		session_id_valid	1	Session ID valid flag. Values: <ul style="list-style-type: none"> • 0 – Session ID is not valid • 1 – Session ID is valid
		session_id	1	Session ID. Note: Valid if the session_id_valid flag is one.

Error codes

QMI_ERR_NONE	No error in 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

3.65.3 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).

3.66 QMI_WDS_EMBMS_TMGI_LIST_IND

Indicates the currently active or available TMGI list.

WDS message ID

0x0068

Version introduced

Major - 1, Minor - 17

3.66.1 Indication - QMI_WDS_EMBMS_TMGI_LIST_IND

Message type

Indication

Sender

Service

Indication scope

Unicast (per control point)

Mandatory TLVs

None

Optional TLVs

Name	Version last modified
TMGI List	1.17

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	TMGI List
Length	Var		2	
Value	→	list_type	1	TMGI list type. Values: <ul style="list-style-type: none"> • 0x00 – Active TMGI list • 0x01 – Available TMGI list

Field	Field value	Parameter	Size (byte)	Description
		tmgi_list_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • tmgi • session_id_valid • session_id
		tmgi	6	TMGI
		session_id_valid	1	Session ID valid flag. Values: <ul style="list-style-type: none"> • 0 – Session ID is not valid • 1 – Session ID is valid
		session_id	1	Session ID. Note: Valid if the session_id_valid flag is one.

3.66.2 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 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.

3.67 QMI_WDS_GET_PREFERRED_DATA_SYSTEM

Queries the preferred data system.

WDS message ID

0x0069

Version introduced

Major - 1, Minor - 16

3.67.1 Request - QMI_WDS_GET_PREFERRED_DATA_SYSTEM_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.67.2 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 last modified
Current Preferred Data System	1.16

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Current Preferred Data System
Length	4		2	
Value	→	current_sys	4	Values: <ul style="list-style-type: none"> • 0x00 – Unknown • 0x01 – CMDA_1X • 0x02 – EVDO • 0x03 – GPRS • 0x04 – WCDMA • 0x05 – LTE

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_UNSUPPORTED	Operation is not supported

3.67.3 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. The QMI_ERR_OP_DEVICE_UNSUPPORTED error is returned if the connectivity engine data system determination (DSD) feature is not present in the device.

3.68 QMI_WDS_GET_LAST_DATA_CALL_STATUS

Queries the last reported data call status.

WDS message ID

0x006A

Version introduced

Major - 1, Minor - 16

3.68.1 Request - QMI_WDS_GET_LAST_DATA_CALL_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.68.2 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.

Optional TLVs

Name	Version last modified
Data Call Status	1.16
Data Call Type	1.16

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Data Call Status
Length	1		2	
Value	→	data_call_status	1	Values: • 0x00 – Unknown • 0x01 – Activated • 0x02 – Terminated
Type	0x11		1	Data Call Type
Length	2		2	
Value	→	data_call_type	1	Values: • 0x00 – Unknown • 0x01 – Embedded call • 0x02 – Tethered call
		tethered_call_type	1	Values: • 0x00 – Non-tethered call • 0x01 – RmNet call • 0x02 – DUN call

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

3.68.3 Description of QMI_WDS_GET_LAST_DATA_CALL_STATUS REQ/RESP

This command queries the last reported data call status, i.e., 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.

3.69 QMI_WDS_GET_CURRENT_DATA_SYSTEM_STATUS

Queries the current data system status.

WDS message ID

0x006B

Version introduced

Major - 1, Minor - 18

3.69.1 Request - QMI_WDS_GET_CURRENT_DATA_SYSTEM_STATUS_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

None

Optional TLVs

None

3.69.2 Response - QMI_WDS_GET_CURRENT_DATA_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.

Optional TLVs

Name	Version last modified
Data Sytem Status	1.18

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	Data Sytem Status
Length	Var		2	
Value	→	preferred_network	1	Values: • 0 – 3GPP • 1 – 3GPP2
		network_info_len	1	Number of sets of the following elements: • network • rat_mask • so_mask
		network	1	Values: • 0 – 3GPP • 1 – 3GPP2
		rat_mask	4	Radio access technology (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 UMTS RAT mask: • 0x01 – WCDMA • 0x02 – GPRS • 0x04 – HSDPA • 0x08 – HSUPA • 0x10 – EDGE • 0x20 – LTE • 0x40 – HSDPA+ • 0x80 – DC_HSDPA+ • 0x100 – 64_QAM

Field	Field value	Parameter	Size (byte)	Description
		so_mask	4	<p>Service option (SO) mask to indicate the service option or type of application. An SO mask value of zero indicates that this field is ignored. Values:</p> <ul style="list-style-type: none"> • 0x00 – DONT_CARE <p>CDMA 1X SO mask:</p> <ul style="list-style-type: none"> • 0x01 – CDMA_1X_IS95 • 0x02 – CDMA_1X_IS2000 • 0x04 – CDMA_1X_IS2000_REL_A <p>CDMA EV-DO Rev 0 SO mask:</p> <ul style="list-style-type: none"> • 0x01 – DPA <p>CDMA EV-DO Rev A SO mask:</p> <ul style="list-style-type: none"> • 0x01 – DPA • 0x02 – MFPA • 0x04 – EMPA • 0x08 – EMPA_EHRPD <p>CDMA EV-DO Rev B SO mask:</p> <ul style="list-style-type: none"> • 0x01 – DPA • 0x02 – MFPA • 0x04 – EMPA • 0x08 – EMPA_EHRPD • 0x10 – MMPA • 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	Indicates that the device could not allocate memory to formulate a response

3.69.3 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.

3.70 QWI_WDS_GET_PDN_THROTTLE_INFO

Queries the PDN throttle information.

WDS message ID

0x006C

Version introduced

Major - 1, Minor - 18

3.70.1 Request - QWI_WDS_GET_PDN_THROTTLE_INFO_REQ

Message type

Request

Sender

Control point

Mandatory TLVs

Name	Version last modified
Technology Type	1.18

Field	Field value	Parameter	Size (byte)	Description
Type	0x01		1	Technology Type
Length	1		2	
Value	→	tech_type	1	Values: • 0 – 3GPP • 1 – 3GPP2

Optional TLVs

None

3.70.2 Response - QWI_WDS_GET_PDN_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.

Optional TLVs

Name	Version last modified
PDN Throttle Info	1.18

Field	Field value	Parameter	Size (byte)	Description
Type	0x10		1	PDN Throttle Info
Length	Var		2	
Value	→	throttle_info_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • is_ipv4_throttled • is_ipv6_throttled • remaining_ipv4_throttled_time • remaining_ipv6_throttled_time • apn_string_len • apn_string
		is_ipv4_throttled	1	Values: <ul style="list-style-type: none"> • 0 – IPv4 not throttled • 1 – IPv4 throttled
		is_ipv6_throttled	1	Values: <ul style="list-style-type: none"> • 0 – IPv6 not throttled • 1 – IPv6 throttled
		remaining_ipv4_throttled_time	4	Remaining IPv4 throttled time in milliseconds
		remaining_ipv6_throttled_time	4	Remaining IPv6 throttled time in milliseconds
		apn_string_len	1	Number of sets of the following elements: <ul style="list-style-type: none"> • apn_string
		apn_string	Var	APN name

Error codes

QMI_ERR_NONE	No error in request
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QMI_ERR_INTERNAL	Unexpected error occurred during processing
QMI_ERR_NO_MEMORY	Indicates that the device could not allocate memory to formulate response
QMI_ERR_INVALID_ARG	Specified value is invalid

3.70.3 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 prior to querying networks.

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_UNSPECIFIED	Reason unspecified
2	QMI_WDS_CALL_END_REASON_CLIENT_END	Client ended the call
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_NORMAL	Received release from BS; no reason given
6	QMI_WDS_CALL_END_REASON_ACC_IN_PROG	Access attempt already in progress; SD2.0 only
7	QMI_WDS_CALL_END_REASON_ACC_FAIL	Access failure for reason other than the above
8	QMI_WDS_CALL_END_REASON_REDIR_OR_HANDOFF	Call rejected because of redirection or handoff
9	QMI_WDS_CALL_END_REASON_CLOSE_IN_PROGRESS	Call failed because close is in progress
10	QMI_WDS_CALL_END_REASON_AUTH_FAILED	Authentication failed
11	QMI_WDS_CALL_END_REASON_INTERNAL_CALL_END	Call ended because of an internal error

Table A-2 CDMA call end reasons

Value	Name	Description
500	QMI_WDS_CALL_END_REASON_CDMA_LOCK	Phone is CDMA-locked until a power cycle
501	QMI_WDS_CALL_END_REASON_INTERCEPT	Received intercept from the BS; origination only
502	QMI_WDS_CALL_END_REASON_REORDER	Received reorder from the BS; origination only
503	QMI_WDS_CALL_END_REASON_REL_SO_REJ	Received release from the BS; SO reject
504	QMI_WDS_CALL_END_REASON_INCOM_CALL	Received incoming call from the BS

Table A-2 CDMA call end reasons (cont.)

Value	Name	Description
505	QMI_WDS_CALL_END_REASON_ALERT_STOP	Received alert stop from the BS; incoming only
506	QMI_WDS_CALL_END_REASON_ACTIVATION	Received end activation; OTASP call only
507	QMI_WDS_CALL_END_REASON_MAX_ACCESS_PROBE	Maximum access probes transmitted
508	QMI_WDS_CALL_END_REASON_CCS_NOT_SUPPORTED_BY_BS	Concurrent service is not supported by the base station
509	QMI_WDS_CALL_END_REASON_NO_RESPONSE_FROM_BS	No response received from the base station
510	QMI_WDS_CALL_END_REASON_REJECTED_BY_BS	Call rejected by the base station; CDMA only
511	QMI_WDS_CALL_END_REASON_INCOMPATIBLE	Concurrent services requested were not compatible; CDMA-only
512	QMI_WDS_CALL_END_REASON_ALREADY_IN_TC	Corresponds to CM_CALL_ORIG_ERR_ALREADY_IN_TC
513	QMI_WDS_CALL_END_REASON_USER_CALL_ORIG_DURING_GPS	Used if CM is ending a GPS call in favor of a user call
514	QMI_WDS_CALL_END_REASON_USER_CALL_ORIG_DURING_SMS	Used if CM is ending an SMS call in favor of a user call
515	QMI_WDS_CALL_END_REASON_NO_CDMA_SRV	CDMA only; phone has no service

Table A-3 WCDMA/GSM call end reasons

Value	Name	Description
1000	QMI_WDS_CALL_END_REASON_CONF_FAILED	Call origination request failed; WCDMA/GSM only
1001	QMI_WDS_CALL_END_REASON_INCOM_REJ	Client rejected the incoming call; WCDMA/GSM only
1002	QMI_WDS_CALL_END_REASON_NO_GW_SRV	Phone has no service; WCDMA/GSM only
1003	QMI_WDS_CALL_END_REASON_NETWORK_END	Network ended the call, look in cc_cause; WCDMA/GSM only
1004	QMI_WDS_CALL_END_REASON_LLC_SNDP_FAILURE	LLC or SNDP failure
1005	QMI_WDS_CALL_END_REASON_INSUFFICIENT_RESOURCES	Insufficient resources
1006	QMI_WDS_CALL_END_REASON_OPTION_TEMP_OOO	Service option temporarily out of order
1007	QMI_WDS_CALL_END_REASON_NSAPI_ALREADY_USED	NSAPI already used
1008	QMI_WDS_CALL_END_REASON_REGULAR_DEACTIVATION	Regular PDP context 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_REATTACH_REQ	Reactivation requested
1011	QMI_WDS_CALL_END_REASON_PROTOCOL_ERROR	Protocol error, unspecified
1012	QMI_WDS_CALL_END_REASON_OPERATOR_DETERMINED_BARRING	Operator-determined barring
1013	QMI_WDS_CALL_END_REASON_UNKNOWN_APN	Unknown or missing access point name
1014	QMI_WDS_CALL_END_REASON_UNKNOWN_PDP	Unknown PDP address or PDP type
1015	QMI_WDS_CALL_END_REASON_GGSN_REJECT	Activation rejected by GGSN
1016	QMI_WDS_CALL_END_REASON_ACTIVATION_REJECT	Activation rejected, unspecified
1017	QMI_WDS_CALL_END_REASON_OPTION_NOT_SUPPORTED	Service option not supported
1018	QMI_WDS_CALL_END_REASON_OPTION_UNSUBSCRIBED	Requested service option not subscribed
1019	QMI_WDS_CALL_END_REASON_QOS_NOT_ACCEPTED	QoS not accepted
1020	QMI_WDS_CALL_END_REASON_TFT_SEMANTIC_ERROR	Semantic error in the TFT operation
1021	QMI_WDS_CALL_END_REASON_TFT_SYNTAX_ERROR	Syntactical error in the TFT operation
1022	QMI_WDS_CALL_END_REASON_UNKNOWN_PDP_CONTEXT	Unknown PDP context
1023	QMI_WDS_CALL_END_REASON_FILTER_SEMANTIC_ERROR	Semantic errors in packet filter(s)
1024	QMI_WDS_CALL_END_REASON_FILTER_SYNTAX_ERROR	Syntactical error in packet filter(s)
1025	QMI_WDS_CALL_END_REASON_PDP_WITHOUT_ACTIVE_TFT	PDP context without TFT already activated
1026	QMI_WDS_CALL_END_REASON_INVALID_TRANSACTION_ID	Invalid transaction identifier value
1027	QMI_WDS_CALL_END_REASON_MESSAGE_INCORRECT_SEMANTIC	Semantically incorrect message
1028	QMI_WDS_CALL_END_REASON_INVALID_MANDATORY_INFO	Invalid mandatory information
1029	QMI_WDS_CALL_END_REASON_MESSAGE_TYPE_UNSUPPORTED	Message type nonexistent or not implemented
1030	QMI_WDS_CALL_END_REASON_MSG_TYPE_NONCOMPATIBLE_STATE	Message not compatible with state
1031	QMI_WDS_CALL_END_REASON_UNKNOWN_INFO_ELEMENT	Information element nonexistent or not 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_AND_PROTOCOL_STATE_UNCOMPATIBLE	Message not compatible with protocol state
1034	QMI_WDS_CALL_END_REASON_APN_TYPE_CONFLICT	APN restriction value incompatible with active PDP context
1035	QMI_WDS_CALL_END_REASON_NO_GPRS_CONTEXT	No GPRS context present
1036	QMI_WDS_CALL_END_REASON_FEATURE_NOT_SUPPORTED	Requested feature not supported

Table A-4 1xEV-DO call end reasons

Value	Name	Description
1500	QMI_WDS_CALL_END_REASON_CD_GEN_OR_BUSY	Abort connection setup due to the reception of a ConnectionDeny message with deny code = general or network busy
1501	QMI_WDS_CALL_END_REASON_CD_BILL_OR_AUTH	Abort connection setup due to the reception of a ConnectionDeny message with deny code = billing or authentication failure
1502	QMI_WDS_CALL_END_REASON_CHG_HDR	Change HDR system due to redirection or PRL not preferred
1503	QMI_WDS_CALL_END_REASON_EXIT_HDR	Exit HDR due to redirection or PRL not preferred
1504	QMI_WDS_CALL_END_REASON_HDR_NO_SESSION	No HDR session
1505	QMI_WDS_CALL_END_REASON_HDR_ORIG_DURING_GPS_FIX	Used if CM is ending an HDR call origination in favor of GPS fix
1506	QMI_WDS_CALL_END_REASON_HDR_CS_TIMEOUT	Connection setup timeout
1507	QMI_WDS_CALL_END_REASON_HDR_RELEASED_BY_CM	CM released HDR call so 1X call can 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-7 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.

Table B-1 call end reason type

Value	Name
1	Mobile IP
2	Internal
3	Call Manager defined
6	3GPP specification defined
7	PPP
8	EHRPD
9	IPv6

Table B-2 Mobile IP call end reasons (Type = 1)

Value	Name
64	MIP_FA_ERR_REASON_UNSPECIFIED
65	MIP_FA_ERR_ADMINISTRATIVELY_PROHIBITED
66	MIP_FA_ERR_INSUFFICIENT_RESOURCES
67	MIP_FA_ERR_MOBILE_NODE_AUTHENTICATION_FAILURE
68	MIP_FA_ERR_HA_AUTHENTICATION_FAILURE
69	MIP_FA_ERR_REQUESTED_LIFETIME_TOO_LONG
70	MIP_FA_ERR_MALFORMED_REQUEST
71	MIP_FA_ERR_MALFORMED_REPLY
72	MIP_FA_ERR_ENCAPSULATION_UNAVAILABLE
73	MIP_FA_ERR_VJHC_UNAVAILABLE
74	MIP_FA_ERR_REVERSE_TUNNEL_UNAVAILABLE
75	MIP_FA_ERR_REVERSE_TUNNEL_IS_MANDATORY_AND_T_BIT_NOT_SET
79	MIP_FA_ERR_DELIVERY_STYLE_NOT_SUPPORTED
97	MIP_FA_ERR_MISSING_NAI
98	MIP_FA_ERR_MISSING_HA

Table B-2 Mobile IP call end reasons (Type = 1) (cont.)

Value	Name
99	MIP_FA_ERR_MISSING_HOME_ADDR
104	MIP_FA_ERR_UNKNOWN_CHALLENGE
105	MIP_FA_ERR_MISSING_CHALLENGE
106	MIP_FA_ERR_STALE_CHALLENGE
128	MIP_HA_ERR_REASON_UNSPECIFIED
129	MIP_HA_ERR_ADMINISTRATIVELY_PROHIBITED
130	MIP_HA_ERR_INSUFFICIENT_RESOURCES
131	MIP_HA_ERR_MOBILE_NODE_AUTHENTICATION_FAILURE
132	MIP_HA_ERR_FA_AUTHENTICATION_FAILURE
133	MIP_HA_ERR_REGISTRATION_ID_MISMATCH
134	MIP_HA_ERR_MALFORMED_REQUEST
136	MIP_HA_ERR_UNKNOWN_HA_ADDR
137	MIP_HA_ERR_REVERSE_TUNNEL_UNAVAILABLE
138	MIP_HA_ERR_REVERSE_TUNNEL_IS_MANDATORY_AND_T_BIT_NOT_SET
139	MIP_HA_ERR_ENCAPSULATION_UNAVAILABLE
-1	MIP_ERR_REASON_UNKNOWN

Table B-3 Internal call end reasons (Type = 2)

Value	Name
201	INTERNAL_ERROR
202	CALL_ENDED
203	INTERNAL_UNKNOWN_CAUSE_CODE
204	UNKNOWN_CAUSE_CODE
205	CLOSE_IN_PROGRESS
206	NW_INITIATED_TERMINATION
207	APP_PREEMPTED

Table B-4 Call Manager defined call end reasons (Type = 3)

Value	Name
500	CDMA_LOCK
501	INTERCEPT
502	REORDER
503	REL_SO_REJ
504	INCOM_CALL
505	ALERT_STOP
506	ACTIVATION
507	MAX_ACCESS_PROBE
508	CCS_NOT_SUPPORTED_BY_BS
509	NO_RESPONSE_FROM_BS
510	REJECTED_BY_BS
511	INCOMPATIBLE
512	ALREADY_IN_TC
513	USER_CAL_ORIG_DURING_GPS
514	USER_CALL_ORIG_DURING_SMS

Table B-4 Call Manager defined call end reasons (Type = 3) (cont.)

Value	Name
515	NO_CDMA_SRV
519	RETRY_ORDER
1000	CONF_FAILED
1001	INCOM_REJ
1002	NO_GW_SRV
1003	NO_GPRS_CONTEXT
1004	ILLEGAL_MS
1005	ILLEGAL_ME
1006	GPRS_SERVICES_AND_NON_GPRS_SERVICES_NOT_ALLOWED
1007	GPRS_SERVICES_NOT_ALLOWED
1008	MS_IDENTITY_CANNOT_BE_DERIVED_BY_THE_NETWORK
1009	IMPLICITLY_DETACHED
1010	PLMN_NOT_ALLOWED
1011	LA_NOT_ALLOWED
1012	GPRS_SERVICES_NOT_ALLOWED_IN_THIS_PLMN
1013	PDP_DUPLICATE
1014	UE_RAT_CHANGE
1015	CONGESTION
1016	NO_PDP_CONTEXT_ACTIVATED
1017	ACCESS_CLASS_DSAC_REJECTION
1500	CD_GEN_OR_BUSY
1501	CD_BILL_OR_AUTH
1502	CHG_HDR
1503	EXIT_HDR
1504	HDR_NO_SESSION
1505	HDR_ORIG_DURING_GPS_FIX
1506	HDR_CS_TIMEOUT
1507	HDR_RELEASED_BY_CM
1510	NO_HYBR_HDR_SRV
2000	CLIENT_END
2001	NO_SRV
2002	FADE
2003	REL_NORMAL
2004	ACC_IN_PROG
2005	ACC_FAIL
2006	REDIR_OR_HANDOFF

Table B-5 3GPP specification defined call end reasons (Type = 6)

Value	Name
8	OPERATOR_DETERMINED_BARRING
25	LLC_SNDP_FAILURE
26	INSUFFICIENT_RESOURCES
27	UNKNOWN_APN
28	UNKNOWN_PDP
29	AUTH_FAILED

Table B-5 3GPP specification defined call end reasons (Type = 6) (cont.)

Value	Name
30	GGSN_REJECT
31	ACTIVATION_REJECT
32	OPTION_NOT_SUPPORTED
33	OPTION_UNSUBSCRIBED
34	OPTION_TEMP_OOO
35	NSAPI_ALREADY_USED
36	REGULAR_DEACTIVATION
37	QOS_NOT_ACCEPTED
38	NETWORK_FAILURE
39	UMTS_REACTIVATION_REQ
40	FEATURE_NOT_SUPPORTED
41	TFT_SEMANTIC_ERROR
42	TFT_SYNTAX_ERROR
43	UNKNOWN_PDP_CONTEXT
44	FILTER_SEMANTIC_ERROR
45	FILTER_SYNTAX_ERROR
46	PDP_WITHOUT_ACTIVE_TFT
81	INVALID_TRANSACTION_ID
95	MESSAGE_INCORRECT_SEMANTIC
96	INVALID_MANDATORY_INFO
97	MESSAGE_TYPE_UNSUPPORTED
98	MSG_TYPE_NONCOMPATIBLE_STATE
99	UNKNOWN_INFO_ELEMENT
100	CONDITIONAL_IE_ERROR
101	MSG_AND_PROTOCOL_STATE_UNCOMPATIBLE
111	PROTOCOL_ERROR
112	APN_TYPE_CONFLICT
50	IP_V4_ONLY_ALLOWED
51	IP_V6_ONLY_ALLOWED
52	SINGLE_ADDR_BEARER_ONLY
53	ESM_INFO_NOT_RECEIVED
54	PDN_CONN_DOES_NOT_EXIST
55	MULTI_CONN_TO_SAME_PDN_NOT_ALLOWED

Table B-6 PPP call end reasons (Type = 7)

Value	Name
1	TIMEOUT
2	AUTH_FAILURE
3	OPTION_MISMATCH
31	PAP_FAILURE
32	CHAP_FAILURE
-1	UNKNOWN

Table B-7 3GPP specification defined call end reasons (Type = 8)

Value	Name
1	SUBS_LIMITED_TO_V4
2	SUBS_LIMITED_TO_V6
4	VSNCP_TIMEOUT
5	VSNCP_FAILURE
6	VSNCP_3GPP2I_GEN_ERROR
7	VSNCP_3GPP2I_UNAUTH_APN
8	VSNCP_3GPP2I_PDN_LIMIT_EXCEED
9	VSNCP_3GPP2I_NO_PDN_GW
10	VSNCP_3GPP2I_PDN_GW_UNREACH
11	VSNCP_3GPP2I_PDN_GW_REJ
12	VSNCP_3GPP2I_INSUFF_PARAM
13	VSNCP_3GPP2I_RESOURCE_UNAVAIL
14	VSNCP_3GPP2I_ADMIN_PROHIBIT
15	VSNCP_3GPP2I_PDN_ID_IN_USE
16	VSNCP_3GPP2I_SUBSCR_LIMITATION
17	VSNCP_3GPP2I_PDN_EXISTS_FOR_THIS_APN

Table B-8 IPV6 call end reasons (Type = 9)

Value	Name
1	PREFIX_UNAVAILABLE
2	IPV6_ERR_HRPD_IPV6_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_INVALID_HNDL	Request contains an invalid profile handle
3	DS_PROFILE_REG_RESULT_ERR_INVALID_OP	Invalid operation was requested
4	DS_PROFILE_REG_RESULT_ERR_INVALID_PROFILE_TYPE	Request contains an invalid technology type
5	DS_PROFILE_REG_RESULT_ERR_INVALID_PROFILE_NUM	Request contains an invalid profile number
6	DS_PROFILE_REG_RESULT_ERR_INVALID_IDENT	Request contains an invalid profile identifier
7	DS_PROFILE_REG_RESULT_ERR_INVALID	Request contains an invalid argument other than profile number and profile identifier received
8	DS_PROFILE_REG_RESULT_ERR_LIB_NOT_INITED	Profile registry has not been initialized yet
9	DS_PROFILE_REG_RESULT_ERR_LEN_INVALID	Request contains a parameter with 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_INVALID_SUBS_ID	Request contains an invalid subscription identifier
12	DS_PROFILE_REG_INVALID_PROFILE_FAMILY	Request contains an invalid profile family
1001	DS_PROFILE_REG_3GPP_INVALID_PROFILE_FAMILY	Request contains an invalid 3GPP profile family
1002	DS_PROFILE_REG_3GPP_ACCESS_ERR	Error was encountered while accessing the 3GPP profiles
1003	DS_PROFILE_REG_3GPP_CONTEXT_NOT_DEFINED	Specified 3GPP profile does not have a valid context
1004	DS_PROFILE_REG_3GPP_VALID_FLAG_NOT_SET	Specified 3GPP profile is marked invalid.
1005	DS_PROFILE_REG_3GPP_READ_ONLY_FLAG_SET	Specified 3GPP profile is marked read-only

Table C-1 DS Profile extended error codes (cont.)

Value	Name	Description
1006	DS_PROFILE_REG_3GPP_ERR_OUT_OF_PROFILES	Creation of a new 3GPP profile failed because the limit of 16 profiles has already been reached
1101	DS_PROFILE_REG_3GPP2_ERR_INVALID_IDENT_FOR_PROFILE	Invalid profile identifier was received as part of the 3GPP2 profile modification request