

# RW BLE Host Error Code Interface Specification

Interface Specification RW-BLE-HOST-ERR-CODE-IS Version 8.03 2016-12-12 Title: **RW BLE Host** Error Code Interface Specification Reference: **RW-BLE-HOST-ERR-CODE-IS** V

n Document type: Interface Specification Version: **8.03**, Release Date: **2016-12-12** 



# **Revision History**

Version	Date	Revision Description	Author
1.0	2012-12-13	Added error codes	KYAP/FBELOUIN
2.0	2013-03-10	Update error codes table	FBELOUIN
7.00	2014-06-30	BLE 4.1 HL Error Codes	FBELOUIN
7.01	2015-01-06	Add new error code for L2CAP LE Credit Based FBELOUIN Connection	
8.00	2015-06-29	Update Error codes for BLE 4.2 FBELOUIN	
8.01	2015-10-26	Add some new error codes for Audio Mode 0 FBELOUIN	
8.02	2016-04-15	New error code for LE Credit Based Connection FBELOUIN	
8.02	2016-12-12	New error code for LE Credit Based Connection FBELOUIN	

Title: **RW BLE Host** Error Code Interface Specification Reference: **RW-BLE-HOST-ERR-CODE-IS** V

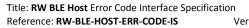


Revi	ision History	2
Tabl	le of Contents	3
	of Tables	
1	Abbreviations	5
2	Document Overview	6
3	Frror Code List	. 7



Title: **RW BLE Host** Error Code Interface Specification Document type: **Interface Specification** Reference: **RW-BLE-HOST-ERR-CODE-IS** Version: **8.03**, Release Date: **2016-12-12** 

List of Tables	
Table 1: Host Stack Error Codes	12





## 1 Abbreviations

Abbreviation	Original Terminology
API	Application Programming Interface
ATT	Attribute
BLE	Bluetooth Low Energy
GAP	Generic Access Profile
GATT	Generic Attribute Profile
SMP	Security Manager Protocol
RW	RivieraWaves

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### 2 Document Overview

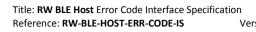
This document describes the non-standard error code interface of the RW BLE Host implementation.

These error codes can be triggered by any host task such as GAP, GATT, SMP, ATT or profiles



## 3 Error Code List

Value	Error	Description
0x00	GAP_ERR_NO_ERROR	No error
	ATT E	rror Codes
0x01	ATT_ERR_INVALID_HANDLE	Handle is invalid
0x02	ATT_ERR_READ_NOT_PERMITTED	Read permission disabled
0x03	ATT_ERR_WRITE_NOT_PERMITTED	Write permission disabled
0x04	ATT_ERR_INVALID_PDU	Incorrect PDU
0x05	ATT_ERR_INSUFF_AUTHEN	Authentication privilege not enough
0x06	ATT_ERR_REQUEST_NOT_SUPPORTED	Request not supported or not understood
0x07	ATT_ERR_INVALID_OFFSET	Incorrect offset value
80x0	ATT_ERR_INSUFF_AUTHOR	Authorization privilege not enough
0x09	ATT_ERR_PREPARE_QUEUE_FULL	Capacity queue for reliable write reached
0x0A	ATT_ERR_ATTRIBUTE_NOT_FOUND	Attribute requested not existing
0x0B	ATT_ERR_ATTRIBUTE_NOT_LONG	Attribute requested not long
0x0C	ATT_ERR_INSUFF_ENC_KEY_SIZE	Encryption size not sufficient
0x0D	ATT_ERR_INVALID_ATTRIBUTE_VAL_LEN	Invalid length of the attribute value
0x0E	ATT_ERR_UNLIKELY_ERR	Operation not fit to condition
0x0F	ATT_ERR_INSUFF_ENC	Attribute requires encryption before operation
0x10	ATT_UNSUPP_GRP_TYPE	Attribute grouping not supported
0x11	ATT_INSUFF_RESOURCE	Resources not sufficient to complete the request
0x80	ATT_ERR_APP_ERROR	Application Error
	L2C Sp	ecific Error
0x30	L2C_ERR_CONNECTION_LOST	Message cannot be sent because connection lost. (disconnected)
0x31	L2C_ERR_INVALID_MTU_EXCEED	Invalid PDU length exceed MTU
0x32	L2C_ERR_INVALID_MPS_EXCEED	Invalid PDU length exceed MPS
0x33	L2C_ERR_INVALID_CID	Invalid Channel ID
0x34	L2C_ERR_INVALID_PDU	Invalid PDU
0x35	L2C_ERR_NO_RES_AVAIL	Connection refused - no resources available
0x36	L2C_ERR_INSUFF_AUTHEN	Connection refused - insufficient authentication
0x37	L2C_ERR_INSUFF_AUTHOR	Connection refused - insufficient authorization
0x38	L2C_ERR_INSUFF_ENC_KEY_SIZE	Connection refused - insufficient encryption key size
0x39	L2C_ERR_INSUFF_ENC	Connection Refused - insufficient encryption
0x3A	L2C_ERR_LEPSM_NOT_SUPP	Connection refused - LE_PSM not supported
0x3B	L2C_ERR_INSUFF_CREDIT	No more credit
0x3C	L2C_ERR_NOT_UNDERSTOOD	Command not understood by peer device
0x3D	L2C_ERR_CREDIT_ERROR	Credit error, invalid number of credit received
0x3E	L2C_ERR_CID_ALREADY_ALLOC	Channel identifier already allocated



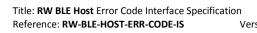


GAP Error Codes			
0x40	GAP_ERR_INVALID_PARAM	Invalid parameters set	
0x41	GAP_ERR_PROTOCOL_PROBLEM	Problem with protocol exchange, get unexpected response	
0x42	GAP_ERR_NOT_SUPPORTED	Request not supported by software configuration	
0x43	GAP_ERR_COMMAND_DISALLOWED	Request not allowed in current state.	
0x44	GAP_ERR_CANCELED	Requested operation canceled.	
0x45	GAP_ERR_TIMEOUT	Requested operation timeout.	
0x46	GAP_ERR_DISCONNECTED	Link connection lost during operation.	
0x47	GAP_ERR_NOT_FOUND	Search algorithm finished, but no result found	
0x48	GAP_ERR_REJECTED	Request rejected by peer device	
0x49	GAP_ERR_PRIVACY_CFG_PB	Problem with privacy configuration	
0x4A	GAP_ERR_ADV_DATA_INVALID	Duplicate or invalid advertising data	
0x4B	GAP_ERR_INSUFF_RESOURCES	Insufficient resources	
0x4C	GAP_ERR_UNEXPECTED	Unexpected Error	
0X4D	GAP_ERR_MISMATCH	Feature mismatch	
	GATT Error Codes		
0x50	GATT_ERR_INVALID_ATT_LEN	Problem with ATTC protocol response	
0x51	GATT_ERR_INVALID_TYPE_IN_SVC_SEARCH	Error in service search	
0x52	GATT_ERR_WRITE	Invalid write data	
0x53	GATT_ERR_SIGNED_WRITE	Signed write error	
0x54	GATT_ERR_ATT_CLIENT_MISSING	No attribute client defined	
0x55	GATT_ERR_ATT_SERVER_MISSING	No attribute server defined	
0x56	GATT_ERR_INVALID_PERM	Permission set in service/attribute are invalid	
	SMP Protocol Errors	detected on local device	
0x61	SMP_ERROR_LOC_PASSKEY_ENTRY_FAILED	The user input of passkey failed, for example, the user cancelled the operation.	
0x62	SMP_ERROR_LOC_OOB_NOT_AVAILABLE	The OOB Data is not available.	
0x63	SMP_ERROR_LOC_AUTH_REQ	The pairing procedure cannot be performed as authentication requirements cannot be met due to IO capabilities of one or both devices.	
0x64	SMP_ERROR_LOC_CONF_VAL_FAILED	The confirm value does not match the calculated confirm value.	
0x65	SMP_ERROR_LOC_PAIRING_NOT_SUPP	Pairing is not supported by the device.	
0x66	SMP_ERROR_LOC_ENC_KEY_SIZE	The resultant encryption key size is insufficient for the security requirements of this device.	
0x67	SMP_ERROR_LOC_CMD_NOT_SUPPORTED	The SMP command received is not supported on this device.	
0x68	SMP_ERROR_LOC_UNSPECIFIED_REASON	Pairing failed due to an unspecified reason.	
0x69	SMP_ERROR_LOC_REPEATED_ATTEMPTS	Pairing or Authentication procedure is disallowed because too little time has elapsed since last pairing request or security request.	
0x6A	SMP_ERROR_LOC_INVALID_PARAM	The command length is invalid or a parameter is outside of the specified range.	



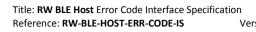


0x6B		
	SMP_ERROR_LOC_DHKEY_CHECK_FAILED	Indicates to the remote device that the DHKey Check value received doesn't match the one calculated by the local device.
0x6C	SMP_ERROR_LOC_NUMERIC_COMPARISON_FAILED	Indicates that the confirm values in the numeric comparison protocol do not match.
0x6D	SMP_ERROR_LOC_BREDR_PAIRING_IN_PROGRE SS	Indicates that the pairing over the LE transport failed due to a Pairing Request sent over the BR/EDR transport in process.
0x6E	SMP_ERROR_LOC_CROSS_TRANSPORT_KEY_GEN ERATION_NOT_ALLOWED	Indicates that the BR/EDR Link Key generated on the BR/EDR transport cannot be used to derive and distribute keys for the LE transport.
'	SMP Protocol Errors d	etected by remote device
0x71	SMP_ERROR_REM_PASSKEY_ENTRY_FAILED	The user input of passkey failed, for example, the user cancelled the operation.
0x72	SMP_ERROR_REM_OOB_NOT_AVAILABLE	The OOB Data is not available.
0x73	SMP_ERROR_REM_AUTH_REQ	The pairing procedure cannot be performed as authentication requirements cannot be met due to IO capabilities of one or both devices.
0x74	SMP_ERROR_REM_CONF_VAL_FAILED	The confirm value does not match the calculated confirm value.
0x75	SMP_ERROR_REM_PAIRING_NOT_SUPP	Pairing is not supported by the device.
0x76	SMP_ERROR_REM_ENC_KEY_SIZE	The resultant encryption key size is insufficient for the security requirements of this device.
0x77	SMP_ERROR_REM_CMD_NOT_SUPPORTED	The SMP command received is not supported on this device.
0x78	SMP_ERROR_REM_UNSPECIFIED_REASON	Pairing failed due to an unspecified reason.
0x79	SMP_ERROR_REM_REPEATED_ATTEMPTS	Pairing or Authentication procedure is disallowed because too little time has elapsed since last pairing request or security request.
0x7A	SMP_ERROR_REM_INVALID_PARAM	The command length is invalid or a parameter is outside of the specified range.
0x7B	SMP_ERROR_REM_DHKEY_CHECK_FAILED	Indicates to the remote device that the DHKey Check value received doesn't match the one calculated by the local device.
0x7C	SMP_ERROR_REM_NUMERIC_COMPARISON_FAILED	Indicates that the confirm values in the numeric comparison protocol do not match.
0x7D	SMP_ERROR_REM_BREDR_PAIRING_IN_PROGRE SS	Indicates that the pairing over the LE transport failed due to a Pairing Request sent over the BR/EDR transport in process.
0x7E	SMP_ERROR_REM_CROSS_TRANSPORT_KEY_GE NERATION_NOT_ALLOWED	Indicates that the BR/EDR Link Key generated on the BR/EDR transport cannot be used to derive and distribute keys for the LE transport.
	SMP Errors trigg	ered by local device
0xD0	SMP_ERROR_ADDR_RESOLV_FAIL	The provided resolvable address has not been resolved.
0xD1	SMP_ERROR_SIGN_VERIF_FAIL	The Signature Verification Failed
0xD2	SMP_ERROR_ENC_KEY_MISSING	The encryption procedure failed because the slave device didn't find the LTK needed to start an encryption session.
	ALIE TERRE THE MET ALIER AND ADDRESS	The enemystics precedure failed because the slave device descript
0xD3	SMP_ERROR_ENC_NOT_SUPPORTED	The encryption procedure failed because the slave device doesn't support the encryption feature.





0x80	PRF_APP_ERROR	Application Error
0x81	PRF_ERR_INVALID_PARAM	Invalid parameter in request
0x82	PRF_ERR_INEXISTENT_HDL	Nonexistent handle for sending a read/write characteristic request
0x83	PRF_ERR_STOP_DISC_CHAR_MISSING	Discovery stopped due to missing attribute according to specification
0x84	PRF_ERR_MULTIPLE_SVC	Too many SVC instances found -> protocol violation
0x85	PRF_ERR_STOP_DISC_WRONG_CHAR_PROP	Discovery stopped due to found attribute with incorrect properties
0x86	PRF_ERR_MULTIPLE_CHAR	Too many Char. instances found-> protocol violation
0x87	PRF_ERR_NOT_WRITABLE	Attribute write not allowed
0x88	PRF_ERR_NOT_READABLE	Attribute read not allowed
0x89	PRF_ERR_REQ_DISALLOWED	Request not allowed
0x8A	PRF_ERR_NTF_DISABLED	Notification Not Enabled
0x8B	PRF_ERR_IND_DISABLED	Indication Not Enabled
0x8C	PRF_ERR_FEATURE_NOT_SUPPORTED	Feature not supported by profile
0x8D	PRF_ERR_UNEXPECTED_LEN	Read value has an unexpected length
0x8E	PRF_ERR_DISCONNECTED	Disconnection occurs
0x8F	PRF_ERR_PROC_TIMEOUT	Procedure Timeout
0xFD	PRF_CCCD_IMPR_CONFIGURED	Client characteristic configuration improperly configured
0xFE	PRF_PROC_IN_PROGRESS	Procedure already in progress
0xFF	PRF_OUT_OF_RANGE	Out of Range
	LL Error codes con	veyed to upper layer
0x91	LL_ERR_UNKNOWN_HCI_COMMAND	Unknown HCI Command
0x92	LL_ERR_UNKNOWN_CONNECTION_ID	Unknown Connection Identifier
0x93	LL_ERR_HARDWARE_FAILURE	Hardware Failure
0x94	LL_ERR_PAGE_TIMEOUT	BT Page Timeout
0x95	LL_ERR_AUTH_FAILURE	Authentication failure
0x96	LL_ERR_PIN_MISSING	Pin code missing
0x97	LL_ERR_MEMORY_CAPA_EXCEED	Memory capacity exceed
0x98	LL_ERR_CON_TIMEOUT	Connection Timeout
0x99	LL_ERR_CON_LIMIT_EXCEED	Connection limit Exceed
0x9A	LL_ERR_SYNC_CON_LIMIT_DEV_EXCEED	Synchronous Connection limit exceed
0x9B	LL_ERR_ACL_CON_EXISTS	ACL Connection exits
0x9C	LL_ERR_COMMAND_DISALLOWED	Command Disallowed
0x9D	LL_ERR_CONN_REJ_LIMITED_RESOURCES	Connection rejected due to limited resources
0x9E	LL_ERR_CONN_REJ_SECURITY_REASONS	Connection rejected due to security reason
0x9F	LL_ERR_CONN_REJ_UNACCEPTABLE_BDADDR	Connection rejected due to unacceptable BD Addr
0xA0	LL_ERR_CONN_ACCEPT_TIMEOUT_EXCEED	Connection rejected due to Accept connection timeout
0xA1	LL_ERR_UNSUPPORTED	Not Supported





0xA2	LL_ERR_INVALID_HCI_PARAM	invalid parameters
0xA3	LL_ERR_REMOTE_USER_TERM_CON	Remote user terminate connection
0xA4	LL_ERR_REMOTE_DEV_TERM_LOW_RESOURCES	Remote device terminate connection due to low resources
0xA5	LL_ERR_REMOTE_DEV_POWER_OFF	Remote device terminate connection due to power off
0xA6	LL_ERR_CON_TERM_BY_LOCAL_HOST	Connection terminated by local host
0xA7	LL_ERR_REPEATED_ATTEMPTS	Repeated attempts
0xA8	LL_ERR_PAIRING_NOT_ALLOWED	Pairing not Allowed
0xA9	LL_ERR_UNKNOWN_LMP_PDU	Unknown PDU Error
0xAA	LL_ERR_UNSUPPORTED_REMOTE_FEATURE	Unsupported remote feature
0xAB	LL_ERR_SCO_OFFSET_REJECTED	Sco Offset rejected
0xAC	LL_ERR_SCO_INTERVAL_REJECTED	SCO Interval Rejected
0xAD	LL_ERR_SCO_AIR_MODE_REJECTED	SCO air mode Rejected
0xAE	LL_ERR_INVALID_LMP_PARAM	Invalid LMP parameters
0xAF	LL_ERR_UNSPECIFIED_ERROR	Unspecified error
0xB0	LL_ERR_UNSUPPORTED_LMP_PARAM_VALUE	Unsupported LMP Parameter value
0xB1	LL_ERR_ROLE_CHANGE_NOT_ALLOWED	Role Change Not allowed
0xB2	LL_ERR_LMP_RSP_TIMEOUT	LMP Response timeout
0xB3	LL_ERR_LMP_COLLISION	LMP Collision
0xB4	LL_ERR_LMP_PDU_NOT_ALLOWED	LMP Pdu not allowed
0xB5	LL_ERR_ENC_MODE_NOT_ACCEPT	Encryption mode not accepted
0xB6	LL_ERR_LINK_KEY_CANT_CHANGE	Link Key Cannot be changed
0xB7	LL_ERR_QOS_NOT_SUPPORTED	Quality of Service not supported
0xB8	LL_ERR_INSTANT_PASSED	Error, instant passed
0xB9	LL_ERR_PAIRING_WITH_UNIT_KEY_NOT_SUP	Pairing with unit key not supported
0xBA	LL_ERR_DIFF_TRANSACTION_COLLISION	Transaction collision
0xBC	LL_ERR_QOS_UNACCEPTABLE_PARAM	Unacceptable parameters
0xBD	LL_ERR_QOS_REJECTED	Quality of Service rejected
0xBE	LL_ERR_CHANNEL_CLASS_NOT_SUP	Channel class not supported
0xBF	LL_ERR_INSUFFICIENT_SECURITY	Insufficient security
0xC0	LL_ERR_PARAM_OUT_OF_MAND_RANGE	Parameters out of mandatory range
0xC2	LL_ERR_ROLE_SWITCH_PEND	Role switch pending
0xC4	LL_ERR_RESERVED_SLOT_VIOLATION	Reserved slot violation
0xC5	LL_ERR_ROLE_SWITCH_FAIL	Role Switch fail
0xC6	LL_ERR_EIR_TOO_LARGE	Error, EIR too large
0xC7	LL_ERR_SP_NOT_SUPPORTED_HOST	Simple pairing not supported by host
0xC8	LL_ERR_HOST_BUSY_PAIRING	Host pairing is busy
0xCA	LL_ERR_CONTROLLER_BUSY	Controller is busy
0xCB	LL_ERR_UNACCEPTABLE_CONN_INT	Unacceptable connection initialization
0xCC	LL_ERR_DIRECT_ADV_TO	Direct Advertising Timeout

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0xCE

0xCD LL\_ERR\_TERMINATED\_MIC\_FAILURE Connection Terminated due to a MIC failure

LL\_ERR\_CONN\_FAILED\_TO\_BE\_EST Connection failed to be established

Table 1: Host Stack Error Codes