7.1.18 Master Link Key Command

Command	OCF	Command Parameters	Return Parameters
HCI_Master_Link_Key	0x0017	Key_Flag	

Description:

The Master Link Key command is used to force the device that is master of the piconet to use the temporary link key of the master device, or the semi-permanent link keys. The temporary link key is used for encryption of broadcast messages within a piconet, and the semi-permanent link keys are used for private encrypted point-to-point communication. The Key_Flag command parameter is used to indicate which Link Key (temporary link key of the Master, or the semi-permanent link keys) shall be used.

Command Parameters:

Key_Flag: *Size: 1 Octet*

Value	Parameter Description
0x00	Use semi-permanent Link Keys.
0x01	Use Temporary Link Key.

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the Master_Link_Key command, the Controller sends the Command Status event to the Host. When the Link Manager has changed link key, the Controller on both the local and the remote device will send a Master Link Key Complete event to the Host. The Connection Handle on the master side will be a Connection Handle for one of the existing connections to a slave. On the slave side, the Connection Handle will be a Connection Handle to the initiating master.

The Master Link Key Complete event contains the status of this command. Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, the Master Link Key Complete event will indicate that this command has been completed.

7.1.19 Remote Name Request Command

Command	OCF	Command Parameters	Return Parameters
HCI_Remote_Name_Request	0x0019	BD_ADDR, Page_Scan_Repetition_Mode, Reserved, Clock_Offset	

Description:

The Remote_Name_Request command is used to obtain the user-friendly name of another Bluetooth device. The user-friendly name is used to enable the user to distinguish one Bluetooth device from another. The BD_ADDR command parameter is used to identify the device for which the user-friendly name is to be obtained. The Page_Scan_Repetition_Mode parameter specifies the page scan repetition mode supported by the remote device with the BD_ADDR. This is the information that was acquired during the inquiry process. The Clock_Offset parameter is the difference between its own clock and the clock of the remote device with BD_ADDR. Only bits 2 through 16 of the difference are used and they are mapped to this parameter as bits 0 through 14 respectively. A Clock_Offset_Valid_Flag, located in bit 15 of the Clock_Offset command parameter, is used to indicate if the Clock Offset is valid or not.
Note: if no connection exists between the local device and the device corresponding to the BD_ADDR, a temporary link layer connection will be established to obtain the name of the remote device.

Command Parameters:

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR for the device whose name is requested.

Page_Scan_Repetition_Mode: *Size: 1 Octet*

Value	Parameter Description
0x00	R0
0x01	R1
0x02	R2
0x03 – 0xFF	Reserved.

Reserved: *Size: 1 Octet*

Value	Parameter Description
0x00	Reserved, must be set to 0x00. See "Page Scan Mode" on page 612.

Clock_Offset: *Size: 2 Octets*

Bit format	Parameter Description
Bit 14.0	Bit 16.2 of CLKslave-CLKmaster.
Bit 15	Clock_Offset_Valid_Flag Invalid Clock Offset = 0 Valid Clock Offset = 1

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the Remote_Name_Request command, the Controller sends the Command Status event to the Host. When the Link Manager has completed the LMP messages to obtain the remote name, the Controller on the local Bluetooth device will send a Remote Name Request Complete event to the Host. Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, only the Remote Name Request Complete event will indicate that this command has been completed.

7.1.20 Remote Name Request Cancel Command

Command	OCF	Command Parameters	Return Parameters
HCI_Remote_Name_Request_Cancel	0x001A	BD_ADDR	Status, BD_ADDR

Description:

This command is used to request cancellation of the ongoing remote name request process, which was started by the Remote Name Request command.

Command Parameters:

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR of the Remote Name Request command that was issued before and that is subject of this cancellation request

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Remote Name Request Cancel command succeeded
0x01-0xff	Remote Name Request Cancel command failed. See "Error Codes" on page 319 [Part D] for list of error codes

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR of the Remote Name Request Cancel command that was issued before and that was subject of this cancellation request

Event(s) generated (unless masked away):

When the Remote Name Request Cancel command has completed, a Command Complete event shall be generated.

If the Remote Name Request Cancel command is sent to the Controller without a preceding Remote Name Request command to the same device, the Controller will return a Command Complete event with the error code *Invalid HCI Command Parameters* (0x12).

The Remote Name Request Complete event for the corresponding Remote Name Request Command shall always be sent. The Remote Name Request

Complete event shall be sent after the Command Complete event for the Remote Name Request Cancel command. If the cancellation was successful, the Remote Name Request Complete event will be generated with the error code *Unknown Connection Identifier (0x02)*.

7.1.21 Read Remote Supported Features Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Remote_Supported_Features	0x001B	Connection_Handle	

Description:

This command requests a list of the supported features for the remote device identified by the Connection_Handle parameter. The Connection_Handle must be a Connection_Handle for an ACL connection. The Read Remote Supported Features Complete event will return a list of the LMP features. For details see "Link Manager Protocol" on page 211 [Part C].

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's LMP-supported features list to get. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the Read_Remote_Supported_Features command, the Controller sends the Command Status event to the Host. When the Link Manager has completed the LMP messages to determine the remote features, the Controller on the local Bluetooth device will send a Read Remote Supported Features Complete event to the Host. The Read Remote Supported Features Complete event contains the status of this command, and parameters describing the supported features of the remote device. Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, the Read Remote Supported Features Complete event will indicate that this command has been completed.

7.1.22 Read Remote Extended Features Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Remote_Extended_Features	0x001C	Connection_Handle, Page Number	

Description:

The HCI_Read_Remote_Extended_Features command returns the requested page of the extended LMP features for the remote device identified by the specified connection handle. The connection handle must be the connection handle for an ACL connection. This command is only available if the extended features feature is implemented by the remote device. The Read Remote Extended Features Complete event will return the requested information.
For details see "Link Manager Protocol" on page 211 [Part C].

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The connection handle identifying the remote device for which extended feature information is required. Range: 0x0000-0x0EFF (0x0F00-0x0FFF Reserved for future use)

Page Number: *Size: 1 Octet*

Value	Parameter Description
0x00	Requests the normal LMP features as returned by HCI_Read_Remote_Supported_Features
0x01-0xFF	Return the corresponding page of features

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the HCI_Read_Remote_Extended_Features command the Controller sends the Command Status command to the Host. When the Link Manager has completed the LMP sequence to determine the remote extended features the controller on the local device will generate a Read Remote Extended Features Complete event to the host. The Read Remote Extended Features Complete event contains the page number and the remote features returned by the remote device.

Note: no Command Complete event will ever be sent by the Controller to indicate that this command has been completed. Instead the Read Remote Extended Features Complete event will indicate that this command has been completed.

7.1.23 Read Remote Version Information Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Remote_Version_Information	0x001D	Connection_Handle	

Description:

This command will obtain the values for the version information for the remote Bluetooth device identified by the Connection_Handle parameter. The Connection_Handle must be a Connection_Handle for an ACL connection.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's version information to get. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the Read_Remote_Version_Information command, the Controller sends the Command Status event to the Host. When the Link Manager has completed the LMP messages to determine the remote version information, the Controller on the local Bluetooth device will send a Read Remote Version Information Complete event to the Host. The Read Remote Version Information Complete event contains the status of this command, and parameters describing the version and subversion of the LMP used by the remote device.
Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, the Read Remote Version Information Complete event will indicate that this command has been completed.

7.1.24 Read Clock Offset Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Clock_Offset	0x001F	Connection_Handle	

Description:

Both the System Clock and the clock offset to a remote device are used to determine what hopping frequency is used by a remote device for page scan. This command allows the Host to read clock offset to remote devices. The clock offset can be used to speed up the paging procedure when the local device tries to establish a connection to a remote device, for example, when the local Host has issued Create_Connection or Remote_Name_Request. The Connection_Handle must be a Connection_Handle for an ACL connection.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Clock Offset parameter is returned. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the Read_Clock_Offset command, the Controller sends the Command Status event to the Host. If this command was requested at the master and the Link Manager has completed the LMP messages to obtain the Clock Offset information, the Controller on the local Bluetooth device will send a Read Clock Offset Complete event to the Host.
Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, only the Read Clock Offset Complete event will indicate that this command has been completed. If the command is requested at the slave, the LM will immediately send a Command Status event and a Read Clock Offset Complete event to the Host, without an exchange of LMP PDU.

7.1.25 Read LMP Handle Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_LMP_Handle	0x0020	Connection_Handle	Status, Connection_Handle, LMP_Handle, Reserved

Description:

This command will read the current LMP Handle associated with the Connection_Handle. The Connection_Handle must be a SCO or eSCO Handle. If the Connection_Handle is a SCO connection handle, then this command shall read the LMP SCO Handle for this connection. If the Connection_Handle is an eSCO connection handle, then this command shall read the LMP eSCO Handle for this connection.

Command Parameters:

Connection_Handle: *Size 2 Octets (12 bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify which connection to be used for reading the LMP Handle. This must be a synchronous handle. Range: 0x0000-0x0EFF (0x0F00 – 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_LMP_Handle command succeeded.
0x01 – 0xFF	Read_LMP_Handle command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the Connection for which the LMP_Handle has been read. Range: 0x0000-0x0EFF (0x0F00 – 0x0FFF Reserved for future use)

LMP_Handle: *Size: 1 Octet*

Value	Parameter Description
0xXX	The LMP Handle is the LMP Handle that is associated with this connection handle. For a synchronous handle, this would be the LMP Synchronous Handle used when negotiating the synchronous connection in the link manager.

Reserved: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	This parameter is reserved, must to set to zero.

Events(s) generated (unless masked away):

When the Read_LMP_Handle command has completed, a Command Complete event will be generated.

7.1.26 Setup Synchronous Connection Command

Command	OCF	Command Parameters	Return Parameters
HCI_Setup_Synchronous_ Connection	0x0028	Connection_Handle Transmit_Bandwidth Receive_Bandwidth Max_Latency Voice_Setting Retransmission_Effort Packet Type	

Description:

The HCI Setup Synchronous Connection command adds a new or modifies an existing synchronous logical transport (SCO or eSCO) on a physical link depending on the Connection_Handle parameter specified. If the Connection_Handle refers to an ACL link a new synchronous logical transport will be added. If the Connection_Handle refers to an already existing synchronous logical transport (eSCO only) this link will be modified.The parameters are specified per connection. This synchronous connection can be used to transfer synchronous voice at 64kbps or transparent synchronous data.

When used to setup a new synchronous logical transport, the Connection_Handle parameter shall specify an ACL connection with which the new synchronous connection will be associated. The other parameters relate to the negotiation of the link, and may be reconfigured during the lifetime of the link. The transmit and receive bandwidth specify how much bandwidth shall be available for transmitting and for receiving data. While in many cases the receive and transmit bandwidth parameters may be equal, they may be different. The latency specifies an upper limit to the time in milliseconds between the eSCO (or SCO) instants, plus the size of the retransmission window, plus the length of the reserved synchronous slots for this logical transport. The content format specifies the settings for voice or transparent data on this connection. The retransmission effort specifies the extra resources that are allocated to this connection if a packet may need to be retransmitted. The Retransmission_Effort parameter shall be set to indicate the required behavior, or to don't care.

When used to modify an existing synchronous logical transport, the Transmit_Bandwidth, Receive_Bandwidth and Voice_Settings shall be set to the same values as were used during the initial setup. The Packet_Type, Retransmission_Effort and Max_Latency parameters may be modified.

The Packet_Type field is a bitmap specifying which packet types the LM shall accept in the negotiation of the link parameters. Multiple packet types are specified by bitwise OR of the packet type codes in the table. At least one packet type must be specified for each negotiation. It is recommended to enable as many packet types as possible. Note that it is allowed to enable packet types that are not supported by the local device.

A connection handle for the new synchronous connection will be returned in the synchronous connection complete event.

Note: The link manager may choose any combination of packet types, timing, and retransmission window sizes that satisfy the parameters given. This may be achieved by using more frequent transmissions of smaller packets. The link manager may choose to set up either a SCO or an eSCO connection, if the parameters allow, using the corresponding LMP sequences.

Note: To modify a SCO connection, use the Change Connection Packet Type command.

Note: If the lower layers cannot achieve the exact transmit and receive bandwidth requested subject to the other parameters, then the link shall be rejected.

A synchronous connection may only be created when an ACL connection already exists and when it is not in park state.

Command Parameters:

Connection_Handle: *2 octets (12 bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle for the ACL connection being used to create a synchronous Connection or for the existing Connection that shall be modified. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Transmit_Bandwidth: *4 octets*

Value	Parameter Description
0xXXXXXXXX	Transmit bandwidth in octets per second.

Receive_Bandwidth: *4 octets*

Value	Parameter Description
0xXXXXXXXX	Receive bandwidth in octets per second.

Max_Latency: *2 octets*

Value	Parameter Description
0x0000-0x0003	Reserved
0x0004-0xFFFE	This is a value in milliseconds representing the upper limit of the sum of the synchronous interval, the size of the eSCO window. (See Figure 8.7 in the Baseband specification)
0xFFFF	Don't care.

Voice_Setting: *2 octets (10 bits meaningful)*

Value	Parameter Description
See Section 6.12 on page 387.	

Retransmission_Effort: *1 octet*

Value	Parameter Description
0x00	No retransmissions
0x01	At least one retransmission, optimize for power consumption.
0x02	At least one retransmission, optimize for link quality
0xFF	Don't care
0x03 – 0xFE	Reserved

Packet_Type: *2 octets*

Value	Parameter Description
0x0001	HV1 may be used.
0x0002	HV2 may be used.
0x0004	HV3 may be used.
0x0008	EV3 may be used.
0x0010	EV4 may be used.
0x0020	EV5 may be used.
0x0040	2-EV3 may not be used.
0x0080	3-EV3 may not be used.
0x0100	2-EV5 may not be used.
0x0200	3-EV5 may not be used.
0x0400	Reserved for future use
0x0800	Reserved for future use
0x1000	Reserved for future use
0x2000	Reserved for future use
0x4000	Reserved for future use
0x8000	Reserved for future use

Return Parameters:

None

Event(s) generated (unless masked away)

When the Controller receives the Setup_Synchronous_Connection command, it sends the Command Status event to the Host. In addition, when the LM determines the connection is established, the local Controller will send a Synchronous Connection Complete event to the local Host, and the remote Controller will send a Synchronous Connection Complete event or a Connection Complete event to the remote Host. The synchronous Connection Complete event contains the Connection Handle if this command is successful.

If this command is used to change the parameters of an existing eSCO link, the Synchronous Connection Changed Event is sent to both hosts. In this case no Connection Setup Complete Event or Connection Request Event will be sent to either host. This command cannot be used to change the parameters of an SCO link.

Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, the synchronous Connection Complete event will indicate that this command has been completed.

7.1.27 Accept Synchronous Connection Request Command

Command	OCF	Command Parameters	Return Parameters
HCI_Accept_ Synchronous_ Connection_Request	0x0029	BD_ADDR Transmit_Bandwidth Receive_Bandwidth Max_Latency Content_Format Retransmission_Effort Packet_Type	

Description:

The Accept_Synchronous_Connection_Request command is used to accept an incoming request for a synchronous connection and to inform the local Link Manager about the acceptable parameter values for the synchronous connection. The Command shall only be issued after a Connection_Request event with link type SCO or eSCO has occurred. Connection_Request event contains the BD_ADDR of the device requesting the connection. The decision to accept a connection must be taken before the connection accept timeout expires on the local device.

The parameter set of the Accept_Synchronous_Connection_Request command is the same as for the Setup_Synchronous_Connection command. The Transmit_Bandwidth and Receive_Bandwidth values are required values for the new link and shall be met. The Max_Latency is an upper bound to the acceptable latency for the Link, as defined in Section 7.1.26 on page 437 Setup_Synchronous_Connection and shall not be exceeded. Content_Format specifies the encoding in the same way as in the Setup_Synchronous_Connection command and shall be met. The Retransmission_Effort parameter shall be set to indicate the required behavior, or to don't care. The Packet_Type parameter is a bit mask specifying the synchronous packet types that are allowed on the link and shall be met. The reserved bits in the Packet_Type field shall be set to one. If all bits are set in the packet type field then all packets types shall be allowed.

If the Link Type of the incoming request is SCO, then only the Transmit_Bandwidth, Max_Latency, Content_Format, and Packet_Type fields are valid.

If the Connection_Request event is masked away, and the Controller is not set to auto-accept this connection attempt, the Controller will automatically reject it. If the controller is set to automatically accept the connection attempt, the LM should assume default parameters. In that case the Synchronous_Connection_Complete Event shall be generated, unless masked away.

Command Parameters:

BD_ADDR: *6 octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR of the device requesting the connection

Transmit_Bandwidth: *4 octets*

Value	Parameter Description
0x00000000-0xFFFFFFFE	Maximum possible transmit bandwidth in octets per second.
0xFFFFFFFF	Don't care

Default: Don't care

Receive_Bandwidth: *4 octets*

Value	Parameter Description
0x00000000-0xFFFFFFFE	Maximum possible receive bandwidth in octets per second.
0xFFFFFFFF	Don't care

Default: Don't care

Max_Latency: *2 octets*

Value	Parameter Description
0x0000-0x0003	Reserved
0x0004-0xFFFE	This is a value in milliseconds representing the upper limit of the sum of the synchronous interval and the size of the eSCO window.
0xFFFF	Don't care.

Default: Don't care

Content_Format: *2 octets (10 bits meaningful)*

Value	Parameter Description
00XXXXXXXX	Input Coding: Linear
01XXXXXXXX	Input Coding: u-law
10XXXXXXXX	Input Coding: A-law
11XXXXXXXX	Reserved for future use.
XX00XXXXXX	Input Data Format: 1's complement
XX01XXXXXX	Input Data Format: 2's complement
XX10XXXXXX	Input Data Format: Sign-Magnitude
XX11XXXXXX	Input Data Format: Unsigned
XXXX0XXXXX	Input Sample Size: 8 bit (only for Linear PCM)
XXXX1XXXXX	Input Sample Size: 16 bit (only for Linear PCM)
XXXXXnnnXX	Linear PCM Bit Position: number of bit positions that MSB of sample is away from starting at MSB (only for Linear PCM)
XXXXXXXX00	Air Coding Format: CVSD
XXXXXXXX01	Air Coding Format: u-law
XXXXXXXX10	Air Coding Format: A-law
XXXXXXXX11	Air Coding Format: Transparent Data

Default: When links are auto-accepted, the values written by the HCI_Write_Voice_Settings are used.

Retransmission_Effort: *1 octet*

Value	Parameter Description
0x00	No retransmissions
0x01	At least one retransmission, optimize for power consumption.
0x02	At least one retransmission, optimize for link quality.
0x03-0xFE	Reserved
0xFF	Don't care

Default: Don't care

Packet_Type: *2 octets*

Value	Parameter Description
0x0001	HV1 may be used.
0x0002	HV2 may be used.
0x0004	HV3 may be used.
0x0008	EV3 may be used.
0x0010	EV4 may be used.
0x0020	EV5 may be used.
0x0040	2-EV3 may not be used.
0x0080	3-EV3 may not be used
0x0100	2-EV5 may not be used.
0x0200	3-EV5 may not be used.
0x0400	Reserved for future use
0x0800	Reserved for future use
0x1000	Reserved for future use
0x2000	Reserved for future use
0x4000	Reserved for future use
0x8000	Reserved for future use

Default: 0xFFFF - means all packet types may be used.

Return Parameters:

None

Event(s) generated (unless masked away):

The Accept_Synchronous_Request command will cause the Command Status event to be sent from the Host Controller when the Host Controller starts setting up the connection. When the link setup is complete, the local Controller will send a Synchronous Connection Complete event to its Host, and the remote Controller will send a Connection Complete event or a Synchronous Connection Complete event to the Host. The Synchronous Connection Complete will contain the connection handle and the link parameters if the setup is successful. No Command Complete event will be sent by the host controller as the result of this command.

7.1.28 Reject Synchronous Connection Request Command

Command	OCF	Command Parameters	Return Parameters
HCI_Reject_Synchronous_ Connection_Request	0x002A	BD_ADDR Reason	

Description:

The Reject_Synchronous_Connection_Request is used to decline an incoming request for a synchronous link. It shall only be issued after a Connection Request Event with Link Type equal to SCO or eSCO has occurred. The Connection Request Event contains the BD_ADDR of the device requesting the connection. The Reason parameter will be returned to the initiating host in the Status parameter of the Synchronous connection complete event on the remote side.

Command Parameters:

BD_ADDR: *6 octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR of the device requesting the connection

Reason: *1 octet*

Value	Parameter Description
0x0D-0x0F	Host Reject Error Code. See "Error Codes" on page 319 [Part D] for error codes and description.

Return Parameters:

None.

Event(s) Generated (unless masked away):

When the Host Controller receives the Reject_Synchronous_Connection_Request, it sends a Command Status Event to the Host. When the setup is terminated, the local Controller will send a Synchronous Connection Complete event to its Host, and the remote Controller will send a Connection Complete event or a Synchronous Connection Complete event to the Host with the Reason code from this command. No Command complete Event will be sent by the Host Controller to indicate that this command has been completed.

7.2 LINK POLICY COMMANDS

The Link Policy Commands provide methods for the Host to affect how the Link Manager manages the piconet. When Link Policy Commands are used, the LM still controls how Bluetooth piconets and scatternets are established and maintained, depending on adjustable policy parameters. These policy commands modify the Link Manager behavior that can result in changes to the link layer connections with Bluetooth remote devices.
Note: only one ACL connection can exist between two Bluetooth Devices, and therefore there can only be one ACL HCI Connection Handle for each physical link layer Connection. The Bluetooth Controller provides policy adjustment mechanisms to provide support for a number of different policies. This capability allows one Bluetooth module to be used to support many different usage models, and the same Bluetooth module can be incorporated in many different types of Bluetooth devices. For the Link Policy Commands, the OGF is defined as 0x02.

7.2.1 Hold Mode Command

Command	OCF	Command Parameters	Return Parameters
HCI_Hold_Mode	0x0001	Connection_Handle, Hold_Mode_Max_Interval, Hold_Mode_Min_Interval	

Description:

The Hold_Mode command is used to alter the behavior of the Link Manager, and have it place the ACL baseband connection associated by the specified Connection Handle into the hold mode. The Hold_Mode_Max_Interval and Hold_Mode_Min_Interval command parameters specify the length of time the Host wants to put the connection into the hold mode. The local and remote devices will negotiate the length in the hold mode. The Hold_Mode_Max_ Interval parameter is used to specify the maximum length of the Hold interval for which the Host may actually enter into the hold mode after negotiation with the remote device. The Hold interval defines the amount of time between when the Hold Mode begins and when the Hold Mode is completed. The Hold_ Mode_Min_Interval parameter is used to specify the minimum length of the Hold interval for which the Host may actually enter into the hold mode after the negotiation with the remote device. Therefore the Hold_Mode_Min_Interval cannot be greater than the Hold_Mode_Max_Interval. The Controller will return the actual Hold interval in the Interval parameter of the Mode Change event, if the command is successful. This command enables the Host to support a low-power policy for itself or several other Bluetooth devices, and allows the devices to enter Inquiry Scan, Page Scan, and a number of other possible actions.
Note: the connection handle cannot be of the SCO or eSCO link type

If the Host sends data to the Controller with a Connection_Handle corresponding to a connection in hold mode, the Controller will keep the data in its buffers until either the data can be transmitted (the hold mode has ended) or a flush, a flush timeout or a disconnection occurs. This is valid even if the Host has not yet been notified of the hold mode through a Mode Change event when it sends the data.
Note: the above is not valid for an HCI Data Packet sent from the Host to the Controller on the master side where the Connection_Handle is a Connection_Handle used for broadcast and the Broadcast_Flag is set to Active Broadcast or Piconet Broadcast. The broadcast data will then never be received by slaves in hold mode.

The Hold_Mode_Max_Interval shall be less than the Link Supervision Timeout configuration parameter.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Hold_Mode_Max_Interval: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Maximum acceptable number of Baseband slots to wait in Hold Mode. Time Length of the Hold = N * 0.625 msec (1 Baseband slot) Range for N: 0x0002-0xFFFE; only even values are valid. Time Range: 1.25ms - 40.9 sec Mandatory Range: 0x0014 to 0x8000

Hold_Mode_Min_Interval: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Minimum acceptable number of Baseband slots to wait in Hold Mode. Time Length of the Hold = N * 0.625 msec (1 Baseband slot) Range for N: 0x0002-0xFF00; only even values are valid Time Range: 1.25 msec - 40.9 sec Mandatory Range: 0x0014 to 0x8000

Return Parameters:

None.

Event(s) generated (unless masked away):

The Controller sends the Command Status event for this command to the Host when it has received the Hold_Mode command. The Mode Change event will occur when the Hold Mode has started and the Mode Change event will occur again when the Hold Mode has completed for the specified connection handle. The Mode Change event signaling the end of the Hold Mode is an estimation of the hold mode ending if the event is for a remote Bluetooth device.
Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, only the Mode Change event will indicate that this command has been completed. If an error occurs after the Command Status event has occurred, then the status in the Mode Change event will indicate the error.

7.2.2 Sniff Mode Command

Command	OCF	Command Parameters	Return Parameters
HCI_Sniff_Mode	0x0003	Connection_Handle, Sniff_Max_Interval, Sniff_Min_Interval, Sniff_Attempt, Sniff_Timeout	

Description:

The Sniff Mode command is used to alter the behavior of the Link Manager and have it place the ACL baseband connection associated with the specified Connection Handle into the sniff mode. The Connection_Handle command parameter is used to identify which ACL link connection is to be placed in sniff mode. The Sniff_Max_Interval and Sniff_Min_Interval command parameters are used to specify the requested acceptable maximum and minimum periods in the Sniff Mode. The Sniff_Min_Interval shall not be greater than the Sniff_Max_Interval. The sniff interval defines the amount of time between each consecutive sniff period. The Controller will return the actual sniff interval in the Interval parameter of the Mode Change event, if the command is successful. For a description of the meaning of the Sniff_Attempt and Sniff_Timeout parameters, see Baseband Specification, Section 8.7, on page 183.
Sniff_Attempt is there called $N_{sniff\ attempt}$ and Sniff_Timeout is called $N_{sniff\ time-out}$. This command enables the Host to support a low-power policy for itself or several other Bluetooth devices, and allows the devices to enter Inquiry Scan, Page Scan, and a number of other possible actions.
Note: in addition, the connection handle cannot be one of the synchronous link types. If the Host sends data to the Controller with a Connection_Handle corresponding to a connection in sniff mode, the Controller will keep the data in its buffers until either the data can be transmitted or a flush, a flush timeout or a disconnection occurs. This is valid even if the Host has not yet been notified of the sniff mode through a Mode Change event when it sends the data. Note that it is possible for the master to transmit data to a slave without exiting sniff mode

(see description in Baseband Specification, Section 8.7, on page 183).
Note: the above is not valid for an HCI Data Packet sent from the Host to the Controller on the master side where the Connection_Handle is a Connection_Handle used for broadcast and the Broadcast_Flag is set to Active Broadcast or Piconet Broadcast. In that case, the broadcast data will only be received by a slave in sniff mode if that slave happens to listen to the master when the broadcast is made.

The Sniff_Max_Interval shall be less than the Link Supervision Timeout configuration parameter.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Sniff_Max_Interval: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Range: 0x0002 to 0xFFFE; only even values are valid Mandatory Range: 0x0006 to 0x0540 Time = N * 0.625 msec Time Range: 1.25 msec to 40.9 sec

Sniff_Min_Interval: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Range: 0x0002 to 0xFFFE; only even values are valid Mandatory Range: 0x0006 to 0x0540 Time = N * 0.625 msec Time Range: 1.25 msec to 40.9 sec)

Sniff_Attempt: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Number of Baseband receive slots for sniff attempt. Length = N* 1.25 msec Range for N: 0x0001 – 0x7FFF Time Range: 0.625msec - 40.9 Seconds Mandatory Range for Controller: 1 to $T_{sniff}/2$

Sniff_Timeout: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Number of Baseband receive slots for sniff timeout. Length = N * 1.25 msec Range for N: 0x0000 – 0x7FFF Time Range: 0 msec - 40.9 Seconds Mandatory Range for Controller: 0 to 0x0028

Return Parameters:

None.

Event(s) generated (unless masked away):

The Controller sends the Command Status event for this command to the Host when it has received the Sniff_Mode command. The Mode Change event will occur when the Sniff Mode has started for the specified connection handle. Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead only the Mode Change event will indicate that this command has been completed. If an error occurs after the Command Status event has occurred, then the status in the Mode Change event will indicate the error.

7.2.3 Exit Sniff Mode Command

Command	OCF	Command Parameters	Return Parameters
HCI_Exit_Sniff_Mode	0x0004	Connection_Handle	

Description:

The Exit_Sniff_Mode command is used to end the sniff mode for a connection handle, which is currently in sniff mode. The Link Manager will determine and issue the appropriate LMP commands to remove the sniff mode for the associated Connection Handle.
Note: in addition, the connection handle cannot be one of the synchronous link types.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

None.

Event(s) generated (unless masked away):

A Command Status event for this command will occur when Controller has received the Exit_Sniff_Mode command. The Mode Change event will occur when the Sniff Mode has ended for the specified connection handle.
Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, only the Mode Change event will indicate that this command has been completed.

7.2.4 Park State Command

Command	OCF	Command Parameters	Return Parameters
HCI_Park_State	0x0005	Connection_Handle, Beacon_Max_Interval, Beacon_Min_Interval	

Description:

The Park State command is used to alter the behavior of the Link Manager, and have the LM place the baseband connection associated by the specified Connection Handle into Park state. The Connection_Handle command parameter is used to identify which connection is to be placed in Park state. The Connection_Handle must be a Connection_Handle for an ACL connection. The Beacon Interval command parameters specify the acceptable length of the interval between beacons. However, the remote device may request shorter interval. The Beacon_Max_Interval parameter specifies the acceptable longest length of the interval between beacons. The Beacon_Min_Interval parameter specifies the acceptable shortest length of the interval between beacons. Therefore, the Beacon Min Interval cannot be greater than the Beacon Max Interval. The Controller will return the actual Beacon interval in the Interval parameter of the Mode Change event, if the command is successful. This command enables the Host to support a low-power policy for itself or several other Bluetooth devices, allows the devices to enter Inquiry Scan, Page Scan, provides support for large number of Bluetooth Devices in a single piconet, and a number of other possible activities.

Note: when the Host issues the Park State command, no Connection Handles for synchronous connections are allowed to exist to the remote device that is identified by the Connection_Handle parameter. If one or more Connection Handles for synchronous connections exist to that device, depending on the implementation, a Command Status event or a Mode Change event (following a Command Status event where Status=0x00) will be returned with the error code 0x0C *Command Disallowed*.

If the Host sends data to the Controller with a Connection_Handle corresponding to a parked connection, the Controller will keep the data in its buffers until either the data can be transmitted (after unpark) or a flush, a flush timeout or a disconnection occurs. This is valid even if the Host has not yet been notified of park state through a Mode Change event when it sends the data.

Note: the above is not valid for an HCI Data Packet sent from the Host to the Controller on the master side where the Connection_Handle is a Connection_Handle used for Piconet Broadcast and the Broadcast_Flag is set to Piconet Broadcast. In that case, slaves in park state will also receive the broadcast data. (If the Broadcast_Flag is set to Active Broadcast, the broadcast data will usually not be received by slaves in park state.)

It is possible for the Controller to do an automatic unpark to transmit data and then park the connection again depending on the value of the Link_Policy_Settings parameter (see Write_Link_Policy_Settings) and depending on whether the imple-

mentation supports this or not (optional feature). The optional feature of automatic unpark/park can also be used for link supervision. Whether Mode Change events are returned or not at automatic unpark/park if this is implemented, is vendor specific. This could be controlled by a vendor specific HCI command.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Beacon_Max_Interval: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Range: 0x000E to 0xFFFE; only even values are valid Mandatory Range: 0x000E to 0x1000 Time = N * 0.625 msec Time Range: 8.75 msec to 40.9 sec

Beacon_Min_Interval *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Range: 0x000E to 0xFFFE; only even values are valid Mandatory Range: 0x000E to 0x1000 Time = N * 0.625 msec Time Range: 8.75 msec to 40.9 sec

Return Parameters:

None.

Event(s) generated (unless masked away):

The Controller sends the Command Status event for this command to the Host when it has received the Park State command. The Mode Change event will occur when the Park State has started for the specified connection handle.
Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, only the Mode Change event will indicate that this command has been completed. If an error occurs after the Command Status event has occurred, then the status in the Mode Change event will indicate the error.

7.2.5 Exit Park State Command

Command	OCF	Command Parameters	Return Parameters
HCI_Exit_Park_State	0x0006	Connection_Handle	

Description:

The Exit_Park_State command is used to switch the Bluetooth device from park state back to the active mode. This command may only be issued when the device associated with the specified Connection Handle is in park state. The Connection_Handle must be a Connection_Handle for an ACL connection. This function does not complete immediately.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

None.

Event(s) generated (unless masked away):

A Command Status event for this command will occur when the Controller has received the Exit_Park_State command. The Mode Change event will occur when park state has ended for the specified connection handle.
Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, only the Mode Change event will indicate that this command has been completed.

7.2.6 QoS Setup Command

Command	OCF	Command Parameters	Return Parameters
HCI_QoS_Setup	0x0007	Connection_Handle, Flags, Service_Type, Token_Rate, Peak_Bandwidth, Latency, Delay_Variation	

Description:

The QoS_Setup command is used to specify Quality of Service parameters for a connection handle. The Connection_Handle must be a Connection_Handle for an ACL connection. These QoS parameter are the same parameters as L2CAP QoS. For more detail see "Logical Link Control and Adaptation Protocol Specification" on page 15[vol. 4]. This allows the Link Manager to have all of the information about what the Host is requesting for each connection. The LM will determine if the QoS parameters can be met. Bluetooth devices that are both slaves and masters can use this command. When a device is a slave, this command will trigger an LMP request to the master to provide the slave with the specified QoS as determined by the LM. When a device is a master, this command is used to request a slave device to accept the specified QoS as determined by the LM of the master. The Connection_Handle command parameter is used to identify for which connection the QoS request is requested.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify which connection for the QoS Setup. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Flags: *Size: 1 Octet*

Value	Parameter Description
0x00 – 0xFF	Reserved for Future Use.

Service_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	No Traffic.
0x01	Best Effort.
0x02	Guaranteed.
0x03-0xFF	Reserved for Future Use.

Token_Rate: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Token Rate in octets per second.

Peak_Bandwidth: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Peak Bandwidth in octets per second.

Latency: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Latency in microseconds.

Delay_Variation: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Delay Variation in microseconds.

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the QoS_Setup command, the Controller sends the Command Status event to the Host. When the Link Manager has completed the LMP messages to establish the requested QoS parameters, the Controller on the local Bluetooth device will send a QoS Setup Complete event to the Host, and the event may also be generated on the remote side if there was LMP negotiation. The values of the parameters of the QoS Setup Complete event may, however, be different on the initiating and the remote side. The QoS Setup Complete event returned by the Controller on the local side contains the status of this command, and returned QoS parameters describing the supported QoS for the connection.
Note: No Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, the QoS Setup Complete event will indicate that this command has been completed.

7.2.7 Role Discovery Command

Command	OCF	Command Parameters	Return Parameters
HCI_Role_Discovery	0x0009	Connection_Handle	Status, Connection_Handle, Current_Role

Description:

The Role_Discovery command is used for a Bluetooth device to determine which role the device is performing for a particular Connection Handle. The Connection_Handle must be a Connection_Handle for an ACL connection.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Role_Discovery command succeeded,
0x01-0xFF	Role_Discovery command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify which connection the Role_Discovery command was issued on. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Current_Role: *Size: 1 Octet*

Value	Parameter Description
0x00	Current Role is Master for this Connection Handle.
0x01	Current Role is Slave for this Connection Handle.

Event(s) generated (unless masked away):

When the Role_Discovery command has completed, a Command Complete event will be generated.

7.2.8 Switch Role Command

Command	OCF	Command Parameters	Return Parameters
HCI_Switch_Role	0x000B	BD_ADDR, Role	

Description:

The Switch_Role command is used for a Bluetooth device to switch the current role the device is performing for a particular connection with another specified Bluetooth device. The BD_ADDR command parameter indicates for which connection the role switch is to be performed. The Role indicates the requested new role that the local device performs.
Note: the BD_ADDR command parameter must specify a Bluetooth device for which a connection already exists.

Note: If there is an SCO connection between the local device and the device identified by the BD_ADDR parameter, an attempt to perform a role switch shall be rejected by the local device.

Note: If the connection between the local device and the device identified by the BD_ADDR parameter is placed in Sniff Mode, an attempt to perform a role switch will be rejected by the local device.

Command Parameters:

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR for the connected device with which a role switch is to be performed.

Role: *Size: 1 Octet*

Value	Parameter Description
0x00	Change own Role to Master for this BD_ADDR.
0x01	Change own Role to Slave for this BD_ADDR.

Return Parameters:

None.

Event(s) generated (unless masked away):

A Command Status event for this command will occur when the Controller has received the Switch_Role command. When the role switch is performed, a Role Change event will occur to indicate that the roles have been changed, and will be communicated to both Hosts.
Note: no Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, only the Role Change event will indicate that this command has been completed.

7.2.9 Read Link Policy Settings Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Link_Policy_ Settings	0x000C	Connection_Handle	Status, Connection_Handle Link_Policy_Settings

Description:

This command will read the Link Policy setting for the specified Connection Handle. The Connection_Handle must be a Connection_Handle for an ACL connection. Section 6.19 on page 391.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Link_Policy_Settings command succeeded.
0x01-0xFF	Read_Link_Policy_Settings command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Link_Policy_Settings *Size: 2 Octets*

Value	Parameter Description
0x0000	Disable All LM Modes Default.
0x0001	Enable Role Switch.
0x0002	Enable Hold Mode.
0x0004	Enable Sniff Mode.
0x0008	Enable Park State.
0x0010 – 0x8000	Reserved for Future Use.

Event(s) generated (unless masked away):

When the Read_Link_Policy_Settings command has completed, a Command Complete event will be generated.

7.2.10 Write Link Policy Settings Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Link_Policy_Settings	0x000D	Connection_Handle, Link_Policy_Settings	Status, Connection_Handle

Description:

This command will write the Link Policy setting for the specified Connection Handle. The Connection_Handle must be a Connection_Handle for an ACL connection. See Section 6.19 on page 391.

The default value is the value set by the Write Default Link Policy Settings Command.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Link_Policy_Settings *Size: 2 Octets*

Value	Parameter Description
0x0000	Disable All LM Modes.
0x0001	Enable Role Switch.
0x0002	Enable Hold Mode.
0x0004	Enable Sniff Mode.
0x0008	Enable Park State.
0x0010 – 0x8000	Reserved for Future Use.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Link_Policy_Settings command succeeded.
0x01-0xFF	Write_Link_Policy_Settings command failed. See "Error Codes" on page 319 [Part D] for error codes and description.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify a connection. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Event(s) generated (unless masked away):

When the Write_Link_Policy_Settings command has completed, a Command Complete event will be generated.

7.2.11 Read Default Link Policy Settings Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Default_Link_Policy_Settings	0x000E		Status, Default_Link_Policy_Settings

Description:

This command will read the Default Link Policy setting for all new connections.

Note: Please refer to the Link Policy Settings configuration parameter for more information. See Section 6.19 on page 391.

Command Parameters:

None

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Link_Policy_Settings command succeeded
0x01-0xFF	Read_Link_Policy_Settings command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Default_Link_Policy_Settings *Size: 2 Octets*

Value	Parameter Description
0x0000	Disable All LM Modes Default
0x0001	Enable Role Switch
0x0002	Enable Hold Mode
0x0004	Enable Sniff Mode
0x0008	Enable Park State
0x0010 - 0x8000	Reserved for future use.

Event(s) generated (unless masked away):

When the Read_Default_Link_Policy_Settings command has completed, a Command Complete event will be generated.

7.2.12 Write Default Link Policy Settings Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Default_Link_Policy_Settings	0x000F	Default_Link_Policy_Settings	Status

Description:

This command will write the Default Link Policy configuration value. The Default_Link_Policy_Settings parameter determines the initial value of the Link_Policy_Settings for all new connections.

Note: Please refer to the Link Policy Settings configuration parameter for more information. See Section 6.19 on page 391.

Command Parameters:

Default_Link_Policy_Settings *Size: 2 Octets*

Value	Parameter Description
0x0000	Disable All LM Modes Default
0x0001	Enable Role Switch
0x0002	Enable Hold Mode
0x0004	Enable Sniff Mode
0x0008	Enable Park State
0x0010 - 0x8000	Reserved for future use.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Link_Policy_Settings command succeeded
0x01-0xFF	Write_Link_Policy_Settings command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Default_Link_Policy_Settings command has completed, a Command Complete event will be generated.

7.2.13 Flow Specification Command

Command	OCF	Command Parameters	Return Parameters
HCI_Flow_Specification	0x0010	Connection_Handle, Flags, Flow_direction, Service_Type, Token_Rate, Token_Bucket_Size, Peak_Bandwidth, Access Latency	

Description:

The Flow_Specification command is used to specify the flow parameters for the traffic carried over the ACL connection identified by the Connection_Handle. The Connection_Handle must be a Connection_Handle for an ACL connection. The Connection_Handle command parameter is used to identify for which connection the Flow Specification is requested. The flow parameters refer to the outgoing or incoming traffic of the ACL link, as indicated by the Flow_direction field. The Flow Specification command allows the Link Manager to have the parameters of the outgoing as well as the incoming flow for the ACL connection. The flow parameters are defined in the L2CAP specification "Quality of Service (QoS) Option" on page 60[vol. 4]. The Link Manager will determine if the flow parameters can be supported. Bluetooth devices that are both master and slave can use this command.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle used to identify for which ACL connection the Flow is specified. Range: 0x0000 - 0x0EFF (0x0F00 – 0x0FFF Reserved for future use)

Flags: *Size: 1 Octet*

Value	Parameter Description
0x00 – 0xFF	Reserved for Future Use.

Flow_direction: *Size: 1 Octet*

Value	Parameter Description
0x00	Outgoing Flow i.e. traffic send over the ACL connection
0x01	Incoming Flow i.e. traffic received over the ACL connection
0x02 – 0xFF	Reserved for Future Use.

Service_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	No Traffic
0x01	Best Effort
0x02	Guaranteed
0x03 – 0xFF	Reserved for Future Use

Token Rate: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Token Rate in octets per second

Token Bucket Size: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Token Bucket Size in octets

Peak_Bandwidth: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Peak Bandwidth in octets per second

Access Latency: *Size: 4 Octets*

Value	Parameter Description
0xXXXXXXXX	Latency in microseconds

Return Parameters:

None.

Event(s) generated (unless masked away):

When the Controller receives the Flow Specification command, the Controller sends the Command Status event to the Host. When the Link Manager has determined if the Flow specification can be supported, the Controller on the local Bluetooth device sends a Flow Specification Complete event to the Host. The Flow Specification Complete event returned by the Controller on the local side contains the status of this command, and returned Flow parameters describing the supported QoS for the ACL connection.

Note: No Command Complete event will be sent by the Controller to indicate that this command has been completed. Instead, the Flow Specification Complete event will indicate that this command has been completed.

7.3 CONTROLLER & BASEBAND COMMANDS

The Controller & Baseband Commands provide access and control to various capabilities of the Bluetooth hardware. These parameters provide control of Bluetooth devices and of the capabilities of the Controller, Link Manager, and Baseband. The host device can use these commands to modify the behavior of the local device. For the HCI Control and Baseband Commands, the OGF is defined as 0x03.

7.3.1 Set Event Mask Command

Command	OCF	Command Parameters	Return Parameters
HCI_Set_Event_Mask	0x0001	Event_Mask	Status

Description:

The Set_Event_Mask command is used to control which events are generated by the HCI for the Host. If the bit in the Event_Mask is set to a one, then the event associated with that bit will be enabled. The Host has to deal with each event that occurs by the Bluetooth devices. The event mask allows the Host to control how much it is interrupted.

Command Parameters:

Event_Mask: *Size: 8 Octets*

Value	Parameter Description
0x0000000000000000	No events specified
0x0000000000000001	Inquiry Complete Event
0x0000000000000002	Inquiry Result Event
0x0000000000000004	Connection Complete Event
0x0000000000000008	Connection Request Event
0x0000000000000010	Disconnection Complete Event
0x0000000000000020	Authentication Complete Event
0x0000000000000040	Remote Name Request Complete Event
0x0000000000000080	Encryption Change Event
0x0000000000000100	Change Connection Link Key Complete Event
0x0000000000000200	Master Link Key Complete Event
0x0000000000000400	Read Remote Supported Features Complete Event
0x0000000000000800	Read Remote Version Information Complete Event
0x0000000000001000	QoS Setup Complete Event
0x0000000000002000	Reserved
0x0000000000004000	Reserved
0x0000000000008000	Hardware Error Event

Value	Parameter Description
0x0000000000010000	Flush Occurred Event
0x0000000000020000	Role Change Event
0x0000000000040000	Reserved
0x0000000000080000	Mode Change Event
0x0000000000100000	Return Link Keys Event
0x0000000000200000	PIN Code Request Event
0x0000000000400000	Link Key Request Event
0x0000000000800000	Link Key Notification Event
0x0000000001000000	Loopback Command Event
0x0000000002000000	Data Buffer Overflow Event
0x0000000004000000	Max Slots Change Event
0x0000000008000000	Read Clock Offset Complete Event
0x0000000010000000	Connection Packet Type Changed Event
0x0000000020000000	QoS Violation Event
0x0000000040000000	Page Scan Mode Change Event [deprecated]
0x0000000080000000	Page Scan Repetition Mode Change Event
0x0000000100000000	Flow Specification Complete Event
0x0000000200000000	Inquiry Result with RSSI Event
0x0000000400000000	Read Remote Extended Features Complete Event
0x0000000800000000	Reserved
0x0000001000000000	Reserved
0x0000002000000000	Reserved
0x0000004000000000	Reserved
0x0000008000000000	Reserved
0x0000010000000000	Reserved
0x0000020000000000	Reserved
0x0000040000000000	Reserved
0x0000080000000000	Synchronous Connection Complete Event
0x0000100000000000	Synchronous Connection Changed event
0xFFFFE00000000000	Reserved for future use
0x00001FFFFFFFFFFF	**Default** (All events enabled)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Set_Event_Mask command succeeded.
0x01-0xFF	Set_Event_Mask command failed. See "Error Codes" on page 319 [Part D] for error codes and description.

Event(s) generated (unless masked away):

When the Set_Event_Mask command has completed, a Command Complete event will be generated.

7.3.2 Reset Command

Command	OCF	Command Parameters	Return Parameters
HCI_Reset	0x0003		Status

Description:

The Reset command will reset the Controller and the Link Manager. The reset command shall not affect the used HCI transport layer since the HCI transport layers may have reset mechanisms of their own. After the reset is completed, the current operational state will be lost, the Bluetooth device will enter standby mode and the Controller will automatically revert to the default values for the parameters for which default values are defined in the specification.

Note: the Host is not allowed to send additional HCI commands before the Command Complete event related to the Reset command has been received.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Reset command succeeded, was received and will be executed.
0x01-0xFF	Reset command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the reset has been performed, a Command Complete event will be generated.

7.3.3 Set Event Filter Command

Command	OCF	Command Parameters	Return Parameters
HCI_Set_Event_Filter	0x0005	Filter_Type, Filter_Condition_Type, Condition	Status

Description:

The Set_Event_Filter command is used by the Host to specify different event filters. The Host may issue this command multiple times to request various conditions for the same type of event filter and for different types of event filters. The event filters are used by the Host to specify items of interest, which allow the Controller to send only events which interest the Host. Only some of the events have event filters. By default (before this command has been issued after power-on or Reset) no filters are set, and the Auto_Accept_Flag is off (incoming connections are not automatically accepted). An event filter is added each time this command is sent from the Host and the Filter_Condition_Type is not equal to 0x00. (The old event filters will not be overwritten). To clear all event filters, the Filter_Type = 0x00 is used. The Auto_Accept_Flag will then be set to off. To clear event filters for only a certain Filter_Type, the Filter_Condition_Type = 0x00 is used.

The Inquiry Result filter allows the Controller to filter out Inquiry Result events. The Inquiry Result filter allows the Host to specify that the Controller only sends Inquiry Results to the Host if the Inquiry Result event meets one of the specified conditions set by the Host. For the Inquiry Result filter, the Host can specify one or more of the following Filter Condition Types:

1. Return responses from all devices during the Inquiry process
2. A device with a specific Class of Device responded to the Inquiry process
3. A device with a specific BD_ADDR responded to the Inquiry process

The Inquiry Result filter is used in conjunction with the Inquiry and Periodic Inquiry command.

The Connection Setup filter allows the Host to specify that the Controller only sends a Connection Complete or Connection Request event to the Host if the event meets one of the specified conditions set by the Host. For the Connection Setup filter, the Host can specify one or more of the following Filter Condition Types:

1. Allow Connections from all devices
2. Allow Connections from a device with a specific Class of Device
3. Allow Connections from a device with a specific BD_ADDR

For each of these conditions, an Auto_Accept_Flag parameter allows the Host to specify what action should be done when the condition is met. The Auto_Accept_Flag allows the Host to specify if the incoming connection should be auto accepted (in which case the Controller will send the Connection Complete event to the Host when the connection is completed) or if the Host should make the decision (in which case the Controller will send the Connection Request event to the Host, to elicit a decision on the connection).

The Connection Setup filter is used in conjunction with the Read/Write_Scan_Enable commands. If the local device is in the process of a page scan, and is paged by another device which meets one on the conditions set by the Host, and the Auto_Accept_Flag is off for this device, then a Connection Request event will be sent to the Host by the Controller. A Connection Complete event will be sent later on after the Host has responded to the incoming connection attempt. In this same example, if the Auto_Accept_Flag is on, then a Connection Complete event will be sent to the Host by the Controller. (No Connection Request event will be sent in that case.)

The Controller will store these filters in volatile memory until the Host clears the event filters using the Set_Event_Filter command or until the Reset command is issued. The number of event filters the Controller can store is implementation dependent. If the Host tries to set more filters than the Controller can store, the Controller will return the *Memory Full* error code and the filter will not be installed.
Note: the Clear All Filters has no Filter Condition Types or Conditions.
Note: In the condition that a connection is auto accepted, a Link Key Request event and possibly also a PIN Code Request event and a Link Key Notification event could be sent to the Host by the Controller before the Connection Complete event is sent.

If there is a contradiction between event filters, the latest set event filter will override older ones. An example is an incoming connection attempt where more than one Connection Setup filter matches the incoming connection attempt, but the Auto-Accept_Flag has different values in the different filters.

Command Parameters:

Filter_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Clear All Filters (Note: In this case, the Filter_Condition_type and Condition parameters should not be given, they should have a length of 0 octets. Filter_Type should be the only parameter.)
0x01	Inquiry Result.
0x02	Connection Setup.
0x03-0xFF	Reserved for Future Use.

Filter Condition Types: For each Filter Type one or more Filter Condition types exists.

Inquiry_Result_Filter_Condition_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Return responses from all devices during the Inquiry process. (Note: A device may be reported to the Host in an Inquiry Result event more than once during an inquiry or inquiry period depending on the implementation, see description in Section 7.1.1 on page 399 and Section 7.1.3 on page 402)
0x01	A device with a specific Class of Device responded to the Inquiry process.
0x02	A device with a specific BD_ADDR responded to the Inquiry process.
0x03-0xFF	Reserved for Future Use

Connection_Setup_Filter_Condition_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Allow Connections from all devices.
0x01	Allow Connections from a device with a specific Class of Device.
0x02	Allow Connections from a device with a specific BD_ADDR.
0x03-0xFF	Reserved for Future Use.

Condition: For each Filter Condition Type defined for the Inquiry Result Filter and the Connection Setup Filter, zero or more Condition parameters are required – depending on the filter condition type and filter type.

Condition for Inquiry_Result_Filter_Condition_Type = 0x00

Condition: *Size: 0 Octet*

Value	Parameter Description
	The Condition parameter is not used.

Condition for Inquiry_Result_Filter_Condition_Type = 0x01

Condition:

Size: 6 Octets

Class_of_Device: *Size: 3 Octets*

Value	Parameter Description
0x000000	Default, Return All Devices.
0xXXXXXX	*Class of Device* of Interest.

Class_of_Device_Mask: *Size: 3 Octets*

Value	Parameter Description
0xXXXXXX	Bit Mask used to determine which bits of the Class of Device parameter are 'don't care'. Zero-value bits in the mask indicate the 'don't care' bits of the Class of Device.

Condition for Inquiry_Result_Filter_Condition_Type = 0x02

Condition:

Size: 6 Octets

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR of the Device of Interest

Condition for Connection_Setup_Filter_Condition_Type = 0x00

Condition:

Size: 1 Octet

Auto_Accept_Flag: *Size:1 Octet*

Value	Parameter Description
0x01	Do NOT Auto accept the connection. (Auto accept is off)
0x02	Do Auto accept the connection with role switch disabled. (Auto accept is on).
0x03	Do Auto accept the connection with role switch enabled. (Auto accept is on). Note: When auto accepting an incoming synchronous connection, no role switch will be performed. The value 0x03 of the Auto_Accept_Flag will then get the same effect as if the value had been 0x02.
0x04 – 0xFF	Reserved for future use.

Condition for Connection_Setup_Filter_Condition_Type = 0x01

Condition:

Size: 7 Octets

Class_of_Device: *Size: 3 Octets*

Value	Parameter Description
0x000000	Default, Return All Devices.
0xXXXXXX	*Class of Device* of Interest.

Class_of_Device_Mask: *Size: 3 Octets*

Value	Parameter Description
0xXXXXXX	Bit Mask used to determine which bits of the Class of Device parameter are 'don't care'. Zero-value bits in the mask indicate the 'don't care' bits of the Class of Device. Note: For an incoming SCO connection, if the class of device is unknown then the connection will be accepted.

Auto_Accept_Flag: *Size: 1 Octet*

Value	Parameter Description
0x01	Do NOT Auto accept the connection. (Auto accept is off)
0x02	Do Auto accept the connection with role switch disabled. (Auto accept is on).
0x03	Do Auto accept the connection with role switch enabled. (Auto accept is on). Note: When auto accepting an incoming synchronous connection, no role switch will be performed. The value 0x03 of the Auto_Accept_Flag will then get the same effect as if the value had been 0x02.
0x04 – 0xFF	Reserved for future use.

Condition for Connection_Setup_Filter_Condition_Type = 0x02

Condition:

Size: 7 Octets

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR of the Device of Interest.

Auto_Accept_Flag: *Size: 1 Octet*

Value	Parameter Description
0x01	Do NOT Auto accept the connection. (Auto accept is off)
0x02	Do Auto accept the connection with role switch disabled. (Auto accept is on).
0x03	Do Auto accept the connection with role switch enabled. (Auto accept is on). **Note: When auto accepting an incoming synchronous connection, no role switch will be performed. The value 0x03 of the Auto_Accept_Flag will then get the same effect as if the value had been 0x02.**
0x04 – 0xFF	Reserved for future use.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Set_Event_Filter command succeeded.
0x01-0xFF	Set_Event_Filter command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

A Command Complete event for this command will occur when the Controller has enabled the filtering of events. When one of the conditions are met, a specific event will occur.

7.3.4 Flush Command

Command	OCF	Command Parameters	Return Parameters
HCI_Flush	0x0008	Connection_Handle	Status, Connection_Handle

Description:

The Flush command is used to discard all data that is currently pending for transmission in the Controller for the specified connection handle, even if there currently are chunks of data that belong to more than one L2CAP packet in the Controller. After this, all data that is sent to the Controller for the same connection handle will be discarded by the Controller until an HCI Data Packet with the start Packet_Boundary_Flag (0x02) is received. When this happens, a new transmission attempt can be made. This command will allow higher-level software to control how long the baseband should try to retransmit a baseband packet for a connection handle before all data that is currently pending for transmission in the Controller should be flushed. Note that the Flush command

is used for ACL connections ONLY. In addition to the Flush command, the automatic flush timers (see section 7.3.31 on page 505) can be used to automatically flush the L2CAP packet that is currently being transmitted after the specified flush timer has expired.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify which connection to flush. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Flush command succeeded.
0x01-0xFF	Flush command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle to be used to identify which connection the flush command was issued on. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Event(s) generated (unless masked away):

The Flush Occurred event will occur once the flush is completed. A Flush Occurred event could be from an automatic Flush or could be cause by the Host issuing the Flush command. When the Flush command has completed, a Command Complete event will be generated, to indicate that the Host caused the Flush.

7.3.5 Read PIN Type Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_PIN_Type	0x0009		Status, PIN_Type

Description:

The Read PIN Type command is used to read the PIN_Type configuration parameter. See Section 6.13 on page 388.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_PIN_Type command succeeded.
0x01-0xFF	Read_PIN_Type command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

PIN_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Variable PIN.
0x01	Fixed PIN.

Event(s) generated (unless masked away):

When the Read_PIN_Type command has completed, a Command Complete event will be generated.

7.3.6 Write PIN Type Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_PIN_Type	0x000A	PIN_Type	Status

Description:

The Write_PIN_Type command is used to write the PIN Type configuration parameter. See Section 6.13 on page 388.

Command Parameters:

PIN_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Variable PIN.
0x01	Fixed PIN.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write PIN Type command succeeded.
0x01-0xFF	Write PIN Type command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_PIN_Type command has completed, a Command Complete event will be generated.

7.3.7 Create New Unit Key Command

Command	OCF	Command Parameters	Return Parameters
HCI_Create_New_Unit_Key	0x000B		Status

Description:

The Create_New_Unit_Key command is used to create a new unit key. The Bluetooth hardware will generate a random seed that will be used to generate the new unit key. All new connection will use the new unit key, but the old unit key will still be used for all current connections.
Note: this command will not have any effect for a device which doesn't use unit keys (i.e. a device which uses only combination keys).

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Create New Unit Key command succeeded.
0x01-0xFF	Create New Unit Key command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Create_New_Unit_Key command has completed, a Command Complete event will be generated.

7.3.8 Read Stored Link Key Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Stored_ Link_Key	0x000D	BD_ADDR, Read_All_Flag	Status, Max_Num_Keys, Num_Keys_Read

Description:

The Read_Stored_Link_Key command provides the ability to read one or more link keys stored in the Bluetooth Controller. The Bluetooth Controller can store a limited number of link keys for other Bluetooth devices. Link keys are shared between two Bluetooth devices, and are used for all security transactions between the two devices. A Host device may have additional storage capabilities, which can be used to save additional link keys to be reloaded to the Bluetooth Controller when needed. The Read_All_Flag parameter is used to indicate if all of the stored Link Keys should be returned. If Read_All_Flag indicates that all Link Keys are to be returned, then the BD_ADDR command parameter must be ignored The BD_ADDR command parameter is used to identify which link key to read. The stored Link Keys are returned by one or more Return Link Keys events. See Section 6.14 on page 388.

Command Parameters:

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR for the stored link key to be read.

Read_All_Flag: *Size: 1 Octet*

Value	Parameter Description
0x00	Return Link Key for specified BD_ADDR.
0x01	Return all stored Link Keys.
0x02-0xFF	Reserved for future use.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Stored_Link_Key command succeeded.
0x01-0xFF	Read_Stored_Link_Key command failed.See "Error Codes" on page 319 [Part D] for error codes and description.

Max_Num_Keys: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Total Number of Link Keys that the Controller can store. Range: 0x0000 – 0xFFFF

Num_Keys_Read: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Number of Link Keys Read. Range: 0x0000 – 0xFFFF

Event(s) generated (unless masked away):

Zero or more instances of the Return Link Keys event will occur after the command is issued. When there are no link keys stored, no Return Link Keys events will be returned. When there are link keys stored, the number of link keys returned in each Return Link Keys event is implementation specific. When the Read Stored Link Key command has completed a Command Complete event will be generated.

7.3.9 Write Stored Link Key Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Stored_Link_Key	0x0011	Num_Keys_To_Write, *BD_ADDR*[i], Link_Key[i]	Status, Num_Keys_Written

Description:

The Write_Stored_Link_Key command provides the ability to write one or more link keys to be stored in the Bluetooth Controller. The Bluetooth Controller can store a limited number of link keys for other Bluetooth devices. If no additional space is available in the Bluetooth Controller then no additional link keys will be stored. If space is limited and if all the link keys to be stored will not fit in the limited space, then the order of the list of link keys without any error will determine which link keys are stored. Link keys at the beginning of the list will be stored first. The Num_Keys_Written parameter will return the number of link keys that were successfully stored. If no additional space is available, then the Host must delete one or more stored link keys before any additional link keys are stored. The link key replacement algorithm is implemented by the Host and not the Controller. Link keys are shared between two Bluetooth devices and are used for all security transactions between the two devices. A Host device may have additional storage capabilities, which can be used to save additional link keys to be reloaded to the

Bluetooth Controller when needed. See Section 6.14 on page 388.
Note: Link Keys are only stored by issuing this command.

Command Parameters:

Num_Keys_To_Write: *Size: 1 Octet*

Value	Parameter Description
0xXX	Number of Link Keys to Write. Range: 0x01 - 0x0B

BD_ADDR [i]: *Size: 6 Octets * Num_Keys_To_Write*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR for the associated Link Key.

Link_Key: *Size: 16 Octets*

Value	Parameter Description
0xXXXXXXXXXX XXXXXXXXXX XXXXXXXXXX	Link Key for an associated BD_ADDR.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Stored_Link_Key command succeeded.
0x01-0xFF	Write_Stored_Link_Key command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Num_Keys_Written: *Size: 1 Octets*

Value	Parameter Description
0xXX	Number of Link Keys successfully written. Range: 0x00 – 0x0B

Event(s) generated (unless masked away):

When the Write_Stored_Link_Key command has completed, a Command Complete event will be generated.

7.3.10 Delete Stored Link Key Command

Command	OCF	Command Parameters	Return Parameters
HCI_Delete_Stored_ Link_Key	0x0012	BD_ADDR, Delete_All_Flag	Status, Num_Keys_Deleted

Description:

The Delete_Stored_Link_Key command provides the ability to remove one or more of the link keys stored in the Bluetooth Controller. The Bluetooth Controller can store a limited number of link keys for other Bluetooth devices. Link keys are shared between two Bluetooth devices and are used for all security transactions between the two devices. The Delete_All_Flag parameter is used to indicate if all of the stored Link Keys should be deleted. If the Delete_All_Flag indicates that all Link Keys are to be deleted, then the BD_ADDR command parameter must be ignored This command provides the ability to negate all security agreements between two devices. The BD_ADDR command parameter is used to identify which link key to delete. If a link key is currently in use for a connection, then the link key will be deleted when all of the connections are disconnected. See Section 6.14 on page 388.

Command Parameters:

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR for the link key to be deleted.

Delete_All_Flag: *Size: 1 Octet*

Value	Parameter Description
0x00	Delete only the Link Key for specified BD_ADDR.
0x01	Delete all stored Link Keys.
0x02-0xFF	Reserved for future use.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Delete_Stored_Link_Key command succeeded.
0x01-0xFF	Delete_Stored_Link_Key command failed. See "Error Codes" on page 319 [Part D] for error codes and description.

Num_Keys_Deleted: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Number of Link Keys Deleted

Event(s) generated (unless masked away):

When the Delete_Stored_Link_Key command has completed, a Command Complete event will be generated.

7.3.11 Write Local Name Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Local_Name	0x0013	Local Name	Status

Description:

The Write_Local_Name command provides the ability to modify the user-friendly name for the Bluetooth device. See Section 6.24 on page 394.

Command Parameters:

Local Name: *Size: 248 Octets*

Value	Parameter Description
	A UTF-8 encoded User-Friendly Descriptive Name for the device. If the name contained in the parameter is shorter than 248 octets, the end of the name is indicated by a NULL octet (0x00), and the following octets (to fill up 248 octets, which is the length of the parameter) do not have valid values.
	Null terminated Zero length String. **Default.**

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Local_Name command succeeded.
0x01-0xFF	Write_Local_Name command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Local_Name command has completed, a Command Complete event will be generated.

7.3.12 Read Local Name Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Local_Name	0x0014		Status, Local Name

Description:

The Read_Local_Name command provides the ability to read the stored user-friendly name for the Bluetooth device. See Section 6.24 on page 394.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Local_Name command succeeded
0x01-0xFF	Read_Local_Name command failed see "Error Codes" on page 319 [Part D] for list of Error Codes

Local Name: *Size: 248 Octets*

Value	Parameter Description
	A UTF-8 encoded User Friendly Descriptive Name for the device. If the name contained in the parameter is shorter than 248 octets, the end of the name is indicated by a NULL octet (0x00), and the following octets (to fill up 248 octets, which is the length of the parameter) do not have valid values.

Event(s) generated (unless masked away):

When the Read_Local_Name command has completed a Command Complete event will be generated.

7.3.13 Read Connection Accept Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Connection_ Accept_Timeout	0x0015		Status, Conn_Accept_Timeout

Description:

This command will read the value for the Connection_Accept_Timeout configuration parameter. See Section 6.7 on page 385.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Connection_Accept_Timeout command succeeded.
0x01-0xFF	Read_Connection_Accept_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Conn_Accept_Timeout: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Connection Accept Timeout measured in Number of Baseband slots. Interval Length = N * 0.625 msec (1 Baseband slot) Range for N: 0x0001 – 0xB540 Time Range: 0.625 msec -29 seconds

Event(s) generated (unless masked away):

When the Read_Connection_Timeout command has completed, a Command Complete event will be generated.

7.3.14 Write Connection Accept Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Connection_Accept_Timeout	0x0016	Conn_Accept_Timeout	Status

Description:

This command will write the value for the Connection_Accept_Timeout configuration parameter. See Section 6.7 on page 385.

Command Parameters:

Conn_Accept_Timeout: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Connection Accept Timeout measured in Number of Baseband slots. Interval Length = N * 0.625 msec (1 Baseband slot) Range for N: 0x0001 – 0xB540 Time Range: 0.625 msec - 29 seconds Default: N = 0x1FA0 Time = 5.06 Sec Mandatory Range for Controller: 0x00A0 to 0xB540

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Connection_Accept_Timeout command succeeded.
0x01-0xFF	Write_Connection_Accept_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Connection_Accept_Timeout command has completed, a Command Complete event will be generated.

7.3.15 Read Page Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Page_Timeout	0x0017		Status, Page_Timeout

Description:

This command will read the value for the Page_Timeout configuration parameter. See Section 6.6 on page 385.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Page_Timeout command succeeded.
0x01-0xFF	Read_Page_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Page_Timeout: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Page Timeout measured in Number of Baseband slots. Interval Length = N * 0.625 msec (1 Baseband slot) Range for N: 0x0001 – 0xFFFF Time Range: 0.625 msec -40.9 Seconds

Event(s) generated (unless masked away):

When the Read_Page_Timeout command has completed, a Command Complete event will be generated.

7.3.16 Write Page Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Page_Timeout	0x0018	Page_Timeout	Status

Description:

This command will write the value for the Page_Timeout configuration parameter. The Page_Timeout configuration parameter defines the maximum time the local Link Manager will wait for a baseband page response from the remote device at a locally initiated connection attempt. If this time expires and the remote device has not responded to the page at baseband level, the connection attempt will be considered to have failed.

Command Parameters:

Page_Timeout: *Size: 2 Octets*

Value	Parameter Description
0	Illegal Page Timeout. Must be larger than 0.
N = 0xXXXX	Page Timeout measured in Number of Baseband slots. Interval Length = N * 0.625 msec (1 Baseband slot) Range for N: 0x0001 – 0xFFFF Time Range: 0.625 msec -40.9 Seconds **Default: N = 0x2000 Time = 5.12 Sec** Mandatory Range for Controller: 0x0016 to 0xFFFF

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Page_Timeout command succeeded.
0x01-0xFF	Write_Page_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Page_Timeout command has completed, a Command Complete event will be generated.

7.3.17 Read Scan Enable Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Scan_Enable	0x0019		Status, Scan_Enable

Description:

This command will read the value for the Scan_Enable parameter configuration parameter. See Section 6.1 on page 383.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Scan_Enable command succeeded.
0x01-0xFF	Read_Scan_Enable command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Scan_Enable: *Size: 1 Octet*

Value	Parameter Description
0x00	No Scans enabled.
0x01	Inquiry Scan enabled. Page Scan disabled.
0x02	Inquiry Scan disabled. Page Scan enabled.
0x03	Inquiry Scan enabled. Page Scan enabled.
0x04-0xFF	Reserved

Event(s) generated (unless masked away):

When the Read_Scan_Enable command has completed, a Command Complete event will be generated.

7.3.18 Write Scan Enable Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Scan_Enable	0x001A	Scan_Enable	Status

Description:

This command will write the value for the Scan_Enable configuration parameter. See Section 6.1 on page 383.

Command Parameters:

Scan_Enable: *Size: 1 Octet*

Value	Parameter Description
0x00	No Scans enabled. **Default.**
0x01	Inquiry Scan enabled. Page Scan disabled.
0x02	Inquiry Scan disabled. Page Scan enabled.
0x03	Inquiry Scan enabled. Page Scan enabled.
0x04-0xFF	Reserved

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Scan_Enable command succeeded.
0x01-0xFF	Write_Scan_Enable command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Scan_Enable command has completed, a Command Complete event will be generated.

7.3.19 Read Page Scan Activity Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Page_Scan_ Activity	0x001B		Status, Page_Scan_Interval, Page_Scan_Window

Description:

This command will read the value for Page_Scan_Interval and Page_Scan_Window configuration parameters. See Section 6.8 on page 386 and Section 6.9 on page 386.
Note: Page Scan is only performed when Page_Scan is enabled (see 6.1, 7.3.17 and 7.3.18).

A changed Page_Scan_Interval could change the local Page_Scan_ Repetition_Mode (see "Baseband Specification" on page 55 [Part B], Keyword: SR-Mode).

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Page_Scan_Activity command succeeded.
0x01-0xFF	Read_Page_Scan_Activity command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Page_Scan_Interval: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Size: 2 Octets Range: 0x0012 – 0x1000 Time = N * 0.625 msec Range: 11.25 msec - 2560 msec; only even values are valid

Page_Scan_Window: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Size: 2 Octets Range: 0x0011 - 0x1000 Time = N * 0.625 msec Range: 10.625 msec - 2560 msec

Event(s) generated (unless masked away):

When the Read_Page_Scan_Activity command has completed, a Command Complete event will be generated.

7.3.20 Write Page Scan Activity Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Page_Scan_ Activity	0x001C	Page_Scan_Interval, Page_Scan_Window	Status

Description:

This command will write the values for the Page_Scan_Interval and Page_Scan_Window configuration parameters. The Page_Scan_Window shall be less than or equal to the Page_Scan_Interval. See Section 6.8 on page 386 and Section 6.9 on page 386.
Note: Page Scan is only performed when Page_Scan is enabled (see 6.1, 7.3.17 and 7.3.18). A changed Page_Scan_Interval could change the local Page_Scan_Repetition_Mode (see Baseband Specification, Section 8.3.1, on page 154).

Command Parameters:

Page_Scan_Interval: *Size: 2 Octets*

Value	Parameter Description
See Section 6.8 on page 386	

Page_Scan_Window: *Size: 2 Octets*

Value	Parameter Description
See Section 6.9 on page 386	

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Page_Scan_Activity command succeeded.
0x01-0xFF	Write_Page_Scan_Activity command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Page_Scan_Activity command has completed, a Command Complete event will be generated.

7.3.21 Read Inquiry Scan Activity Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_ Inquiry_Scan_Activity	0x001D		Status, Inquiry_Scan_Interval, Inquiry_Scan_Window

Description:

This command will read the value for Inquiry_Scan_Interval and Inquiry_Scan_Window configuration parameter. See Section 6.2 on page 383 and Section 6.3 on page 384.
Note: Inquiry Scan is only performed when Inquiry_Scan is enabled see 6.1, 7.3.17 and 7.3.18).

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Inquiry_Scan_Activity command succeeded.
0x01-0xFF	Read_Inquiry_Scan_Activity command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Inquiry_Scan_Interval: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Size: 2 Octets Range: 0x0012 – 0x1000 Time = N * 0.625 msec Range: 11.25 - 2560 msec; only even values are valid

Inquiry_Scan_Window: *Size: 2 Octets*

Value	Parameter Description
N = 0xXXXX	Size: 2 Octets Range: 0x0011 - 0x1000 Time = N * 0.625 msec Range: 10.625 msec - 2560 msec

Event(s) generated (unless masked away):

When the Read_Inquiry_Scan_Activity command has completed, a Command Complete event will be generated.

7.3.22 Write Inquiry Scan Activity Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Inquiry_ Scan_Activity	0x001E	Inquiry_Scan_Interval, Inquiry_Scan_Window	Status

Description:

This command will write the values for the Inquiry_Scan_Interval and Inquiry_Scan_Window configuration parameters. The Inquiry_Scan_Window shall be less than or equal to the Inquiry_Scan_Interval. See Section 6.2 on page 383 and Section 6.3 on page 384.
Note: Inquiry Scan is only performed when Inquiry_Scan is enabled (see 6.1, 7.3.17 and 7.3.18).

Command Parameters:

Inquiry_Scan_Interval: *Size: 2 Octets*

Value	Parameter Description
See Section 6.2 on page 383.	

Inquiry_Scan_Window: *Size: 2 Octets*

Value	Parameter Description
See Section 6.3 on page 384.	

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Inquiry_Scan_Activity command succeeded.
0x01-0xFF	Write_Inquiry_Scan_Activity command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Inquiry_Scan_Activity command has completed, a Command Complete event will be generated.

7.3.23 Read Authentication Enable Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_ Authentication_Enable	0x001F		Status, Authentication_Enable

Description:

This command will read the value for the Authentication_Enable configuration parameter. See Section 6.15 on page 388.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Authentication_Enable command succeeded.
0x01-0xFF	Read_Authentication_Enable command failed.See "Error Codes" on page 319 [Part D] for list of Error Codes.

Authentication_Enable: *Size: 1 Octet*

Value	Parameter Description
0x00	Authentication not required.
0x01	Authentication required for all connections.
0x02-0xFF	Reserved

Event(s) generated (unless masked away):

When the Read_Authentication_Enable command has completed, a Command Complete event will be generated.

7.3.24 Write Authentication Enable Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_ Authentication_Enable	0x0020	Authentication_Enable	Status

Description:

This command will write the value for the Authentication_Enable configuration parameter. See Section 6.15 on page 388.

Command Parameters:

Authentication_Enable: *Size: 1 Octet*

Value	Parameter Description
0x00	Authentication not required. **Default.**
0x01	Authentication required for all connections.
0x02-0xFF	Reserved

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write Authentication_Enable command succeeded.
0x01-0xFF	Write Authentication_Enable command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Authentication_Enable command has completed, a Command Complete event will be generated.

7.3.25 Read Encryption Mode Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Encryption_Mode	0x0021		Status, Encryption_Mode

Description:

This command will read the value for the Encryption_Mode configuration parameter. See Section 6.16 on page 389.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Encryption_Mode command succeeded.
0x01-0xFF	Read_Encryption_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Encryption_Mode: *Size: 1 Octet*

Value	Parameter Description
See Section 6.16 on page 389	

Event(s) generated (unless masked away):

When the Read_Encryption_Mode command has completed, a Command Complete event will be generated.

7.3.26 Write Encryption Mode Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Encryption_Mode	0x0022	Encryption_Mode	Status

Description:

This command will write the value for the Encryption_Mode configuration parameter. See Section 6.16 on page 389.

Command Parameters:

Encryption_Mode: *Size: 1 Octet*

Value	Parameter Description
See Section 6.16 on page 389.	

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Encryption_Mode command succeeded.
0x01-0xFF	Write_Encryption_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Encryption_Mode command has completed, a Command Complete event will be generated.

7.3.27 Read Class of Device Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Class_of_Device	0x0023		Status, Class_of_Device

Description:

This command will read the value for the Class_of_Device parameter.
See Section 6.25 on page 394.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Class_of_Device command succeeded.
0x01-0xFF	Read_Class_of_Device command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Class_of_Device: *Size: 3 Octets*

Value	Parameter Description
0xXXXXXX	Class of Device for the device.

Event(s) generated (unless masked away):

When the Read_Class_of_Device command has completed, a Command Complete event will be generated.

7.3.28 Write Class of Device Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Class_of_Device	0x0024	Class_of_Device	Status

Description:

This command will write the value for the Class_of_Device parameter.
See Section 6.25 on page 394.

Command Parameters:

Class_of_Device: *Size: 3 Octets*

Value	Parameter Description
0xXXXXXX	Class of Device for the device.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Class_of_Device command succeeded.
0x01-0xFF	Write_Class_of_Device command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Class_of_Device command has completed, a Command Complete event will be generated.

7.3.29 Read Voice Setting Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Voice_Setting	0x0025		Status, Voice_Setting

Description:

This command will read the values for the Voice_Setting configuration parameter. See Section 6.12 on page 387.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Voice_Setting command succeeded.
0x01-0xFF	Read_Voice_Setting command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Voice_Setting: *Size: 2 Octets (10 Bits meaningful)*

Value	Parameter Description
See Section 6.12 on page 387.	

Event(s) generated (unless masked away):

When the Read_Voice_Setting command has completed, a Command Complete event will be generated.

7.3.30 Write Voice Setting Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Voice_Setting	0x0026	Voice_Setting	Status

Description:

This command will write the values for the Voice_Setting configuration parameter. See Section 6.12 on page 387.

Command Parameters:

Voice_Setting: *Size: 2 Octets (10 Bits meaningful)*

Value	Parameter Description
See Section 6.12 on page 387.	

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Voice_Setting command succeeded.
0x01-0xFF	Write_Voice_Setting command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Voice_Setting command has completed, a Command Complete event will be generated.

7.3.31 Read Automatic Flush Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Automatic_Flush_Timeout	0x0027	Connection_Handle	Status, Connection_Handle, Flush_Timeout

Description:

This command will read the value for the Flush_Timeout parameter for the specified connection handle. See Section 6.20 on page 392.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Flush Timeout to read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Automatic_Flush_Timeout command succeeded.
0x01-0xFF	Read_Automatic_Flush_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Flush Timeout has been read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Flush_Timeout: *Size: 2 Octets*

Value	Parameter Description
0	Timeout = ∞; No Automatic Flush
N = 0xXXXX	Flush Timeout = N * 0.625 msec Size: 11 bits Range: 0x0001 – 0x07FF

Event(s) generated (unless masked away):

When the Read_Automatic_Flush_Timeout command has completed, a Command Complete event will be generated.

7.3.32 Write Automatic Flush Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Automatic_Flush_Timeout	0x0028	Connection_Handle, Flush_Timeout	Status, Connection_Handle

Description:

This command will write the value for the Flush_Timeout parameter for the specified connection handle. See Section 6.20 on page 392.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Flush Timeout to write to. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Flush_Timeout: *Size: 2 Octets*

Value	Parameter Description
0	Timeout = ∞; No Automatic Flush. **Default.**
N = 0xXXXX	Flush Timeout = N * 0.625 msec Size: 11 bits Range: 0x0001 – 0x07FF Mandatory Range for Controller: 0x0002 to 0x07FF

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Automatic_Flush_Timeout command succeeded.
0x01-0xFF	Write_Automatic_Flush_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Flush Timeout has been written. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Event(s) generated (unless masked away):

When the Write_Automatic_Flush_Timeout command has completed, a Command Complete event will be generated.

7.3.33 Read Num Broadcast Retransmissions Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Num_Broadcast_ Retransmissions	0x0029		Status, Num_Broadcast_Retransmissions

Description:

This command will read the device's parameter value for the Number of Broadcast Retransmissions. See Section 6.21 on page 392

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Num_Broadcast_Retransmissions command succeeded.
0x01-0xFF	Read_Num_Broadcast_Retransmissions command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Num_Broadcast_Retransmissions: *Size: 1 Octet*

Value	Parameter Description
See Section 6.21 on page 392.	

Event(s) generated (unless masked away):

When the Read_Num_Broadcast_Retransmission command has completed, a Command Complete event will be generated.

7.3.34 Write Num Broadcast Retransmissions Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Num_Broadcast_ Retransmissions	0x002A	Num_Broadcast_ Retransmissions	Status

Description:

This command will write the device's parameter value for the Number of Broadcast Retransmissions. See Section 6.21 on page 392.

Command Parameters:

Num_Broadcast_Retransmissions: *Size: 1 Octet*

Value	Parameter Description
See Section 6.21 on page 392.	

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Num_Broadcast_Retransmissions command succeeded.
0x01-0xFF	Write_Num_Broadcast_Retransmissions command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Num_Broadcast_Retransmissions command has completed, a Command Complete event will be generated.

7.3.35 Read Hold Mode Activity Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Hold_Mode_Activity	0x002B		Status, Hold_Mode_Activity

Description:

This command will read the value for the Hold_Mode_Activity parameter. See Section 6.18 on page 390.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Hold_Mode_Activity command succeeded.
0x01-0xFF	Read_Hold_Mode_Activity command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Hold_Mode_Activity: *Size: 1 Octet*

Value	Parameter Description
0x00	Maintain current Power State.
0x01	Suspend Page Scan.
0x02	Suspend Inquiry Scan.
0x04	Suspend Periodic Inquiries.
0x08-0xFF	Reserved for Future Use.

Event(s) generated (unless masked away):

When the Read_Hold_Mode_Activity command has completed, a Command Complete event will be generated.

7.3.36 Write Hold Mode Activity Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Hold_Mode_Activity	0x002C	Hold_Mode_Activity	Status

Description:

This command will write the value for the Hold_Mode_Activity parameter. See Section 6.18 on page 390.

Command Parameters:

Hold_Mode_Activity: *Size: 1 Octet*

Value	Parameter Description
0x00	Maintain current Power State. **Default.**
0x01	Suspend Page Scan.
0x02	Suspend Inquiry Scan.
0x04	Suspend Periodic Inquiries.
0x08-0xFF	Reserved for Future Use.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Hold_Mode_Activity command succeeded.
0x01-0xFF	Write_Hold_Mode_Activity command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Hold_Mode_Activity command has completed, a Command Complete event will be generated.

7.3.37 Read Transmit Power Level Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Transmit_ Power_Level	0x002D	Connection_Handle, Type	Status, Connection_Handle, Transmit_Power_Level

Description:

This command will read the values for the Transmit_Power_Level parameter for the specified Connection Handle. The Connection_Handle must be a Connection_Handle for an ACL connection.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Transmit Power Level setting to read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Read Current Transmit Power Level.
0x01	Read Maximum Transmit Power Level.
0x02-0xFF	Reserved

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Transmit_Power_Level command succeeded.
0x01-0xFF	Read_Transmit_Power_Level command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Transmit Power Level setting is returned. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Transmit_Power_Level: *Size: 1 Octet*

Value	Parameter Description
N = 0xXX	Size: 1 Octet (signed integer) Range: -30 ≤ N ≤ 20 Units: dBm

Event(s) generated (unless masked away):

When the Read_Transmit_Power_Level command has completed, a Command Complete event will be generated.

7.3.38 Read Synchronous Flow Control Enable Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_ Synchronous_Flow_ Control_Enable	0x002E		Status, Synchronous_Flow_ Control_Enable

Description:

The Read_Synchronous_Flow_Control_Enable command provides the ability to read the Synchronous_Flow_Control_Enable setting. See Section 6.23 on page 393.
Note: the Synchronous_Flow_Control_Enable setting can only be changed if no connections exist.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Synchronous_Flow_Control_Enable command succeeded
0x01-0xFF	Read_Synchronous_Flow_Control_Enable command failed see "Error Codes" on page 319 [Part D] for list of Error Codes

Synchronous_Flow_Control_Enable: *Size: 1 Octet*

Value	Parameter Description
0x00	Synchronous Flow Control is disabled. No Number of Completed Packets events will be sent from the Controller for Synchronous Connection Handles.
0x01	Synchronous Flow Control is enabled. Number of Completed Packets events will be sent from the Controller for Synchronous Connection Handles.

Event(s) generated (unless masked away):

When the Read_Synchronous_Flow_Control_Enable command has completed a Command Complete event will be generated.

7.3.39 Write Synchronous Flow Control Enable Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Synchronous_ Flow_Control_Enable	0x002F	Synchronous_Flow_ Control_Enable	Status

Description:

The Write_Synchronous_Flow_Control_Enable command provides the ability to write the Synchronous_Flow_Control_Enable setting. See Section 6.23 on page 393.
Note: the Synchronous_Flow_Control_Enable setting can only be changed if no connections exist.

Command Parameters:

Synchronous_Flow_Control_Enable: *Size: 1 Octet*

Value	Parameter Description
0x00	Synchronous Flow Control is disabled. No Number of Completed Packets events will be sent from the Controller for synchronous Connection Handles. **Default**
0x01	Synchronous Flow Control is enabled. Number of Completed Packets events will be sent from the Controller for synchronous Connection Handles.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Synchronous_Flow_Control_Enable command succeeded
0x01-0xFF	Write_Synchronous_Flow_Control_Enable command failed see "Error Codes" on page 319 [Part D] for list of Error Codes

Event(s) generated (unless masked away):

When the Write_Synchronous_Flow_Control_Enable command has completed a Command Complete event will be generated.

7.3.40 Set Controller To Host Flow Control Command

Command	OCF	Command Parameters	Return Parameters
HCI_Set_Controller_To_ Host_Flow_Control	0x0031	Flow_Control_Enable	Status

Description:

This command is used by the Host to turn flow control on or off for data and/or voice sent in the direction from the Controller to the Host. If flow control is turned off, the Host should not send the Host_Number_Of_Completed_Packets command. That command will be ignored by the Controller if it is sent by the Host and flow control is off. If flow control is turned on for HCI ACL Data Packets and off for HCI synchronous Data Packets, Host_Number_Of_Completed_Packets commands sent by the Host should only contain Connection Handles for ACL connections. If flow control is turned off for HCI ACL Data Packets and on for HCI synchronous Data Packets, Host_Number_Of_Completed_Packets commands sent by the Host should only contain Connection Handles for synchronous connections. If flow control is turned on for HCI ACL Data Packets and HCI synchronous Data Packets, the Host will send Host_Number_Of_Completed_Packets commands both for ACL connections and synchronous connections.

The Flow_Control_Enable setting shall only be changed if no connections exist.

Command Parameters:

Flow_Control_Enable: *Size: 1 Octet*

Value	Parameter Description
0x00	Flow control **off** in direction from Controller to Host. **Default.**
0x01	Flow control **on** for HCI ACL Data Packets and **off** for HCI synchronous Data Packets in direction from Controller to Host.
0x02	Flow control **off** for HCI ACL Data Packets and **on** for HCI synchronous Data Packets in direction from Controller to Host.
0x03	Flow control **on** both for HCI ACL Data Packets and HCI synchronous Data Packets in direction from Controller to Host.
0x04-0xFF	Reserved

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Set_Controller_To_Host_Flow_Control command succeeded.
0x01-0xFF	Set_Controller_To_Host_Flow_Control command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Set_Controller_To_Host_Flow_Control command has completed, a Command Complete event will be generated.

7.3.41 Host Buffer Size Command

Command	OCF	Command Parameters	Return Parameters
HCI_Host_Buffer_Size	0x0033	Host_ACL_Data_Packet_Length, Host_Synchronous_Data_Packet_Length, Host_Total_Num_ACL_Data_Packets, Host_Total_Num_Synchronous_Data_Packets	Status

Description:

The Host_Buffer_Size command is used by the Host to notify the Controller about the maximum size of the data portion of HCI ACL and synchronous Data Packets sent from the Controller to the Host. The Controller will segment the data to be transmitted from the Controller to the Host according to these sizes, so that the HCI Data Packets will contain data with up to these sizes. The Host_Buffer_Size command also notifies the Controller about the total number of HCI ACL and synchronous Data Packets that can be stored in the data buffers of the Host. If flow control from the Controller to the Host is turned off, and the Host_Buffer_Size command has not been issued by the Host, this means that the Controller will send HCI Data Packets to the Host with any lengths the Controller wants to use, and it is assumed that the data buffer sizes of the Host are unlimited. If flow control from the Controller to the Host is turned on, the Host_Buffer_Size command must after a power-on or a reset always be sent by the Host before the first Host_Number_Of_Completed_Packets command is sent.

(The Set Controller To Host Flow Control Command command is used to turn flow control on or off.) The Host_ACL_Data_Packet_Length command parameter will be used to determine the size of the L2CAP segments contained in ACL Data Packets, which are transferred from the Controller to the Host. The Host_Synchronous_Data_Packet_Length command parameter is used to determine the maximum size of HCI synchronous Data Packets. Both the Host and the Controller must support command and event packets, where the data portion (excluding header) contained in the packets is 255 octets in size.

The Host_Total_Num_ACL_Data_Packets command parameter contains the total number of HCI ACL Data Packets that can be stored in the data buffers of the Host. The Controller will determine how the buffers are to be divided between different Connection Handles. The Host_Total_Num_Synchronous_Data_Packets command parameter gives the same information for HCI synchronous Data Packets.
Note: the Host_ACL_Data_Packet_Length and Host_Synchronous_Data_Packet_Length command parameters do not include the length of the HCI Data Packet header.

Command Parameters:

Host_ACL_Data_Packet_Length: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Maximum length (in octets) of the data portion of each HCI ACL Data Packet that the Host is able to accept.

Host_Synchronous_Data_Packet_Length: *Size: 1 Octet*

Value	Parameter Description
0xXX	Maximum length (in octets) of the data portion of each HCI synchronous Data Packet that the Host is able to accept.

Host_Total_Num_ACL_Data_Packets: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Total number of HCI ACL Data Packets that can be stored in the data buffers of the Host.

Host_Total_Num_Synchronous_Data_Packets: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Total number of HCI synchronous Data Packets that can be stored in the data buffers of the Host.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Host_Buffer_Size command succeeded.
0x01-0xFF	Host_Buffer_Size command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Host_Buffer_Size command has completed, a Command Complete event will be generated.

7.3.42 Host Number Of Completed Packets Command

Command	OCF	Command Parameters	Return Parameters
HCI_Host_Number_Of_ Completed_Packets	0x0035	Number_Of_Handles, Connection_ Handle[i], Host_Num_Of_Completed_Packets [i]	

Description:

The Host_Number_Of_Completed_Packets command is used by the Host to indicate to the Controller the number of HCI Data Packets that have been completed for each Connection Handle since the previous Host_Number_Of_ Completed_Packetscommand was sent to the Controller. This means that the corresponding buffer space has been freed in the Host. Based on this information, and the Host_Total_Num_ACL_Data_Packets and Host_Total_Num_ Synchronous_Data_Packets command parameters of the Host_Buffer_Size command, the Controller can determine for which Connection Handles the following HCI Data Packets should be sent to the Host. The command should only be issued by the Host if flow control in the direction from the Controller to the Host is on and there is at least one connection, or if the Controller is in local loopback mode. Otherwise, the command will be ignored by the Controller. When the Host has completed one or more HCI Data Packet(s) it shall send a Host_Number_Of_Completed_Packets command to the Controller, until it finally reports that all pending HCI Data Packets have been completed. The frequency at which this command is sent is manufacturer specific.

(The Set Controller To Host Flow Control Command command is used to turn flow control on or off.) If flow control from the Controller to the Host is turned on, the Host_Buffer_Size command must after a power-on or a reset always be sent by the Host before the first Host_Number_Of_Completed_Packets command is sent.
Note: the Host_Number_Of_Completed_Packets command is a special command in the sense that no event is normally generated after the command has completed. The command may be sent at any time by the Host when there is at least one connection, or if the Controller is in local loopback mode independent of other commands. The normal flow control for commands is not used for the Host_Number_Of_Completed_Packets command.

Command Parameters:

Number_Of_Handles: *Size: 1 Octet*

Value	Parameter Description
0xXX	The number of Connection Handles and Host_Num_Of_Completed_Packets parameters pairs contained in this command. Range: 0-255

*Connection_Handle[i]: Size: Number_Of_Handles*2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Connection Handle Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

*Host_Num_Of_Completed_Packets [i]: Size: Number_Of_Handles * 2 Octets*

Value	Parameter Description
N = 0xXXXX	The number of HCI Data Packets that have been completed for the associated Connection Handle since the previous time the event was returned. Range for N: 0x0000-0xFFFF

Return Parameters:

None.

Event(s) generated (unless masked away):

Normally, no event is generated after the Host_Number_Of_Completed_Packets command has completed. However, if the Host_Number_Of_Completed_Packets command contains one or more invalid parameters, the Controller will return a Command Complete event with a failure status indicating the *Invalid HCI Command Parameters error code*. The Host may send the Host_Number_Of_Completed_Packets command at any time when there is at least one connection, or if the Controller is in local loopback mode. The normal flow control for commands is not used for this command.

7.3.43 Read Link Supervision Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Link_Supervision_ Timeout	0x0036	Connection_Handle	Status, Connection_Handle, Link_Supervision_ Timeout

Description:

This command will read the value for the Link_Supervision_Timeout parameter for the device.
Note: the Connection_Handle used for this command must be the ACL connection to the appropriate device. See Section 6.22 on page 393.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Link Supervision Timeout value is to be read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Link_Supervision_Timeout command succeeded.
0x01-0xFF	Read_Link_Supervision_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Link Supervision Timeout value was read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Link_Supervision_Timeout: *Size: 2 Octets*

Value	Parameter Description
0x0000	No Link_Supervision_Timeout.
N = 0xXXXX	Measured in Number of Baseband slots Link_Supervision_Timeout = N * 0.625 msec (1 Baseband slot) Range for N: 0x0001 – 0xFFFF Time Range: 0.625ms - 40.9 sec

Event(s) generated (unless masked away):

When the Read_Link_Supervision_Timeout command has completed, a Command Complete event will be generated.

7.3.44 Write Link Supervision Timeout Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Link_Supervision_Timeout	0x0037	Connection_Handle, Link_Supervision_Timeout	Status, Connection_Handle

Description:

This command will write the value for the Link_Supervision_Timeout parameter for the device. This command shall only be issued on the master for the given connection handle. If this command is issued on a slave, the command shall be rejected with the Command Disallowed.
Note: the Connection_Handle used for this command must be the ACL connection to the appropriate device. This command will set the Link_Supervision_Timeout values for other Synchronous Connection_Handles to that device.
See Section 6.22 on page 393.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Link Supervision Timeout value is to be written. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Link_Supervision_Timeout: *Size: 2 Octets*

Value	Parameter Description
0x0000	No Link_Supervision_Timeout.
N = 0xXXXX	Measured in Number of Baseband slots Link_Supervision_Timeout = N*0.625 msec (1 Baseband slot) Range for N: 0x0001 – 0xFFFF Time Range: 0.625ms – 40.9 sec **Default**: N = 0x7D00 Link_Supervision_Timeout = 20 sec Mandatory Range for Controller: 0x0190 to 0xFFFF; plus 0 for infinite timeout

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Link_Supervision_Timeout command succeeded.
0x01-0xFF	Write_Link_Supervision_Timeout command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	Specifies which Connection Handle's Link Supervision Timeout value was written. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Event(s) generated (unless masked away):

When the Write_Link_Supervision_Timeout command has completed, a Command Complete event will be generated.

7.3.45 Read Number Of Supported IAC Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Number_Of_Supported_IAC	0x0038		Status, Num_Support_IAC

Description:

This command will read the value for the number of Inquiry Access Codes (IAC) that the local Bluetooth device can simultaneous listen for during an Inquiry Scan. All Bluetooth devices are required to support at least one IAC, the General Inquiry Access Code (the GIAC). Some Bluetooth devices support additional IACs.

Command Parameters:

None

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Number_Of_Supported_IAC command succeeded.
0x01-0xFF	Read_Number_Of_Supported_IAC command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Num_Support_IAC *Size: 1 Octet*

Value	Parameter Description
0xXX	Specifies the number of Supported IAC that the local Bluetooth device can simultaneous listen for during an Inquiry Scan. Range: 0x01-0x40

Event(s) generated (unless masked away):

When the Read_Number_Of_Supported_IAC command has completed, a Command Complete event will be generated.

7.3.46 Read Current IAC LAP Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Current_IAC_LAP	0x0039		Status, Num_Current_IAC, IAC_LAP[i]

Description:

This command reads the LAP(s) used to create the Inquiry Access Codes (IAC) that the local Bluetooth device is simultaneously scanning for during Inquiry Scans. All Bluetooth devices are required to support at least one IAC, the General Inquiry Access Code (the GIAC). Some Bluetooth devices support additional IACs.

Command Parameters:

None

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Current_IAC_LAP command succeeded.
0x01-0xFF	Read_Current_IAC_LAP command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Num_Current_IAC *Size: 1 Octet*

Value	Parameter Description
0xXX	Specifies the number of IACs which are currently in use by the local Bluetooth device to simultaneously listen for during an Inquiry Scan. Range: 0x01-0x40

IAC_LAP[i] *Size: 3 Octets * Num_Current_IAC*

Value	Parameter Description
0xXXXXXX	LAPs used to create the IAC which is currently in use by the local Bluetooth device to simultaneously listen for during an Inquiry Scan. Range: 0x9E8B00-0x9E8B3F

Event(s) generated (unless masked away):

When the Read_Current_IAC_LAP command has completed, a Command Complete event will be generated.

7.3.47 Write Current IAC LAP Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Current_IAC_LAP	0x003A	Num_Current_IAC, IAC_LAP[i]	Status

Description:

This command writes the LAP(s) used to create the Inquiry Access Codes (IAC) that the local Bluetooth device is simultaneously scanning for during Inquiry Scans. All Bluetooth devices are required to support at least one IAC, the General Inquiry Access Code (the GIAC). Some Bluetooth devices support additional IACs.

This command shall clear any existing IACs and stores Num_Current_IAC and the IAC_LAPs in to the controller. If Num_Current_IAC is greater than Num_Support_IAC then only the first Num_Support_IACs shall be stored in the controller, and a Command Complete event with error code *Success (0x00)* shall be generated.

Command Parameters:

Num_Current_IAC *Size: 1 Octet*

Value	Parameter Description
0xXX	Specifies the number of IACs which are currently in use by the local Bluetooth device to simultaneously listen for during an Inquiry Scan. Range: 0x01-0x40

IAC_LAP[i] *Size: 3 Octets * Num_Current_IAC*

Value	Parameter Description
0xXXXXXX	LAP(s) used to create IAC which is currently in use by the local Bluetooth device to simultaneously listen for during an Inquiry Scan. Range: 0x9E8B00-0x9E8B3F. The GIAC is the default IAC to be used. If additional IACs are supported, additional default IAC will be determined by the manufacturer.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Current_IAC_LAP command succeeded.
0x01-0xFF	Write_Current_IAC_LAP command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Current_IAC_LAP command has completed, a Command Complete event will be generated.

7.3.48 Read Page Scan Period Mode Command (Deprecated)

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Page_Scan_Period_Mode	0x003B		Status, Page_Scan_Period_Mode

Description:

This command is used to read the mandatory Page_Scan_Period_Mode configuration parameter of the local Bluetooth device. See Section 6.10 on page 386.

Command Parameters:

None

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Page_Scan_Period_Mode command succeeded.
0x01-0xFF	Read_Page_Scan_Period_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Page_Scan_Period_Mode: *Size: 1 Octet*

Value	Parameter Description
0x00	P0
0x01	P1
0x02	P2
0x03-0xFF	Reserved.

Event(s) generated (unless masked away):

When the Read_Page_Scan_Period_Mode command has completed, a Command Complete event will be generated.

7.3.49 Write Page Scan Period Mode Command (Deprecated)

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Page_Scan_Period_Mode	0x003C	Page_Scan_Period_Mode	Status

Description:

This command is used to write the mandatory Page_Scan_Period_Mode configuration parameter of the local Bluetooth device. See Section 6.10 on page 386.

Command Parameters:

Page_Scan_Period_Mode: *Size: 1 Octet*

Value	Parameter Description
0x00	P0
0x01	P1
0x02	P2. **Default.**
0x03-0xFF	Reserved.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Page_Scan_Period_Mode command succeeded.
0x01-0xFF	Write_Page_Scan_Period_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Page_Scan_Period_Mode command has completed, a Command Complete event will be generated.

7.3.50 Set AFH Host Channel Classification Command

Command	OCF	Command Parameters	Return Parameters
Set_AFH_Host_Channel_ Classification	0x003F	AFH_Host_Channel_ Classification	Status

Description:

The Set_AFH_Host_Channel_Classification command allows the Bluetooth host to specify a channel classification based on its "local information". This classification persists until overwritten with a subsequent HCI Set_AFH_Host_Channel_Classification command or until the Controller is reset.

This command shall be supported by a device that declares support for any of the AFH_capable_master, AFH_classification_slave or AFH_classification_master features.

If this command is used, then updates should be sent within 10 seconds, of the host knowing that the channel classification has changed. The interval between two successive commands sent shall be at least 1 second.

Command Parameters:

AFH_Host_Channel_Classification: *Size: 10 Octets (79 Bits meaningful)*

Value	Parameter Description
0xXXXXXXXX XXXXXXXXXX XX	This parameter contains 79 1-bit field. The n^{th} such field (in the range 0 to 78) contains the value for channel *n*: Channel *n* is bad = 0 Channel *n* is unknown = 1 The most significant bit is reserved and shall be set to 0 At least N_{min} channels shall be marked as unknown. (See Baseband Specification, Section 2.3.1, on page 75)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Set_AFH_Host_Channel_Classification command succeeded.
0x01-0xFF	Set_AFH_Host_Channel_Classification command failed. "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Set_AFH_Host_Channel_Classification command has completed, a Command Complete event will be generated.

7.3.51 Read Inquiry Scan Type Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Inquiry_Scan_Type	0x0042		Status, Inquiry_Scan_Type

Description:

This command is used to read the Inquiry_Scan_Type configuration parameter of the local Bluetooth device. See Section 6.4 on page 384.
For details, see the Baseband Specification, "Inquiry scan substate" on page 164 [Part B].

Command Parameters:

None

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Inquiry_Scan_Type command succeeded
0x01-0xFF	Read_Inquiry_Scan_Type command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Inquiry_Scan_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Mandatory: Standard Scan (default)
0x01	Optional: Interlaced Scan
0x02-0xFF	Reserved

Event(s) generated (unless masked away):

When the Read_Inquiry_Scan_Type command has completed, a Command Complete event will be generated.

7.3.52 Write Inquiry Scan Type Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Inquiry_Scan_Type	0x0043	Scan_Type	Status

Description:

This command is used to write the Inquiry Scan Type configuration parameter of the local Bluetooth device. See Section 6.4 on page 384.
For details, see the Baseband Specification, "Inquiry scan substate" on page 164 [Part B].

Command Parameters:

Scan_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Mandatory: Standard Scan (default)
0x01	Optional: Interlaced Scan
0x02-0xFF	Reserved

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Inquiry_Scan_Type command succeeded
0x01-0xFF	Write_Inquiry_Scan_Type command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Inquiry_Scan_Type command has completed, a Command Complete event will be generated.

7.3.53 Read Inquiry Mode Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Inquiry_Mode	0x0044		Status, Inquiry_Mode

Description:

This command is used to read the Inquiry_Mode configuration parameter of the local Bluetooth device. See Section 6.5 on page 384.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Inquiry_Mode command succeeded
0x01-0xFF	Read_Inquiry_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes

Inquiry_Mode: *Size: 1 Octet*

Value	Parameter Description
0x00	Standard Inquiry Result event format
0x01	Inquiry Result format with RSSI
0x02-0xFF	Reserved

Event(s) generated (unless masked away):

When the Read_Inquiry_Mode command has completed, a Command Complete event will be generated.

7.3.54 Write Inquiry Mode Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Inquiry_Mode	0x0045	Inquiry_Mode	Status

Description:

This command is used to write the Inquiry_Mode configuration parameter of the local Bluetooth device. See Section 6.5 on page 384.

Command Parameters:

Inquiry_Mode: *Size: 1 Octet*

Value	Parameter Description
0x00	Standard Inquiry Result event format (default)
0x01	Inquiry Result format with RSSI
0x02-0xFF	Reserved

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Inquiry_Mode command succeeded
0x01-0xFF	Write_Inquiry_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Inquiry_Mode command has completed, a Command Complete event will be generated.

7.3.55 Read Page Scan Type Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Page_Scan_Type	0x0046		Status, Page_Scan_Type

Description:

This command is used to read the Page Scan Type configuration parameter of the local Bluetooth device. See Section 6.11 on page 387.
For details, see the Baseband Specification, "Page scan substate" on page 154 [Part B].

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Page_Scan_Type command succeeded
0x01-0xFF	Read_Page_Scan_Type command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Page_Scan_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Mandatory: Standard Scan (default)
0x01	Optional: Interlaced Scan
0x02-0xFF	Reserved

Event(s) generated (unless masked away):

When the Read_Page_Scan_Type command has completed, a Command Complete event will be generated.

7.3.56 Write Page Scan Type Command

Command	OCF	Command Parameters	Return Parameters
HCI_Write_Page_Scan_Type	0x0047	Page_Scan_Type	Status

Description:

This command is used to write the Page Scan Type configuration parameter of the local Bluetooth device. See Section 6.11 on page 387.
For details, see the Baseband Specification, "Page scan substate" on page 154 [Part B].

Command Parameters:

Page_Scan_Type: *Size: 1 Octet*

Value	Parameter Description
0x00	Mandatory: Standard Scan (default)
0x01	Optional: Interlaced Scan
0x02-0xFF	Reserved

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_Page_Scan_Type command succeeded
0x01-0xFF	Write_Page_Scan_Type command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_Page_Scan_Type command has completed, a Command Complete event will be generated.

7.3.57 Read AFH Channel Assessment Mode Command

Command	OCF	Command Parameters	Return Parameters
Read_AFH_Channel_Assessment_Mode	0x0048		Status, AFH_Channel_Assessment_Mode

Description:

The Read_AFH_Channel_Assessment_Mode command reads the value for the AFH_Channel_Assessment_Mode parameter. The AFH_Channel_Assessment_Mode parameter controls whether the controller's channel assessment scheme is enabled or disabled.

This command shall be supported by a device that declares support for any of the AFH_capable_master, AFH_classification_slave or AFH_classification_master features.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_AFH_Channel_Assessment_Mode command succeeded.
0x01-0xFF	Read_AFH_Channel_Assessment_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

AFH_Channel_Assessment_Mode: *Size: 1 Octet*

Value	Parameter Description
0x00	Controller channel assessment disabled.
0x01	Controller channel assessment enabled.
0x02-0xFF	Reserved for future use.

Event(s) generated (unless masked away):

When the Read_AFH_Channel_Assessment_Mode command has completed, a Command Complete event will be generated.

7.3.58 Write AFH Channel Assessment Mode Command

Command	OCF	Command Parameters	Return Parameters
Write_AFH_Channel _Assessment_Mode	0x0049	AFH_Channel _Assessment_Mode	Status

Description:

The Write_AFH_Channel_Assessment_Mode command writes the value for the AFH_Channel_Assessment_Mode parameter. The AFH_Channel_Assessment_Mode parameter controls whether the Controller's channel assessment scheme is enabled or disabled.

Disabling channel assessment forces all channels to be unknown in the local classification, but does not affect the AFH_reporting_mode or support for the Set_AFH_Host_Channel_Classification command. A slave in the AFH_reporting_enabled state shall continue to send LMP channel classification messages for any changes to the channel classification caused by either this command (altering the AFH_Channel_Assessment_Mode) or HCI Set_AFH_Host_Channel_Classification command (providing a new channel classification from the Host).

This command shall be supported by a device that declares support for any of the AFH_capable_master, AFH_classification_slave or AFH_classification_master features.

If the AFH_Channel_Assessment_Mode parameter is enabled and the Controller does not support a channel assessment scheme, other than via the Set_AFH_Host_Channel_Classification command, then a Status parameter of 'Channel Assessment Not Supported' should be returned. See "Error Codes" on page 319 [Part D] for list of Error Codes.

If the Controller supports a channel assessment scheme then the default AFH_Channel_Assessment_Mode is enabled, otherwise the default is disabled.

Command Parameters:

AFH_Channel_Assessment_Mode: *Size: 1 Octet*

Value	Parameter Description
0x00	Controller channel assessment disabled.
0x01	Controller channel assessment enabled.
0x02-0xFF	Reserved for future use.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Write_AFH_Channel_Assessment_Mode command succeeded.
0x01-0xFF	Write_AFH_Channel_Assessment_Mode command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Event(s) generated (unless masked away):

When the Write_AFH_Channel_Assessment_Mode command has completed, a Command Complete event will be generated.

7.4 INFORMATIONAL PARAMETERS

The Informational Parameters are fixed by the manufacturer of the Bluetooth hardware. These parameters provide information about the Bluetooth device and the capabilities of the Controller, Link Manager, and Baseband. The host device cannot modify any of these parameters. For Informational Parameters Commands, the OGF is defined as 0x04.

7.4.1 Read Local Version Information Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Local_Version_ Information	0x0001		Status, HCI Version, HCI Revision, LMP Version, Manufacturer_Name, LMP Subversion

Description:

This command will read the values for the version information for the local Bluetooth device.

The HCI Version information defines the version information of the HCI layer. The LMP Version information defines the version of the LMP. The Manufacturer_Name information indicates the manufacturer of the local device.

The HCI Revision and LMP Subversion are implementation dependant.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Local_Version_Information command succeeded.
0x01-0xFF	Read_Local_Version_Information command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

HCI_Version: *Size: 1 Octet*

Value	Parameter Description
See https://www.bluetooth.org/foundry/assignnumb/document/assigned_numbers	

HCI_Revision: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Revision of the Current HCI in the Bluetooth device.

LMP_Version: *Size: 1 Octet*

Value	Parameter Description
0xXX	Version of the Current LMP in the Bluetooth device, See https://www.bluetooth.org/foundry/assignnumb/document/assigned_numbers

Manufacturer_Name: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Manufacturer Name of the Bluetooth device, See https://www.bluetooth.org/foundry/assignnumb/document/assigned_numbers

LMP_Subversion: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Subversion of the Current LMP in the Bluetooth device, see Table 5.2 on page 303 in the Link Manager Protocol for assigned values (SubVersNr).

Event(s) generated (unless masked away):

When the Read_Local_Version_Information command has completed, a Command Complete event will be generated.

7.4.2 Read Local Supported Commands Command

Command	OCF	Command Parameters	Return Parameters
HCI_ Read_Local_Supported_Commands	0x0002		Status, Supported Commands

Description:

This command reads the list of HCI commands supported for the local device.

This command will return the Supported Commands configuration parameter. It is implied that if a command is listed as supported, the feature underlying that command is also supported.

See Section 6.26 on page 395 for more information.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0	Read Local Supported Commands command succeeded
0x01-0xff	Read Local Supported Commands command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Supported Commands: *Size: 64 Octets*

Value	Parameter Description
	Bit mask for each HCI Command. If a bit is 1, the radio supports the corresponding command and the features required for the command. Unsupported or undefined commands shall be set to 0. See Section 6.26, "Supported Commands," on page 395.

Event(s) generated (unless masked away):

When the Read Local Supported Commands command has completed a Command Complete event will be generated.

7.4.3 Read Local Supported Features Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Local_Supported_Features	0x0003		Status, LMP_Features

Description:

This command requests a list of the supported features for the local device. This command will return a list of the LMP features. For details see "Link Manager Protocol" on page 211 [Part C].

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Local_Supported_Features command succeeded.
0x01-0xFF	Read_Local_Supported_Features command failed. See "Error Codes" on page 319 [Part D]

LMP_Features: *Size: 8 Octets*

Value	Parameter Description
0xXXXXXXXX XXXXXXXX	Bit Mask List of LMP features. For details see "Link Manager Protocol" on page 211 [Part C]

Event(s) generated (unless masked away):

When the Read_Local_Supported_Features command has completed, a Command Complete event will be generated.

7.4.4 Read Local Extended Features Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Local_ Extended_Features	0x0004	Page number	Status, Page number, Maximum Page Number, Extended_LMP_Features

Description:

The HCI_Read_Local_Extended_Features command returns the requested page of the extended LMP features.

Command Parameters:

Page Number: *Size: 1 Octet*

Value	Parameter Description
0x00	Requests the normal LMP features as returned by HCI_Read_Local_Supported_Features
0x01-0xFF	Return the corresponding page of features

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	HCI_Read_Local_Extended_Features command succeeded
0x01-0xFF	HCI_Read_Local_Extended_Features command failed. See "Error Codes" on page 319 [Part D] for list of error codes

Page Number: *Size: 1 Octet*

Value	Parameter Description
0x00	The normal LMP features as returned by HCI_Read_Local_Supported_Features
0x01-0xFF	The page number of the features returned

Maximum Page Number: *Size: 1 Octet*

Value	Parameter Description
0x00-0xFF	The highest features page number which contains non-zero bits for the local device

Extended_LMP_Features: *Size: 8 Octets*

Value	Parameter Description
0xFFFFFFFFFFFFFFFF	Bit map of requested page of LMP features. See LMP specification for details

Event(s) generated (unless masked away):

When the Controller receives the HCI_Read_Local_Extended_Features command the Controller sends the Command Complete command to the Host containing the requested information.

7.4.5 Read Buffer Size Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Buffer_Size	0x0005		Status, HC_ACL_Data_Packet_Length, HC_Synchronous_Data_Packet_Length, HC_Total_Num_ACL_Data_Packets, HC_Total_Num_Synchronous_Data_Packets

Description:

The Read_Buffer_Size command is used to read the maximum size of the data portion of HCI ACL and synchronous Data Packets sent from the Host to the Controller. The Host will segment the data to be transmitted from the Host to the Controller according to these sizes, so that the HCI Data Packets will contain data with up to these sizes. The Read_Buffer_Size command also returns the total number of HCI ACL and synchronous Data Packets that can be stored in the data buffers of the Controller. The Read_Buffer_Size command must be issued by the Host before it sends any data to the Controller.

The HC_ACL_Data_Packet_Length return parameter will be used to determine the size of the L2CAP segments contained in ACL Data Packets, which are transferred from the Host to the Controller to be broken up into baseband packets by the Link Manager. The HC_Synchronous_Data_Packet_Length return parameter is used to determine the maximum size of HCI synchronous Data Packets. Both the Host and the Controller must support command and event packets, where the data portion (excluding header) contained in the packets is 255 octets in size. The HC_Total_Num_ACL_Data_Packets return parameter contains the total number of HCI ACL Data Packets that can be stored in the data buffers of the Controller. The Host will determine how the buffers are to be divided between different Connection Handles. The HC_Total_Num_Synchronous_Data_Packets return parameter gives the same information but for HCI synchronous Data Packets.
Note: the HC_ACL_Data_Packet_Length and HC_Synchronous_Data_Packet_Length return parameters do not include the length of the HCI Data Packet header.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Buffer_Size command succeeded.
0x01-0xFF	Read_Buffer_Size command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

HC_ACL_Data_Packet_Length: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Maximum length (in octets) of the data portion of each HCI ACL Data Packet that the Controller is able to accept.

HC_Synchronous_Data_Packet_Length: *Size: 1 Octet*

Value	Parameter Description
0xXX	Maximum length (in octets) of the data portion of each HCI Synchronous Data Packet that the Controller is able to accept.

HC_Total_Num_ACL_Data_Packets: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Total number of HCI ACL Data Packets that can be stored in the data buffers of the Controller.

HC_Total_Num_Synchronous_Data_Packets: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Total number of HCI Synchronous Data Packets that can be stored in the data buffers of the Controller.

Event(s) generated (unless masked away):

When the Read_Buffer_Size command has completed, a Command Complete event will be generated.

7.4.6 Read BD_ADDR Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_BD_ADDR	0x0009		Status, BD_ADDR

Description:

This command shall read the Bluetooth device address (BD_ADDR). See the "Baseband Specification" on page 55 [Part B] for details of how BD_ADDR is used.

Command Parameters:

None.

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_BD_ADDR command succeeded.
0x01-0xFF	Read_BD_ADDR command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

BD_ADDR: *Size: 6 Octets*

Value	Parameter Description
0xXXXXXXXXXXXX	BD_ADDR of the Device

Event(s) generated (unless masked away):

When the Read_BD_ADDR command has completed, a Command Complete event will be generated.

7.5 STATUS PARAMETERS

The Controller modifies all status parameters. These parameters provide information about the current state of the Controller, Link Manager, and Baseband. The host device cannot modify any of these parameters other than to reset certain specific parameters. For the Status and baseband, the OGF is defined as 0x05.

7.5.1 Read Failed Contact Counter Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Failed_ Contact_Counter	0x0001	Connection_Handle	Status, Connection_Handle, Failed_Contact_Counter

Description:

This command will read the value for the Failed_Contact_Counter parameter for a particular connection to another device. The Connection_Handle must be a Connection_Handle for an ACL connection.
See Section 6.17 on page 390.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the Connection for which the Failed Contact Counter should be read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Failed_Contact_Counter command succeeded.
0x01-0xFF	Read_Failed_Contact_Counter command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the Connection for which the Failed Contact Counter has been read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Failed_Contact_Counter: *Size: 2 Octets*

Value	Parameter Description
0xXXXX	Number of consecutive failed contacts for a connection corresponding to the connection handle.

Event(s) generated (unless masked away):

When the Read_Failed_Contact_Counter command has completed, a Command Complete event will be generated.

7.5.2 Reset Failed Contact Counter Command

Command	OCF	Command Parameters	Return Parameters
HCI_Reset_Failed_ Contact_Counter	0x0002	Connection_Handle	Status, Connection_Handle

Description:

This command will reset the value for the Failed_Contact_Counter parameter for a particular connection to another device. The Connection_Handle must be a Connection_Handle for an ACL connection.
See Section 6.17 on page 390.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the Connection for which the Failed Contact Counter should be reset. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Reset_Failed_Contact_Counter command succeeded.
0x01-0xFF	Reset_Failed_Contact_Counter command failed. See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the Connection for which the Failed Contact Counter has been reset. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Event(s) generated (unless masked away):

When the Reset_Failed_Contact_Counter command has completed, a Command
Complete event will be generated.

7.5.3 Read Link Quality Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_Link_Quality	0x0003	Connection_Handle	Status, Connection_Handle, Link_Quality

Description:

This command will return the value for the Link_Quality for the specified Connection Handle. The Connection_Handle must be a Connection_Handle for an ACL connection. This command will return a Link_Quality value from 0-255, which represents the quality of the link between two Bluetooth devices. The higher the value, the better the link quality is. Each Bluetooth module vendor will determine how to measure the link quality.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the connection for which link quality parameters are to be read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Return Parameters:

Status: *Size: 1 Octet*

Value	Parameter Description
0x00	Read_Link_Quality command succeeded.
0x01-0xFF	Read_Link_Quality command failed.See "Error Codes" on page 319 [Part D] for list of Error Codes.

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the connection for which the link quality parameter has been read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)

Link_Quality: *Size: 1 Octet*

Value	Parameter Description
0xXX	The current quality of the Link connection between the local device and the remote device specified by the Connection Handle Range: 0x00 – 0xFF The higher the value, the better the link quality is.

Event(s) generated (unless masked away):

When the Read_Link_Quality command has completed, a Command Complete event will be generated.

7.5.4 Read RSSI Command

Command	OCF	Command Parameters	Return Parameters
HCI_Read_RSSI	0x0005	Connection_Handle	Status, Connection_Handle, RSSI

Description:

This command will read the value for the difference between the measured Received Signal Strength Indication (RSSI) and the limits of the Golden Receive Power Range (see Radio Specification Section 4.1.6 on page 43) for a connection handle to another Bluetooth device. The Connection_Handle must be a Connection_Handle for an ACL connection. Any positive RSSI value returned by the Controller indicates how many dB the RSSI is above the upper limit, any negative value indicates how many dB the RSSI is below the lower limit. The value zero indicates that the RSSI is inside the Golden Receive Power Range.
Note: how accurate the dB values will be depends on the Bluetooth hardware. The only requirements for the hardware are that the Bluetooth device is able to tell whether the RSSI is inside, above or below the Golden Device Power Range.

The RSSI measurement compares the received signal power with two threshold levels, which define the Golden Receive Power Range. The lower threshold level corresponds to a received power between -56 dBm and 6 dB above the actual sensitivity of the receiver. The upper threshold level is 20 dB above the lower threshold level to an accuracy of +/- 6 dB.

Command Parameters:

Connection_Handle: *Size: 2 Octets (12 Bits meaningful)*

Value	Parameter Description
0xXXXX	The Connection Handle for the Connection for which the RSSI is to be read. Range: 0x0000-0x0EFF (0x0F00 - 0x0FFF Reserved for future use)