| BLUETOOTH® DOC | Date / Year-Month-Day 2011-09-15 | Approved | Revision V10r00 | Document No PASS_SPEC |
|---|---|---|---|---|
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# PHONE ALERT STATUS SERVICE

**Abstract:**

This service exposes the phone alert status when in a connection.

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## Revision History

| Revision | Date (yyyy-mm-dd) | Comments |
|---|---|---|
| D09r01 | 2011-01-21 | First Draft |
| D09r02 | 2011-03-02 | Eliminated indication/indicate, added BR/EDR |
| D09r03 | 2011-05-13 | Updated based on the latest UCRDD(D05r12) |
| D09r04 | 2011-06-11 | Removed BR/EDR and corrected some cut/paste issues |
| D09r05 | 2011-06-28 | Resolved comments from Kanji and Terry |
| D09r06 | 2011-07-04 | Added that undefined commands have no action. |
| D09r07 | 2011-07-07 | Incorporated comments from Miles (BTI) and Jason (GPA) and Huanchun (GPA/BARB) |
| D09r08 | 2011-07-08 | Inserted correct Disclaimers and Copyright notice |
| D09r09 | 2011-07-14 | Two editorial changes proposed by Tim Howes |
| V09r00 | 2011-07-26 | Adopted as PS by the Bluetooth SIG Board of Directors |
| D10r01 | 2011-08-09 | First draft D10 |
| D10r02 | 2011-08-10 | Added Service to the service UUID name. Technical: Added text to avoid "Mute Once" credits when issued when there is no ringing |
| D10r03 | 2011-08-17 | Removed PS disclaimer. Two more editorial comments (by AB) resolved |
| D10r04 | 2011-08-29 | Responded to comments from JL. After WG review, resulted in commands being optional (and the control point being optional) |
| V10r00 | 2011-09-15 | Adopted by the Bluetooth SIG Board of Directors |

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## Document Terminology

The Bluetooth SIG has adopted Section 13.1 of the IEEE Standards Style Manual, which dictates use of the words ``shall'', ``should'', ``may'', and ``can'' in the development of documentation, as follows:

The word *shall* is used to indicate mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).

The use of the word *must* is deprecated and shall not be used when stating mandatory requirements; *must* is used only to describe unavoidable situations.

The use of the word *will* is deprecated and shall not be used when stating mandatory requirements; *will* is only used in statements of fact.

The word *should* is used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain course of action is deprecated but not prohibited (*should* equals *is recommended that*).

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can* equals *is able to*).

# Table of Contents

# 1   Introduction

The Phone Alert Status service uses the Alert Status characteristic and Ringer Setting characteristic to expose the phone alert status and uses the Ringer Control Point characteristic to control the phone's ringer into mute or enable.

## 1.1  Conformance

If a server claims conformance to this service, all capabilities indicated as mandatory for this service shall be supported in the specified manner (process-mandatory). This also applies for all optional and conditional capabilities for which support is indicated. All mandatory capabilities, and optional and conditional capabilities for which support is indicated, are subject to verification as part of the Bluetooth qualification program.

## 1.2  Service Dependency

This service has no dependencies on other GATT-based services.

## 1.3  *Bluetooth* Specification Release Compatibility

This service is compatible with any *Bluetooth* core specification that includes the Generic Attribute Profile (GATT).

## 1.4  GATT Sub-Procedure Requirements

Additional GATT sub-procedures requirements beyond those required by the GATT are indicated in Table 1.1.

| GATT Sub-Procedure | Requirements |
|---|---|
| Write Without Response | M |
| Notification | M |
| Read Characteristic Descriptors | M |
| Write Characteristic Descriptors | M |

*Table 1.1: GATT Sub-procedure requirements*

## 1.5  Transport Dependencies

This service shall operate over LE transport only.

## 1.6  Error Codes

This service does not define any application error codes.

# 2  Service Declaration

The Phone Alert Status service shall be instantiated as a «Primary Service». The service UUID shall be set to «Phone Alert Status Service».

The UUID value assigned to «Phone Alert Status Service» is defined in [2].

There shall only be one instance of the Phone Alert Status service on a device.

# 3  Service Characteristics

The Phone Alert Status service shall expose the Alert Status characteristic and the Ringer Setting characteristic, and may expose the Ringer Control Point characteristic as shown below:
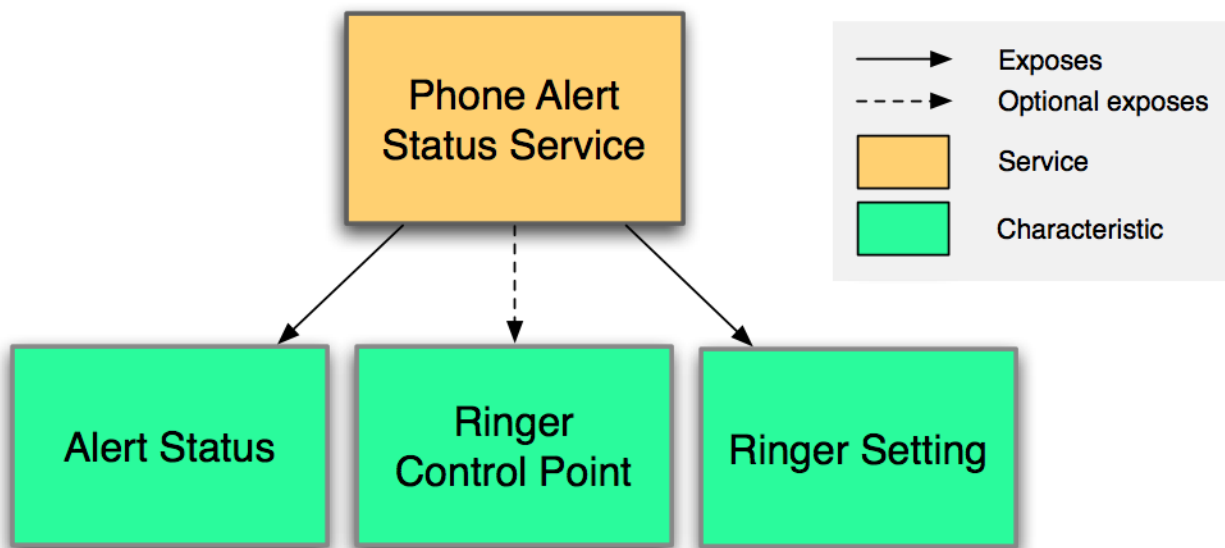


The following characteristics are exposed in the Phone Alert Status service.

| Characteristic | Ref. | Mandatory / Optional |
|---|---|---|
| Alert Status | 3.1 | M |
| Ringer Setting | **Error! Reference source not found.** | M |
| Ringer Control Point | 3.3 | O |

*Table 3.1: Service characteristics*

The characteristics shall comply with the properties in Table 3.2:

| | Broadcast | Read | Write without Response | Write | Notify | Indicate | Signed Write | Reliable Write | Writable Auxiliaries |
|---|---|---|---|---|---|---|---|---|---|
| Alert Status | X | M | X | X | M | X | X | X | X |
| Ringer Setting | X | M | X | X | M | X | X | X | X |
| Ringer Control Point | X | X | M | X | X | X | X | X | X |

*Table 3.2: Characteristic properties*

Requirements marked with 'M' are mandatory, 'O' are optional, and 'X' are excluded (not permitted).

There are no security requirements specified for this service.

## 3.1 Alert Status

### 3.1.1 Characteristic Behavior

The Alert Status Characteristic has three fields of information that exposes the alerting status of the server device as follows:

- Ringer State
- Vibrator State
- Display Alert State

The Alert Status characteristic returns the current value of server's alert status when read.

The client characteristic configuration descriptor shall be implemented to enable a client to configure this characteristic for notifications.

### 3.1.2 Characteristic Descriptors

#### 3.1.2.1 Client Characteristic Descriptor

The *Client Characteristic Configuration* descriptor shall be included in this characteristic.

This descriptor shall be readable and writable.

This descriptor can be read using the GATT Read Characteristic descriptors sub-procedure.

This descriptor can be written using the GATT Write Characteristic descriptors sub-procedure.

## 3.2 Ringer Setting

### 3.2.1 Characteristic Behavior

The Ringer Setting characteristic exposes the state of the server device's ringer.

The Ringer Setting characteristic returns the current value of the Ringer Setting when read.

The client characteristic configuration descriptor shall be implemented to enable a client to configure this characteristic for notifications.

### 3.2.2 Characteristic Descriptors

#### 3.2.2.1 Client Characteristic Descriptor

The *Client Characteristic Configuration* descriptor shall be included in this characteristic.

This descriptor shall be readable and writable.

This descriptor can be read using the GATT Read Characteristic Descriptors sub-procedure.

This descriptor can be written using the GATT Write Characteristic Descriptors sub-procedure.

## 3.3  Ringer Control Point

### 3.3.1  Characteristic Behavior

If the Ringer Control Point characteristic is implemented, the server device shall support at least one of the commands in Table 3.3.

| Command | Mandatory / Optional |
|---------|---------------------|
| Set Silent Mode | C.1 |
| Cancel Silent Mode | C.1 |
| Mute Once | C.1 |
| C.1: Mandatory to support at least one if the Ringer Control Point characteristic is implemented | |

*Table 3.3: Ringer Control Point commands*

When the Ringer Control Point characteristic is written with a supported value (command), the server device shall perform an action based on the value (command). See Section 4.
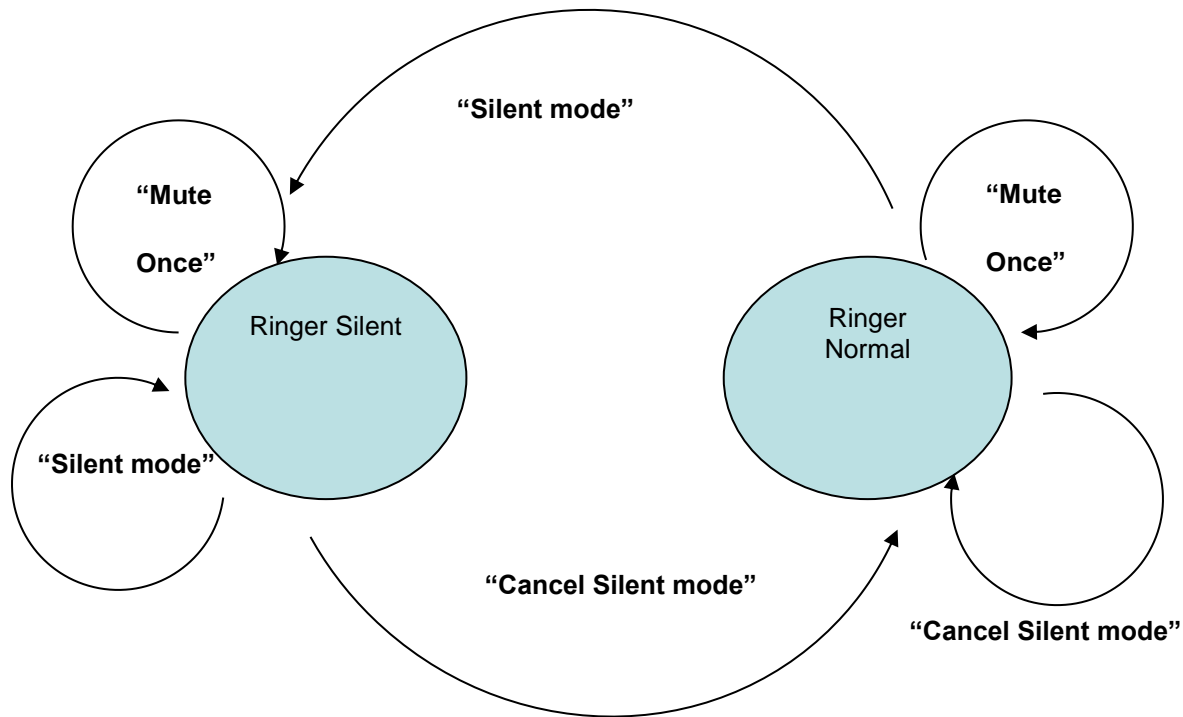
# 4 Service Behavior



*Table 4.1: Phone Alert Status state diagram*

The server device shall implement a state machine with two states, "Ringer Silent" and "Ringer Normal".

The command "Set Silent Mode" shall set the state to "Ringer Silent".

The command "Cancel Silent Mode" shall set the state to "Ringer Normal".

The command "Mute Once" shall silence the server device's ringer. If the ringer is not active, the "Mute Once" command shall have no effect. The ringer state is not affected by the "Mute Once" command.

For any other command values (not defined by the characteristic specification [2]), the state shall not change.

The server device's ringer shall be silenced when the state is "Ringer Silent" and act according to phone settings when the state is "Ringer Normal".

Note: The Alert Status and Ringer Setting characteristics will reflect the state of the alerting and ringer setting of the server device. These states will normally change when the state machine changes or other events (like incoming call or user interaction) happens on the server device. Therefore, the client does not have direct control over the server's Ringer Setting through the Ringer Control Point.

*Phone Alert Status Service*

# 5 Acronyms and Abbreviations

| Acronyms and Abbreviations | Meaning |
|---|---|
| GATT | Generic Attribute Profile |
| LE | Low Energy |
| UUID | Universally Unique Identifier |

*Table 5.1: Acronyms and Abbreviations*

# 6 References

[1]   *Bluetooth* Core Specification v4.0
[2]   Characteristic and Descriptor descriptions are accessible via the <u>Bluetooth SIG Assigned Numbers.</u>