

Company: Microsoft  
Phone: +1-425-703-8380  
FAX: +1.425.93-MSFAX  
email: nathans@microsoft.com

---

CurrentStatus: Review - Content-related comments resolved.

Priority: Normal

Submitted: 14 January 2008

Voting Starts: 24 January 2008

Voting Ends: 31 January 2008

Required Voter: Richard Petrie, Nokia

Required Voter: Steve McGowan, Intel

Required Voter: Dan Ellis, DisplayLink

---

### **Summary:**

This proposal is to extend the Generic Devices, Telephony, Consumer and Alphanumeric Display pages to support Dual-Mode Telephone devices.

---

### **Background:**

Dual mode telephones allow use of internet based telephone calls as well as standard PSTN telephone calls. For internet calling these devices will sometimes include a display for presenting the user interface for the internet calling functions directly on the device. Also required are notification of the device for incoming internet based calls. It is also useful to be able to download the contact database present on the computer to the local storage on the telephone device.

Many of these devices incorporate wireless handsets with transport mechanisms which are not guaranteed to be error free, so extensions are required for devices to handle transport errors for sequential reports as used by the alphanumeric display. In order to support these types of devices, this proposal lists additions to the Generic Devices, Telephony, Consumer and Alphanumeric Display pages.

## 1. Generic Device Controls Usage Page (0x06)

These are proposed additions to section 9 of USB HUT 1.12 document.

Table 11: Generic Device Controls Page

Usage ID	Usage Name	Usage Type
27	Sequence ID	DV
28	Sequence ID Reset	DF
29	RF Signal Strength	DV
2A-FFFF	Reserved	

Sequence ID            DV – Value increments with each output report to allow detection of missed packets when using a wireless medium. When value reaches Logical Maximum it cycles back to Logical Minimum.

Sequence ID Reset    DF – Flag is used in conjunction with Sequence ID to indicate that a new sequence starting at the Sequence ID Logical Minimum has begun.

RF Signal Strength    DV - The current battery status. Strength of wireless device signal where Logical Minimum and Logical Maximum define the range. Null values indicate unknown signal strength.

## 2. Telephony Usage Page (0x0B)

These are proposed additions section 14 of USB HUT 1.12 document.

Table 16: Telephony Usage Page

Usage ID	Usage Name	Usage Type	Section
C0	Phone Call History Key	Sel	14.7
C1	Phone Caller ID Key	Sel	14.7
C2	Phone Settings Key	Sel	14.7
C3-DF	Reserved		
F0	Host Control	OOC	14.8
F1	Host Available	OOC	14.8
F2	Host Call Active	OOC	14.8
F3	Activate Handset Audio	OOC	14.8
F4	Ring Type	nAry	14.8
F5	Re-dialable Phone Number	OOC	14.8
F6-F7	Reserved		
F8	Stop Ring Tone	SEL	14.8
F9	PSTN Ring Tone	SEL	14.8
FA	Host Ring Tone	SEL	14.8
FB	Alert Sound Error	SEL	14.8
FC	Alert Sound Confirm	SEL	14.8
FD	Alert Sound Notification	SEL	14.8
FE	Silent Ring	SEL	14.8
FF-107	Reserved		

Usage ID	Usage Name	Usage Type	Section
108	Email Message Waiting	OOC	14.8
109	Voicemail Message Waiting	OOC	14.8
10A	Host Hold	OOC	14.8
109-10F	Reserved		
110	Incoming Call History Count	DV	14.8
111	Outgoing Call History Count	DV	14.8
112	Incoming Call History	CL	14.8
113	Outgoing Call History	CL	14.8
114	Phone Locale	DV	14.8
115-13F	Reserved		
140	Phone Time Second	DV	14.8
141	Phone Time Minute	DV	14.8
142	Phone Time Hour	DV	14.8
143	Phone Date Day	DV	14.8
144	Phone Date Month	DV	14.8
145	Phone Date Year	DV	14.8
146	Handset Nickname	DV	14.8
147	Address Book ID	DV	14.8
14A	Call Duration	DV	14.8
14B	Dual Mode Phone	CA	14.8
14C-FFFF	Reserved		

## 14.7 Call History Controls

Phone Call History Key	Sel – show list of previously dialed phone numbers with associated information (contact list name, time, duration, etc.)
Phone Caller ID Key	Sel – show list of received calls with associated information (caller ID name, time, duration, etc.)
Phone Settings Key	Sel – show phone settings screen

## 14.8 Host Dual Mode Phone Controls

Dual Mode Phone	CA – top level collection of reports for a telephony device which can handle both standard PSTN phone and host based voice calls.
Host Control	OOC – Indicates that the host has control of the device.
Host Available	OOC – Indicates to the device that the host is powered on and running the software which is able to control the device.
Host Call Active	OOC – Indicates that the host currently has an active voice call
Activate Handset Audio	OOC – Indicates that the device should activate its audio channel with the host
Host Hold	OOC – Indicates that there is a voice call in the hold state on the host
Email message waiting	OOC – when set indicates that there is email on the host for the account associated with the device
Voicemail Message Waiting	OOC – when set indicates that there is a voicemail on the host for the account associated with the device
Phone Locale	DV – a 4 byte value containing the ISO code for the current locale setting of the device. Two most significant bytes are the ASCII character bytes for the ISO 639-1 language code and two least significant bytes are ASCII character bytes for the ISO 3166-1 country code.

Handset Nickname	DV – A name associated with the phone handset for identification. This is a Buffered Byte array in the same format as specified for the Alphanumeric Display usage page and ordering is implied the same was as display data as defined in section 18.1.4 Character Transfers.
Address Book ID	DV – A unique value stored on the phone to indicate which user of the phone has their contact list currently stored on the device.

## Ring Reports

A ring report can be from the device to indicate to the host that a call is arriving on the PSTN line, or from the host to tell the device that a call is arriving on the host. This can also be used by the host to sound notifications on the device.

Ring Type	nAry – A selectable indicating to the device to start sounding one of the ringer sounds defined below
PSTN Ring Tone	SEL – ring associated with a call coming in on the public switched telephone network (PSTN) or standard phone line
Host Ring Tone	SEL – ring associated with a voice call coming in on the host
Alert Sound Error	SEL – sound associated with an error condition or invalid entry
Alert Sound Confirm	SEL – sound associated with a correct or confirmed entry
Alert Sound Notification	SEL – sound associated with a notification from the host
Silent Ring	SEL – no audible sound
Stop Ring Tone	SEL – discontinue any previously playing ring sound

When a ring report is used to indicate an incoming call, additional information in the report can be caller information (see section 15.17 contact list controls in the consumer usage page) or any of the following usages to provide more detailed information about the call

Re-dialable phone number	OOB – indicates that any phone number in the report is an actual phone number which can be re-dialed and not some other numbers or text which may be present on caller ID.
--------------------------	--

Phone Time Second	DV – Logical Minimum of 0, logical Maximum of 59, the seconds part of the call time
Phone Time Minute	DV – Logical Minimum of 0, logical Maximum of 59, the minutes part of the call time
Phone Time Hour	DV – Logical Minimum of 0, logical Maximum of 23, the hour part of the call time
Phone Date Day	DV – Logical Minimum of 0, logical Maximum of 31, the day part of the call time
Phone Date Month	DV – Logical Minimum of 1, logical Maximum of 12, the month part of the call time
Phone Date Year	DV –the year part of the call time. If logical minimum is greater than 2000, then the value is a 4-digit date. If logical minimum is 0 then the value is a 2-digit date meaning one of the years from 2000 to 2099.

### **Call History Reports**

A dual mode phone can store call history of received and dialed calls. These can be reported to the host using the following usages.

Incoming Call History Count	DV- Indicates the number of incoming caller ID history records are currently stored on the device
Outgoing Call History Count	DV – Indicates the number of outgoing call history records are currently stored on the device
Incoming Call History	CL – A collection defining an incoming call, which can use the phone time usages defined above, along with the contact list control usages defined in section 15.17.

Outgoing Call History                      CL – A collection defining an outgoing call, which can use the phone time usages defined above, along with the contact list control usages defined in section 15.17.

Call Duration                                      DV – The number of seconds that the call lasted. Zero indicates that the call was not answered.

### 3. Consumer Usage Page (0x0C)

These are proposed additions section 15 of USB HUT 1.12 document.

Table 17: Consumer Usage Page

Usage ID	Usage Name	Usage Type	Section
1C8	AL Message Status	Sel	15.15
1C9	AL Contact Sync	Sel	15.15
1CA-1FF	Reserved		
29D-29F	Reserved		
2A0	AC Soft Key Left	Sel	15.16
2A1	AC Soft Key Right	Sel	15.16
2A2-2AF	Reserved		
2B0	AC Idle Keep Alive	Sel	15.16
2B1-4FF	Reserved		
500	Contact Edited	OOC	15.17
501	Contact Added	OOC	15.17
502	Contact Record Active	OOC	15.17
503	Contact Index	DV	15.17
504	Contact Nickname	DV	15.17
505	Contact First Name	DV	15.17



Usage ID	Usage Name	Usage Type	Section
506	Contact Last Name	DV	15.17
507	Contact Full Name	DV	15.17
508	Contact Phone Number Personal	DV	15.17
509	Contact Phone Number Business	DV	15.17
50A	Contact Phone Number Mobile	DV	15.17
50B	Contact Phone Number Pager	DV	15.17
50C	Contact Phone Number Fax	DV	15.17
50D	Contact Phone Number Other	DV	15.17
50E	Contact Email Personal	DV	15.17
50F	Contact Email Business	DV	15.17
510	Contact Email Other	DV	15.17
511	Contact Email Main	DV	15.17
512	Contact Speed Dial Number	DV	15.17
513	Contact Status Flag	DV	15.17
514	Contact Misc.	DV	15.17
515-FFFF	Reserved		

### 15.15 Application Launch Controls

AL Message Status Sel – used to show status of stored voice or text messages

AL Contact Sync Sel – used to initiate synchronization of device stored contact list with host system.

### 15.16 Generic GUI Application Controls

AC Soft Key Left	Sel – Function assigned to left soft key when display is under host control.
AC Soft Key Right	Sel – Function assigned to right soft key when display is under host control.
AC Idle Keep Alive	Sel – Sent periodically when no keys are pressed to indicate that the devices is still active

### 15.17 Contact List Controls

A device may store a list of telephone or email contacts, which consist of a record for each one which may have various fields for the name and contact information.

Contact Index	DV – Indicates which record in the list of contacts is being stored or retrieved, with the Logical Minimum being the first contact record on the device and Logical Maximum being the last.
Contact Edited	OOB – true if the contact record has been changed by the device since it was last stored
Contact Added	OOB – true if the contact record has been added by the device since it was last stored
Contact Record Active	OOB – if true the contact record is active, if false the record is not currently in use
Contact Status Flag	DV – Buffered Byte array of the status for each contact using the status OOB usages defined above.

A contact list contains various fields of data for each contact. These are represented as Buffered Byte arrays of character data. The character data is in the same format as specified for the Alphanumeric Display usage page and ordering is implied the same was as display data as defined in section 18.1.4 Character Transfers.

Contact Nickname	DV – nickname displayed for the contact
Contact First Name	DV – contact's given name

Contact Last Name	DV –contact’s surname
Contact Full Name	DV – contact’s full name including first and last names
Contact Phone Number Personal	DV – contact’s personal phone number
Contact Phone Number Business	DV – contact’s office phone number
Contact Phone Number Mobile	DV – contact’s mobile phone number
Contact Phone Number Pager	DV – contact’s paging device number
Contact Phone Number Fax	DV – contact’s facsimile number
Contact Phone Number Other	DV – contact’s uncategorized phone number
Contact Email Personal	DV – contact’s personal email address
Contact Email Business	DV – contact’s business email address
Contact Email Other	DV – contact’s uncategorized email address
Contact Email ID	DV – contact’s primary email address
Contact Speed Dial Number	DV –the speed dial shortcut key sequence assigned to this contact
Contact Misc	DV – unformatted binary data associated with this contact record

## 4. Alphanumeric Display Page (0x14)

These are proposed additions section 18 of USB HUT 1.12 document.

Table 19: Alphanumeric Display Additions

Usage ID	Usage Name	Usage Type	Section
96-C1	Reserved		
C2	Soft Keys	SV	18.1.1
C3-CB	Reserved		
CC	Display Data Extensions	SF	18.1.1
DD-CE	Reserved		
CF	Character Mapping	SV	18.3
D0-DC	Reserved		
DD	Unicode Equivalent	SV	18.3
DE	Reserved		
DF	Character Page Mapping	SV	18.3
F0-FE	Reserved		
FF	Request Report	DV	18.4

### 18.1.1 Flags

#### Display Attributes Report

Soft Keys

SV – indicates the number of keys which have software displayable labels are present on the device

Display Data Extensions

SF – Finding this usage in the display attributes report indicates that the extensions to the display data report as defined below are supported by the device.

**Table 1a: Display Data Extended Character Codes**

Code	Description
0x0006	Un-escape character. The character code following this character is treated as display data regardless of its value. For example in a one-byte per character display to include display data with the value 0x1b which is normally treated as an escape, sending the sequence 0x06 0x1b would result in the display data byte 0x1b being written in that display position.
0x0007	Set cursor position, the following byte specifies a new cursor position with the upper 4 bits being the row and the lower 4 bits being the column.
0x0008	Set cursor position long, the following two bytes specifies a new cursor position. The first following byte has 7 bits specifying the row, and the most significant bit of the byte is a flag which if set indicates the cursor is to be set to blink. The blinking of the cursor will continue until the cursor position is changed again. The second byte has 8-bits specifying the column of the new cursor position.
0x000A	New line character used to indicate the end of a row of characters.
0x000B	Same as new line, except apply the current attribute to the last column of the current row. This is used to allow setting text for the first part of a row, but applying an attribute like title or highlight to the entire row.
0x000C	Clear the screen. This acts the same as the Clear Display dynamic flag, clearing the screen to all space characters with the attribute set from the current attribute.
0x001B	Escape character used to indicate that the following byte in the character data stream is a character attribute byte to set the current text attribute. The attribute will apply to all following characters until it is changed again.

### 18.3 Character Maps

It is usually the case that an alphanumeric display device is capable of supporting only a subset of displayable characters. For Unicode characters in particular since the character set is so large that often only some of the characters can be displayed. To allow the host to determine which characters are displayable, the following HID usages are defined to map Unicode UTF-16LE character codes to any of the device characters.

Character Mapping	SV – Display data byte which maps to an associated Unicode Equivalent.
Unicode Equivalent	SV – always 16 bits, this is the UTF-16LE code for the character mapped to the associated display data byte

Character Page Mapping      SV – A Buffered Byte array of 256 values, one for each 256 byte character page used when the Unicode display attribute is present. The value tells whether the page of 256 bytes is used, matches Unicode UTF16-LE directly or has a full or partial character map.

**Table 2 – Page Mapping Definitions**

Value	Definition
0	Page Not Used
1	Page Matches Unicode UTF-16 LE
2	Character Page Mapping returns partial map
3	Character Page Mapping returns full map

#### **18.4 Requesting Reports**

In some cases, the host may require the device to return a specific HID report. If the device supports these requests, it can define an input report with the following usage and when received return the specified output report.

Request Report                      DV – report ID of the requested output report

## **Notes on Approval Procedure:**

-----

### **HID WG On Line Voting Procedures**

- 1. Votes are on a per company basis.**
- 2. Each Review Request shall have attached a Required Voter List that is the result of recruiting by the HID Chair and submitter of members of the USB IF. Required Voter List must include the HID Chair plus 2 companies (other than the submitter) plus any others designated by the HID Chair at the Chair's discretion. The Required Voter List ensures that a quorum is available to approve the Request.**
- 3. Impose a 7-calendar-day posting time limit for new Review Requests. HID Chair or designate must post the RR within 7 calendar days. HID Chair or designate must work with the submitter to make sure the request is valid prior to posting. Valid review request must include all fields marked as required in the template. A new template will be adopted that requires at least the following fields: Change Text, Required Voter List, Review Period End Date and Voting End Date, Submittal Date, Submitter, Review Request Title and RR Number.**
- 4. If a RR approval process stalls, the HID Chair may call a face-to-face meeting or conference call to decide the issue. Submitter may request that this take place.**
- 5. Impose a minimum 15-calendar-day review period on a posted RR prior to the voting period. At HID Chair discretion, changes to the RR may require this review period to restart.**
- 6. The Chair will accept votes via documentable means such as mail or e-mail during the 7 calendar days after the close of the review period. If a Required Voter does not vote during the period, then there is no quorum and the Chair may pursue the absent required voter and extend the voting period. The Chair may designate a substitute for the absent voter and extend the voting period if necessary.**