



SIP Guest Bedroom Handset Requirements

Version 1.00
28 April 2011

About HTNG

Hotel Technology Next Generation (HTNG) is a non-profit association with a mission to foster, through collaboration and partnership, the development of next-generation systems and solutions that will enable hoteliers and their technology vendors to do business globally in the 21st century; to be recognized as a leading voice of the global hotel community, articulating the technology requirements of hotel companies of all sizes to the vendor community; and to facilitate the development of technology models for hospitality that will foster innovation, improve the guest experience, increase the effectiveness and efficiency of hotels, and create a healthy ecosystem of technology suppliers.

Copyright 2011, Hotel Technology Next Generation

All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of the copyright owner.

For any software code contained within this specification, permission is hereby granted, free-of-charge, to any person obtaining a copy of this specification (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the above copyright notice and this permission notice being included in all copies or substantial portions of the Software.

Manufacturers and software providers shall not claim compliance with portions of the requirements of any HTNG specification or standard, and shall not use the HTNG name or the name of the specification or standard in any statements about their respective product(s) unless the product(s) is (are) certified as compliant to the specification or standard.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES, OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF, OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Permission is granted for implementers to use the names, labels, etc. contained within the specification. The intent of publication of the specification is to encourage implementations of the specification.

This specification has not been verified for avoidance of possible third-party proprietary rights. In implementing this specification, usual procedures to ensure the respect of possible third-party intellectual property rights should be followed.

The names Hotel Technology Next Generation and HTNG, and logos depicting these names, are trademarks of Hotel Technology Next Generation. Permission is granted for implementers to use the aforementioned names in technical documentation for the purpose of acknowledging the copyright and including the notice required above. All other use of the aforementioned names and logos requires the permission of Hotel Technology Next Generation, either in written form or as explicitly permitted for the organization's members through the current terms and conditions of membership.

Table of contents

TABLE OF CONTENTS.....	3
1 DOCUMENT HISTORY.....	4
1.1 DOCUMENT CHANGES.....	4
2 DOCUMENT INFORMATION.....	5
2.1 DOCUMENT PURPOSE.....	5
2.2 SCOPE.....	5
2.3 AUDIENCE.....	5
2.4 OVERVIEW.....	5
2.5 DOCUMENT TERMS.....	5
2.6 REFERENCED DOCUMENTS.....	5
3 BUSINESS PROCESS.....	6
3.1 OVERVIEW.....	6
3.2 USE CASES.....	6
a) Guest Makes Call.....	6
1. Internal call to staff.....	6
2. Internal call to other room.....	6
3. External call, toll/non-toll.....	6
4. External call, emergency.....	6
b) Guest Receives Call.....	6
1. Staff to guestroom.....	6
2. Room to room calling.....	6
3. Direct Inward Dialing (DID).....	6
4. Guest receives Hotel operator assisted call.....	6
c) Guest Services and Alerting.....	7
1. Guest requests or sets a wake-up call.....	7
2. Guest receives message notification - light/lamp indicator.....	7
3. Guest plugs in to Ethernet port to access HSIA.....	7
d) Configuration.....	7
1. Installation and deployment.....	7
2. Maintenance.....	7
3. Reconfiguration in a new room.....	7
3.3 IMPLEMENTATION/DEPLOYMENT REQUIREMENTS.....	7
a) Handsets.....	7
b) PBX.....	8
c) Network.....	8
4 IP GUEST BEDROOM HANDSET REQUIREMENTS.....	9
4.1 GUEST INTERFACE FEATURES.....	9
4.2 SYSTEM FEATURES.....	9
4.3 CONFIGURATION AND SUPPORT FEATURES.....	10

1 Document History

1.1 Document Changes			
Version	Date	Author	Comments
0.01d	16 June 2010	Kate Roberts	Initial Draft created at the Zug, CH meeting. Requirements were gathered from the HTNG IP PBX RFP Template (29May2009)
0.02d	17 July 2010	Jon Buenviaje	Edited on Workgroup teleconference. Features not pertaining to SIP were removed
0.04d	4 Aug 2010	Dean Compoginis	Feature Categories and Feature Name were added
0.05d	5 Aug 2010	Jon Buenviaje	Feature tables was merged into HTNG Spec Doc Template
0.06d	5 Aug 2010	Jon Buenviaje	Edited on Workgroup teleconference
0.07d	10 Aug 2010	Vance Shipley	Clarification on calling line ID
0.08d	12 Aug 2010	Jon Buenviaje	Edited on Workgroup teleconference
0.09d	24 Sept 2010	Jon Buenviaje	Draft Use cases merged into document
0.10d	28 Oct 2010	Jon Buenviaje	Use cases modification and creation
0.11d	9 Dec 2010	Jon Buenviaje	Updated Feature list to cross reference use cases
0.12d	10 Jan 2011	Kylene Reese	Edited at F2F meeting in Las Vegas. Added content to document information and edited features.
0.13d	11 Jan 2011	Kylene Reese	Edited at F2F meeting in Las Vegas. Made a few, minor edits.
0.14d	10 Feb 2011	Jon Buenviaje	Implementation/Deployment Requirements and Future Phases section modified. Accepted all changes. Reordered Feature numbers
0.15d	17 Feb 2011	Jon Buenviaje	Minor edits to the Implementation/Deployment Requirements section. Removed Future Phases section (to be created as an addendum)
0.16d	21 Feb 2011	Frank Melville	Implementation / Deployment Requirements section expanded
0.17d	24 Feb 2011	Jon Buenviaje	Minor edits. Accepted all changes but left comments for review at a future meeting.
0.18d	10 Mar 2011	Jon Buenviaje	Major edits from the outcome of San Diego F2F. Changes tracked in this version with comments.
1.00	28 Apr 2011		Finalized Document

2 Document Information

2.1 Document Purpose

The purpose of this document is to describe the minimum functionality of a Guest Bedroom Handset device that will need to function in a SIP or hybrid (digital/analog) environment.

2.2 Scope

This effort will define the minimum requirement for the baseline functionality of an IP handset and is meant to be phase one of the workgroup's efforts. The effort addresses the hoteliers' needs for a baseline SIP endpoint that is switch-agnostic. The effort does not address PBS/switch/PMS, connectivity, or enhanced features.

Future phases and considerations will be included in an addendum to this document. This will include additional use cases and Implementation / Deployment requirements.

2.3 Audience

The intended audience of this effort includes hotel operators, hotel owners, hotel developers, PBX manufacturers, SIP handset manufacturers and integrators.

2.4 Overview

Business Processes including relevant Use Cases
Implementation and Deployment Requirements
IP Handset Requirements
 Guest Interface Features
 System Features
 Configuration and Support Features

2.5 Document Terms

For the purpose of this document the following terms have been defined as follows:

Term	Definition
CID	Caller ID
DID	Direct Inward Dialing
DND	Do Not Disturb
DTMF	Dual Tone Multi Frequency
DHCP	Dynamic Host Configuration Protocol
IVR	Interactive Voice Response
PBX	Private Branch Exchange
SIP	Session Initiation Protocol
VLAN	Virtual Local Area Network

2.6 Referenced Documents

The following table shows the documents upon which this document depends:

Document Title	Location/URL
IETF RFC 2438	ietf.org
IETF RFC 3261	ietf.org

3 Business Process

3.1 Overview

This section reviews all relevant use cases.

3.2 Use Cases

a) *Guest Makes Call*

1. Internal call to staff

This guest is requesting a service from the Front Desk. To support this functionality the handset must support:

- a) Guest picks up hand set or engages the speaker; dial-tone must be present.
- b) Dialed theater specific number goes to the operator or designated answering point.
- c) Ability to dial preset extensions via physical buttons or soft keys.

2. Internal call to other room

- a) Guest picks up hand set or engages the speaker; dial-tone must be present.
- b) Dialed theater specific number goes to the designated answering point without it being displayed at the destination (if applicable).

3. External call, toll/non-toll

- a) Guest picks up hand set or engages the speaker; dial-tone must be present.
- b) Ability to dial prefix to access outside line or optionally press a button for an outside line.

4. External call, emergency

- a) Guest picks up hand set or engages the speaker; dial-tone must be present.
- b) Ability to dial prefix to access outside line for emergency services.
- c) Hotel emergency responders to be engaged in the call.
- d) Location of the call to be indicated to the hotel switch.

b) *Guest Receives Call*

1. Staff to guestroom

- a) All phones that are assigned to the room should ring simultaneously.
- b) Caller ID for admin is full display (both the admin and guest).
- c) Any extension assigned to the room can pick up the call .
- d) At any point during the call, a second party within the room can join the call from another phone.

2. Room to room calling

- a) All phones that are assigned to the room should ring simultaneously.
 - i. Optional - Caller ID is displayed.
- b) Any extension assigned to the room can pick up the call.
- c) At any point during the call, a second party within the room can join the call from another phone.

3. Direct Inward Dialing (DID)

- a) All phones that are assigned to the room should ring simultaneously.
- b) Caller ID is displayed.
- c) Any extension assigned to the room can pick up the call.
- d) At any point during the call, a second party within the room can join the call from another phone.

4. Guest receives Hotel operator assisted call

- a) All phones that are assigned to the room should ring simultaneously.
 - i. While operator is calling, CID is operator.
 - ii. When call is transferred by operator, CID is the caller party.
- b) Any extension assigned to the room can pick up the call.
- c) At any point during the call, a second party within the room can join the call from another phone

c) Guest Services and Alerting

1. Guest requests or sets a wake-up call

This Guest is requesting a Wake-Up-Call from the Front Desk or Automated System. To support this functionality the handset must support the following methods:

- a) Guest to contacts the Front Desk directly and schedules the wakeup call.
- b) Guest uses handset to access an automated system via an IVR or Touch Screen Interface.

2. Guest receives message notification - light/lamp indicator

- a) Guest should be notified by lamp and optional tone that a message has been stored.

3. Guest plugs in to Ethernet port to access HSIA

- a) Guest plugs in Ethernet cable and receives IP address

d) Configuration

1. Installation and deployment

When a phone is first installed in a guest room, certain functionality must be supported at the handset to enable automatic registration to the network and download of an updated configuration file.

- a) When the phone is installed and connected to the network, it must support the ability to automatically communicate and register with the network server, and receive an IP address. Requires DHCP support.
- b) Regardless of the configuration file (if any) already installed on the phone, the handset must support the ability to automatically ping the administrative server to see if it has the latest configuration file. If a new configuration file download is required, the handset must support the ability for this process to take place without human intervention.
- c) If the configuration file to be downloaded to the handset requires a firmware upgrade to the handset before the configuration file may be downloaded, the handset must support the automatic download and installation of the firmware upgrade.
- d) Handset power – to be determined.

2. Maintenance

When a phone requires maintenance, it must support various functions as administered either by the hotel staff, or automatically by the administrative server.

- a) If a firmware upgrade is necessary, the phone must allow the server to connect to the phone without disturbing the guest, and initiate the firmware upgrade. After this process is completed, the phone must be able to automatically re-boot, connect to the server, receive an IP address, and communicate confirmation of the successful firmware upgrade.
- b) In the case where remote troubleshooting of the phone is necessary, the phone must be able to report on its condition as requested by either hotel administrative staff or the administrative server. The phone must support any actions necessary to correct the condition(s) for which it is being diagnosed.

3. Reconfiguration in a new room

Handset should support auto configuration under a move, add, or change scenario. Refer to section one of configuration above, "Installation and deployment."

3.3 Implementation/Deployment Requirements

a) Handsets

- Ring Volume
- Hearing impaired services
- Clear call log on handset
- Block/password protect local handset configuration menu
- VLAN pass through Ethernet port on set

b) PBX

SIP guest room handsets must register, interface, and operate cooperatively with the host PBX, which must be IP based and have certain capabilities. In addition to the specifications listed in this document, features and functionality within the PBX that must be considered by SIP guest room handset suppliers to ensure compatibility and a fully functional voice communication system include:

- Possible requirement for certification of compatibility of SIP phones by certain hospitality PBX manufacturers, and vice-versa
- Restriction of calls by call type
- One-touch dialing from handset based on system-wide (PBX defined) speed dial codes/shortcuts
- Disabling transfer functionality in the handset by the PBX
- Enable conferencing
- Numbering / contact system for direct connection to guest voice mail box
- Use of account codes in multi-tenant enabled PBX for outbound dialing of billable calls
- Redial disabled and/or cleared by the PBX at check-out
- Check- in activation within PBX to set various options in the guest room phone
- Identify class of phone (staff/guestroom/common area)
- Port configuration
- Bridge line appearance

c) Network

SIP guest room handsets will communicate over a network which may be existing or be part of a complete voice communications solution to be installed concurrently. Best practices should be observed as certain characteristics of the network architecture will impact the installation and use of SIP guest room handsets. The following should be considered and evaluation in conjunction with SIP guest room phone installation:

- POE switching from riser closets to rooms
- UPS power backup of all closets and electronic notification of pending UPS power drain or failure
- Secure network to PBX – VLAN
- Use of subnets and routers/gateways in larger installations
- QOS services

4 IP Guest Bedroom Handset Requirements

4.1 Guest Interface Features

Feature #	Feature Name	Feature Description	Status	Notes	Use Case
1	VLAN TAG-1	Handsets which support the connection of an Ethernet device on an external port must also support VLAN tagging to assure security.	Mandatory		Configuration
2	CLID	Calling line identification must be supported to identify the originating extension number of guest room calls.	Mandatory		Guest Makes/ Receives calls
3	DISPLAY	Display – Calling line id, dialed number, ability to edit a number before it is sent; pre-dialing support	Optional		Guest Makes Call
4	CLIP	Calling line identification presentation must be supported to display the number of the caller to the guest.	Mandatory	Does not apply to phones without a display	Guest Receives call
5	CLIR	Calling line identification restriction must be supported to allow the suppression of caller information.	Mandatory	Room-to-public network or room-to-room calls may be suppressed while room to staff are not	Guest Makes/ Receives calls
6	DIM	Display Handsets to go to "Dim Mode" at night or when idle	Mandatory (if display present). Optional (if no display present).	Only applies to handsets with screens	Guest Requests DND
7	MWI-1	All guest bedroom handsets must be equipped with an integrated visual message waiting indicator which can be activated by outside systems including the PMS, PBX and voice mail systems.	Mandatory	Not necessary for bathroom phones	Guest receives message notification - light/lamp indicator
8	MWI-3	All guest room handsets must support stutter dial tone as an alternate message waiting indicator.	Optional	Changed from mandatory to optional, to be checked with the US voice team	Guest receives message notification - light/lamp indicator
9	ADA-1	Guest room handsets other than those intended for the bathroom must allow the user to control the sound volume.	Mandatory		
10	ADA-2	All telephones regardless of the type must be hearing aid compatible and must meet Americans with Disabilities Act (ADA) regulatory requirements relating to support for hearing impaired users.	Mandatory		
11	DTMF	End-to-end DTMF support via RFC 2438	Mandatory	From PBX	Guest Sets a Wakeup Call

4.2 System Features

Feature #	Feature Name	Feature Description	Status	Notes	Use Case
20	PRE Config	Handsets must support Pre-configuration	Mandatory		Installation and Deployment
21	Secure Config	Handset must allow for configuration to be locked down and changes only made by administrator.	Mandatory		Implementation / deployment requirements
22	Recover State	After a system database swap or PABX upgrade the handset must reset to the same state as it was left in prior to upgrade/swap	Mandatory	PABX software release upgrade does not apply to full system replacement. This is important at night as hotels do not want phones to suddenly	Implementation / deployment requirements

				light up after maintenance work in the middle of the night	
23	DHCP Static	Handset must be able to receive IP addresses both via DHCP and via manual assignment of a static address.	Mandatory		Implementation / deployment requirements
24	PNP Config	This plug and play functionality must include the ability for a newly connecting handset to automatically self-configure with user-specific information such as soft key assignments.	Optional		Implementation / deployment requirements
25	MWI-2	Support for message waiting indicator in the proposed architecture. (RFC 2438)	Optional	Not necessary for certification	Implementation / deployment requirements

4.3 Configuration and Support Features

Feature #	Feature Name	Feature Description	Status	Notes	Use Case
30	SEC-1	Upon guest room check out, as communicated by the property management system to the telephone system, the handset, in response to a trigger from the phone system, must remove all information from the guest telephone which relates to guest usage, guest configurable settings and reset these settings to pre-check in status. This includes but isn't limited to the guest's name; and records of calls received, calls dialed and calls missed.	Mandatory		Implementation / deployment requirements
31	VLAN TAG-1A	Handsets which support the connection of an Ethernet device on an external port must also support VLAN tagging to assure security.	Mandatory		Implementation / deployment requirements
32	MLA-1	Regardless of the mix of telephones used, IP, Analog and Proprietary Digital Telephones, the capability to have multiple line appearances of the same directory number across the different types of telephones must be present in the proposed system.	Optional	Necessary for guestrooms with more than one phone.	Implementation / deployment requirements
33	XFR	Ability to pick up a call on any extension and join the call on another extension and hang-up the initial extension	Mandatory		Implementation / deployment requirements