SIN 413

Issue 2.0
May 2004

Suppliers' Information Note

For The BT Network

Fixed Line SMS Service
Service Description and Interface Specification

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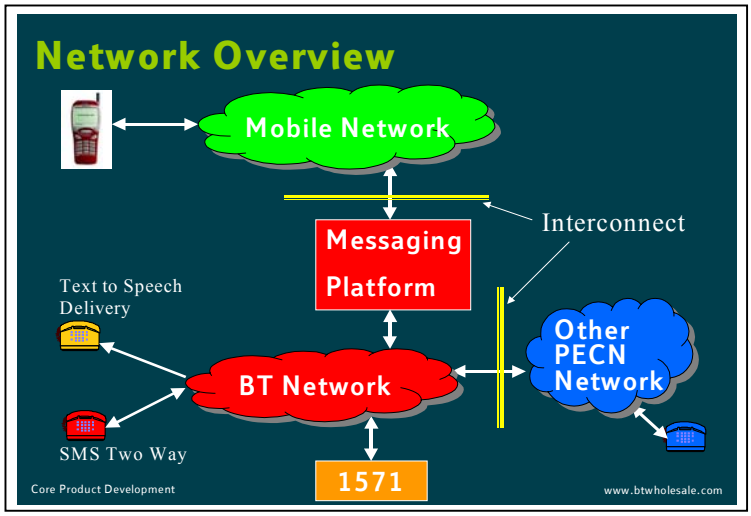
1 Introduction

This Suppliers Information Note (SIN) provides information for Service Providers, application developer and terminal equipment manufacturers about BT's Fixed Line Short Message Service (SMS).

This SIN does NOT describe Fixed line SMS services supplied by other Providers of Electronic Communications Networks (PECN), irrespective of whether the PECN use the BT SMS Central Server or not to deliver a Fixed line SMS service to their customers.



2 Service Description

2.1 SMS CPE Service

BT Fixed line SMS service offers BT's customers (or BT hosted Telephony Service Provider's customers) an SMS messaging capability from fixed line telephones which, from the users perception, is as close a match as possible to the current mobile experience.

The service is accessed through a range of pre-programmed numbers on the customers CPE (typically a telephone). In the rest of the document the CPE used for this service will be referred to as the SM-TE (Short Message Terminal Equipment).

The BT platform supports ETSI "Protocol 1", but not ETSI "Protocol 2", as defined in ES 201 912. The call from the SM-TE will be routed to a central server which transmits/receives the text. The server will then relay the message onto either another fixed line (BT or other PECN) or passed to one of the Mobile Network Operators (MNOs) for termination. BT will be establishing inter-operator agreements with UK MNOs to send and receive Short Messages on fixed lines.

SM-TE require access via either a PSTN or an ISDN connection. To send and receive Short Messages a voice-band communication path is established in the PSTN/ISDN between the SM-TE and a BT Central Server using basic call control procedures according to the related access types.

In SM submission (transfer of a SM from the 'sender' to the Central Server), the SM-TE establishes a call to the Central Server to submit the SM to the Central Server, which acts following the store-and-forward principle. The network provides the caller ID (the CLI) of

the SM-TE to the Central Server. The Central Server uses this information to identify the SM-TE. Furthermore, the caller ID information is used for billing purposes. The Calling party number must be released to send Short Messages from the SM-TE. A 1470 prefix should be used with the access code to ensure that lines with permanent CLI restriction service can send Short Messages. The CLI of SMS messages received from customers with Presentation Numbers will be the Network Provided number, and not the Presentation Number.

After the voice band connection between SM-TE and Central Server has been established, the end-to-end SM data transfer phase is entered for Short Message transfer from SM-TE to Central Server. After the SM has been transferred, the connection between SM-TE and Central Server is released.

In SM delivery (transfer of a SM from the Central Server to the fixed line 'receiver'), the Central Server establishes a call to the SM-TE to deliver the SM. In this case, the network will provide the caller ID (the CLI) of the Central Server to the SM-TE.

The SM-TE uses this caller ID information to identify and answer (connect) an incoming call from the Central Server automatically. The Short Message is transmitted from the Central Server to the SM-TE after the voice band connection between Central Server and SM-TE has been established. After the SM has been transferred, the connection between Central Server and SM-TE is released. The receiving fixed line must be enabled with the Caller display service.

It will also be possible for other PECN fixed lines to use the BT Fixed line SMS service where the PECN has a SMS contract with BT. The exact details of the interface used will be subject to negotiations between BT and the PECN.

2.2 SMS Text to Speech Service

BT will offer customers without the appropriate SM-TE or Caller Display Service the opportunity to receive SMS as speech. BT's Fixed Line SMS service will convert the SMS message into audio form. This audio speech message is then delivered to the customer either directly into their Voice Message Mailbox (network based call answering service) or via a SM delivery call to the customer's line. A call will be set up to the receiving fixed line and when answered, the delivery of the message will be controlled by a set of IVR options. Loop disconnect digital signaling (10 pulses per second) is not supported.

If a voice call encounters a busy line or the call is unanswered there will be further attempts until either the call is answered or a timeout expires.

2.2.1 Encountering no response

If a call is made and answered, but no dialled digit response is received e.g. the call has been answered by an answering machine, then the text to speech service will wait for a period of no response to the offered options, and then automatically play the message.

2.2.2 Opt-out

The Opt-out facility provides for a fixed line user who does not want to receive text to speech messages.

2.2.3 Call forwarding/Diversion

The text to speech call will be treated as any other call on the fixed network and will be forwarded if forwarding or diversion is applied to the line.

2.3 SPAM Controls

BT monitors traffic passing through central server. If the number of messages sent from (or sent to) a telephone number in specified time period exceeds a pre-set level, the SMS service on the line is automatically disabled so that messages cannot be sent or received. Details on the current limits can be obtained from: help@sinet.bt.com.

3 SMS CPE Interface Description

3.1 CLI Delivery on the Analogue PSTN Interface

In the case of a PSTN access the CLI is provided with FSK signalling according to Reference SINs 227 (CDS Calling Line Identification Service, Service Description) and SIN 242 (CDS Calling Line Identification Service, TE Requirements; Part 1 Idle State, Down Stream Signalling, Part 2 Loop State Signalling).

It will be necessary for BT provided fixed lines to have this service enabled by BT or via a Service Provider.

3.2 CLI Delivery on the ISDN Interface

In the case of an ISDN access the CLI is provided with the DSS1 protocol according to SIN 261 (BT ISDN 2e and ISDN 30e (ISDN30 (I.421) using full ETSI Call Control - Service Description). It will be necessary for BT provided fixed lines to have this service enabled by BT or via a Service Provider.

3.3 Physical Layer

The Physical layer is as defined in ES 201 912 V1.1.1. and TS 103 912 V1.2.1.

3.4 Data Link Layer

The Data Link layer is as defined in ES 201 912 V1.1.1. and TS 103 912 V1.2.1.

3.5 Transfer and Application Layer

The Transfer and Application layers are as defined in ES 201 912 V1.1.1. and TS 103 912 with the following exceptions:-

3.5.1 Transfer/Application Layer Exceptions & Additions to Protocol 1

The paragraph numbers references in this section are in ES 201 912 V1.1.1 unless otherwise stated.

Para 5.2.2 states that to deliver a SM to the designated SM-TE, the received Calling party number is used to identify the SM-SC and to decide how to handle the call. The penultimate

digit is set to the subaddress of the target handset and the ultimate digit is set to the Deliver Mode Identifier. The BT implementation will always set the Deliver Mode Identifier to "0".

The Calling party number received by the SM-TE shall be:-

0800 587 52<SME Subaddress>0

The subaddress range is 0-8. The subaddress value 9 is reserved for messages sent without a subaddress appended to the normal telephone number i.e. the TP Destination Address contains only the Network number of the Fixed line termination with no added subaddress digit.

Para 5.3.1 - T10 is the time delay between accepting calls and sending the first FSK - Frame. T10= nX100ms. The value will be set to n=3

Para 5.3.3.3 - The Connection Manager in the SM-TE runs a Transfer layer timer. The Connection Manager in the BT SMS Platform will disconnects active connections after the last acknowledged frame. For passive connections disconnection will take place connection after a Timeout of 10 seconds.

Para 5.5.7 states, "If there is a SM to submit, the SM-TE shall dial the number of the SM-SC which is stored in the SM-TE extended by it own SME Subaddress and the digit "0"." The BT implementation does not required the digit "0" i.e. the digits dialled by the SM-TE shall be either:-

1709400<SME Subaddress>

or:-

1709400<SME Subaddress>0

To ensure that lines with CLI restriction service are able to send Short Messages, the above digit string should be prefixed by 1470.

The subaddress range is 0-8. The subaddress value 9 is reserved for messages sent by a SM-TE without a subaddress, i.e. the TP Originating Address contains only the Network number of the Fixed line termination with no added subaddress digit.

3.5.2 Transfer/Application Layer Exceptions & Additions to Protocol 2

The BT Fixed line SMS service does not support Protocol 2.

3.5.3 EMS

EMS Services are not currently provided by the BT SMS Service.

3.5.4 Retries

Where a call from the Central Server to the SM-TE fails for permanent reason e.g. Number unobtainable, there will be no further attempts to deliver the message.

Where a call from the Central Server to the SM-TE fails for some temporary reason e.g. busy, no inbound tone response, or no answer, another attempt will be made after an initial retry interval. If that attempt fails then further attempts will be made doubling the retry interval each time. After a predetermine number of attempts the message will be delivered by converting the message either into a voice call or a voice message deposited in the users mailbox.

3.5.5 Message Expiry

When handling messages from a SM-TE user, the Central Server will discard undelivered messages after 24 hours.

4 SMS Voice Mailbox Interface Description

SMS message can be delivered as speech into a mailbox where customers without a SM-TE have a network based call answering service.

The BT Central Server will send a TXT file to the appropriate Voice Messaging Platform i.e. either a nominated BT Messaging Platform or a Messaging Service Provider Voice messaging platform. It will also be possible to deliver a TXT file to other PECN Voice Platforms where the PECN has contracted to use the BT SMS Central Server, where they support a direct connection to their voicemail platform and where they provide accurate information as to which lines have a voicemail to BT.

The target platform is determined from the SMS Platform Database. The messaging platform entry in the database is determined for BT customers from BT's Customer Service Database.

Transfer of TXT files will be via the public internet using IP Security (IPSec) at the IP layer to create a tunnel between the BT SMS Central Server and the Voice Messaging Platform. The tunnel is required to hide all file transfers from eavesdroppers.

BT will provide VPN-1 or VPN-1 Pro gateways at the public internet gateway in accordance with IETF specifications RFC3456 and RFC2409. The Voice Messaging Service must have a Checkpoint firewall capable of providing IPSec VPN communications at version 4.1 SP5 or later.

4.1 Message Transfer

Once logged on to the Voice Messaging Platform with the username and password, the SMS Platform will use FTP to push the TXT files as they are created into a specified directory on the Voice Messaging Platform. The Voice Messaging Platform will poll the directory every few seconds for the presence of new TXT files.

On acknowledgement of successful transfer of the file, the SMS platform will delete it from the SMS Platform FTP Server.

4.2 Filename format

4.2.1 Filenames

The filenames are of the format:

> <mailbox number>_<mailbox sub address>_<originating line identity>_<originating sub address >_<file generation>.txt

4.2.2 Example fields

The filenames are of the format:

<mailbox number> is in the form 441234567891

<sub address> is in the form 02 (if either the terminating customer or originating customer does not use sub addressing then the sub address will be set to 09)

<originating line identity> is in the form 441333568908

<file generation> is in the form 0001, incremented on a per operator basis. The file generation number starts at 1 up to maximum decimal value and then increment to 1. There is padding with zeroes i.e. the version is always 4 digits.

5 Further Information

If you have enquiries relating to this document then please contact: help@sinet.bt.com.

6 Abbreviations

CLI	Calling Line Identity
CPE	Customer Premises Equipment
DHCP	Dynamic Host Configuration Protocol
EMS	Enhanced Messaging Service
ETSI	European Telecommunications Standards Institute
IETF	Internet Engineering Task Force
ISDN	Integrated Services Digital Network
IVR	Interactive Voice Response
FSK	Frequency Shift Keying
MNO	Mobile Network Operator
PECN	Providers of Electronic Communications Networks
OLI	Originating Line Identity
SIN	Suppliers' Information Note
SM	Short Message
SMS	Short Message Service
SMSC	Short Message Service Centre
SM-SC	Short Message Service Centre
SM-TE	Short Message Terminal Equipment
TP	Transfer Protocol
VPN	Virtual Private Network

7 References

Suppliers' Information Notes:

227	CDS Calling Line Identification Service, Service Description
242	CDS Calling Line Identification Service, TE Requirements; Part 1 Idle State, Down Stream Signalling, Part 2 Loop State Signalling.
261	BT ISDN 2e and ISDN 30e (ISDN30 (I.421) using full ETSI Call Control - Service Description
275	Lowband Digital Access Service Description
354	BT Public Switched Telephone Network (PSTN): Technical Characteristics Of The Supplementary Services available on the Analogue Line Interface.

BT SINs are available from http://www.sinet.bt.com/.

ETSI documents

ES 201 912	Access and Terminals (AT); Short Message Service (SMS) for PSTN/ISDN; Short Message Communication between a fixed network Short Message Terminal Equipment and a Short Message Service Centre	Issue V1.1.1
TS 103 912	Access and Terminals (AT); Short Message Service (SMS) for PSTN/ISDN; Short Message Communication between a fixed network Short Message Terminal Equipment and a Short Message Service Centre (Corrections to ES 201 912 V1.1.1)	Issue V1.2.1

IETF documents

RFC 2409	The Internet Key Exchange	Nov. 1998
RFC 3456	Dynamic Host Configuration Protocol (DHCPv4) Configuration of IPsec Tunnel Mode	Jan. 2003

For information on where to obtain these referenced documents please see the document sources list at http://www.sinet.bt.com/usenum.htm#docsources.

8 History

Issue 1.0	June 2003	First Issued
Issue 1.1	July 2003	Text in "Service Description" on Presentation Numbers clarified. Clause on terminal registration added. Detail added to the access numbers for protocol 1. Additional information provided on the Voice Messaging Interface
Issue 2.0	May 2004	ES 201 912 Protocol 2 option removed. Curfew section removed – BT has for the time being removed the Curfew feature. EMS section modified to indicate that EMS services are not currently provided by the BT SMS Service. SPAM section added

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