IWD – SIP Message Waiting

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History

Version	Date	Adjustments
A	2007-06-13	First version. (MNIFY)
B	2008-08-05	Added sequence diagrams and examples (ekensel).

1 Introduction

1.1 Purpose

This document specifies the SIP Message Waiting protocol used between an external SIP client and the SIP functions in the CompEdge system (from here on referred to as the System, see section 2.2).

This interface is based on the SIP protocol version 2.0 [1] and SIP Message Waiting protocol specified in [2]. Other versions of the SIP protocol are not supported.

This document only describes the parts of the SIP protocol that are supported and how, not the protocol itself. For a full understanding of the SIP Message Waiting protocol, see [2].

1.2 Versions

This paragraph is intentionally left blank.

1.3 Related Protocols

This paragraph is intentionally left blank.

1.4 Implemented Specifications

1.4.1 SIP Message Waiting

This interface supports the SIP Message Waiting specification specified in [2]. The following parts of that specification are **not** supported:

1.4.1.1 SUBSCRIBE

The SUBSCRIBE request is not supported. NOTIFY requests are sent directly without a session.

1.4.1.2 Urgent messages

The system will not send information about urgent messages.

1.4.1.3 Message headers

Message headers are not added after the summary count.

2 Definitions

This section defines some of the terms used in this document. Also, the terminology specified in [2] is used in this document.

2.1 External Client

External Client is the name used in this document to denote the external SIP gateway (used for ISUP/SIP interworking) not part of the CompEdge system.

2.2 System

System is the name used in this document to denote the CompEdge system.

When referring to a specific SIP function in the System, **System UA** will be used further on in this document.

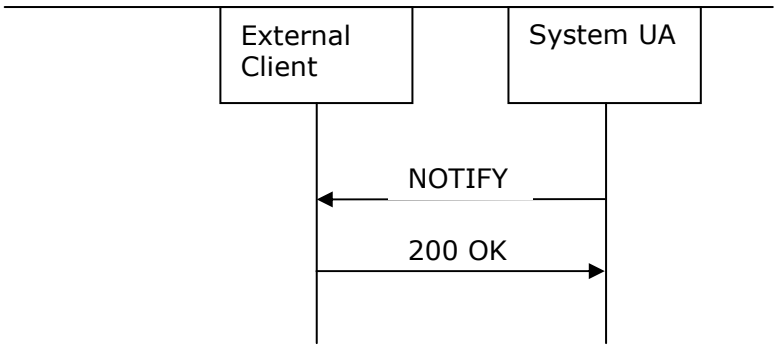
The System UA is realized with the System component MAS.

3 Session

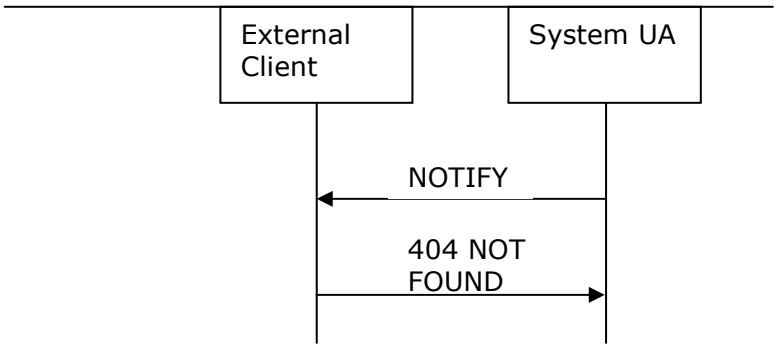
Sessions are not supported by the system. Unsolicited NOTIFY is used instead to send NOTIFY requests even though no SUBSCRIBE request has been received.

4 Dialogues

The sequence diagram below illustrates the flow of messages when the External Client sends a positive response to the System UA.



The sequence diagram below illustrates the flow of messages when the External Client sends a negative response to the System UA, in this case informing the System UA that the recipient could not be found.



5 Procedures

NOTIFY requests are sent when the user receives a new message and are retried until accepted.

6 Messages

This section describes how a specific SIP message is handled or generated by the System. It does not define or describe the content of the SIP request.

The supported SIP messages are described in [2].

For details on the content of header fields in the messages, see section 7.

6.1 SIP Requests

6.1.1 Received requests

No requests are received by the system for SIP Message Waiting.

6.1.2 Sent Requests

6.1.2.1 NOTIFY

A NOTIFY request is sent when the user receives a new deposit or when the user has logged out from the system to indicate the current amount of messages.

6.2 SIP responses

No responses are sent from the system.

7 Header Fields

This section describes the SIP headers supported by the System. Non-supported headers will be ignored if received. The headers described are all defined in [2] and [1] unless otherwise stated.

The table below shows the SIP headers supported by the System. The table illustrates in which SIP messages headers are inserted by the System and from which messages headers are read by the System.

The following notes are used in the table for more detailed information:

- (R) indicates that the header is required when processing a message
- (C) indicates that the header is copied from the original request
- (U) indicates that the header is unused, i.e. not set or read, due to the fact that that's the way to indicate support for a certain functionality
- (B) indicates that a header is read if the message has a content
- (L) indicates that the header is included only if loopback prevention is required

Table 1: Headers used by the system

SIP Header	Added by System to following requests	Added by System to following responses	Processed by System if received in following requests	Processed by System if received in following responses
Call-ID	NOTIFY			ALL (R)
Contact	NOTIFY			
Content-Length	NOTIFY			
Content-Type	NOTIFY			
CSeq	NOTIFY			ALL (R)
From	NOTIFY			ALL (R)
Event	NOTIFY			
Max-Forwards	NOTIFY			
P-Charging-Vector (defined in [3])	NOTIFY			
Subscription-State	NOTIFY			
To	NOTIFY			ALL (R)
Via	NOTIFY			ALL (R)

7.1 Call-ID

The *Call-ID* header field uniquely identifies a particular notification to a particular client. The header field is generated using MD5.

When inserted in SIP messages by the System, the header will look something like this:

```
Call-ID: b692904897340edee4b3632193b8eafd@10.11.12.13
```

7.2 Contact

The *Contact* header field is used as defined in [1].

When inserted by the System UA in SIP messages, the header will contain the configured name for the System UA together with the installed host name (or IP address) and port number:

```
Contact: <sip:mas@host.company.com:5060>
```

7.3 Content-Length

The *Content-Length* header field indicates the length of the message body.

This header is inserted by the System for all SIP message sent, regardless of if the message contains a body or not.

7.4 Content-Type

The *Content-Type* header field gives the type of the message body.

This header is inserted by the System when a SIP message with content is sent:

```
Content-Type: application/simple-message-summary
```

7.5 CSeq

The *CSeq* header field contains a single decimal sequence number and the original request method for which the SIP message is sent. This header is used by the System as described in [1].

The System always starts the sequence numbering for a session at 1.

7.6 Event

The *Event* header field indicates the type of event.

This header shall always be set to “message-summary”.

7.7 From

The *From* header field indicates the initiator of the request.

When inserted by the System UA in SIP messages, the header will contain the configured name for the System UA together with the installed host name (or IP address) and port number:

```
From: <sip:mas@host.company.com:5060>;tag=4422
```

7.8 Max-Forwards

The Max-Forwards header field is used to limit the amount of times a SIP request can be forwarded.

The System UA sets this header in all SIP requests sent, the value 70 is used as recommended in [1]:

Max-Forwards: 70

7.9 P-Charging-Vector

The *P-Charging-Vector* header field is defined in [3]. This header is used by the System to indicate charging information related to the session.

This header field is also added to the following SIP requests sent by the System:

- SIP NOTIFY

The format of this header field when inserted by the System can be found in [4].

7.10 Subscription-State

The *Subscription-State* header field is always set to "active" by the system.

7.11 To

The *To* header field indicates the recipient of the request.

The *To* header field set by the System UA when sending an NOTIFY contains the party being notified.

If the notified party is a phone number, the *To* header set by the System UA would look something like this:

```
To: <sip:1234@host.company.com;user=phone>
```

The URI parameter *user* is set to "phone" to indicate that the user part of the URI is a phone number.

If the notified party is not a phone number, the *To* header set by the System UA would look something like this:

```
To: <sip:theUser@company.com>
```

7.12 Via

The Via header field indicates the path taken by a SIP request.

The System adds a Via header in every SIP request sent as described in [1]. An example of generated Via header is:

```
Via: SIP/2.0/UDP 10.11.12.13:5060;branch=z9hG4bKdddfd52968151ba60a252d0c1d2f2f7b
```

The Via branch id is generated using MD5.

If more than one Via header field value is present in a SIP response, the System picks the first value and uses that even though according to [1] it is recommended to discard the message.

8 Body Content

This section describes the different body contents used by the System. The supported content types are:

- application/simple-message-summary

Below is a description of how these content types are used within the System.

8.1 Message Summary

This section describes the message summary fields and attributes supported by the System.

8.1.1 Fields

The table below shows the message summary fields supported by the System. The table illustrates which fields are inserted by the System.

The fields described are all defined in [2] unless otherwise stated.

Table 2 Message summary field usage

Field	Added by System	Processed by System if received
Messages-Waiting	X	
Message-Account	X	
Voice-Message	X	
Fax-Message	X	
Multimedia-Message	X	
Text-Message	X	

8.1.1.1 Messages-Waiting

Indicates if the user has message waiting or not. This parameter is set to no when the user has no new messages.

For example:

Messages-Waiting: yes

8.1.1.2 Message-Account

The user account this request is sent for.

For example:

Message-Account: sip:123456@voip.domain.com;user=phone

8.1.1.3 Voice-Message

Contains the number of new and old voice messages. Urgent messages are included in the new and old count and are not reported separately.

The format for one new and 3 old messages is:

Voice-message: 1/3

8.1.1.4 Fax-Message

Contains the number of new and old fax messages. Urgent messages are included in the new and old count and are not reported separately.

The format for 2 new and 0 old messages is:

Fax-message: 2/0

8.1.1.5 Multimedia-Message

Contains the number of new and old video messages. Urgent messages are included in the new and old count and are not reported separately.

The format for 3 new and 7 old messages is:

Multimedia-message: 3/7

8.1.1.6 Text-Message

Contains the number of new and old email messages. Urgent messages are included in the new and old count and are not reported separately.

The format for 2 new and 1 old message is:

Text-message: 2/1

9 Properties

This section lists various properties that do not fit into any of the other sections.

9.1 Supported URI schemes

All URIs created by the System are SIP URIs.

9.2 Error handling

Any error when sending SIP messages is handled and appropriate actions are taken. The request can be retried later for temporary errors or never be retried again if the error is permanent.

All errors are logged.

9.3 Timing Properties

9.3.1 SIP timing properties

See IWD SIP Telephony [4] for timing properties used in the system.

10 References

[1] SIP: Session Initiation Protocol
RFC 3261
http://ietf.org/rfc/rfc3261.txt?number=3261

[2] Sip Message Waiting
RFC 3842
http://www.ietf.org/rfc/rfc3842.txt?number=3842

[3] Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP)
RFC 3455
http://ietf.org/rfc/rfc3455.txt?number=3455

[4] IWD SIP Telephony
1/IWD-MAS0001

11 Terminology

MAS	Media Access Server
SIP	Session Initiation Protocol
UA	User Agent
URI	Uniform Resource Identifier

12 Appendix A: Examples

The following is an example of a NOTIFY request sent by the system to the user 0123456789, located at somehost:5090.

```
NOTIFY sip:0123456789@somehost:5090;user=phone SIP/2.0
Call-ID: d360e31fd817ec94963795eb49869b4b@150.132.4.15
CSeq: 1 NOTIFY
From: <sip:mas@150.132.4.15:5060>;tag=673093336
To: <sip:0123456789@somehost:5090;user=phone>
```

```
Via: SIP/2.0/UDP 150.132.4.15:5060;branch=z9hG4bK6f3c0ecdb1685daa89b7129109bc94ed
Max-Forwards: 70
Contact: <sip:mas@150.132.4.15:5060>
Event:  message-summary
P-Charging-Vector: icid-value=3k5m1-150.132.4.15;icid-generated-at=150.132.4.15;orig-
ioi=150.132.4.15
Subscription-State: active
Content-Type: application/simple-message-summary
Content-Length: 177

Messages-Waiting: yes
Message-Account: sip:+9999-8888@150.132.4.15:5060;user=phone
Voice-Message: 2/4
Fax-Message: 5/6
Multimedia-Message: 3/4
Text-Message: 7/8
```