



# Technical Paper

## OpenStage SIP - User Agent CSTA (uaCSTA) interface.

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# 1 Contents

<b>1</b>	<b>Contents</b> .....	<b>2</b>
<b>2</b>	<b>Scope</b> .....	<b>4</b>
<b>3</b>	<b>Functional Overview</b> .....	<b>5</b>
<b>3.1</b>	<b>Motivation</b> .....	<b>5</b>
<b>3.2</b>	<b>Landscape for uaCSTA</b> .....	<b>5</b>
<b>4</b>	<b>Feature description</b> .....	<b>6</b>
<b>4.1</b>	<b>Registration of uaCSTA devices</b> .....	<b>6</b>
4.1.1	Example SIP Registration.....	6
<b>4.2</b>	<b>SIP Transport Requirements for uaCSTA</b> .....	<b>7</b>
<b>4.3</b>	<b>Supported CSTA Requests and Events</b> .....	<b>9</b>
4.3.1	CSTA Requests .....	9
4.3.2	Device Identifier (Device ID).....	9
4.3.3	Call Identifier (Call ID) .....	10
4.3.4	CSTA error responses .....	10
<b>4.4</b>	<b>Service Invocation – OpenStage acting as a CSTA Switching Function</b> .....	<b>11</b>
4.4.1	Answer Call.....	12
4.4.1.1	Example uaCSTA AnswerCall Request and Response .....	13
4.4.2	Clear Connection .....	14
4.4.3	Consultation Call .....	15
4.4.4	Generate Digits.....	16
4.4.5	Hold Call .....	17
4.4.6	Make Call.....	18
4.4.6.1	Example uaCSTA makeCall Request and Response.....	19
4.4.7	Retrieve Call .....	20
4.4.8	Get Microphone Mute .....	21
4.4.8.1	Example uaCSTA GetMicrophoneMute Request and Response .....	22
4.4.9	Set Microphone Mute .....	23
4.4.9.1	Example uaCSTA SetMicrophoneMute Request and Response .....	24
4.4.10	Get Speaker Volume .....	25
4.4.10.1	Example uaCSTA GetSpeakerVolume Request and Response.....	26

4.4.10.2	Example uaCSTA GetSpeakerVolume Request and Error Response.....	27
4.4.11	Set Speaker Volume .....	28
4.4.11.1	Example uaCSTA SetSpeakerVolume Request and Response .....	29
<b>4.5</b>	<b>uaCSTA Events – OpenStage acting as a Computing Function.....</b>	<b>30</b>
4.5.1	Forwarding Event .....	30
4.5.1.1	Example uaCSTA Forwarding Event .....	30
4.5.2	Do Not Disturb Event.....	31
4.5.3	Diverted Event .....	32
4.5.3.1	Example uaCSTA Diverted Event.....	32
<b>4.6</b>	<b>uaCSTA Service Invocation – SIP Server acting as Switching Function. ....</b>	<b>33</b>
4.6.1	Get Forwarding.....	34
4.6.1.1	Example uaCSTA GetForwarding Request and Response.....	35
4.6.2	Set Forwarding .....	36
4.6.2.1	Example uaCSTA SetForwarding Request and Response .....	37
4.6.3	Get Do Not Disturb .....	38
4.6.3.1	Example uaCSTA GetDoNotDisturb Request and Response .....	39
4.6.4	Set Do Not Disturb.....	40
4.6.4.1	Example uaCSTA SetDoNotDisturb Request and Error Response .....	41
<b>5</b>	<b>Security .....</b>	<b>42</b>
<b>6</b>	<b>Limitations .....</b>	<b>42</b>
<b>7</b>	<b>References .....</b>	<b>42</b>

## 2 Scope

This document specifies the interface between an OpenStage SIP UA and a SIP Server whereby the OpenStage SIP UA can use call and device control services at the SIP Server and vice versa by means of the OpenStage uaCSTA interface. A complete set of CSTA services are defined in ECMA-269 [3] which should be referenced for additional information. The following subset of CSTA services and events are supported by OpenStage:

→ Services on the SIP Server:

- Set Forwarding
- Get Forwarding
- Set Do Not Disturb
- Get Do not Disturb

→ Events Generated by the SIP Server:

- Forwarding Event
- Do Not Disturb Event
- Diverted Event

→ Services on the OpenStage device:

- Make Call
- Answer Call
- Hold Call
- Retrieve Call
- Clear Connection
- Consultation Call
- Generate Digits
- Get Volume
- Set Volume
- Get Mute
- Set Mute

→ Events Generated by OpenStage:

- OpenStage does not generate CSTA Events.

## 3 Functional Overview

### 3.1 Motivation

The uaCSTA interface offers a number of benefits including:

- A unified end-user experience for features invoked from either OpenStage or an application located at the SIP server. For example a better user experience can be achieved for call services (E.g. makeCall, holdCall etc.) than could be achieved using SIP 3PCC techniques.
- Enables OpenStage to access SIP Server centric services (E.g. Call Forwarding).
- Enables the SIP Server to enhance its application capabilities with key UA-specific services, such as volume, mute and DTMF digit generation.
- Centralized provisioning of services based on a subscriber/feature profile.

### 3.2 Landscape for uaCSTA

The OpenStage uaCSTA interfaces makes use of standard CSTA Services and Events which are specified in the ECMA-269 [3] and makes use of the XML schema specified in ECMA-323 [4]. The schema definition can be found in ECMA-323 and is also at <http://www.ecma-international.org/standards/ecma-323/csta/ed4/csta.xsd>.

ECMA TR-87 [5] describes how CSTA can be used to provide a subset of CSTA call control functionality for SIP user agents. The term uaCSTA (for user agent CSTA) refers to transporting ECMA-323 (CSTA XML) messages over a SIP session. The OpenStage uaCSTA interface provides the same functionality and CSTA Services as ECMA TR-87 but differs in the mechanism used to transport the CSTA messages over SIP. The OpenStage uaCSTA transport mechanism (unsolicited SIP NOTIFY) has the benefit of using fewer resources in the SIP Server (i.e. no dialogs to maintain).

CSTA allows a Computing Function to invoke services on certain resources, typically a communications device as identified by a Directory Number (DN) or similar. A Switching Function executes these services and sends responses back to the Computing Function. A Switching Function can also send events reflecting changes of state of resources to the Computing Function at any time, based on a subscription/monitor by the Computing Function.

In a uaCSTA environment in which a SIP UA provides a Switching Function, certain CSTA services that are hard or impossible to execute within the SIP Server are delegated by the SIP Server to the Switching Function in the SIP client. Examples are Make Call, Hold Call, Send Digits, Set Volume and Set Mute. This document does not specify any events generated by the Switching Function in the SIP UA.

In a uaCSTA environment in which a SIP UA provides a Computing Function, the SIP UA is able to invoke certain CSTA services at the Switching Function in the SIP Server. In this document these are limited to getting and modifying SIP Server settings for call forwarding and DND for the user of the device concerned. When these resources change (e.g., by service request from a Computing Function on a SIP UA, by service request from a central application, or by local action at the SIP Server), events will be sent to all interested Computing Functions, including that on the device concerned as well as any central application.

## 4 Feature description

### 4.1 Registration of uaCSTA devices

An OpenStage device that supports uaCSTA as a Switching Function (SF) indicates support for "simple-uaCSTA" in the User-Agent header field of a REGISTER request.

A SIP Server that supports uaCSTA as an SF MUST indicate support for "b2buaCSTA" in the Server header field of a 200 OK response to a REGISTER request.

#### 4.1.1 Example SIP Registration.

```
REGISTER sip:194.70.190.234:5060;transport=udp SIP/2.0
From: 7845395 <sip:441908855395@194.70.190.234:5060>;tag=b28304bc28;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234:5060>
Call-ID: 44d7964602d3732d
CSeq: 1577088830 REGISTER
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>;expires=5184
User-Agent: OpenStage_60_V1 R5.7.53 SIP 090225 simple-uaCSTA
Content-Length: 0

SIP/2.0 200 OK
From: 7845395 <sip:441908855395@194.70.190.234:5060>;tag=b28304bc28;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234:5060>;tag=eace4ac2-e407967b-0-de0c25a0-0
Call-ID: 44d7964602d3732d
CSeq: 1577088830 REGISTER
Contact: <sip:441908855395@192.168.1.103:5060;transport=udp>;expires=30;audio
Server: sipServer_XXX b2buaCSTA
Content-Length: 0
```

Note: This example has been edited to make it easier to read.

## 4.2 SIP Transport Requirements for uaCSTA

To transport CSTA service requests, responses and events to/from the uaCSTA device and the SIP Server, a SIP transport mechanism based on unsolicited NOTIFY requests. Each unsolicited NOTIFY request MUST carry a CSTA XML payload in the body of the request to convey the CSTA request, response or event. Subscription for receiving NOTIFY requests for this purpose from the SIP Server and vice versa is implied by indicating support during SIP registration [see section 4.1].

A NOTIFY request which contains a uaCSTA request or event MUST contain the following information:

- A SIP Event header defined as follows:
  - When the SIP NOTIFY message is received by the OpenStage device then the message MUST only contain one of the following:
    - A value of "uaCSTA" with a body that contains a CSTA service request. This indicates that OpenStage is acting as the CSTA Switching Function.
    - A value of "b2buaCSTA" with a body that contains a CSTA event. This indicates that OpenStage is acting as the CSTA Computing Function.
  - When the SIP NOTIFY message is received by the SIP server then the message MUST only contain one of the following:
    - A value of "b2buaCSTA" with a body that contains a CSTA service request. This indicates that the SIP server is acting as the Switching Function.
    - A value of "uaCSTA" with a body that contains a CSTA event. This indicates that the SIP server is acting as the Computing Function.
- A body of type *application/csta+xml* as indicated in the Content-Type header field.
- A Request-URI field with the contact URI of the prime line of the OpenStage device when activating service requests on or sending events to OpenStage, or the Request URI field containing user's AOR@<domain> when activating service requests on the SIP Server, where <domain> refers to the domain for which the SIP Server is responsible.
- The body of the request MUST contain an XML encoded CSTA service request or CSTA event.

The receiver of the NOTIFY request containing a CSTA service request MUST respond with a SIP 200 OK response and a body containing the CSTA service response if the above conditions are met. There is no CSTA body in the SIP 200 OK response if the NOTIFY request encapsulated a CSTA Event. If there is no support for uaCSTA on the SF or if the above conditions are not met, a SIP error response code should be sent (E.g. a 489 Bad Event).

If the XML body of the SIP NOTIFY is well-formed and represents a CSTA service request, the receiver MUST always respond with a SIP 200 OK response and a CSTA service response as the body. The CSTA XML body of a SIP 200 OK response MUST contain the CSTA service response, either positive or negative. If the receiver has not yet responded to a previous CSTA request; the SIP 200 OK response MUST contain a negative CSTA service response for CSTA error category "*systemResourceAvailability*" and CSTA error value "*resourceLimitExceeded*".

The following steps in are involved in processing a NOTIFY request:

- Detect a NOTIFY request carrying uaCSTA message by checking the Event and Content-Type header fields.
- Check the Request-URI field to determine that the request contains user's AOR@<domain> if the request is addressed to the switching function on the SIP Server and to the prime line of the OpenStage device [See section 6] if request is received by the OpenStage device.
- Check the Request-URI field as follows:
  - The SIP server checks if the field contains a user's AOR@<domain>
  - The SIP UA checks if the field contains the URI of the device (the primary line only [See section 6] if the device supports multiple lines)
- Extract the XML body and process the CSTA message.
- Send a SIP 200 OK response if a CSTA response is to be sent or a SIP error response to the SIP NOTIFY if the checks above fail or if processing of the CSTA message does not generate a CSTA response.



## 4.3 Supported CSTA Requests and Events.

OpenStage supports the CSTA Requests and Events listed below.

For transporting CSTA service requests, responses and events, OpenStage and the SIP Server MUST use the XML syntax specified in [4] and as constrained by the following sections.

The CSTA XML payload contained in the SIP NOTIFY MUST contain one of the CSTA following service requests:

→ OpenStage acting as the CSTA Switching Function.

- Make Call
- Answer Call
- Clear Connection
- Consultation Call
- Hold Call
- Retrieve Call
- Generate Digits
- Get Microphone Mute
- Set Microphone Mute
- Get Speaker Volume
- Set Speaker Volume

→ SIP Server acting as the CSTA Switching Function.

- Set Forwarding
- Get Forwarding
- Set Do Not Disturb
- Get Do Not Disturb

→ Additionally OpenStage as a CSTA Computing Function supports the following CSTA events conveyed by the SIP “b2buaCSTA” event package.

- Forwarding
- Do Not Disturb
- Diverted

### 4.3.1 CSTA Requests

All mandatory parameters in a CSTA Request MUST be processed at the switching function. The service-specific parameters are described in the following sub-sections.

### 4.3.2 Device Identifier (Device ID)

A CSTA Device ID is based on the user-info part of the SIP AOR against which the uaCSTA device registers. The OpenStage device or a SIP Server, when receiving a device ID parameter MUST be able to accept any of the following formats:

- GNF (Global Number format), e.g. <deviceID>5619231638</deviceID>
- SFR (Switching Function Representation), e.g. <deviceID>N<5619231638>Alice</deviceID>

### 4.3.3 Call Identifier (Call ID)

The CSTA Call ID allows the CSTA Switching and Computing Function to reference a call during the life of the call. OpenStage however does not use the call ID to identify the call on the phone but uses internal logic to decide which call a service request should be applied to. Details about call ID usage are described in specific services below.

### 4.3.4 CSTA error responses

If a CSTA request is not acceptable for any reason, the switching function (OpenStage or SIP Server) MUST return a negative CSTA response containing an appropriate error value. Examples of error values of general applicability include:

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
Operation	serviceNotSupported	The requested CSTA service is not supported
	invalidDeviceIdentifier	The Device ID does not identify the CSTA subscriber
systemResourceAvailability	resourceOutOfService	uaCSTA is disabled.

Additional error values are applicable to specific service requests, as detailed in the subsequent sections. If a CSTA request results in an error response, the call at the switching function MUST NOT undergo a state change.

## 4.4 Service Invocation – OpenStage acting as a CSTA Switching Function

Services detailed below are implemented on OpenStage when acting as a CSTA Switching Function. Each of the services below is optional to implement. When invoking any of these services, the SIP Server MUST use the transport mechanism described in section 4.2. The service response (either positive or otherwise) is generated by OpenStage and sent to the SIP Server.

OpenStage when acting as the Switching Function does not generate CSTA Events to indicate the progress of the service (E.g. call state events) the SIP Server can however determine the progress of the service by monitoring the SIP requests and responses generated as a result of the CSTA service request.

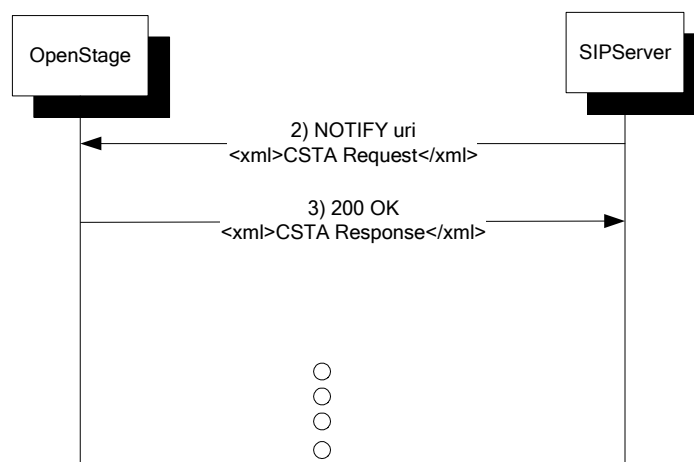


Figure 1 – SIP Server uses OpenStage uaCSTA Services

### 4.4.1 Answer Call

An application uses this service to answer an incoming call.

#### Service Request

Parameter	Type	Remarks
callToBeAnswered	ConnectionID	<p>The call ID within the connection ID parameter attribute is not sent to OpenStage (a null connection ID is used instead).</p> <p>This means that OpenStage makes the decision as to which call the request applies to. This will be the same call that would answered locally at the phone should the user take action to answer a call.</p> <p>The DeviceID within the connectionID MUST identify the prime line of the OpenStage device.</p>

All other parameters are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/answer-call.xsd>

#### Positive Response

A positive response with no parameters is sent on acceptance of this service request.

#### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
operation	invalidDeviceID	The Device ID in the CSTA request is invalid (does not identify the prime line of the OpenStage device)
	requestIncompatibleWithSubjectDevice	The identified device does not have hands free capability
stateIncompatibility	noCallToAnswer	The identified device does not have a new incoming call to answer.
systemResourceAvailability	resourceBusy	The identified device cannot be given the focus or OpenStage is running an application that cannot be interrupted (e.g., admin).
	resourceOutOfService	The service is supported by the switching function, but is unavailable due to a resource that is out of service.

#### 4.4.1.1 Example uaCSTA AnswerCall Request and Response

```
Packet In<----194.70.190.234
NOTIFY sip:441908855395@192.168.1.103:5060;transport=udp SIP/2.0
From: <sip:441908855395@194.70.190.234;transport=udp>;tag=snl_C08rZYriNW
To: <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: 9822784721-4625173557855721-11-6391694914
CSeq: 1 NOTIFY
Contact: <sip:441908855395@194.70.190.234:5060;transport=udp>
Event: uaCSTA
Max-Forwards: 69
Content-Type: application/csta+xml
Content-Length: 203
<?xml version="1.0" encoding="UTF-8"?>
<AnswerCall xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed4">
  <callToBeAnswered><deviceId>441908855395</deviceId></callToBeAnswered>
</AnswerCall>

Packet Out--->194.70.190.234
SIP/2.0 200 OK
From: <sip:441908855395@194.70.190.234;transport=udp>;tag=snl_9j35936UYw
To: <sip:441908855395@194.70.190.234;transport=udp>;tag=2219821191
Call-ID: 5063784721-5847750901545721-11-6391694914
CSeq: 1 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Server: OpenStage_60_V1 R5.7.53 SIP 090225
Content-Type: application/csta+xml
Content-Length: 129
<?xml version="1.0" encoding="UTF-8"?>
<AnswerCallResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3"/>
```

Note: This example has been edited to make it easier to read.

## 4.4.2 Clear Connection

An application uses this service to clear an established call, an outgoing call or an incoming call that is alerting.

### Service Request

Parameter	Type	Remarks
connectionToBeCleared	connectionID	As defined in [3]. The call ID within the connection ID parameter attribute is not sent to OpenStage (a null connection ID is used instead). This means that OpenStage makes the decision as to which call the request applies to.  The DeviceID part of the Connection ID MUST identify the prime line of the OpenStage device.

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/clear-connection.xsd>

### Positive Response

A positive response with no parameters is sent on acceptance of this service request.

### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
Operation	invalidDeviceID	The identified device in the CSTA request is invalid
stateIncompatibility	noConnectionToClear	The identified device in the CSTA request does not have a call that can be cleared
systemResourceAvailability	resourceBusy	The UA is locked and unable to process the request
	resourceOutOfService	The service is supported by the switching function, but is unavailable due to a resource that is out of service.

### 4.4.3 Consultation Call

An application uses the Consultation Call service to place a call on hold and to originate a new call from the same device.

Parameter	Type	Remarks
existingCall	ConnectionID	<p>As defined in [3]. The call ID within the connection ID parameter attribute is not sent to the UA (a null connection ID is used instead). This means that OpenStage makes the decision as to which call the request applies to.</p> <p>The DeviceID within the connectionID MUST identify the prime line of the OpenStage device.</p> <p>Since multiple connections may be present at the consulting device; the following rules are applied by the OpenStage device to determine the correct existingCall used in the consultation call request. The following rules apply:</p> <p>Active (connected) call shall be used as existing-Call.</p> <p>If the device has two active calls, (Local Conference) consultation is blocked</p> <p>If the device is unable to create an additional call on the line, consultation is blocked.</p> <p>If the device has one or more held calls, then consultation is blocked</p>
consultedDevice	DeviceID	As defined in [3]

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/consultation-call.xsd>

#### Positive Response

A positive response with no parameters is sent on acceptance of this service request.

#### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
Operation	invalidDeviceID	The Device ID portion of the connectionID in the CSTA request is invalid (i.e. it does not identify the prime line of the OpenStage device).
stateIncompatibility	invalidCallingDeviceState	The consulting device is in an incorrect state for this request (e.g. OpenStage does not permit consultation call in current state or condition).

#### 4.4.4 Generate Digits

An application uses this service to send a string of digits.

##### Service Request

Parameter	Type	Remarks
connectionToSendDigits	connectionID	As defined in [3]. The call ID within the connection ID parameter attribute is not sent to the UA (a null connection ID is used instead). This means that OpenStage makes the decision as to which call the request applies to.  The DeviceID within the connectionID MUST identify the prime line of the OpenStage device.
charactersToSend	string	Allowed Digits are 0..9, *, #, comma and &

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/generate-digits.xsd>

##### Positive Response

A positive response with no parameters is sent on acceptance of this service request.

##### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
Operation	invalidDeviceID	The identified device in the CSTA request is invalid
	charactersToSendNotSupported	DTMF sending facilities are not available on this call
stateIncompatibility	noActiveCall	The identified device in the CSTA request does not have an active call.



#### 4.4.5 Hold Call

An application uses this service to hold an active call.

##### Service Request

Parameter	Type	Remarks
callToBeHeld	connectionID	As defined in [3]. The call ID within the connection ID parameter attribute is not sent to the UA (a null connection ID is used instead). This means that OpenStage makes the decision as to which call the request applies to.  The DeviceID within the connectionID MUST identify the prime line of the OpenStage device.

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/hold-call.xsd>

##### Positive Response

A positive response with no parameters is sent immediately on acceptance of this service request.

##### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
Operation	invalidDeviceID	The identified device in the CSTA request is invalid
stateIncompatibility	noActiveCall	The identified device in the CSTA request does not have an active call or the active call cannot be held.
	invalidCallingDeviceState	The holding device is in an incorrect state for this request (e.g. device does not permit hold call in current state).

#### 4.4.6 Make Call

An application uses this service to place a new call.

##### Service Request

Parameter	Type	Remarks
callingDevice	Device ID	The DeviceID MUST identify the prime line of the OpenStage device.
calledDirectoryNumber	Device ID	Must be in a GNF format (See 4.3.2).
autoOriginate	Enumerated	OpenStage does not currently support the "prompt" option for this parameter so only "doNotPrompt" is supported.

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/make-call.xsd>

##### Positive Response

A positive response with is sent on acceptance of this service request and does not imply that the call has been successful.

Parameter	Type	Remarks
callingDevice	connectionID	The call ID encapsulated within the connection ID parameter attribute MUST be ignored by the SIP Server.  NOTE: There is currently no purpose for which the SIP Server could use this parameter and it should therefore be ignored by the SIP Server.

##### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
Operation	invalidCallingDeviceID	The calling Device ID is invalid.
	valueOutOfRange	The request required prompting of the user, which is not supported.
stateIncompatibility	invalidCallingDeviceState	The OpenStage device is in an incorrect state for this request (e.g. the line is already being used).

#### 4.4.6.1 Example uaCSTA makeCall Request and Response

```
Packet In<----194.70.190.234
NOTIFY sip:441908855395@192.168.1.103:5060;transport=udp SIP/2.0
From: <sip:441908855395@194.70.190.234;transport=udp>;tag=snl_3e66CkC8b6
To: <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: 5550884721-6414371074165721-11-6391694914
CSeq: 1 NOTIFY
Contact: <sip:441908855395@194.70.190.234:5060;transport=udp>
Event: uaCSTA
Max-Forwards: 69
Content-Type: application/csta+xml
Content-Length: 262
<?xml version="1.0" encoding="UTF-8"?>
<MakeCall xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed4">
  <callingDevice>441908855395</callingDevice>
  <calledDirectoryNumber>901159430300</calledDirectoryNumber>
  <autoOriginate>doNotPrompt</autoOriginate>
</MakeCall>

Packet Out-->194.70.190.234
SIP/2.0 200 OK
From: <sip:441908855395@194.70.190.234;transport=udp>;tag=snl_3e66CkC8b6
To: <sip:441908855395@194.70.190.234;transport=udp>;tag=1202600005
Call-ID: 5550884721-6414371074165721-11-6391694914
CSeq: 1 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Server: OpenStage_60_V1 R5.7.53 SIP 090225
Content-Type: application/csta+xml
Content-Length: 229
<?xml version="1.0" encoding="UTF-8"?>
<MakeCallResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <callingDevice>
    <callID>108</callID>
    <deviceID>441908855395</deviceID>
  </callingDevice>
</MakeCallResponse>
```

Note: This example has been edited to make it easier to read.

#### 4.4.7 Retrieve Call

An application uses this service to retrieve a locally held call at a UA.

##### Service Request

Parameter	Type	Remarks
callToBeRetrieved	connectionID	<p>The call ID within the connection ID parameter attribute is not sent to the UA (a null connection ID is used instead). This means that OpenStage makes the decision as to which call the request applies to.</p> <p>The DeviceID within the connectionID MUST identify the prime line of the OpenStage device.</p>

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/retrieve-call.xsd>

##### Positive Response

A positive response with no parameters is sent on acceptance of this service request.

##### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes		Condition
CSTA Error Category	CSTA Error Value	
Operation	invalidDeviceID	The identified device in the CSTA request is invalid
stateIncompatibility	noHeldCall	The identified device does not have a call on consultation hold that can be retrieved in this way.
systemResourceAvailability	resourceBusy	The UA is locked or is running an application that cannot be interrupted (e.g., admin).
	resourceOutOfService	The uaCSTA device is unable to process the request (invalid state, not idle etc)

#### 4.4.8 Get Microphone Mute

An application uses this service to provides the microphone mute feature status at a UA.

##### Service Request

Parameter	Type	Remarks
Device	Device ID	The DeviceID MUST identify the prime line of the OpenStage device
auditoryApparatus	AuditoryApparatusID	Must be set to 1 to identify all microphone devices

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/get-microphone-mute.xsd>

##### Positive Response

A positive response is sent to the SIP Server immediately on receipt of the request with the following parameters:

Parameter	Type	Remarks
microphoneMuteList	List of Structures	As defined in [3]. This structure returned by the OpenStage device contains a single microphoneMuteItem parameter with the following attributes:  auditoryApparatus = 1  microphoneMuteOn = TRUE/FALSE  Note: OpenStage will automatically change the mute status when the call state changes.

##### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
Operation		invalidDeviceID	The identified device in the CSTA request is invalid
stateIncompatibility		invalidDeviceState	There is no active call.

#### 4.4.8.1 Example uaCSTA GetMicrophoneMute Request and Response

```
UDP message sent (677 bytes):
NOTIFY sip:441908855395@192.168.1.103:5060 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-3828-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>
Call-ID: 1-3828@192.168.1.100
CSeq: 1 NOTIFY
Contact: sip:sipp@192.168.1.100:5060
Max-Forwards: 70
Event: uaCSTA
Content-Type: application/csta+xml
Content-Length: 216
<?xml version="1.0" encoding="UTF-8"?>
<GetMicrophoneMute xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device>
  <auditoryApparatus>1</auditoryApparatus>
</GetMicrophoneMute>
UDP message received [739] bytes :
SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-3828-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>;tag=1149175219
Call-ID: 1-3828@192.168.1.100
CSeq: 1 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Server: OpenStage_60_V1 R5.7.53 SIP 090225
Content-Type: application/csta+xml
Content-Length: 326
<?xml version="1.0" encoding="UTF-8"?>
<GetMicrophoneMuteResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <auditoryApparatus>1</auditoryApparatus>
  <microphoneMuteList>
    <microphoneMuteItem>
      <microphoneMuteOn>true</microphoneMuteOn>
    </microphoneMuteItem>
  </microphoneMuteList>
</GetMicrophoneMuteResponse>
```

Note: The example has been edited to make it easier to read.

#### 4.4.9 Set Microphone Mute

An application uses this service to set the microphone mute feature status at a UA.

##### Service Request

Parameter	Type	Remarks
Device	Device ID	The DeviceID MUST identify the prime line of the openStage device
auditoryApparatus	AuditoryApparatusID	Must be set to 1 to identify the microphone device
microphoneMuteOn	Boolean	

Other parameters if present are ignored by OpenStage. This service request is only accepted by OpenStage during an active call and applies only to the currently active call.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/set-microphone-mute.xsd>

##### Positive Response

A positive response with no parameters is sent immediately on acceptance of this service request.

##### Negative Response

If the request is unacceptable or OpenStage is unable to execute the service request, a negative response is generated. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
Operation		invalidDeviceID	The identified device in the CSTA request is invalid
stateIncompatibility		invalidDeviceState	No call in progress

#### 4.4.9.1 Example uaCSTA SetMicrophoneMute Request and Response

```
NOTIFY sip:441908855395@192.168.1.103:5060 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-4772-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>
Call-ID: 1-4772@192.168.1.100
CSeq: 1 NOTIFY
Contact: sip:sipp@192.168.1.100:5060
Max-Forwards: 70
Event: uaCSTA
Content-Type: application/csta+xml
Content-Length: 257
<?xml version="1.0" encoding="UTF-8"?>
<SetMicrophoneMute xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device>
  <auditoryApparatus>1</auditoryApparatus>
  <microphoneMuteOn>true</microphoneMuteOn>
</SetMicrophoneMute>
```

```
SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-4772-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>;tag=1618135945
Call-ID: 1-4772@192.168.1.100
CSeq: 1 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Server: OpenStage_60_V1 R5.7.53 SIP 090225
Content-Type: application/csta+xml
Content-Length: 136
<?xml version="1.0" encoding="UTF-8"?>
<SetMicrophoneMuteResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3"/>
```

Note: The example has been edited to make it easier to read.



#### 4.4.10 Get Speaker Volume

This service applies only to the speaker volume which is in use during an active call.

##### Service Request

Parameter	Type	Remarks
device	Device ID	The DeviceID MUST identify the prime line of the uaCSTA device
auditoryApparatus	AuditoryApparatusID	Must be set to 1 to identify the current speaker device

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/get-speaker-volume.xsd>

##### Positive Response

A positive response is sent to the SIP Server immediately on receipt of the request with the following parameters:

Parameter	Type	Remarks
speakerVolumeList	List of Structures	This structure contains a single speaker-Volumeltem parameter with the following attributes:  auditoryApparatus = 1  speakerVolAbs = [0..100]

##### Negative Response

If the request is unacceptable or OpenStage is unable execute the service request, a negative response is sent. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
Operation		invalidDeviceID	The identified device in the CSTA request is invalid
stateIncompatibility		invalidDeviceState	No speaker active

#### 4.4.10.1 Example uaCSTA GetSpeakerVolume Request and Response

```
NOTIFY sip:441908855395@192.168.1.103:5060 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-856-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>
Call-ID: 1-856@192.168.1.100
CSeq: 1 NOTIFY
Contact: sip:sipp@192.168.1.100:5060
Event: uaCSTA
Content-Type: application/csta+xml
Content-Length: 214
<?xml version="1.0" encoding="UTF-8"?>
<GetSpeakerVolume xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device>
  <auditoryApparatus>1</auditoryApparatus>
</GetSpeakerVolume>

SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-856-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>;tag=339147383
Call-ID: 1-856@192.168.1.100
CSeq: 1 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Content-Type: application/csta+xml
Content-Length: 312
<?xml version="1.0" encoding="UTF-8"?>
<GetSpeakerVolumeResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <speakerVolumeList>
    <speakerVolumeItem>
      <speakerVolAbs>50</speakerVolAbs>
      <auditoryApparatus>1</auditoryApparatus>
    </speakerVolumeItem>
  </speakerVolumeList>
</GetSpeakerVolumeResponse>
```

Note: The example has been edited to make it easier to read.

#### 4.4.10.2 Example uaCSTA GetSpeakerVolume Request and Error Response

In this example OpenStage returns an error response because there is no active call.

```
NOTIFY sip:441908855395@192.168.1.103:5060 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-856-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>
Call-ID: 1-856@192.168.1.100
CSeq: 1 NOTIFY
Contact: sip:sipp@192.168.1.100:5060
Event: uaCSTA
Content-Type: application/csta+xml
Content-Length: 214
<?xml version="1.0" encoding="UTF-8"?>
<GetSpeakerVolume xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device>
  <auditoryApparatus>1</auditoryApparatus>
</GetSpeakerVolume>

SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-856-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>;tag=339147383
Call-ID: 1-856@192.168.1.100
CSeq: 1 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Content-Type: application/csta+xml
Content-Length: 312
<?xml version="1.0" encoding="UTF-8"?>
<CSTAErroCode xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <stateIncompatibility>invalidDeviceState</stateIncompatibility>
</CSTAErroCode>
```

Note: The example has been edited to make it easier to read.

#### 4.4.11 Set Speaker Volume

This service applies only to the speaker volume which is in use during an active call.

##### Service Request

Parameter	Type	Remarks
device	Device ID	The DeviceID MUST identify the prime line of the OpenStage device
auditoryApparatus	AuditoryApparatusID	Must be always set to 1
speakerVolume	ChoiceStructure	As defined in [3].

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/set-speaker-volume.xsd>

The service request sets the volume of the speaker currently in use for an active call. The other speaker devices remain unaffected.

##### Positive Response

A positive response with no parameters is sent immediately on acceptance of this service request.

##### Negative Response

If the request is unacceptable or OpenStage is unable execute the service request, a negative response is sent. Note that the list is not exhaustive and additional values may be added to indicate other conditions that might arise.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
Operation		invalidDeviceID	The identified device in the CSTA request is invalid
stateIncompatibility		invalidDeviceState	No speaker is currently active

#### 4.4.11.1 Example uaCSTA SetSpeakerVolume Request and Response

```
NOTIFY sip:441908855395@192.168.1.103:5060 SIP/2.0
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-5936-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>
Call-ID: 1-5936@192.168.1.100
CSeq: 1 NOTIFY
Contact: sip:sipp@192.168.1.100:5060
Max-Forwards: 70
Event: uaCSTA
Content-Type: application/csta+xml
Content-Length: 248
<?xml version="1.0" encoding="UTF-8"?>
<SetSpeakerVolume xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device>
  <auditoryApparatus>1</auditoryApparatus>
  <speakerVolume>70</speakerVolume>
</SetSpeakerVolume>

SIP/2.0 200 OK
Via: SIP/2.0/UDP 192.168.1.100:5060;branch=z9hG4bK-5936-1-0
From: sipp <sip:sipp@192.168.1.100:5060>;tag=1
To: sut <sip:441908855395@192.168.1.103:5060>;tag=1414610799
Call-ID: 1-5936@192.168.1.100
CSeq: 1 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Content-Type: application/csta+xml
Content-Length: 135
<?xml version="1.0" encoding="UTF-8"?>
<SetSpeakerVolumeResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3"/>
```

Note: This example has been edited to make it easier to read.

## 4.5 uaCSTA Events – OpenStage acting as a Computing Function

The CSTA events described in this section are generated by the SIP Server and consumed by the OpenStage device. When sending any of these CSTA events to OpenStage the SIP Server MUST use the transport mechanism specified in 4.2.

### 4.5.1 Forwarding Event

The Forwarding CSTA event MUST be sent to the OpenStage device when the forwarding status changes at the SIP Server. This could be as a result of a uaCSTA SetForwarding request from an OpenStage devices or any other event which changes the forwarding status for the user of the OpenStage device.

Following information MUST be sent in the event:

Parameter	Type	Remarks
Device	DeviceID	The DeviceID MUST identify the prime line of the OpenStage device
forwardingType	Enumerated	Supported types are forwardImmediate, forward-Busy or forwardNoAns
forwardStatus	Boolean	
forwardTo	DeviceID	In SFR format as described in 4.3.2.

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/forwarding-event.xsd>

#### 4.5.1.1 Example uaCSTA Forwarding Event

```
Packet In<---194.70.190.234
NOTIFY sip:441908855395@192.168.1.103:5060;transport=udp SIP/2.0
From: <sip:441908855395@194.70.190.234;transport=udp>;tag=snl_h1P40EMA43
To: <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: 9048894721-3892272931175721-11-6391694914
CSeq: 1 NOTIFY
Contact: <sip:441908855395@194.70.190.234:5060;transport=udp>
Event: b2buaCSTA
Content-Type: application/csta+xml
Content-Length: 285
<ForwardingEvent xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed4">
  <device>
    <deviceIdentifier>441908855395</deviceIdentifier>
  </device>
  <forwardStatus>true</forwardStatus>
  <forwardingType>forwardImmediate</forwardingType>
  <forwardTo>7987253</forwardTo>
</ForwardingEvent>
```

Note: This example has been edited to make it easier to read.

## 4.5.2 Do Not Disturb Event

The Do Not Disturb CSTA event MUST be sent to the OpenStage device when the Do Not Disturb status changes at the SIP Server. This could be as a result of a uaCSTA SetDoNotDisturb request from an OpenStage devices or any other event which changes the Do Not Disturb status for the user of the OpenStage device.

Following information MUST be sent in the event:

Parameter	Type	Remarks
Device	DeviceID	The DeviceID MUST identify the prime line of the uaCSTA device
doNotDisturbOn	Boolean	

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/do-not-disturb-event.xsd>

### 4.5.3 Diverted Event

A Diverted CSTA event is sent to the OpenStage device after a call is diverted by the SIP Server on behalf of the user of the OpenStage device.

Following information MUST be sent in the event:

Parameter	Type	Remarks
callingDevice	Device ID	Enhanced SFR format, see section 4.3.2
connection	connectionID	The deviceID part of the connectionID MUST identify the prime line of the OpenStage device. Enhanced SFR format, see section 4.3.2
newDestination	DeviceID	Enhanced SFR format, see section 4.3.2
Cause	DeviceID	As defined in [3].

Other parameters if present are ignored by OpenStage.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/diverted-event.xsd>

#### 4.5.3.1 Example uaCSTA Diverted Event

```
NOTIFY sip:7546658000@192.3.0.1:2307 SIP/2.0
Call-ID: 0892159411-6282786085830511-11-65985243
CSeq: 1 NOTIFY
To: sip:7546658000@192.3.0.1:2307
From: sip:7546658000@10.3.12.142
Event: b2buaCSTA
Max-Forwards: 70
Content-Type: application/csta+xml
Content-Length: 389

<?xml version="1.0" encoding="UTF-8"?>
<DivertedEvent xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <callingDevice> 5619231638</callingDevice>
  <newDestination>7546658001</newDestination>
  <cause>callForwardBusy</cause>
</DivertedEvent>
```

Note: This example has been edited to make it easier to read.

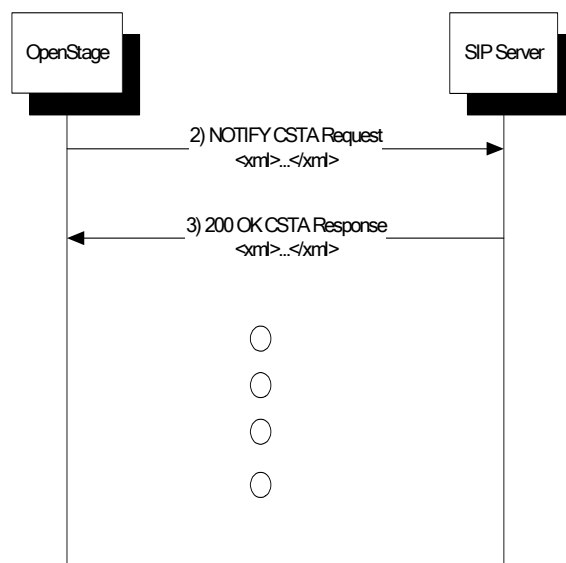


## 4.6 uaCSTA Service Invocation – SIP Server acting as Switching Function.

The section describes services where the SIP Server acts as a Switching Function on the request from OpenStage E.g. Forwarding, DND).

If configured to do so OpenStage will initiate these services either due to a user request to change the status of a service (E.g. SetForwarding, SetDoNotDisturb) or automatically when the OpenStage application requires information (E.g. GetForwarding, GetDoNotDisturb) such as following a successful registration with the SIP Server during initialisation.

If OpenStage is configured to use server based features then both forwarding and Do Not Disturb are assumed to be available at the server so the SIP Server MUST be able to accept both service requests.



## 4.6.1 Get Forwarding

Get the forwarding status of a specified device.

### Service Request

Parameter	Type	Remarks
Device	DeviceID	The DeviceID MUST identify the prime line of the OpenStage device

Other parameters if present MUST be ignored by the SIP Server.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/get-forwarding.xsd>

### Positive Response

Positive response MUST be sent after the SIP Server accepts the request.

The information in the response is in the form of a list with one entry for each forwarding type.

NOTE: It is recommended that the SIP Server include all the forwarding types and the current status in the response.

Parameter	Type	Remarks
forwardingType	Enumerated	Supported types are <i>forwardImmediate</i> , <i>forwardBusy</i> or <i>forwardNoAns</i> . OpenStage will ignore forwarding types which are not supported.
forwardStatus	Boolean	
forwardTo	deviceID	SFR format as described in 4.3.2

### Negative Response

If the request is unacceptable or the SIP Server is unable to execute the service request, a negative response MUST be sent.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
Operation		invalidDeviceID	The identified device in the CSTA request is invalid
		serviceNotSupported	The identified device in the CSTA request is not provisioned for this feature

#### 4.6.1.1 Example uaCSTA GetForwarding Request and Response

```
NOTIFY sip:441908855395@194.70.190.234;transport=udp SIP/2.0
From: 7845395 <sip:441908855395@194.70.190.234>;tag=88612bfe44;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: 47d8e258e0edd921
CSeq: 1154891205 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Event: b2buaCSTA
Content-Type: application/csta+xml
Content-Length: 168
<?xml version="1.0" encoding="UTF-8"?>
<GetForwarding xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
<device>441908855395</device>
</GetForwarding>

SIP/2.0 200 OK
From: 7845395 <sip:441908855395@194.70.190.234>;tag=88612bfe44;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: 47d8e258e0edd921
CSeq: 1154891205 NOTIFY
Content-Type: application/csta+xml
Content-Length: 607
<GetForwardingResponse xmlns="http://www.ecma-international.org/standards/ecma-
323/csta/ed4">
  <forwardingList>
    <forwardListItem>
      <forwardingType>forwardImmediate</forwardingType>
      <forwardStatus>>false</forwardStatus>
      <forwardDN>7987253</forwardDN>
    </forwardListItem>
    <forwardListItem>
      <forwardingType>forwardBusy</forwardingType>
      <forwardStatus>>false</forwardStatus>
      <forwardDN>900441908855653</forwardDN>
    </forwardListItem>
    <forwardListItem>
      <forwardingType>forwardNoAns</forwardingType>
      <forwardStatus>>false</forwardStatus>
      <forwardDN>900441908855653</forwardDN>
    </forwardListItem>
  </forwardingList>
</GetForwardingResponse>
```

Note: This example has been edited to make it easier to read.

## 4.6.2 Set Forwarding

Set the forwarding status of a specified device.

### Service Request

Parameter	Type	Remarks
deviceId	deviceId	The DeviceID MUST identify the prime line of the OpenStage device.
forwardingType	Enumerated	Supported types are <i>forwardImmediate</i> , <i>forward-Busy</i> or <i>forwardNoAns</i> .
forwardStatus	Boolean	
forwardTo	deviceId	In SFR format (See section 4.3.2).

Other parameters if present MUST be ignored by the SIP Server.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/set-forwarding.xsd>

### Positive Response

Positive response MUST be sent after the SIP Server accepts the request. No parameters are included in the response.

### Negative Response

If the request is unacceptable or the SIP Server is unable execute the service request, a negative response MUST be sent.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
Operation		serviceNotSupported	The identified device in the CSTA request is not provisioned for this feature
		invalidDeviceID	The identified device in the CSTA request does not exist
		invalidForwardingType	Specified forwarding Type not supported
		invalidForwardingFlag	Specified forwarding Flag not supported
		invalidForwardingDestination	Specified forwardTo deviceId is invalid

#### 4.6.2.1 Example uaCSTA SetForwarding Request and Response

```
Packet Out--->194.70.190.234
NOTIFY sip:441908855395@194.70.190.234;transport=udp SIP/2.0
From: 7845395 <sip:441908855395@194.70.190.234>;tag=a6205ac179;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: 9e8f9dbec1dc1d95
CSeq: 785330336 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Event: b2buaCSTA
Content-Type: application/csta+xml
Content-Length: 286
<?xml version="1.0" encoding="UTF-8"?>
<SetForwarding xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device>
  <forwardingType>forwardImmediate</forwardingType>
  <forwardDN>7987253</forwardDN>
  <activateForward>true</activateForward>
</SetForwarding>

Packet In<----194.70.190.234
SIP/2.0 200 OK
From: 7845395 <sip:441908855395@194.70.190.234>;tag=a6205ac179;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: 9e8f9dbec1dc1d95
CSeq: 785330336 NOTIFY
Content-Type: application/csta+xml
Content-Length: 94
<SetForwardingResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed4"/>
```

Note: This example has been edited to make it easier to read.

### 4.6.3 Get Do Not Disturb

Get the do not disturb status of a specified device.

#### Service Request

Parameter	Type	Remarks
Device	DeviceID	The DeviceID MUST identify the prime line of the OpenStage device

#### Positive Response

Parameter	Type	Remarks
doNotDisturbOn	Boolean	

Other parameters in the response MUST be ignored.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/get-do-not-disturb.xsd>

#### Negative Response

If the request is unacceptable or the SIP Server is unable execute the service request, a negative response MUST be sent.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
Operation		serviceNotSupported	The CSTA request is not supported
		invalidDeviceID	The identified device in the CSTA request does not exist

#### 4.6.3.1 Example uaCSTA GetDoNotDisturb Request and Response

```
Packet Out-->194.70.190.234
NOTIFY sip:441908855395@194.70.190.234;transport=udp SIP/2.0
From: 7845395 <sip:441908855395@194.70.190.234>;tag=50721a9bd5;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: b9debe612ab914ae
CSeq: 1955695593 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Event: b2buaCSTA
Content-Type: application/csta+xml
Content-Length: 172
<?xml version="1.0" encoding="UTF-8"?>
<GetDoNotDisturb xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device>
</GetDoNotDisturb>

Packet In<----194.70.190.234
SIP/2.0 200 OK
From: 7845395 <sip:441908855395@194.70.190.234>;tag=50721a9bd5;epid=SCBCC441
To: 7845395 <sip:441908855395@194.70.190.234;transport=udp>
Call-ID: b9debe612ab914ae
CSeq: 1955695593 NOTIFY
Content-Type: application/csta+xml
Content-Length: 159
<GetDoNotDisturbResponse xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed4">
  <doNotDisturbOn>>false</doNotDisturbOn>
</GetDoNotDisturbResponse>
```

Note: This example has been edited to make it easier to read.

#### 4.6.4 Set Do Not Disturb

Set the do not disturb status of a specified device.

##### Service Request

Parameter	Type	Remarks
deviceId	deviceId	The DeviceID MUST identify the prime line of the uaCSTA device
doNotDisturbOn	Boolean	

Other parameters, if present MUST be ignored.

See <http://www.ecma-international.org/standards/ecma-323/csta/ed3/set-do-not-disturb.xsd>

##### Positive Response

No parameters are included in the positive response.

##### Negative Response

If the request is unacceptable or the SIP Server is unable execute the service request, a negative response MUST be sent.

CSTA Error Codes			Condition
CSTA Error Category	Cate-	CSTA Error Value	
operation		serviceNotSupported	The CSTA request is not supported
		invalidDeviceID	The identified device in the CSTA request does not exist
		invalidDoNotDisturb	Invalid do not disturb value



#### 4.6.4.1 Example uaCSTA SetDoNotDisturb Request and Error Response

```
Packet Out--->194.74.206.234
NOTIFY sip:441908855395@194.74.206.234;transport=udp SIP/2.0
From: 7845395 <sip:441908855395@194.74.206.234>;tag=12c50a2a69;epid=SCBCC441
To: 7845395 <sip:441908855395@194.74.206.234;transport=udp>
Call-ID: 752f4bcbb8e7e106
CSeq: 1680758994 NOTIFY
Contact: 7845395 <sip:441908855395@192.168.1.103:5060;transport=udp>
Event: b2buaCSTA
Content-Type: application/csta+xml
Content-Length: 209
<?xml version="1.0" encoding="UTF-8"?>
<SetDoNotDisturb xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed3">
  <device>441908855395</device><doNotDisturbOn>true</doNotDisturbOn>
</SetDoNotDisturb>

Packet In<----194.74.206.234
SIP/2.0 200 OK
From: 7845395 <sip:441908855395@194.74.206.234>;tag=12c50a2a69;epid=SCBCC441
To: 7845395 <sip:441908855395@194.74.206.234;transport=udp>
Call-ID: 752f4bcbb8e7e106
CSeq: 1680758994 NOTIFY
Content-Type: application/csta+xml
Content-Length: 131
<CSTAErroCode xmlns="http://www.ecma-international.org/standards/ecma-323/csta/ed4">
  <operation>generic</operation>
</CSTAErroCode>
```

Note: This example has been edited to make it easier to read.

## 5 Security

The OpenStage uaCSTA interface enables a remote application to control some of the phone functions including call control functions and the microphone and speaker. This adds to the commonly known risks with SIP, when UDP or TCP is used as transport protocol.

It is therefore recommended that TLS is used as the transport protocol for SIP between the OpenStage device and the SIP Server. For proper authentication of TLS sessions following recommendations apply:

- OpenStage phone should be provisioned with a CA certificate to be able to authenticate the SIP server.
- The SIP server should use digest authentication to authenticate the OpenStage phone.

Similar measures should be applied between the remote application and the SIP server. The SIP server should only allow authenticated and integrity-protected CSTA requests.

The OpenStage uaCSTA interface can be disabled/enabled by administration at the phone or by using any of the phone's secure management interfaces.

## 6 Limitations

When OpenStage is configured as a keyset device with multiple lines then uaCSTA services can only be applied to the prime line of the OpenStage device, secondary lines cannot be controlled using the uaCSTA interface.

When invoking call related services (E.g. AnswerCall) and physical devices services (E.g. SetMicrophoneMute) it is the OpenStage device which decides which call or speaker the service request is applied to.

## 7 References

- [1] SIP: Session Initiation Protocol ([RFC 3261](#))
- [2] Session Initiation Protocol (SIP)-Specific Event Notification ([RFC 3265](#))
- [3] Services for Computer Supported Telecommunications Applications (ECMA-269).  
<http://www.ecma-international.org/publications/standards/Ecma-269.htm>
- [4] XML Protocol for Computer Supported Telecommunications Applications (ECMA-323)  
<http://www.ecma-international.org/publications/standards/Ecma-323.htm>
- [5] Ecma Technical Report TR/87. Using CSTA for SIP Phone User Agents (uaCSTA)  
<http://www.ecma-international.org/publications/techreports/E-TR-087.htm>

## About Unify

Unify is one of the world's leading communications software and services firms, providing integrated communications and collaboration solutions worldwide. Our customers range in size from 5 employees to 500,000+ employees. Our solutions unify multiple voice, video and data networks, connected devices and applications into one easy-to-use platform that allows teams to collaborate effectively and efficiently – anytime, anywhere. The result is a transformation of how the enterprise communicates and collaborates that amplifies collective effort, energizes the business, improves employee satisfaction and enhances business performance. Unify has a strong heritage of product reliability, innovation, open standards and security. Our OpenScape and Circuit communications solutions provide a seamless and efficient collaboration experience – on any device. Together, the group's global team of UCC experts and service professionals set the standard for a rich communications and collaboration experience that empowers teams to deliver better results.

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