Pexip Infinity

Client REST API v2

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Contents

Introduction

This guide describes the Pexip client REST API. It is designed for use by non-web-based, third-party voice/video applications that want to initiate or connect to conferences hosted on the Pexip Infinity platform.

We strongly recommend that web-based applications use the PexRTC JavaScript client API instead.

This API specification is regularly evolving between versions of the Pexip Infinity platform. While we will attempt to maintain backward compatibility, there may be significant changes between versions.

Using the API

The prefix for all conference-related API calls is:

https://<node_address>/api/client/v2/conferences/<conference_alias>/

where **<node_address>** is the address of a Conferencing Node and **<conference_alias>** is an alias of the conference you are connecting to. Under this API path comes a sequence of response API calls, for example:

https://10.0.0.1/api/client/v2/conferences/meet_alice/request_token

All commands in the client API are authenticated with a token, which is presented by the Pexip Conferencing Node. The token has a validity lifetime, before the end of which it must be refreshed. The token is presented in a HTTP header entitled "token" on every HTTP request, except for the initial **request_token** request.

Unless otherwise specified, all payloads of requests and responses are JSON objects, Content-Type: application/json.

The responses have two fields, **status** and **result**:

- **status** is "success" if the command has been processed by Pexip, or "failure" if the command could not be processed. Note that this does not mean that the end result is success, only that the request has been received and processed.
- the **result** field indicates if the request was successful.

Summary of API requests and events

This section summarizes the requests and server-sent events that may be used, which are then described in more detail.

Client control requests

These REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/<request>

Request	GET/POST	Description
request_token	POST	Requests a new token from the Pexip Conferencing Node.
refresh_token	POST	Refreshes a token to get a new one.
release_token	POST	Releases the token (effectively a disconnect for the participant).

Conference control functions

These REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/<request>

Request	GET/POST	Description
dial	POST	Dials out from the conference to a target endpoint.
conference_status	GET	Provides the status of the conference.
lock / unlock	POST	Locks / unlocks the conference.
start_conference	POST	Starts a conference and allows Guests in the "waiting room" to join the meeting.
muteguests / unmuteguests	POST	Mutes / unmutes all Guests on a conference.
disconnect	POST	Disconnects all conference participants, including the participant calling the function.
message	POST	Sends a message to all participants in the conference.
participants	GET	Returns the full participant list of the conference.
transform_layout	POST	Changes the conference layout, controls streaming content, and enables/disables indicators and overlay text.
clearallbuzz	POST	Lower all raised hands.
silent_video_detection	POST	Configure the parameters for silent video detection in an Adaptive Composition layout.

Participant functions

These participant REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/participants/<participant_uuid>/<request>

Request	GET/POST	Description
disconnect	POST	Disconnects a participant.
mute / unmute	POST	Mutes / unmutes a participant's audio.

Request	GET/POST	Description
video_muted / video_unmuted	POST	Mutes / unmutes a participant's video.
allowrxpresentation / denyrxpresentation	POST	Enables or disables a participant from receiving the presentation stream.
spotlighton / spotlightoff	POST	Enables or disables the "spotlight" on a participant.
unlock	POST	Lets a specified participant into the conference from the waiting room of a locked conference.
dtmf	POST	Sends DTMF digits to the participant.
calls	POST	Upgrades this connection to have a WebRTC or RTMP audio / video call element.
overlaytext	POST	Changes the participant name overlay text.
pres_in_mix	POST	Controls whether or not the participant sees presentation in the layout mix (Adaptive Composition layout only).
role	POST	Changes the role of the participant.
fecc	POST	Send Far End Camera Control messaging to the participant.
buzz	POST	Raise a participant's hand.
clearbuzz	POST	Lower a participant's hand.
transfer	POST	Transfers a participant to another conference.
avatar.jpg	GET	Obtains the image to display to represent a conference participant or directory contact.

Call functions

These call REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/participants/<participant_uuid>/calls/<call_uuid>/<request>

Request	GET/POST	Description
ack	POST	Starts media for the specified call (WebRTC calls only).
disconnect	POST	Disconnects the specified call.
dtmf	POST	Sends DTMF digits to the specified participant.
new_candidate	POST	Send a new ICE candidate if doing trickle ICE.
update	POST	Send a new SDP.

Server-sent events

To subscribe, open an HTTP connection to:

https://<node_address>/api/client/v2/conferences/<conference_alias>/events?token=<token_id>

Event	Description
presentation_start	Marks the start of a presentation, and includes the information on which participant is presenting.

Event	Description
presentation_stop	The presentation has finished.
presentation_frame	A new presentation frame is available.
participant_create	A new participant has joined the conference.
participant_update	A participant's properties have changed.
participant_delete	A participant has left the conference.
participant_sync_begin / participant_sync_end	These two messages start and end the sending of the complete participant list.
conference_update	Conference properties have been updated.
layout	The stage layout has changed.
message_received	A chat message has been broadcast to the conference.
stage	An update to the "stage layout" is available. This declares the order of active speakers, and their voice activity.
call_disconnected	Sent when a child call has been disconnected.
disconnect	Sent when the participant is being disconnected from the Pexip side.

Other requests

Request	Description
/api/client/v2/status	Check whether a Conferencing Node is in maintenance mode.

Client control requests

This section describes in detail the requests that may be used to initiate and manage a connection to a Conferencing Node.

These REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/<request>

request_token

This POST requests a new token from the Pexip Conferencing Node.

Request example:

```
{"display_name": "Alice", "call_tag": "def456"}
```

Request fields:

display_name	string	The name by which this participant should be known.
call_tag	string	An optional call tag to assign to this participant.

Response example:

```
{"status": "success", "result":
{"token": "SE9TVAltZ...etc...zNiZjlmNjFhMTlmMTJiYTE%3D",
"expires": "120",
"participant_uuid": "2c34f35f-1060-438c-9e87-6c2dffbc9980",
"display_name": "Alice",
"stun": [{"url": "stun:stun.l.google.com:19302"}],
"analytics_enabled": true,
"version": {"pseudo_version": "25010.0.0", "version_id": "10"},
"role": "HOST",
"service_type": "conference",
"chat_enabled": true,
"current_service_type": "conference"}}
```

This result contains the token (abridged in the above example) to use to authenticate all future requests, and an expiry time (in seconds) after which this token becomes invalid. The full list of fields in the result is as follows:

token	string	The authentication token for future requests.
expires	string	Validity lifetime in seconds. Use refresh_token to obtain an updated token.
participant_uuid	string	The uuid associated with this newly created participant. It is used to identify this participant in the participant list.
version	object	The version of the Pexip server being communicated with.
role	string	Whether the participant is connecting as a "HOST" or a "GUEST".
chat_enabled	boolean	true = chat is enabled; false = chat is not enabled.
service_type	string	Either "conference", "gateway" or “test_call” depending on whether this is a VMR, gateway or Test Call Service respectively.
stun	array	STUN server configuration from the Pexip Conferencing Node.
display_name	string	Echoes the display name in the request.
analytics_enabled	boolean	Whether the **Automatically send deployment and usage statistics to Pexip** global setting has been enabled on the Pexip installation.
current_service_type	string	The service type this user is connecting into. May be "conference", "gateway" or “test_call” as for **service_type** if directly connecting in. May also be "waiting_room" if waiting to be allowed to join a locked conference, or "ivr" if on the PIN entry screen.

PIN protected conferences

If the conference is PIN-protected, the PIN must be specified in a "pin" HTTP header. If the PIN is required but is incorrect or missing, a "403 Forbidden" error is returned. The "pin" field in the response specifies whether a PIN is required for Hosts, and a "guest_pin" field in the response specifies whether a PIN is required for Guests. If a PIN is required for a Host, but not for a Guest, and if you want to join as a Guest, you must still provide a "pin" header, with a value of "none".

Virtual Receptions

If the conference is a Virtual Reception, a "403 Forbidden" error is returned, with a "conference_extension" field. This field is either:

- "standard": for a regular, Microsoft Teams or Google Meet Virtual Reception.
- "mssip": for a Lync / Skype for Business Virtual Reception.

To join the target room, a second **request_token** request must be made, but with a **conference_extension** field in the request JSON, which contains the alias of the target conference.

refresh_token

This POST request refreshes a token to get a new one.

Request: empty.

Example response:


```
{"status": "success", "result":
{"token": "SE9TVAltZ...etc...jQ4YTVmMzM3MDMwNDFlNjI%3D",
"expires": "120"}}
```


Fields are:

token	string	The new authentication token for future requests.
expires	string	Validity lifetime in seconds.

release_token

This POST request releases the token (effectively a disconnect for the participant).

Request: empty.

Response: should be ignored.

Conference control functions

This section describes in detail the requests that may be used to manage an existing conference.

These REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/<request>

dial

This POST request dials out from the conference to a target endpoint. This function is only available to conference Hosts.

Request example:

```
{"role": "GUEST", "destination": "bob@example.com", "protocol": "sip", "source_display_name": "Alice"}
```

Request fields:

role	string	The level of privileges the participant has in the conference: • "HOST": the participant has Host privileges • "GUEST": the participant has Guest privileges
destination	string	The target address to call.
protocol	string	The protocol to use to place the outgoing call: • "sip" • "h323" • "rtmp" • "mssip" (for calls to Microsoft Skype for Business / Lync) • "auto" (to use Call Routing Rules) To successfully place calls via the 'auto' protocol option, suitable Call Routing Rules must be configured. To enable calls to be placed via the other protocols you must select **Enable legacy dialout API** (via **Platform > Global Settings > Connectivity**).
presentation_url	string	This additional parameter can be specified for RTMP calls to send the presentation stream to a separate RTMP destination.
streaming	string	Identifies the dialed participant as a streaming or recording device: • "yes": streaming/recording participant • "no": not a streaming/recording participant Default: "no"
dtmf_sequence	string	An optional DTMF sequence to transmit after the call to the dialed participant starts.
source_display_name	string	Optional field that specifies what the calling display name should be.
source	string	Optional field that specifies the source URI (must be a valid URI for the conference).
call_type	string	Optional field that limits the media content of the call: • "video": main video plus presentation • "video-only": main video only • "audio": audio-only Default: "video"

keep_conference_alive	string	Determines whether the conference continues when all other non-ADP participants have disconnected: • "keep_conference_alive": the conference continues to run until this participant disconnects (applies to Hosts only). • "keep_conference_alive_if_multiple": the conference continues to run as long as there are two or more "keep_conference_alive_if_multiple" participants and at least one of them is a Host. • "keep_conference_alive_never": the conference terminates automatically if this is the only remaining participant. Default: "keep_conference_alive" for non-streaming participants, and "keep_conference_alive_never" for streaming participants.
remote_display_name	string	An optional friendly name for this participant. This may be used instead of the participant's alias in participant lists and as a text overlay in some layout configurations.
text	string	Optional text to use instead of **remote_display_name** as the participant name overlay text.

Response example:

```
{"status": "success", "result": ["977fcd1c-8e3c-4dcf-af45-e536b77af088"]}
```

The response is an array of UUIDs of new participants, if dial-out was successfully initiated. In most cases the dial-out will only generate a single call and thus a single UUID in this array, however if Pexip Infinity forks the call there may end up being multiple UUIDs. Only one of these will be answered, however, and the rest will be disconnected.

The call UUIDs will appear as new participants immediately, with a "service_type" of "connecting". If the call is answered, the participant will be updated with a new "service_type", typically being "conference". The participant may also be deleted if the receiver rejects the call, or the call attempt times out in 30 seconds if not answered.

conference_status

This GET request provides the status of the conference. Currently, the only conference properties available are the lock status of the conference, whether Guests are muted, and if the conference has been started. For example:

```
{"status": "success", "result":
{"locked": false, "guests_muted": false, "started": true}}
```

lock / unlock

These POST requests are used to lock or unlock the conference. When a conference is locked, participants waiting to join are held at a "Waiting for Host" screen. These settings are only available to conference Hosts.

Request: empty.

Response: the result is true if successful, false otherwise.

start_conference

If the only user with Host rights is connected to the conference without media (as a presentation and control-only participant), Guests will remain in the “Waiting for Host” screen. This POST request starts the conference and any Guests in the "waiting room" will join the meeting. This is only available to conference Hosts.

Request: empty.

Response: the result is true if successful, false otherwise.

muteguests / unmuteguests

These POST requests are used to mute or unmute all Guests on a conference. When muted, no Guest participants can speak unless they are explicitly unmuted. When unmuted, all Guests on a conference can speak. These settings are only available to conference Hosts.

Request: empty.

Response: the result is true if successful, false otherwise.

disconnect

This POST request disconnects all conference participants, including the participant calling the function. This setting is only available to conference Hosts.

Request: empty.

Response: the result is true if successful, false otherwise.

message

This POST request sends a message to all participants in the conference.

Request example:

```
{"type": "text/plain", "payload": "Hello World"}
```

Request fields:

type	string	The MIME Content-Type. This must be "text/plain".
payload	string	The contents of the message.

Response: the result is true if successful, false otherwise.

participants

This GET request returns the full participant list of the conference. See the description of the participant_create EventSource for more information.

transform_layout

This POST request changes the conference layout, controls streaming content, and enables/disables indicators and overlay text.

Request fields:

transforms	This is an object containing any of the following optional parameters:

layout host_layout guest_layout	string	In VMRs the layout for Hosts and Guests is controlled by the **layout** parameter. In Virtual Auditoriums the Host layout is controlled by the **host_layout** parameter and the Guest layout is controlled by the **guest_layout** parameter. The layout options are: • "1:0": main speaker only • "1:7": main speaker and up to 7 previous speakers • "1:21": main speaker and up to 21 previous speakers • "2:21": 2 main speakers and up to 21 previous speakers • "1:33": 1 small main speaker and up to 33 other speakers • "4:0": 2x2 layout, up to a maximum of 4 speakers • "9:0": 3x3 layout, up to a maximum of 9 speakers • "16:0": 4x4 layout, up to a maximum of 16 speakers • "25:0": 5x5 layout, up to a maximum of 25 speakers • "ac": Adaptive Composition layout Note that the **layout** parameter is an alias for **host_layout**, and that an attempt to set **guest_layout** in a service that is not a Virtual Auditorium will return a "400 Bad Request" error.
enable_extended_ac *	boolean	This enables an extended Adaptive Composition (AC) layout that can contain more video participants than the standard AC layout. In the standard AC layout, a maximum of 12 video participants are shown across up to three rows (2 participants on the first row / 3 on the second row / 7 on the bottom row). In the extended layout up to 23 video participants may be shown, initially across three rows (2/3/7 extending to 2/5/7 and then 3/5/7) and then across four rows (3/5/7/8) when required. Note that this setting only has an effect in a conference that is already using AC, so the conference either needs to be already configured to use AC, or you also need to pass `"layout": "ac"` or `"host_layout": "ac"` to enable AC simultaneously, for example: `{"transforms": {"layout": "ac","enable_extended_ac": true}}` * Technology preview only
streaming_indicator	boolean	Determines whether the streaming indicator icon is disabled (**false**) or enabled (**true**).
recording_indicator	boolean	Determines whether the recording indicator icon is disabled (**false**) or enabled (**true**).
enable_active_speaker_indication	boolean	Determines whether active speaker indication is disabled (**false**) or enabled (**true**).
enable_overlay_text	boolean	Determines whether participant names overlay text is disabled (**false**) or enabled (**true**).
streaming	object	This can be used to specifically control the content sent to a streaming participant, for example to send a different layout to the stream from that which is seen by standard participants. You cannot use this option if the main stream is using Adaptive Composition. It is an object containing any of the following optional parameters:

layout	string	Sets the layout seen by the streaming participant (regardless of Host or Guest role). The options are as listed above. If **waiting_screen_enabled** is true, the **layout** parameter is ignored, as the only possible layout for a splash screen is 1:0.
waiting_screen_enabled	boolean	Determines whether the **stream_waiting** splash screen is displayed (**true**) or not (**false**) i.e. the standard conference content is streamed. This can be used as a "holding" screen while you wait for people in the conference to get ready to start.

Response: the result is true if successful, false otherwise.

Here are some example requests:

- To change a Virtual Meeting Room layout: `{"transforms": {"layout": "2:21"}}`
- To change a Virtual Auditorium layout: `{"transforms": {"guest_layout": "2:21", "host_layout": "4:0"}}`
- To enable streaming and recording indicators: `{"transforms": {"streaming_indicator": true, "recording_indicator": true}}`
- To enable overlay text: `{"transforms": {"enable_overlay_text": true}}`
- To set adaptive composition layout with active speaker indication only: `{"transforms": {"layout": "ac","enable_overlay_text": false,"enable_active_speaker_indication": true}}`
- To set adaptive composition layout with active speaker indication and to also display all other participant names: `{"transforms": {"layout": "ac","enable_overlay_text": true,"enable_active_speaker_indication": true}}`
- To set custom overlay text for a 4:0 layout: `{"transforms": {"layout": "4:0", "free_form_overlay_text": ["Top left", "top right", "bottom left", "bottom right"]}}`
- To set 2:21 layout for normal participants, and 1:0 for streaming participants: `{"transforms": {"layout": "2:21", "streaming": {"layout": "1:0"}}}`
- To enable the holding screen for streaming participants: `{"transforms": {"streaming": {"waiting_screen_enabled": true}}}`

clearallbuzz

This POST request lowers all raised hands.

Request: empty.

Response: the result is true if successful, false otherwise.

silent_video_detection

This POST request configures the parameters for silent video detection in an Adaptive Composition layout.

Request fields:

<table>
<tr><td>config</td><td>This is an object containing any of the following optional parameters:
<table>
<tr><th>Name</th><th>Type</th><th>Values</th><th>Description</th><th>Default</th></tr>
<tr><td>enable</td><td>boolean</td><td>true / false</td><td>Determines whether silent video detection (no faces or movement) is disabled (false) or enabled (true).</td><td>true</td></tr>
<tr><td>silent_after</td><td>number</td><td>1-120</td><td>The minimum number of seconds the participant's video has to silent before it is considered for removal from the video mix (it may take longer than this before the video is actually removed).</td><td>15</td></tr>
<tr><td>require_no_faces</td><td>boolean</td><td>true/false</td><td>Determines whether or not detected faces in the video are taken into consideration:
true: a participant cannot be marked as silent if a face is detected.
false: face-detection is ignored.</td><td>true</td></tr>
<tr><td>reactivate_after</td><td>number</td><td>1-5</td><td>The minimum number of seconds of moving video that is required before marking the participant as no longer silent.</td><td>2</td></tr>
</table></td></tr>
</table>

Request example:

`{"config": {"enable": true,"silent_after": 15,"require_no_faces": true,"reactivate_after": 2}}`

Response: the result is true if successful, false otherwise.

Participant functions

Within a conference, operations can be performed on participants, if the client has Host privileges.

These participant REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/participants/<participant_uuid>/<request>

where **<node_address>** is the Conferencing Node, **<conference_alias>** is an alias of the conference, and **<participant_uuid>** is the uuid of the participant you are controlling. Under this path comes the request, for example:

https://10.0.0.1/api/client/v2/conferences/meet_alice/participants/7f8bdd7f-2d39-4c3f-9236-3e95b21f21a8/disconnect

disconnect

This POST request disconnects a participant.

Request: empty

Response: the result is true if successful, false otherwise.

mute / unmute

These POST requests are used to mute or unmute a participant's audio.

Request: empty.

Response: the result is true if successful, false otherwise.

video_muted / video_unmuted

These POST requests are used to mute or unmute a participant's video.

Request: empty.

Response: the result is true if successful, false otherwise.

allowrxpresentation / denyrxpresentation

These POST requests are used to enable or disable a participant from receiving the presentation stream. (Participants are enabled by default.)

Request: empty.

Response: the result is true if successful, false otherwise.

spotlighton / spotlightoff

These POST requests are used to enable or disable the "spotlight" on a participant.

The spotlight feature locks any spotlighted participants in the primary positions in the stage layout, ahead of any current speakers. When any participants have been spotlighted, the first one to be spotlighted has the main speaker position, the second one has the second position (leftmost small video, for example), and so on. All remaining participants are arranged by most recent voice activity, as is default. For more information, see Spotlighting a participant.

Request: empty.

Response: the result is true if successful, false otherwise.

unlock

This POST request lets a specified participant into the conference from the waiting room of a locked conference.

Request: empty.

Response: the result is true if successful, false otherwise.

dtmf

This POST request sends DTMF digits to the participant.

Request example:

```
{"digits": "1234"}
```

Request fields:

digits	string	The DTMF digits to send.

Response: the result is true if successful, false otherwise.

calls

This POST request upgrades this connection to have an audio/video call element. There are two variants of this request, depending upon whether a WebRTC or RTMP call is to be established.

WebRTC

Request example to add a WebRTC element:

```
{"call_type": "WEBRTC", "sdp": "..."}
```

Request fields:

call_type	string	"WEBRTC" for a WebRTC call.
sdp	string	Contains the SDP of the sender.
present	string	Optional field. Contains "send" or "receive" to act as a presentation stream rather than a main audio/video stream.
fecc_supported	boolean	Set to true if this participant can be sent FECC messages; false if not. Default: false

Response example (WebRTC):

```
{"status": "success", "result": {
"call_uuid": "50ed679d-c622-4c0e-b251-e217f2aa030b",
"sdp": "..."}}
```

The response contains the SDP of the Pexip node, and a call_uuid. This call_uuid is used to control the call. The ack function must be called on this call_uuid in order to start media after the SDP has been exchanged and ICE has been completed.

RTMP

Request example to add an RTMP element:

```
{"call_type": "RTMP"}
```

Request fields:

call_type	string	"RTMP" for an RTMP call.
present	string	Optional field. Contains "send" or "receive" to act as a presentation stream rather than a main audio / video stream.
streaming	boolean	Optional field. Set to true if this is to be treated as a streaming participant for recording purposes.
bandwidth	number	Optional field. If supplied it provides a maximum incoming / outgoing bandwidth in kbps.

Response example (RTMP):

```
{"status": "success", "result": {
"call_uuid": "50ed679d-c622-4c0e-b251-e217f2aa030b",
"url": "rtmp://10.0.0.1:40002/pexip/50ed679d-c622-4c0e-b251-e217f2aa030b",
"secure_url": "rtmps://hostname.domain:40003/pexip/50ed679d-c622-4c0e-b251-e217f2aa030b"}}
```

The response contains RTMP URLs that can be connected to by the client – both an insecure (rtmp://) and secure (rtmps://) variant. The RTMPS URL is only returned if a SIP TLS FQDN is configured for the Conferencing Node, and requires a valid TLS certificate to be installed on the Conferencing Node.

overlaytext

Changes the participant name overlay text. The text is only applied if overlay text is enabled on a VMR. It can also change the text of an audio-only participant.

Request example:

```
{"text": "The Dude"}
```

Request fields:

text	string	Text to use as the participant name overlay text.

Response: the result is true if successful, false otherwise.

pres_in_mix

Controls whether or not the participant sees presentation in the layout mix (Adaptive Composition layout only).

Request example:

```
{"state": true}
```

Request fields:

state	boolean	Controls whether or not the participant sees presentation in the layout mix.

Response: the result is true if successful, false otherwise.

role

Changes the role of the participant.

Request example:

```
{"role": "chair"}
```

Request fields:

role	string	"chair" = Host participant; "guest" = Guest participant

Response: the result is true if successful, false otherwise.

fecc

Send Far End Camera Control messaging to the participant.

Note that this does not send FECC to all participants; it can either be used in a gateway call or be sent to a specific participant identified by the target UUID (as seen in the participant list).

Request fields:

<table>
<tr><td>action</td><td>string</td><td>Either "start", "stop", or "continue".</td></tr>
<tr><td>target</td><td>string</td><td>UUID of the target participant (from the participant list). Leave undefined for a gateway call.</td></tr>
<tr><td>movement</td><td>array</td><td>An array of movements, consisting of:<table><tr><td>axis</td><td>string</td><td>Either "pan", "tilt", or "zoom".</td></tr><tr><td>direction</td><td>string</td><td>Use "left", "right" for pan; "up", "down" for tilt; or "in", "out" for zoom.</td></tr></table>Which means that you could, for example, send a command to pan, tilt and zoom at the same time.</td></tr>
<tr><td>timeout</td><td>number</td><td>The duration for which to send the signal. Recommended values are 1000 (1 second) for initial "start" message; 200 for "continue" messages.</td></tr>
</table>

Request example:

```
{"action": "start", "movement": [{"axis": "pan", "direction": "left"}, {"axis": "zoom", "direction": "in"}],
"timeout": 1000};
```

Response: the result is true if successful, false otherwise.

buzz

This POST request raises a participant's hand.

Request: empty

Response: the result is true if successful, false otherwise.

clearbuzz

This POST request lowers a participant's hand.

Request: empty

Response: the result is true if successful, false otherwise.

transfer

Transfers a participant to another conference.

The target conference is identified by the alias in "conference_alias", and they will have the specified "role". If the target is PIN-protected, the PIN for the target role must be specified in the "pin" field.

Request example:

```
{"role": "guest", "conference_alias": "meet@example.com", "pin": “1234"}
```

Request fields:

role	string	Role can be "guest" or "chair" (Host).
conference_alias	string	Target conference alias.
pin	string	PIN code for the specified role at the specified conference, if required.

Response: the result is true if successful, false otherwise.

avatar.jpg

This GET request obtains the image to display to represent a conference participant or directory contact.

Call functions

Using the **call_uuid**, further operations can be undertaken on the calls as part of the nominated participant.

These call REST URIs take the format:

https://<node_address>/api/client/v2/conferences/<conference_alias>/participants/<participant_uuid>/calls/<call_uuid>/<request>

where **<node_address>** is the Conferencing Node, **<conference_alias>** is an alias of the conference, **<participant_uuid>** is the uuid of the participant, and **<call_uuid>** is the uuid of the call you are controlling. Under this path comes the request, for example:

https://10.0.0.1/api/client/v2/conferences/meet_alice/participants/7f8bdd7f-2d39-4c3f-9236-3e95b21f21a8/calls/c34f35f-1060-438c-9e87-6c2dffbc9980/disconnect

ack

This POST request starts media for the specified call (WebRTC calls only).

Request: empty.

Response: the result is true if successful, false otherwise.

disconnect

This POST request disconnects the specified call.

Request: empty.

Response: the result is true if successful, false otherwise.

dtmf

For a gateway call only, this POST request sends DTMF digits to the remote participant.

Request example:

```
{"digits": "1234"}
```

Response: the result is true if successful, false otherwise.

new_candidate

This POST request sends a new ICE candidate if doing trickle ICE.

Request example:

```
{"candidate": "candidate:1732786348 1 udp 2124262783 2a02:c7f:615…eration 0 ufrag YAeD network-id 2 network-cost
10", "mid": "0", "ufrag": "YAeD", "pwd": "IfZniTlYHipJXEg4quoI00ek"}
```

Request fields:

candidate	string	Representation of address in `candidate-attribute` format as per RFC5245.
mid	string	The media stream identifier tag.
ufrag	string	The randomly generated username fragment of the ICE credentials.
pwd	string	The randomly generated password of the ICE credentials.

Response: the result is true if successful, false otherwise.

update

This POST request sends a new SDP.

Request example:

```
{"sdp": "..."}
```

Request fields:

sdp	string	The new SDP.
fecc_supported	boolean	Set to true if this participant can be sent FECC messages; false if not. Default: false

Response example:

```
{"status": "success", "result": "..."}
```

Server-sent events

Clients can subscribe to an HTTP EventSource which feeds events from the conference as they occur.

To subscribe, open an HTTP connection to:

https://<node_address>/api/client/v2/conferences/<conference_alias>/events?token=<token_id>

where **<node_address>** is the Conferencing Node, **<conference_alias>** is an alias of the conference, and **<token_id>** is the session token, for example:

https://10.0.0.1/api/client/v2/conferences/meet_alice/events?token=123456

This allows the token to be specified on the URI, since custom headers cannot be added to Event Sources in browsers today. However, if headers can be added this will be accepted too, and the query parameter will not be required.

Each event contains an event name, and some events may contain a payload of data, which is a JSON object.

presentation_start

This marks the start of a presentation, and includes the information on which participant is presenting.

Example data:

```
{"presenter_name": "Bob", "presenter_uri": "bob@example.com"}
```

presentation_stop

The presentation has finished.

Data: none

presentation_frame

A new presentation frame is available at:

https://<node_address>/api/client/v2/conferences/<conference_alias>/presentation.jpeg

An alternative image at a higher resolution is also available at:

https://<node_address>/api/client/v2/conferences/<conference_alias>/presentation_high.jpeg

Note that these URLs require the token and the event ID of the **presentation_frame** event to be present as a header or a query parameter in order to download the presentation frame, for example:

https://10.0.0.1/api/client/v2/conferences/meet_alice/presentation.jpeg?id=MTAuNDQuOTkuMl8xOA==&token=b3duZXI9T...etc...2FmGzA%3D

Data: none

participant_create

A new participant has joined the conference.

The JSON object fields include:

buzz_time	number	A Unix timestamp of when this participant raised their hand, otherwise zero.
call_direction	string	Either "in" or "out" as to whether this is an inbound or outbound call.
call_tag	string	An optional call tag that is assigned to this participant.
disconnect_ supported	string	Set to "YES" if the participant can be disconnected, "NO" if not.
display_name	string	The display name of the participant.
encryption	string	"On" or "Off" as to whether this participant is connected via encrypted media.
external_node_ uuid	string	The UUID of an external node e.g. a Skype for Business / Lync meeting associated with an external participant. This allows grouping of external participants as the UUID will be the same for all participants associated with that external node.
fecc_supported	string	Set to "YES" if this participant can be sent FECC messages; "NO" if not.
has_media	boolean	Boolean indicating whether the user has media capabilities.
is_audio_only_call	string	Set to "YES" if the call is audio only.
is_external	boolean	Boolean indicating if it is an external participant, e.g. coming in from a Skype for Business / Lync meeting.
is_muted	string	Set to "YES" if the participant is administratively audio muted.
is_presenting	string	Set to "YES" if the participant is the current presenter.
is_streaming_ conference	boolean	Boolean indicating whether this is a streaming/recording participant.
is_video_call	string	Set to "YES" if the call has video capability.
is_video_muted	boolean	Boolean indicating whether this participant is video muted.
local_alias	string	The calling or "from" alias. This is the alias that the recipient would use to return the call.
mute_supported	string	Set to "YES" if the participant can be muted, "NO" if not.
overlay_text	string	Text that may be used as an alternative to **display_name** as the participant name overlay text.
protocol *	string	The call protocol. Values: "api", "webrtc", "sip", "rtmp", "h323" or "mssip". (Note that the protocol is always reported as "api" when an Infinity Connect client dials in to Pexip Infinity.)
role	string	The level of privileges the participant has in the conference: • "chair": the participant has Host privileges • "guest": the participant has Guest privileges
rx_presentation_ policy	string	Set to "ALLOW" if the participant is administratively allowed to receive presentation, or "DENY" if disallowed.

service_type	string	The service type: • "connecting": for a dial-out participant that has not been answered • "waiting_room": if waiting to be allowed to join a locked conference • "ivr": if on the PIN entry screen • "conference": if in a VMR • "lecture" if in a Virtual Auditorium • "gateway": if it is a gateway call • "test_call": if it is a Test Call Service
spotlight	number	A Unix timestamp of when this participant was spotlighted, if spotlight is used.
start_time	number	A Unix timestamp of when this participant joined (UTC).
transfer_ supported	string	Set to "YES" if this participant can be transferred into another VMR; "NO" if not.
uuid	string	The UUID of this participant, to use with other operations.
uri *	string	The URI of the participant.
vendor *	string	The vendor identifier of the browser/endpoint with which the participant is connecting.
* Empty for Guest participants.		

Example data:


```
{
"buzz_time": 0,
"call_direction": "in",
"call_tag": "def456",
"disconnect_supported": "YES",
"display_name": "Alice",
"encryption": "On",
"external_node_uuid": "",
"fecc_supported": "NO",
"has_media": false,
"is_audio_only_call": "NO",
"is_external": false,
"is_muted": "NO",
"is_presenting": "NO",
"is_streaming_conference": false,
"is_video_call": "YES",
"is_video_muted": false,
"local_alias": "meet.alice",
"mute_supported": "YES",
"overlay_text": "Alice",
"presentation_supported": "NO",
"protocol": "api",
"role": "chair",
"rx_presentation_policy": "ALLOW",
"service_type": "conference",
"spotlight": 0,
"start_time": 1441720992,
"transfer_supported": "YES",
"uri": "Infinity_Connect_10.44.21.35",
"uuid": "50b956c8-9a63-4711-8630-3810f8666b04",
"vendor": "Pexip Infinity Connect/2.0.0-25227.0.0 (Windows NT 6.1; WOW64) nwjs/0.12.2 Chrome/41.0.2272.76"
}
```


participant_update

A participant's properties have changed.

Data: a full JSON object is supplied, as for participant_create.

participant_delete

A participant has left the conference.

Data: the JSON object contains the UUID of the deleted participant, for example:

```
{"uuid": "65b4af2f-657a-4081-98a8-b17667628ce3"}
```

participant_sync_begin / participant_sync_end

At the start of the EventSource connection, these two messages start and end the sending of the complete participant list in the form of participant_create events. This allows a participant that has been temporarily disconnected to re-sync the participant list.

conference_update

Conference properties have been updated. Currently, the only conference properties available are the lock status of the conference, whether Guests are muted, and if the conference has been started. For example:

```
{"locked": false, "guests_muted": false, "started": true}
```

layout

The stage layout has changed.

Data: an object containing the following fields:

view	string	The layout currently seen by the participant: • "1:0": main speaker only • "1:7": main speaker and up to 7 previous speakers • "1:21": main speaker and up to 21 previous speakers • "2:21": 2 main speakers and up to 21 previous speakers • "1:33": 1 small main speaker and up to 33 other speakers • "4:0": 2x2 layout, up to a maximum of 4 speakers • "9:0": 3x3 layout, up to a maximum of 9 speakers • "16:0": 4x4 layout, up to a maximum of 16 speakers • "25:0": 5x5 layout, up to a maximum of 25 speakers • "5:7": Adaptive Composition (AC) layout • "ac_presentation_in_mix": AC and viewing a presentation in the layout mix (single person presenter) • "ac_presentation_in_mix_group": AC and viewing a presentation in the layout mix (group presenter)
participants	array	An array of UUIDs for the participants, in order, starting from the main speaker position. Note that an API-only participant (no audio or video) always receives an empty participants UUID list.

Example data:

```
{"view": "1:7",
"participants": ["a0196175-b462-48a1-b95c-f322c3af57c1", "65b4af2f-657a-4081-98a8-b17667628ce3”]}
```

message_received

A chat message has been broadcast to the conference.

Data: an object containing the following fields:

origin	string	Name of the sending participant.
uuid	string	UUID of the sending participant.
type	string	MIME content-type of the message, usually text/plain.
payload	string	Message contents.

Example data:


```
{"origin": "Alice",
"type": "text/plain",
"payload": "Hello World",
"uuid": "eca55900-274d-498c-beba-2169aad9ce1f"}
```


stage

An update to the "stage layout" is available. This declares the order of active speakers, and their voice activity.

Data: an array of objects per active participant. Each participant has the following fields:

participant_uuid	string	The UUID of the participant.
stage_index	number	The index of the participant on the "stage". 0 is most recent speaker, 1 is the next most recent etc.
vad	number	Audio speaking indication. 0 = not speaking, 100 = speaking.

Example data:


```
[
{"stage_index": 0,
"participant_uuid": "a0196175-b462-48a1-b95c-f322c3af57c1",
"vad": 0},
{"stage_index": 1,
"participant_uuid": "65b4af2f-657a-4081-98a8-b17667628ce3",
"vad": 0}
]
```


call_disconnected

This is sent when a child call has been disconnected (e.g. when a screensharing child call has been closed if presentation has been stolen by another participant).

Data: contains both the UUID of the child call being disconnected, and the reason for the disconnection if available, e.g.:


```
{"call_uuid": "50ed679d-c622-4c0e-b251-e217f2aa030b",
"reason": "API initiated participant disconnect"}
```


disconnect

This is sent when the participant is being disconnected from the Pexip side.

Data: the reason parameter contains a reason for this disconnection, if available, e.g.:


```
{"reason": "API initiated participant disconnect"}
```

Other miscellaneous requests

Conferencing Node status (maintenance mode)

Load balancers can use the **https://<node_address>/api/client/v2/status** REST API command to check whether a Conferencing Node is in maintenance mode, for example:

https://10.0.0.1/api/client/v2/status

If the node **is not** in maintenance mode, it returns a **200 OK** with the following JSON:

```
{
  "status": "success",
  "result": "OK"
}
```

If the node **is** in maintenance mode, it returns a **503** with the following JSON:

```
{
  "status": "failed",
  "result": "Maintenance mode"
}
```

Changelog

Changes in version 28:

There are no changes in v28.

Changes in version 27:

- New participant function: **pres_in_mix**.
- New **fecc_supported** field on **calls** and **update** functions.

Changes in version 26:

- New participant functions: **video_muted** / **video_unmuted**.
- New **is_video_muted** field in **participant_create/update** responses.

Changes in version 25:

- When using **dial** you must use a protocol of **auto**. To enable calls to be placed via the other protocols you must select **Enable legacy dialout API** (via **Platform > Global Settings > Connectivity**).
- New **update** and **new_candidate** call functions.
- New **silent_video_detection** conference control function.
- Any **participant_create**/**update** events contain empty **protocol**, **vendor**, and **uri** for Guest participants.

More information

For more information about using this API, contact your Pexip authorized support representative.