

A call between two browsers made via the SIP server

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A SIP call between browsers made via WCS is a special case of [calls between a browser and a SIP device](#) when the web application in a browser serves as a softphone for both parts of the call.

Overview

Supported platforms and browsers

	Chrome	Firefox	Safari 11	Edge
Windows	+	+		+
Mac OS	+	+	+	
Android	+	+		
iOS	-	-	+	

Supported protocols

- WebRTC
- RTP
- SIP

Supported codecs

- H.264
- VP8
- G.711
- Speex
- G.729
- Opus

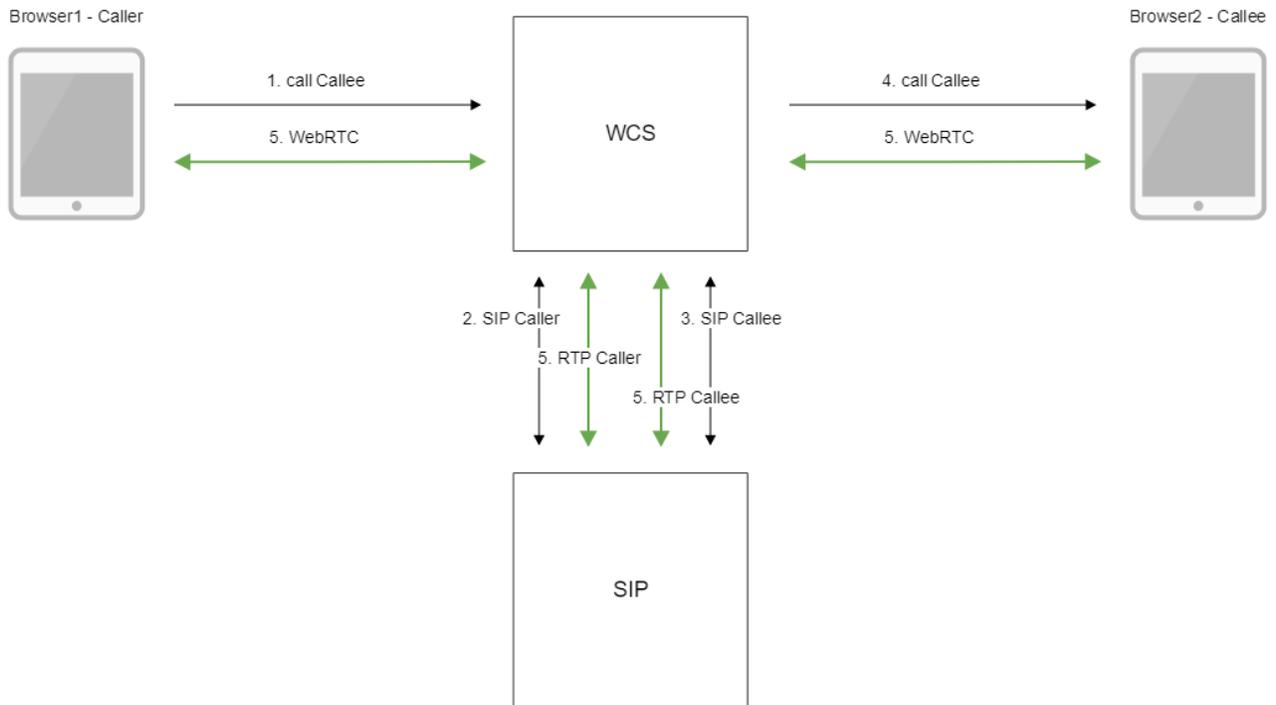
Supported SIP functions

- DTMF
- Holding a call
- Transferring a call

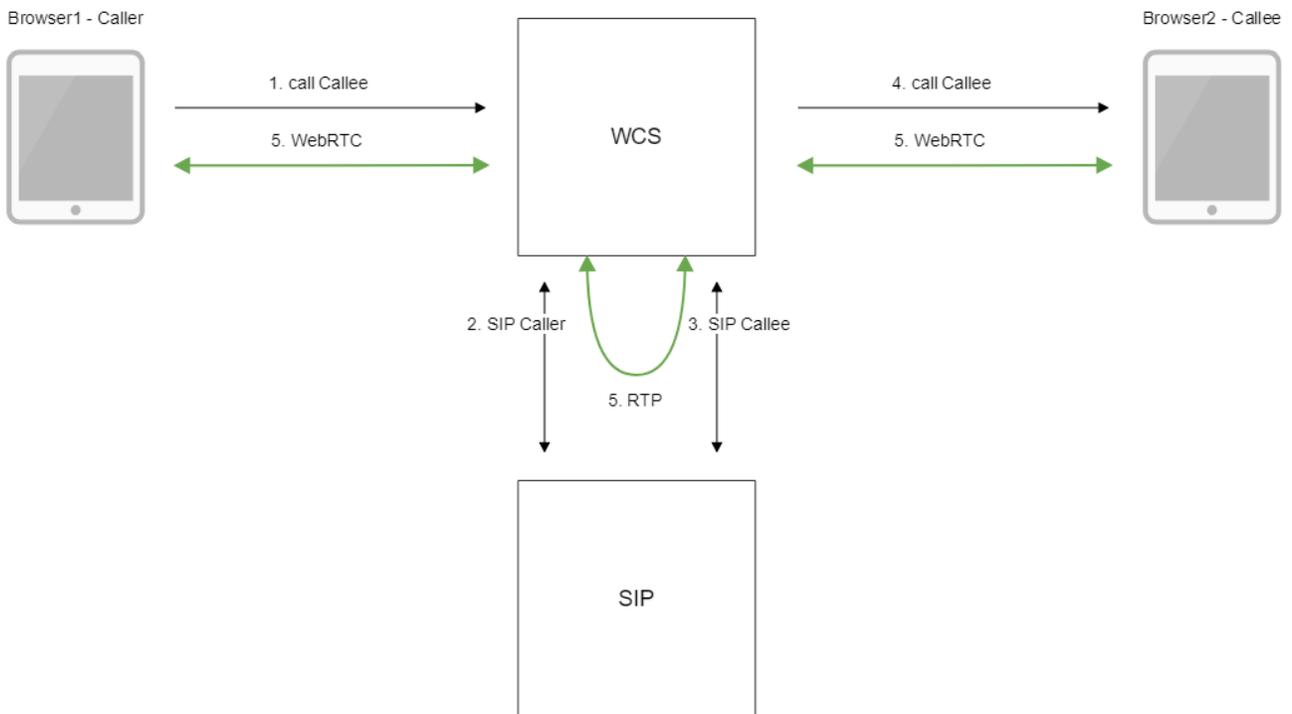
Management of SIP functions is performed using the REST API.

Operation flowchart

SIP server as a proxy server to transfer calls and RTP media



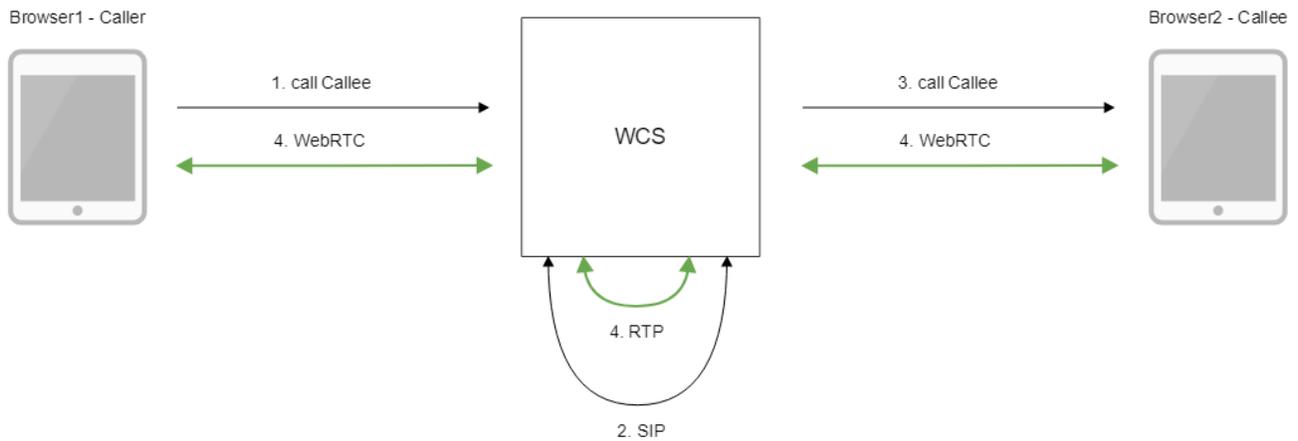
SIP server as a server to transfer calls only



1. The browser 1 begins a call from the Caller account to the Callee account
2. WCS connects to the SIP server
3. The SIP server transfers the call to the Callee to WCS
4. WCS sends to the browser 2 an event that a call is received

5. Browsers exchange audio and video streams

Without an external SIP server. SIP and RTP media are processed by WCS



1. The browser 1 begins a call from the Caller account to the Callee account
2. WCS establishes a SIP connection between accounts
3. WCS sends to the browser 2 an event that a call is received
4. Browsers exchange audio and video streams

Quick manual on testing

1. For the test we use:

- two SIP accounts;
- the [Phone](#) web application to make a call

2. Open the Phone web application. Enter the data of the SIP account and click the Connect button to establish a connection with the server:

Phone Min

Connection

WCS URL

SIP Login

SIP Auth Name

SIP Password

SIP Domain

SIP Outbound Proxy

SIP Port

Register required

3. Open the Phone web application in a new browser tab. Enter the data of the second SIP account and click the Connect button:

Phone Min

Connection

WCS URL

SIP Login

SIP Auth Name

SIP Password

SIP Domain

SIP Outbound Proxy

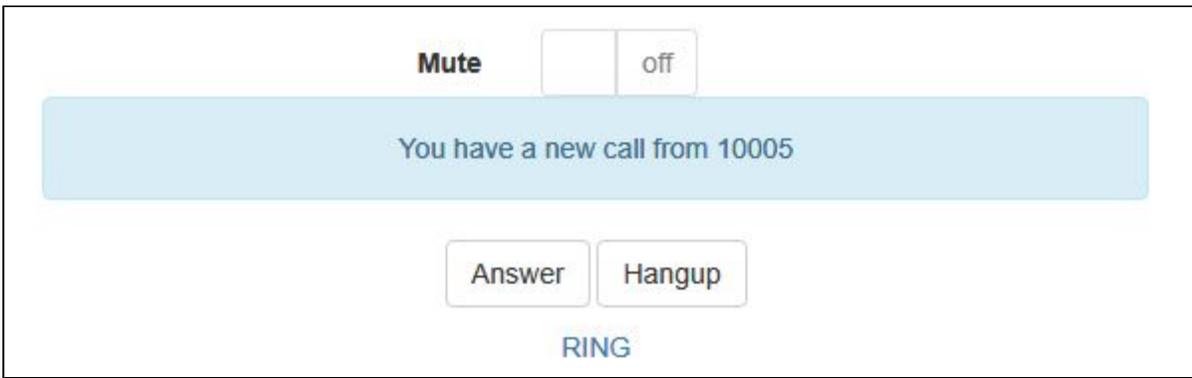
SIP Port

Register required

4. Enter the identifier of the SIP account receiving the call and click the Call button:

Mute

5. Answer the call by clicking the Answer button:



The call starts:



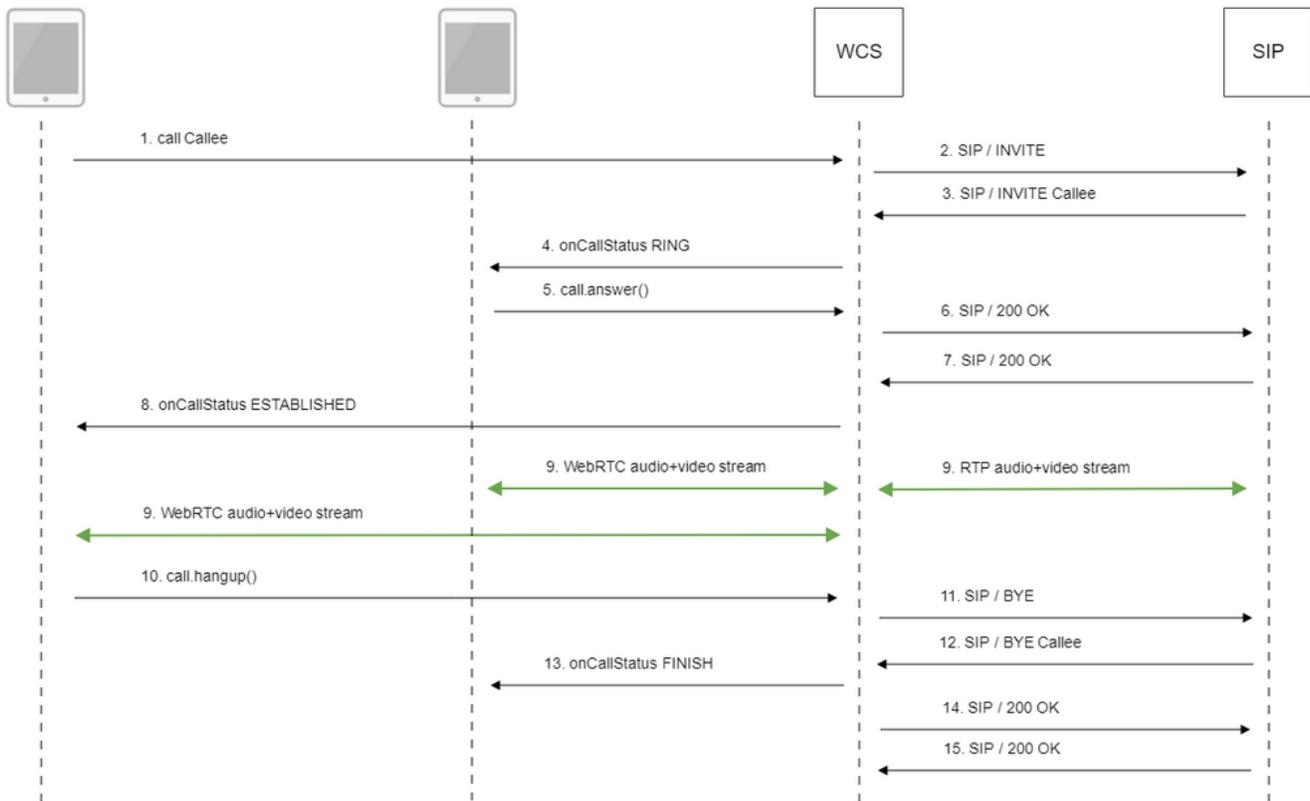
6. To terminate the call, click the "Hangup" button.

Call flow

Below is the call flow when using the Phone example to create a call. The SIP server is used as a proxy server to transfer commands and media.

[phone.html](#)

[phone.js](#)



1. Sending the /call/startup REST query using JavaScript API:

session.createCall(), call.call()

```
var outCall = session.createCall({
  callee: $("#callee").val(),
  visibleName: $("#sipLogin").val(),
  localVideoDisplay: localDisplay,
  remoteVideoDisplay: remoteDisplay,
  constraints: constraints,
  receiveAudio: true,
  receiveVideo: false
  ...
});

outCall.call();
```

2. Establishing a connection to the SIP server

3. The SIP server establishes a connection to WCS

4. Sending to the second browser an event notifying about the incoming call

CallStatusEvent RING

```
Flashphoner.createSession(connectionOptions).on(SESSION_STATUS.ESTABLISHED, function(session, connection){
  ...
}).on(SESSION_STATUS.INCOMING_CALL, function(call){
  call.on(CALL_STATUS.RING, function(){
    setStatus("#callStatus", CALL_STATUS.RING);
    ...
  });
});
```

5. The second browser answers the call

`call.answer()`[code](#)

```
function onIncomingCall(inCall) {
    currentCall = inCall;

    showIncoming(inCall.caller());

    $("#answerBtn").off('click').click(function(){
        $(this).prop('disabled', true);
        var constraints = {
            audio: true,
            video: false
        };
        inCall.answer({
            localVideoDisplay: localDisplay,
            remoteVideoDisplay: remoteDisplay,
            receiveVideo: false,
            constraints: constraints
        });
        showAnswered();
    }).prop('disabled', false);
    ...
}
```

6. Sending a confirmation to the SIP server

7. Receiving a confirmation from the SIP server

8. The first browser receives from the server an event confirming successful connection.

`CallStatusEvent ESTABLISHED`[code](#)

```
var outCall = session.createCall({
    ...
}).on(CALL_STATUS.ESTABLISHED, function(){
    setStatus("#callStatus", CALL_STATUS.ESTABLISHED);
    $("#holdBtn").prop('disabled', false);
    onAnswerOutgoing();
    ...
});

outCall.call();
```

9. The caller and the callee exchange audio and video streams

10. Terminating the call

`call.hangup()`[code](#)

```
function onConnected(session) {
    $("#connectBtn, #connectTokenBtn").text("Disconnect").off('click').click(function(){
        $(this).prop('disabled', true);
        if (currentCall) {
            showOutgoing();
            disableOutgoing(true);
            setStatus("#callStatus", "");
            currentCall.hangup();
        }
        session.disconnect();
    }).prop('disabled', false);
}
```

11. Sending the command to the SIP server
12. Receiving the command from the SIP server
13. Sending to the second browser an event confirming termination of the call

CallStatusEvent FINISH [code](#)

```
Flashphoner.createSession(connectionOptions).on(SESSION_STATUS.ESTABLISHED, function(session, connection){
    ...
}).on(SESSION_STATUS.INCOMING_CALL, function(call){
    call.on(CALL_STATUS.RING, function(){
        ...
    }).on(CALL_STATUS.FINISH, function(){
        setStatus("#callStatus", CALL_STATUS.FINISH);
        onHangupIncoming();
        currentCall = null;
    });
    ...
});
```

14. Sending a confirmation to the SIP server
15. Receiving a confirmation from the SIP server

SIP calls without an external SIP server

WCS may establish a SIP call and process its traffic without an external SIP server (see [the scheme above](#)). To do this, the following parameters must be set in [flashphoner.properties](#) file

```
enable_local_videochat=true
sip_add_contact_id=false
```

1. For test we use:

- Phone web application to make a call

2. Open Phone web application page. Enter the following:

- user name
- password
- SIP Domain: set WCS server IP address (not domain name!)
- SIP Outbound Proxy: set WCS server IP address (not domain name!)
- set SIP Port to 0
- clean Register required checkbox

Click Connect

Phone Min

Connection

WCS URL

wss://test1.flashphoner.com:8443

SIP Login

test1

SIP Auth Name

test1

SIP Password

.....

SIP Domain

95.191 [REDACTED]

SIP Outbound
Proxy

95.191 [REDACTED]

SIP Port

0

Register
required

ESTABLISHED

Disconnect

Auth Token

/5.129 [REDACTED] 49184/95.191 [REDACTED] 8443-

Disconnect

Mute

off

Callee SIP username

Call

3. Open Phone web application page in another browser window. Enter the following:

- second user name
- password
- SIP Domain: set WCS server IP address (not domain name!)

- SIP Outbound Proxy: set WCS server IP address (not domain name!)
- set SIP Port to 0
- clean Register required checkbox

Click Connect

Phone Min

Connection

WCS URL	<input type="text" value="wss://test1.flashphoner.com:8443"/>
SIP Login	<input type="text" value="test2"/>
SIP Auth Name	<input type="text" value="test2"/>
SIP Password	<input type="password" value="....."/>
SIP Domain	<input type="text" value="95.191.████████"/>
SIP Outbound Proxy	<input type="text" value="95.191.████████"/>
SIP Port	<input type="text" value="0"/>
Register required	<input type="checkbox"/>

ESTABLISHED Disconnect

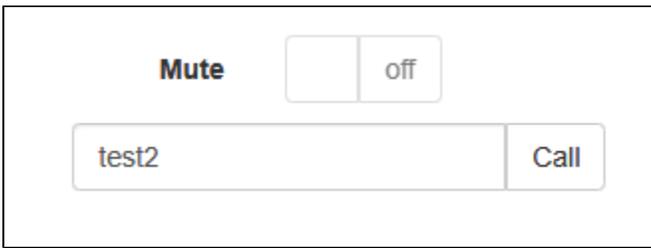
Auth Token	<input type="text" value="/5.129████████49188/95.191.████████:8443-"/>
-------------------	--

Disconnect

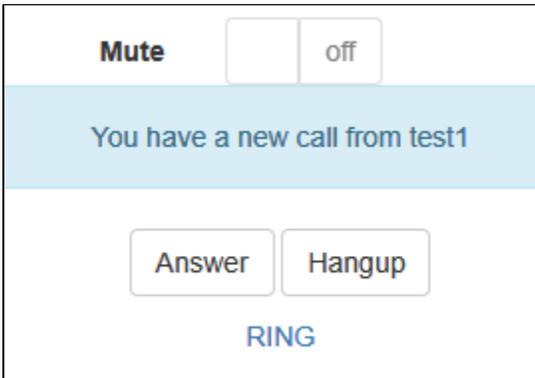
Mute off

<input type="text" value="Callee SIP username"/>	<input type="button" value="Call"/>
--	-------------------------------------

4. Enter callee name and click Call



5. Accept the call by clicking Answer



6. The call is established

Phone Min

test1.flashphoner.com:8444/client2/ex...

Phone Min

Connection

WCS URL

SIP Login

SIP Auth Name

SIP Password

SIP Domain

SIP Outbound Proxy

SIP Port

Register required

ESTABLISHED

Auth Token

ESTABLISHED

Mute off

ESTABLISHED

Phone Min

test1.flashphoner.com:8444/client2/examples/dem...

Phone Min

Connection

WCS URL

SIP Login

SIP Auth Name

SIP Password

SIP Domain

SIP Outbound Proxy

SIP Port

Register required

ESTABLISHED

Auth Token

ESTABLISHED

Mute off

ESTABLISHED