

iOS Video Conference

Example of video conference client for iOS

This example can be used to participate in video conference for three participants on Web Call Server and allows to publish WebRTC stream.

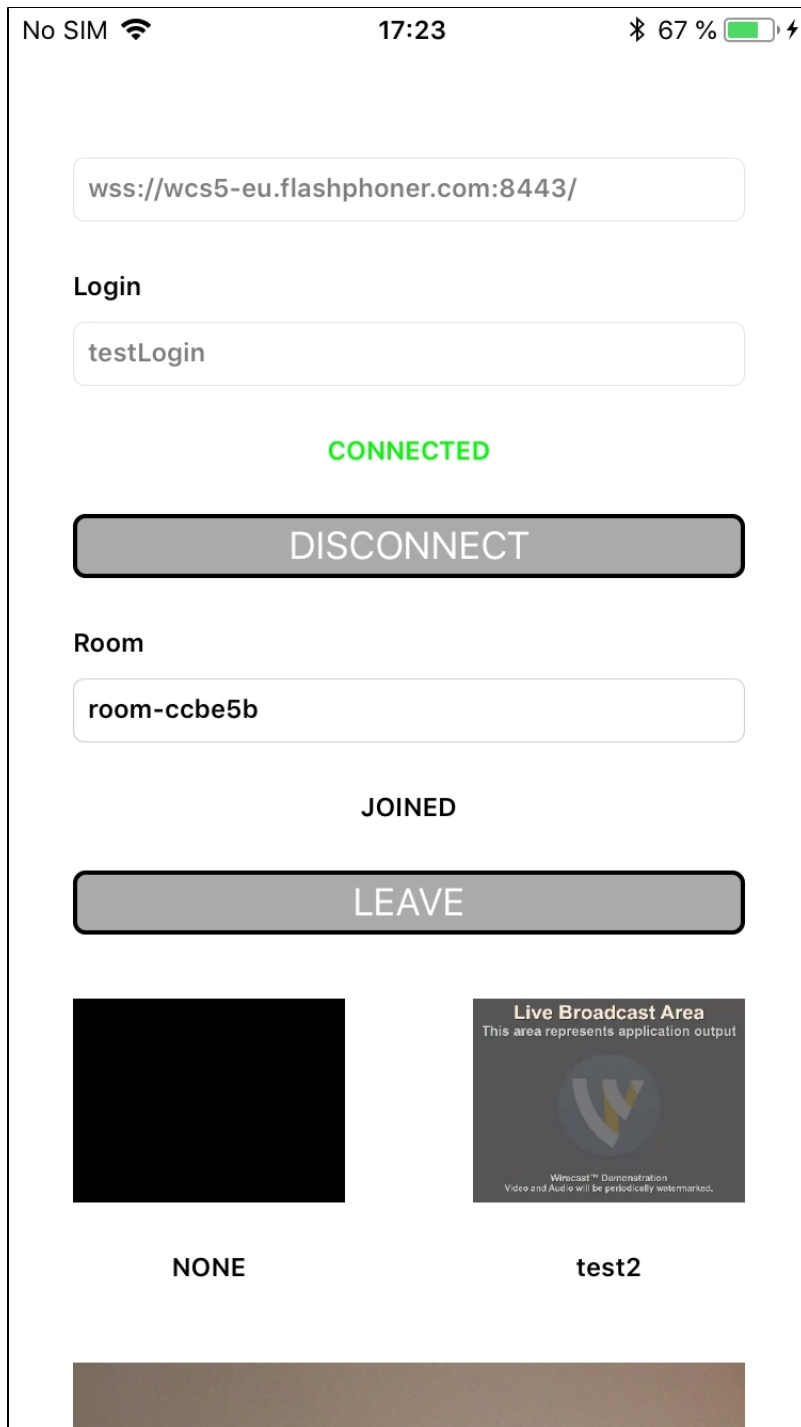
On the screenshot below the participant is connected, publishing a stream and playing streams from the other two participants.

Input fields required for connecting to WCS server and joining conference

- 'WCS URL' is the address of the WCS server
- 'Login' is the username
- 'Room' is the name of conference room

Three videos are played

- video from the camera of this participant - the lower one
- videos from the other participants



Analyzing the code of the example

To analyze the code, let's take `takeConference` example, which can be downloaded with corresponding build [2.5.2](#).

class for the main view of the application: `ViewController` (header file [ViewController.h](#); implementation file [ViewController.m](#)).

1. Import of API [code](#)

```
#import <FPWCSSApi2/FPWCSSApi2.h>
```

2. Connection to the server.

`FPWCSSApi2` `createRoomManager` [code](#)

`FPWCSSApi2RoomManagerOptions` object with the following parameters is passed to `createRoomManager()` method

- URL of WCS server
- username

```
- (void)connect {
    FPWCSEApi2RoomManagerOptions *options = [[FPWCSEApi2RoomManagerOptions alloc] init];
    options.urlServer = _connectUrl.text;
    options.username = _connectLogin.input.text;
    NSError *error;
    roomManager = [FPWCSEApi2 createRoomManager:options error:&error];
    ...
}
```

3. Joining a conference.

FPWCSEApi2RoomManager join[code](#)

FPWCSEApi2RoomOptions object with the name of the conference room is passed to the join() method

```
FPWCSEApi2RoomOptions * options = [[FPWCSEApi2RoomOptions alloc] init];
options.name = _joinRoomName.input.text;
room = [roomManager join:options];
```

4. Receiving the event describing chat room state

FPWCSEApi2Room onStateCallback[code](#)

On this event:

- the size of the collection of Participant objects returned by method getParticipants() is determined to get the number of already connected participants
- if the maximum allowed number of participants had already been reached, the user leaves the "room"
- otherwise, appropriate changes in the interface are done and playback of video stream published by the other participants is started

```
[room onStateCallback:^(FPWCSEApi2Room *room) {
    NSDictionary *participants = [room getParticipants];
    if ([participants count] >= 3) {
        [room leave:nil];
        _joinStatus.text = @"Room is full";
        [self changeViewState:_joinButton enabled:YES];
        return;
    }
    NSString *chatState = @"participants: ";
    for (NSString* key in participants) {
        FPWCSEApi2RoomParticipant *participant = [participants valueForKey:key];
        ParticipantView *pv = [freeViews pop];
        [busyViews setValue:pv forKey:[participant getName]];
        [participant play:pv.display];
        pv.login.text = [participant getName];
        chatState = [NSString stringWithFormat:@"%s%s", chatState, [participant getName]];
    }
    ...
}];
```

5. Video stream publishing.

FPWCSEApi2Room publish[code](#)

The next stream options is passed to publish method:

- view to display video

```
- (void)publishButton:(UIButton *)button {
    [self changeViewState:button.enabled:NO];
    if ([button.titleLabel.text isEqualToString:@"STOP"]) {
        [room unpublish];
    } else {
        publishStream = [room publish:_localDisplay];
        ...
    }
}
```

6. Receiving the event notifying that other participant joined to the room

FPWCSApi2Room kFPWCSRoomParticipantEventJoined participantCallback [code](#)

```
[room on:kFPWCSRoomParticipantEventJoined participantCallback:^(FPWCSApi2Room *room, FPWCSApi2RoomParticipant
*participant) {
    ParticipantView *pv = [freeViews pop];
    if (pv) {
        pv.login.text = [participant getName];
        _messageHistory.text = [NSString stringWithFormat:@"%s@\n%@ - %s", _messageHistory.text, participant.
getName, @"joined"];
        [busyViews setValue:pv forKey:[participant getName]];
    }
}];
```

7. Receiving the event notifying that other participant published video stream

FPWCSApi2Room kFPWCSRoomParticipantEventPublished participantCallback, FPWCSApi2RoomParticipant play [code](#)

On this event, video stream from other participant playback is started

```
FPWCSApi2Room kFPWCSRoomParticipantEventPublished participantCallback, FPWCSApi2RoomParticipant play

[room on:kFPWCSRoomParticipantEventPublished participantCallback:^(FPWCSApi2Room *room,
FPWCSApi2RoomParticipant *participant) {
    ParticipantView *pv = [busyViews valueForKey:[participant getName]];
    if (pv) {
        [participant play:pv.display];
    }
}];
```

8. Receiving the event notifying that other participant sent a message.

FPWCSApi2Room onMessageCallback [code](#)

```
[room onMessageCallback:^(FPWCSApi2Room *room, FPWCSApi2RoomMessage *message) {
    _messageHistory.text = [NSString stringWithFormat:@"%s@\n%@ - %s", _messageHistory.text, message.from,
message.text];
}];
```

9. Sending a message to other room participants.

FPWCSApi2RoomParticipant sendMessage [code](#)

The message text is passed to the metod.

```
- (void)sendButton:(UIButton *)button {
    for (NSString *name in [room getParticipants]) {
        FPWCSApi2RoomParticipant *participant = [room getParticipants][name];
        [participant sendMessage:_messageBody.text];
    }
    _messageHistory.text = [NSString stringWithFormat:@"%s@\n%@ - %s", _messageHistory.text, _connectLogin.input.
text, _messageBody.text];
    _messageBody.text = @"";
}
```

10. Mute/unmute audio and video for stream published.

FPWCSEApi2Stream unmuteAudio, muteAudio, unmuteVideo, muteVideo[code](#)

```
- (void)muteAudioChanged:(id)sender {
    if (publishStream) {
        if (_muteAudio.control.isOn) {
            [publishStream muteAudio];
        } else {
            [publishStream unmuteAudio];
        }
    }
}

- (void)muteVideoChanged:(id)sender {
    if (publishStream) {
        if (_muteVideo.control.isOn) {
            [publishStream muteVideo];
        } else {
            [publishStream unmuteVideo];
        }
    }
}
```

11. Stop stream publishing.

FPWCSEApi2Room unpublish[code](#)

```
- (void)publishButton:(UIButton *)button {
    [self changeViewState:button enabled:NO];
    if ([button.titleLabel.text isEqualToString:@"STOP"]) {
        [room unpublish];
    } else {
        ...
    }
}
```

12. Leaving chat room.

FPWCSEApi2Room leave[код](#)

Server REST app response handler function is passed to the method.

```
if ([button.titleLabel.text isEqualToString:@"LEAVE"]) {
    if (room) {
        FPWCSEApi2DataHandler *handler = [[FPWCSEApi2DataHandler alloc] init];
        handler.onAccepted = ^(FPWCSEApi2Session *session, FPWCSEApi2Data *data){
            [self onUnpublished];
            [self onLeaved];
        };
        handler.onRejected = ^(FPWCSEApi2Session *session, FPWCSEApi2Data *data){
            [self onUnpublished];
            [self onLeaved];
        };
        [room leave:handler];
        room = nil;
    }
}
```

13. Disconnection.

FPWCSEApi2RoomManager disconnect[code](#)

```
- (void)connectButton:(UIButton *)button {
    [self changeViewState:button enabled:NO];
    if ([button.titleLabel.text isEqualToString:@"DISCONNECT"]) {
        if (roomManager) {
            [roomManager disconnect];
        }
        ...
    }
}
```