Zoom iOS MobileRTC

Revision History

Date	History	Author
July 30, 2015	First Draft	Robust Hu
Jan 15, 2016	1. Support to enable/disable "Invite by Email"; 2. Support to customize the content and subject of "Invite by Email"	Robust Hu
Jul 04, 2016	1. Add Interface “onAppShareSplash” in MobileRTCMeetingServiceDelegate for app share; 2. Add Interface “onJBHWaitingWithCmd:” in MobileRTCMeetingServiceDelegate for customizing to show/ hide JBH waiting.	Robust Hu
Aug 11, 2016	1. Add Interface for login with work email; 2. Add Interface for login user to schedule/edit/delete/list meeting	Robust Hu
Aug 26, 2016	1. Support to customize strings in MobileRTC; 2. Support to customize images in MobileRTC	Robust Hu
Oct 08, 2016	1. Support to customize Dial-out 2. Change Interface “startMeeting:” to “startMeetingWithDictionary:” 3. Change Interface “joinMeeting:” to “joinMeetingWithDictionary”	Robust Hu
Nov 04, 2016	1. Rename “ZoomSDK.framework” to “MobileRTC.framework” 2. Rename “ZoomSDKResources.bundle” to “MobileRTCResources.bundle”	Robust Hu
Nov 10, 2016	1. Fix bug that RTC should popup an alert while dialing out with an unsupported number 2. Fix bug that RTC should start meeting successfully after changing user to another user	Robust Hu
Nov 15, 2016	1. Add github address 2. Fix bug that username of active video does not change after changing active video username in Participant list 3. Fix bug that alert message of microphone/camera privilege are not localized.	Robust Hu
Nov 28, 2016	1. Ignore App Transport Security (ATS) 2. Integrate RTC with Xcode 8	Robust Hu
Jan 03, 2017	1. Support to join Webinar with Panelist member; 2. Add option to show/hide thumbnail video while viewing/starting share in meeting; 3. Add option to hide “Leave Meeting” item in host side; 4. Add watermark in MobileRTC	Robust Hu

Date	History	Author
Mar 03, 2017	1. Fix Signal SIGPIPE issue after lost WiFi connection; 2. Add interfaces to get attendees in meeting; 3. Add delegate to get attendees' state change event; 4. Add interfaces for Raise Hand, Spotlight Video, Make Host, Remove User; 5. Add interfaces to call room device directly;	Robust Hu
Jun 06, 2017	1. Add interface to get MobileRTC version; 2. Add Interface to set the path of MobileRTCResrouces.bundle	Robust Hu

Main class description

- **MobileRTC**: MobileRTC base class, take charge of initializing MobileRTC, and return the instance of MobileRTCAuthService, MobileRTCPremeetingService, MobileRTCMeetingService and MobileRTCMeetingSettings.
- **MobileRTCAuthService**: MobileRTC authenticate service class, before using MobileRTC, partner app should request authentication with app key and app secret.
- **MobileRTCAuthDelegate**: MobileRTC authenticate delegate class, partner app can get the authentication result by this class.
- **MobileRTCPremeetingService**: MobileRTC pre-meeting service class, once MobileRTC user login with work email, he/she can use this class to schedule/edit/delete/list meeting.
- **MobileRTCPremeetingDelegate**: MobileRTC pre-meeting delegate class, MobileRTC user can the event result of schedule/edit/delete/list meeting.
- **MobileRTCMeetingService**: MobileRTC meeting service class, take charge of starting/joining meeting.
- **MobileRTCMeetingServiceDelegate**: MobileRTC meeting service delegate class, partner app can listen the meeting result and meeting state by the class

- **MobileRTCMeetingSettings**: MobileRTC meeting settings class, take charge of setting/getting the meeting audio/video state.
- **MobileRTCInviteHelper**: MobileRTC customize invite class, partner app can customize the behavior of inviting participant by the class

Development Description

Configuration

- iOS version：iOS 7.0 or later
- Support ARC: Yes

Frameworks

- MobileRTC provides a MobileRTC.framework and a MobileRTCResources.bundle in zoom-ios-mobilertc/lib directory;
- MobileRTC.framework should be imported into “Link Binary With Libraries”
- MobileRTC Resources.bundle should be copied into “Copy Bundle Resources”.

Deployment

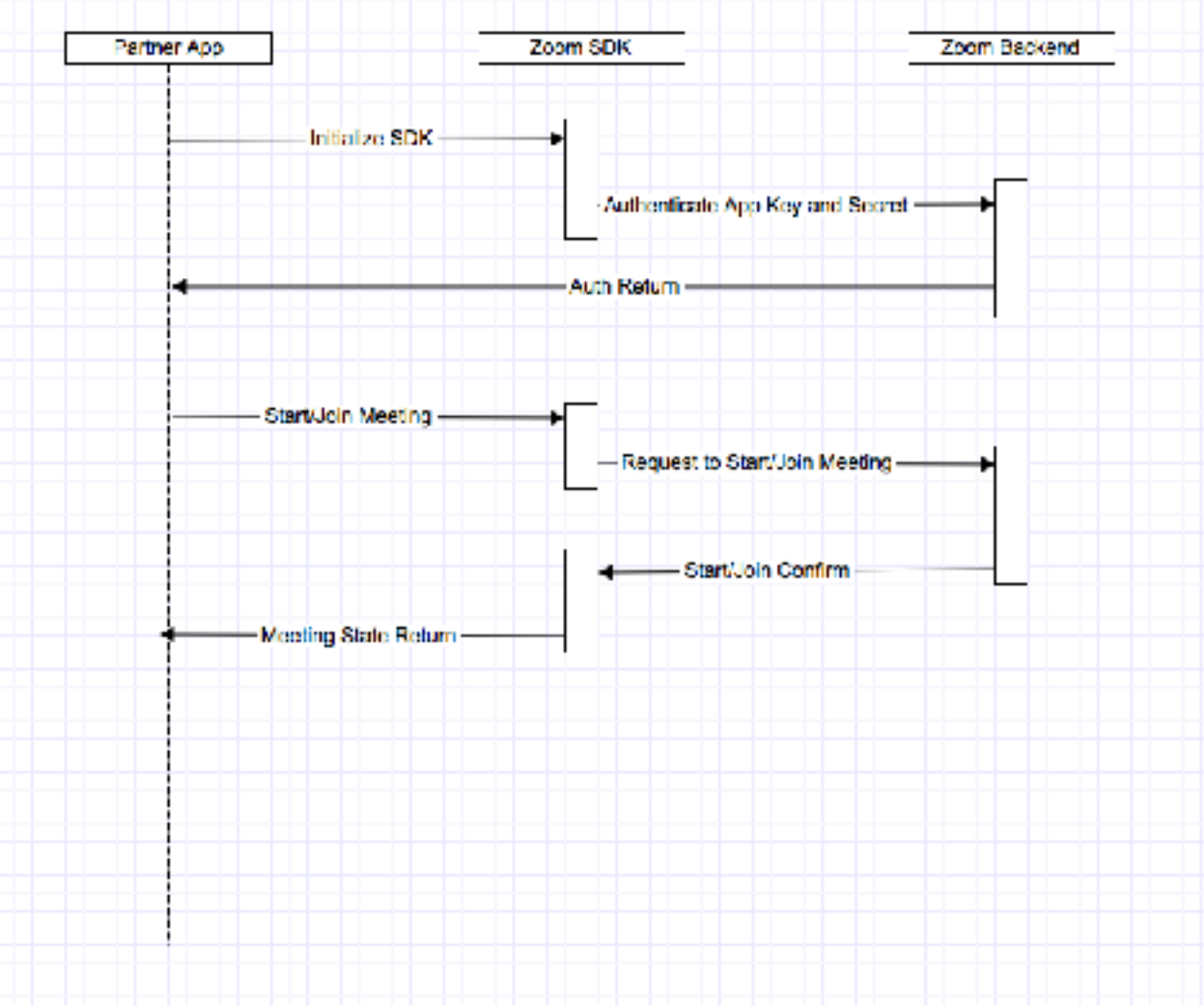
- Set “Targeted Device Family” to “iPhone/iPad”
- Set “iOS Deployment Target” to “iOS 7.0” or later
- Add “-ObjC” in “Other Linker Flags” of Build Settings
- Set “C++ Language Dialect” to “Compile Default”
- Set “C++ Standard Library” to “Compile Default”
- Import “libsqlite3.tbd”, “libstdc++.6.0.9.tbd”, “libz.1.2.5.tbd”, “VideoToolbox.framework” and “CoreBluetooth.framework” into “Link Binary With Libraries”.

NOTE: We provided a project named MobileRTCSample. For the detailed usage, please refer to the MobileRTCsample project.

https://github.com/zoomvideo/iOS-RTC-Stack

https://github.com/zoomvideo/iOS-MobileRTC-Stack-with-Device-only-framework

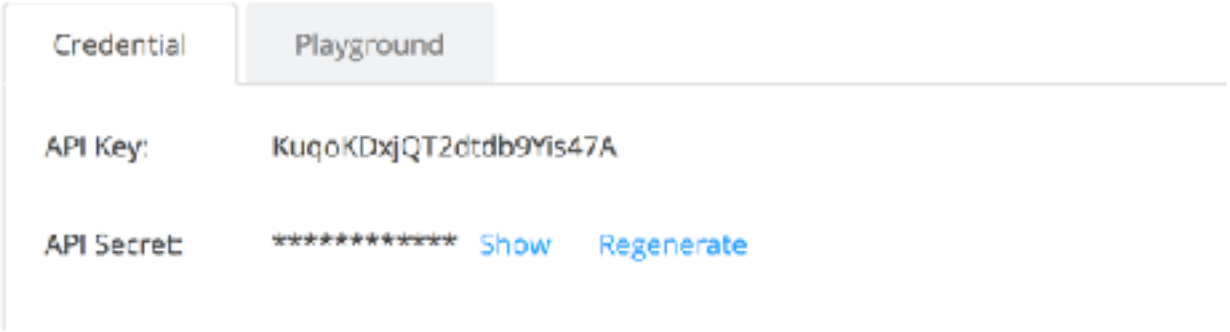
Sequence Diagram



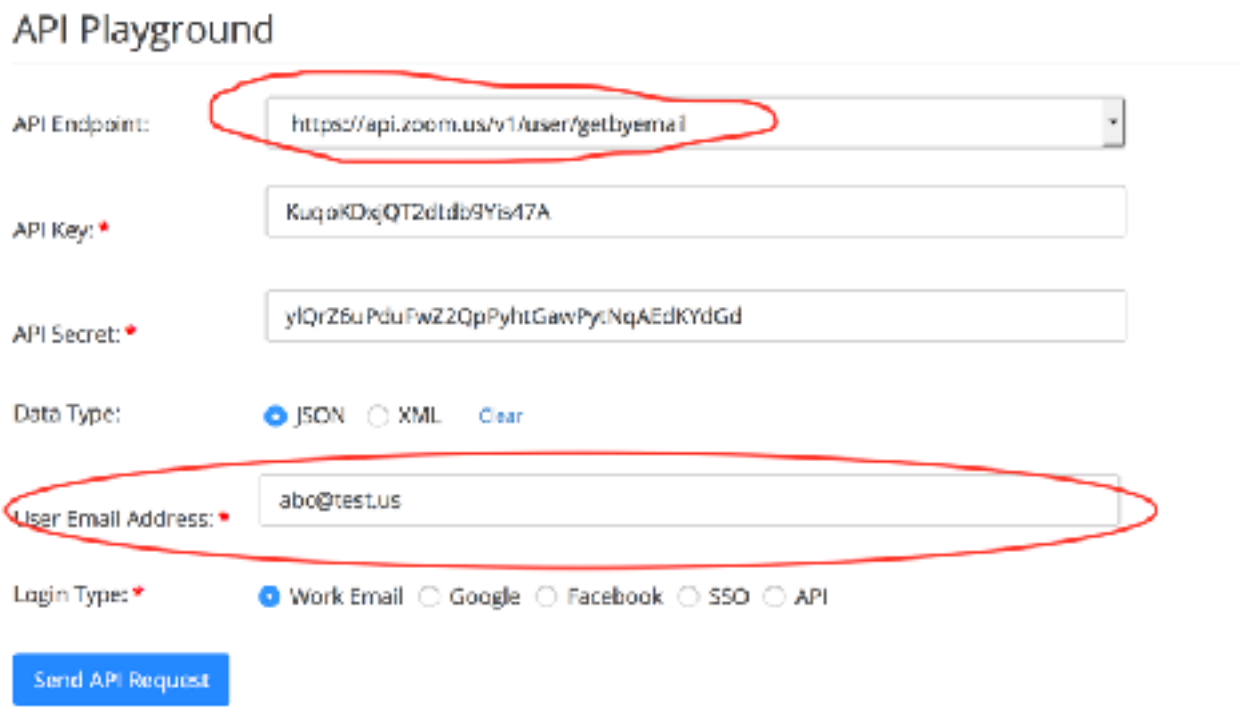
REST API usages

Get the App key and secret from your zoom account. This key/sec is same as the one used for mobile RTC

Get the REST API Key/Sec from your zoom account



Call REST API “getbyemail” and this should return the user id and user token



For API user, call REST API “create” to create a meeting at first. And once get the meeting id, API user can start the meeting.

Code Integration

We provided a project named MobileRTCSample. For the detailed usage, please refer to the sample project.

Note: MobileRTC can just be used after authentication.

1. MobileRTC Initialize.

To integrate with MobileRTC, MobileRTC should be initialized in application: didFinishLaunchingWithOptions: in AppDelegate class, code snippets as following:

```
//1. Set MobileRTC Domain
[[MobileRTC sharedRTC] setMobileRTCDomain:@“zoom.us”];

//2. Set MobileRTC Resource Bundle path
//Note: This step is optional, If MobileRTCResources.bundle is included in other bundle/framework, use this method to set the path of MobileRTCResources.bundle, or just ignore this step
NSString *bundlePath = [[NSBundle mainBundle] bundlePath];
[[MobileRTC sharedRTC] setMobileRTCResPath:bundlePath];

//3. Set MobileRTC Root Navigation Controller
//Note: This step is optional, If app’s rootViewController is not a UINavigationController, just ignore this step.
[[MobileRTC sharedRTC] setMobileRTCRootController:navController];

//4. MobileRTC Authenticate
MobileRTCAuthService *authService = [[MobileRTC sharedRTC] getAuthService];
```

```
if (authService)
{
    authService.delegate = self;

    authService.clientKey = @“xx-xx-xxx”;
    authService.clientSecret = @“yy-yy-yyy”;

    [authService sdkAuth];
}
```

Note: The following is optional
Note: Once partner login MobileRTC with work email, MobileRTC will auto login while app is launched each time, and partner can stop it by calling interface “logoutRTC”.

The following code snippet was used if partner want to login/logout with work email account:

```
//Login with work email account
MobileRTCAuthService *authService = [[MobileRTC sharedRTC] getAuthService];
if (authService)
{
    BOOL ret = [authService loginWithEmail:@"xx@xx.xx" password:@"yyy"];
}

//Logout
MobileRTC AuthService *authService = [[MobileRTC sharedRTC] getAuthService];
if (authService)
{
    [authService logoutRTC];
}
```

2. Listener for MobileRTCAuthDelegate.

To check the authentication from MobileRTC, the listener can be added in AppDelegate, code snippets as following:

```
#pragma mark - Auth Delegate

//Sink auth event
- (void)onMobileRTCAuthReturn:( MobileRTCAuthError)returnValue
{
    NSLog(@"onMobileRTCAuthReturn %d", returnValue);
}

//Sink login event
- (void)onMobileRTCLoginReturn:(NSInteger)returnValue
{
    NSLog(@"onMobileRTCLoginReturn result=%zd", returnValue);
```

```
    //Register delegate of pre-meeting service after login with work email account
    MobileRTCPremeetingService *service = [[MobileRTC sharedRTC] getPreMeetingService];
    if (service)
    {
        service.delegate = self;
    }
}

//Sink logout event
- (void)onMobileRTCLogoutReturn:(NSInteger)returnValue
{
    NSLog(@"onMobileRTCLogoutReturn result=%zd", returnValue);
}
```

3. Start Meeting

After MobileRTC was initialized, partner app can start a meeting, code snippets as following:

```
MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
if (ms)
{
    ms.delegate = self;


    //For API User
    NSDictionary *paramDict = @{kMeetingParam_UserID:kSDKUserID,
                                kMeetingParam_UserToken:kSDKUserToken,
                                kMeetingParam_UserType:@( MobileRTCUserType_ZoomUser),
                                kMeetingParam_Username:kSDKUserName,
                                kMeetingParam_MeetingNumber:kSDKMeetNumber,
                                kMeetingParam_IsAppShare:@(appShare),
                                //kMeetingParam_ParticipantID:kParticipantID,
                                };

//    //For login user start scheduled meeting
//    NSDictionary *paramDict = @{kMeetingParam_MeetingNumber:kSDKMeetNumber,
//                                //kMeetingParam_IsAppShare:@(appShare)
//                                };
//
//    //For login user start instant meeting
//    NSDictionary *paramDict = @{
//                                //kMeetingParam_IsAppShare:@(appShare)
//                                };

    MobileRTCMeetError ret = [ms startMeetingWithDictionary:paramDict];
    NSLog(@"onMeetNow ret:%d", ret);
}
```

4. Join Meeting

After MobileRTC was initialized, partner app can join a meeting, code snippets as following:

```
MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
if (ms)
{
    ms.delegate = self;

    //For Join a meeting with password
    NSDictionary *paramDict = @{
                            kMeetingParam_Username:kSDKUserName,
                            kMeetingParam_MeetingNumber:meetingNumber,
                            kMeetingParam_MeetingPassword:meetingPassword,
                            //kMeetingParam_ParticipantID:kParticipantID,
                            //kMeetingParam_WebinarToken:kWebinarToken,
                            };
//    //For Join a meeting
//    NSDictionary *paramDict = @{
//                              kMeetingParam_Username:kSDKUserName,
//                              kMeetingParam_MeetingNumber:meetingNumber,
//                              //kMeetingParam_ParticipantID:kParticipantID,
//                              };
    MobileRTCMeetError ret = [ms joinMeetingWithDictionary:paramDict];
    NSLog(@"onJoinaMeeting ret:%d", ret);
}
```

5. Listener for Meeting Service

Once Partner App started/joined a meeting, MobileRTC will return the meeting state by Meeting Service Delegate, code snippets as following:

```
#pragma mark - Meeting Service Delegate

- (void)onMeetingReturn:( MobileRTCMeetError)error internalError:(NSInteger)internalError
{
    NSLog(@"onMeetingReturn:%d, internalError:%zd", error, internalError);
}

- (void)onMeetingStateChange:( MobileRTCMeetingState)state
{
    NSLog(@"onMeetingStateChange:%d", state);
}
```

6. Get/Set Meeting Audio/Video State

After MobileRTC was initialized, partner can change the meeting audio/video state, the change will take action in the subsequent meeting, code snippets as following:

```
MobileRTCMeetingSettings *settings = [[MobileRTC sharedRTC] getMeetingSettings];
if (!settings)
   return nil;

BOOL isAutoConnected = [settings autoConnectInternetAudio];

BOOL isAudioMuted = [settings muteAudioWhenJoinMeeting];

BOOL isVideoMuted = [settings muteVideoWhenJoinMeeting];

BOOL disabled = [settings driveModeDisabled];

BOOL disabledCallIn = [settings callInDisabled];

BOOL disabledCallOut = [settings callOutDisabled];


//Set Meeting Audio/Video State
UISwitch *sv = (UISwitch*)sender;

[[[MobileRTC sharedRTC] getMeetingSettings] setAutoConnectInternetAudio:sv.on];

[[[MobileRTC sharedRTC] getMeetingSettings] setMuteAudioWhenJoinMeeting:sv.on];

[[[MobileRTC sharedRTC] getMeetingSettings] setMuteVideoWhenJoinMeeting:sv.on];

[[[MobileRTC sharedRTC] getMeetingSettings] disableDriveMode:sv.on];

[[[MobileRTC sharedRTC] getMeetingSettings] disableCallIn:sv.on];

[[[MobileRTC sharedRTC] getMeetingSettings] disableCallOut:sv.on];
```

7. Pause/Resume Meeting Audio

After started/joined meeting, partner can pause/resume the meeting audio, code snippets as following:

```
BOOL isNoAudio = [[[MobileRTC sharedRTC] getMeetingService] isNoMeetingAudio];
[[[MobileRTC sharedRTC] getMeetingService] pauseMeetingAudio:!isNoAudio];
```

8. Option for Show/Hide Thumbnail video and Hide “Leave Meeting” item in Host side

Partner can show/hide thumbnail video while viewing/starting share in meeting, code snippets as following:

```
[[[MobileRTC sharedRTC] getMeetingSettings] setThumbnailHidden:hidden];
```

Partner can hide “Leave Meeting” item in host side in meeting, code snippets as following:

```
[[[MobileRTC sharedRTC] getMeetingSettings] setHostLeaveHidden:hidden];
```

9. Customize to invite participant

Once Partner App started/joined a meeting, Partner app can customize the behavior of inviting participant, code snippets as following:

```
//To enable to customize Invite Participant, Partner should implement the delegate method “-(void)onClickedInviteButton:(UIViewController*)parentVC”,  Partner can present customized Invite view controller in this method.

- (void)onClickedInviteButton:(UIViewController*)parentVC
{
    InviteViewController *inviteVC = [[InviteViewController alloc] init];
    UINavigationController *nav = [[UINavigationController alloc] initWithRootViewController:inviteVC];
    nav.modalPresentationStyle = UIModalPresentationFormSheet;

    [parentVC presentViewController:nav animated:YES completion:NULL];
}
```

And partner can get meeting ID and join meeting URL by the following properties:

```
NSString *meetingID = [MobileRTCInviteHelper sharedInstance].meetingID;
NSString *meetingURL = [MobileRTCInviteHelper sharedInstance].joinMeetingURL;
```

10. Customize the content of “Invite by Message”, “Copy URL” and “Invite by Email”

Partner App can customize the content of “Invite by Message (SMS)”, “Copy URL” and “Invite by Email” after the meeting is ongoing, and can enable/disable the feature of “Invite by Message”/ “Copy URL”/“Invite by Email”, code snippets as following:

```
//For Enable/Disable Copy URL
[MobileRTCInviteHelper sharedInstance].disableCopyURL = YES;

//For Enable/Disable Invite by Email
[MobileRTCInviteHelper sharedInstance].disableInviteEmail = YES;
```

```
//For Enable/Disable Invite by Message
[MobileRTCInviteHelper sharedInstance].disableInviteSMS = YES;

if (state == MobileRTCMeetingState_InMeeting)
{
        //For customizing the content of Invite by SMS
        NSString *meetingID = [[MobileRTCInviteHelper sharedInstance] meetingID];
        NSString *smsMessage = [NSString stringWithFormat:NSLocalizedString(@"Please join
meeting with ID: %@", @""), meetingID];
        [[MobileRTCInviteHelper sharedInstance] setInviteSMS:smsMessage];

        //For customizing the content of Copy URL
        NSString *joinURL = [[MobileRTCInviteHelper sharedInstance] joinMeetingURL];
        NSString *copyURLMsg = [NSString stringWithFormat:NSLocalizedString(@"Meeting
URL: %@", @""), joinURL];
        [[MobileRTCInviteHelper sharedInstance] setInviteCopyURL:copyURLMsg];

      //For customizing "Invite by Email"
      [MobileRTCInviteHelper sharedInstance].inviteEmailSubject = @"Invite by Email";
      [MobileRTCInviteHelper sharedInstance].inviteEmailContent = [NSString
stringWithFormat:NSLocalizedString(@"Please join meeting with ID: %@", @""), meetingID];

}
```

11. Turn on/off cloud record

```
MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
//To check whether support cloud record or not
[ms isCMREnabled];

//To check whether cloud record is in progress
[ms isCMRInProgress];

//Turn on cloud record
[ms turnOnCMR:YES];

//Turn off cloud record
[ms turnOnCMR:NO];
```

12.Customize to Dial-Out

Once Partner App started/joined a meeting, Partner app can customize the behavior of Dial-Out if the account supports dial-out, code snippets as following:

```
//To enable to customize Dial-Out, Partner should implement the delegate method "-
(void)onClickedDialOut:(UIViewController*)parentVC isCallMe:(BOOL)me",  Partner can start
dial-out in this method.
```

```
- (void)onClickedDialOut:(UIViewController*)parentVC isCallMe:(BOOL)me
{
    MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
    if (!ms)
        return;

    if ([ms isDialOutInProgress])
    {
        NSLog(@"There already exists an ongoing call");
        return;
    }

    NSString *callName = me ? nil : @"Dialer";
    BOOL ret = [ms dialOut:@"+866004" isCallMe:me withName:callName];
    NSLog(@"Dial out result: %zd", ret);
}
```

And partner can get dial-out status by the following code:

```
- (void)onDialOutStatusChanged:(DialOutStatus)status
{
    NSLog(@"onDialOutStatusChanged: %zd", status);
}
```

13.Customize to call H.323/SIP Room System

Once Partner App started/joined a meeting, Partner app can customize the behavior of Call Room System if the account support, code snippets as following:

```
//After joined meeting, Partner can call Room System directly as following

//For Call-In Room Device
ms sendPairingCode:@"xxxyyy"];

//For Call-Out Room Device
MobileRTCRoomDevice *device = [[MobileRTCRoomDevice alloc] init];
device.deviceName = @"abc";
device.ipAddress = @"111.111.111.1111";
device.e164num = 0;
device.deviceType = MobileRTCDeviceType_H323;
device.encryptType = MobileRTCDeviceEncryptType_None;
[ms callRoomDevice:device];
```

And partner can get Call Room System status by the following code:

```
- (void)onSendPairingCodeStateChanged:(NSUInteger)state
{
    NSLog(@"onSendPairingCodeStateChanged %zd", state);
```

```
}

- (void)onCallRoomDeviceStateChanged:(NSUInteger)state
{
    NSLog(@"onCallRoomDeviceStateChanged %zd", state);
}
```

14.Provide Participants list info in meeting

If Partner wants to implement participant list, MobileRTC provides interfaces to get attendees in meeting, and provides delegate to notify Partner if attendees' state updated, code snippets as following:

```
MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
NSArray *users = [ms getInMeetingUserList];
NSLog(@"In Meeting users:%zd", users.count);

MobileRTCMeetingUserInfo *myself = [ms getMyUserInfo];
NSLog(@"In Meeting myself:%@", myself);
```

And provides delegate to notify Partner if attendees' state updated by the following code:

```
- (void)inMeetingUserUpdated
{
    NSLog(@"inMeetingUserUpdated");
}
```

15. Notify app become active/inactive.

MobileRTC should notify the common layer that app will become inactive in applicationWillResignActive: in AppDelegate class, code snippets as following:

```
[[MobileRTC sharedRTC] appWillResignActive];
```

MobileRTC should notify the common layer that app did enter backgroud in applicationDidEnterBackground: in AppDelegate class, code snippets as following:

```
[[MobileRTC sharedRTC] appDidEnterBackgroud];
```

MobileRTC should notify the common layer that app did become active in applicationDidBecomeActive: in AppDelegate class, code snippets as following:

```
[[MobileRTC sharedRTC] appDidBecomeActive];
```

16.Pre-Meeting Service

This class provides support for schedule/edit/delete meeting once login with work email, code snippets as following:

```
//For Schedule Meeting
MobileRTCPremeetingService *service = [[MobileRTC sharedRTC] getPreMeetingService];
if (service)
{
	id<MobileRTCMeetingItem> item = [service createMeetingItem];
	[item setMeetingTopic:@"xxx"];
	[item setStartTime:[NSDate date]];
	[item setTimeZoneID:[NSTimeZone defaultTimeZone].name];
	[item setDurationInMinutes:60];

	[service scheduleMeeting:item];

	[service destroyMeetingItem:item];
}

//For Edit Meeting
MobileRTCPremeetingService *service = [[MobileRTC sharedRTC] getPreMeetingService];
if (service)
{
	id<MobileRTCMeetingItem> item = [service getMeetingItemByNumber:123456789];
	if (item)
	{
		[item setMeetingTopic:@"xxx yyy"];
		[item setMeetingNumber:123456789];
		[item setStartTime:[NSDate date]];
		[item setMeetingPassword:@"yyy"];

		[service editMeeting:item];
	}
}

//For Delete Meeting
MobileRTCPremeetingService *service = [[MobileRTC sharedRTC] getPreMeetingService];
if (service)
{
	id<MobileRTCMeetingItem> item = [service getMeetingItemByNumber:123456789];
	if (item)
	{
		[service deleteMeeting:item];
	}
}

//For List Meeting
MobileRTCPremeetingService *service = [[MobileRTC sharedRTC] getPreMeetingService];
if (service)
{
	[service listMeeting];
}
```

17.Listener for Pre-Meeting Service

Once Schedule/Edit/Delete/List meeting with MobileRTCPremeetingService, MobileRTCMobileRTC will return the event state by Pre-Meeting Service Delegate, code snippets as following:

```
- (void)sinkSchedultMeeting:(NSInteger)result
{
    NSLog(@"sinkSchedultMeeting result: %zd", result);
}

- (void)sinkEditMeeting:(NSInteger)result
{
    NSLog(@"sinkEditMeeting result: %zd", result);
}

- (void)sinkDeleteMeeting:(NSInteger)result
{
    NSLog(@"sinkDeleteMeeting result: %zd", result);
}

- (void)sinkListMeeting:(NSInteger)result withMeetingItems:(NSArray*)array
{
    NSLog(@"sinkSchedultMeeting result: %zd  items: %@", result, array);
}
```

18.For App Share

iOS MobileRTC supports to start a meeting with sharing content in App(App Share), and at the same time the meeting UI can be hidden in the background while app sharing.

```
//Once meeting is started,  user can sink “onMeetingReady” and start app share in this method
- (void)onMeetingReady
{
    MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
    if ([ms isDirectAppShareMeeting])
    {
        if ([ms isStartingShare] || [ms isViewingShare])
        {
            NSLog(@"There exist an ongoing share");
            [ms showZoomMeeting:nil];
            return;
        }

        BOOL ret = [ms startAppShare];
        NSLog(@"Start App Share... ret:%zd", ret);
    }
```

```
}

//Notify that user can share the splash in this method
- (void)onAppShareSplash
{
    MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
    if (ms)
    {
        [ms appShareWithView:self.splashVC.view];
    }
}

//Notify that user clicked the share button in meeting UI, user can hide meeting ui and share his/
her content in the App.
- (void)onClickedShareButton
{
    MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
    if (ms)
    {
        if ([ms isStartingShare] || [ms isViewingShare])
        {
            NSLog(@"There exist an ongoing share");
            return;
        }

        [ms hideMobileRTCMeeting:^(void){
            [ms startAppShare];
        }];
    }
}

//Notify that there exists no ongoing share, user can determine to share his/her content or not.
- (void)onOngoingShareStopped
{
    NSLog(@"There does not exist ongoing share");
//    MobileRTCMeetingService *ms = [[MobileRTC sharedRTC] getMeetingService];
//    if (ms)
//    {
//        [ms startAppShare];
//    }
}
```

19.Customize waiting UI

When user try to join a meeting which the host has not started, the “Waiting for Host” UI can be shown, and user can customize the waiting UI once received the following callback.

```
//This method is optional
```

```
- (void)onJBHWaitingWithCmd:(JBHCmd)cmd
{
    switch (cmd) {
        case JBHCmd_Show:
        {
//            UIViewController *vc = [UIViewController new];
//
//            NSString *meetingID = [MobileRTCInviteHelper sharedInstance].meetingID;
//            vc.title = meetingID;
//
//            UIBarButtonItem *leaveItem = [[UIBarButtonItem alloc]
initWithTitle:NSLocalizedString(@"Leave", @"") style:UIBarButtonItemStylePlain target:self ac-
tion:@selector(onLeave:)];
//            [vc.navigationItem setRightBarButtonItem:leaveItem];
//
//            UINavigationController *nav = [[UINavigationController alloc] initWithRootViewCon-
troller:vc];
//            nav.modalPresentationStyle = UIModalPresentationFormSheet;
//            [self presentViewController:nav animated:YES completion:NULL];
        }
            break;

        case JBHCmd_Hide:
        default:
        {
            [self dismissViewControllerAnimated:YES completion:NULL];
        }
            break;
    }
}
```

Note:

Zoom iOS MobileRTC should be integrated in the main thread.

For fixing bug that view will move up about 20px after leaving meeting:

Add the following code in method “viewWillAppear” in the view controller which call the interface of starting/joining meeting

```
- (void)viewWillAppear:(BOOL)animated
{
    [super viewWillAppear:animated];

    //for bug that there exist 20 pixels in the bottom while leaving meeting quickly
    [[UIApplication sharedApplication] setStatusBarHidden:YES withAnimation:UIStatusBarAni-
mationNone];
```

```
    [[UIApplication sharedApplication] setStatusBarHidden:NO withAnimation:UIStatusBarAni-
mationNone];
}
```

For keeping app continues to run in the background to support audio, add flag in project's:

```
<key>UIBackgroundModes</key>
<array>
        <string>audio</string>
</array>
```

For Ignoring App Transport Security (ATS):

App Transport Security has blocked a cleartext HTTP (http://) resource load since it is insecure. Temporary exceptions can be configured via your app's Info.plist file.

```
<key>NSAppTransportSecurity</key>
<dict>
        <key>NSAllowsArbitraryLoads</key>
        <true/>
        <key>NSAllowsArbitraryLoadsInWebContent</key>
        <true/>
</dict>
```

Note: NSAllowsArbitraryLoadsInWebContent will only work in iOS 10, and NSAllowsArbitrary-Loads will not work if added NSAllowsArbitraryLoadsInWebContent into Info.plist file.

For integrating RTC with Xcode8:

In Xcode8 and iOS 10.x, the app has crashed because it attempted to access privacy-sensitive data without a usage description. The app's Info.plist must contain an NSCameraUsageDescription/NSMicrophoneUsageDescription/NSPhotoLibraryUsageDescription key with a string value explaining to the user how the app uses this data.

<key>NSCameraUsageDescription</key>

<string>cameraDescription</string>

<key>NSMicrophoneUsageDescription</key>

<string>microphoneDescription</string>

<key>NSPhotoLibraryUsageDescription</key>

<string>photoLibraryDescription</string>

For hiding warning from iOS MobileRTC:

Set “Debug Information Format” = “DWARF” in project’s build setting.

For customize string resource in iOS MobileRTC:

Partner can define the string resource in Localizable.string file, and the key of string should be matched with the one in MobileRTC. On the other hand, the key and value of defined string should not be the same, or the customized string will not take place the one in MobileRTC.

We customized some strings in MobileRTCSample project, as follows:

"Waiting..." = "Sample Waiting...";

"Zoom" = "SDK Sample";

"Leave" = "Exit";
"Leave Meeting" = "Exit Meeting";

For customize image resource in iOS MobileRTC:

Partner can define the image resource by their own, and the image file name should be equal to the one in MobileRTC, which will take place the one in MobileRTC.

We customized some images in MobileRTCSample project, the name of image files as follows:

icon_meeting_share.png

icon_meeting_share@2x.png

icon_meeting_share@3x.png

icon_meeting_stopshare.png

icon_meeting_stopshare@2x.png
icon_meeting_stopshare@3x.png