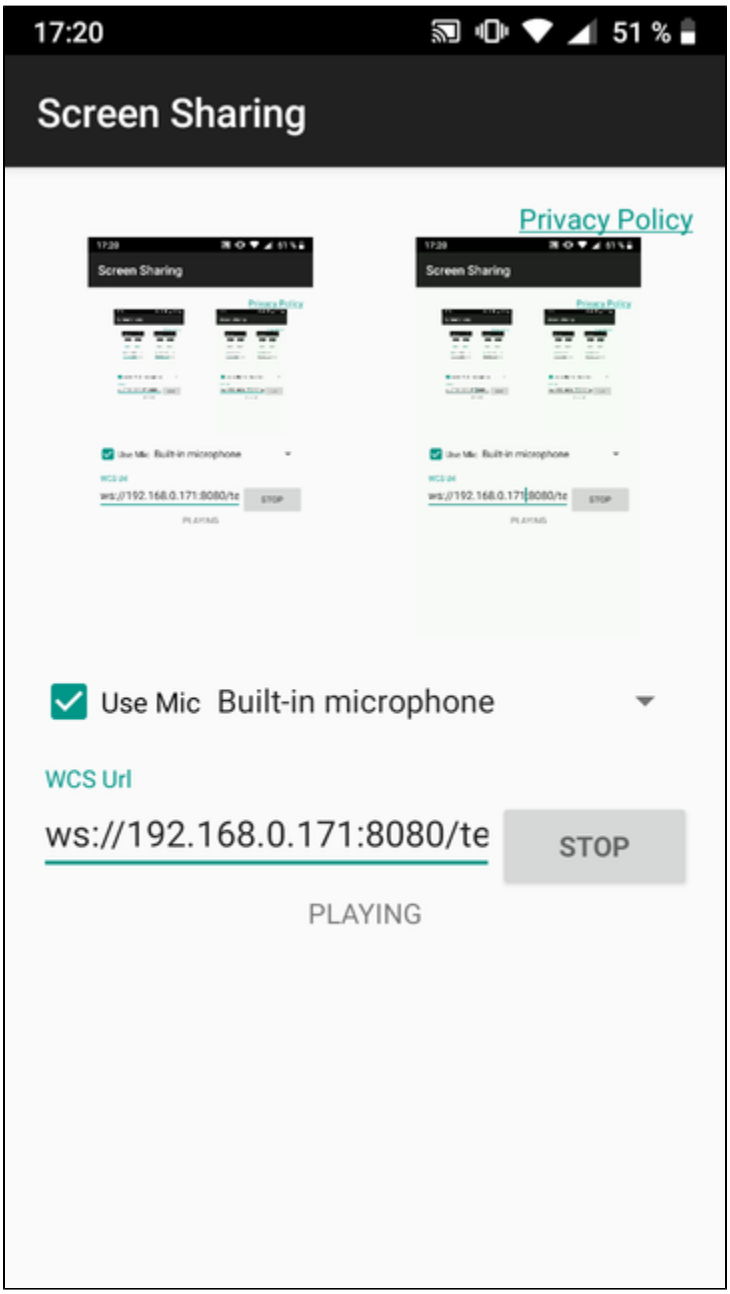
Android Screen sharing

Example of Android application to publish device screen



Work with example code

To analyze the code let's take the class ScreenSharingActivity.javaof the screen-sharing example, which can be downloaded with build 1.1.0.55.

1. Initialization of the API.

Flashphoner.init() code

Context object is passed to method init() for initialization.

```
Flashphoner.init(this);
```

2. Request the permission to use microphone

code

```
        mMicCheckBox.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (mMicCheckBox.isChecked()) {
                    ActivityCompat.requestPermissions(ScreenSharingActivity.this,
                            new String[]{Manifest.permission.RECORD_AUDIO},
                            PUBLISH_REQUEST_CODE);
                }
            }
        });
```

3. Choose the microphone

code

```
        mMicSpinner = (Spinner) findViewById(R.id.spinner_mic);
        ArrayAdapter<MediaDevice> arrayAdapter = new ArrayAdapter<MediaDevice>(this, android.R.layout.
simple_spinner_item, Flashphoner.getMediaDevices().getAudioList());
        arrayAdapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        mMicSpinner.setAdapter(arrayAdapter);
```

4. Session creation

Flashphoner.createSession() code

SessionOptions is passed to the method with the following parameters

- WCS server URL
- SurfaceViewRenderer localRenderer to display local video
- SurfaceViewRenderer remoteRenderer to display video published

```
                    SessionOptions sessionOptions = new SessionOptions(url);
                    sessionOptions.setLocalRenderer(localRender);
                    sessionOptions.setRemoteRenderer(remoteRender);

                    /**
                     * Session for connection to WCS server is created with method createSession().
                     */
                    session = Flashphoner.createSession(sessionOptions);
```

5. Connection to the server

Session.connect() code

```
session.connect(new Connection());
```

6.Receiving the event confirming successful connection.

session.onConnected() code

```
@Override
public void onConnected(final Connection connection) {
   runOnUiThread(new Runnable() {
       @Override
       public void run() {
           mStartButton.setText(R.string.action_stop);
           mStartButton.setTag(R.string.action_stop);
           mStartButton.setEnabled(true);
           mStatusView.setText(connection.getStatus());
           ...
       }
   });
}
```

7.Video stream creation

session.createStream() code

```
                                StreamOptions streamOptions = new StreamOptions(streamName);
                                VideoConstraints videoConstraints = new VideoConstraints();
                                DisplayMetrics metrics = getResources().getDisplayMetrics();
                                videoConstraints.setResolution(metrics.widthPixels, metrics.heightPixels);
                                videoConstraints.setVideoFps(metrics.densityDpi);
                                streamOptions.getConstraints().setVideoConstraints(videoConstraints);
                                streamOptions.getConstraints().updateAudio(mMicCheckBox.isChecked());

                                /**
                                 * Stream is created with method Session.createStream().
                                 */
                                publishStream = session.createStream(streamOptions);
                                ...
                                startScreenCapture();
```

8. Prepare to capture device screen

code

```
    private void startScreenCapture() {
        mMediaProjectionManager = (MediaProjectionManager) getSystemService(
                Context.MEDIA_PROJECTION_SERVICE);
        Intent permissionIntent = mMediaProjectionManager.createScreenCaptureIntent();
        startActivityForResult(permissionIntent, REQUEST_CODE_CAPTURE_PERM);
    }
```

9. Start foreground service, capture the screen and publish the stream

startService(), setVideoCapturer(), Stream.publish() code

```
    @Override
    protected void onActivityResult(int requestCode, int resultCode, @Nullable Intent data) {
        if (REQUEST_CODE_CAPTURE_PERM == requestCode && resultCode == RESULT_OK) {
            serviceIntent = new Intent(this, ScreenSharingService.class);
            startService(serviceIntent);
            videoCapturer = new ScreenCapturerAndroid(data, new MediaProjection.Callback() {
                @Override
                public void onStop() {
                    super.onStop();
                }
            });
            WebRTCMediaProvider.getInstance().setVideoCapturer(videoCapturer);

            /**
             * Method Stream.publish() is called to publish stream.
             */
            publishStream.publish();
            Log.i(TAG, "Permission has been granted by user");
            ...
        }
    }
```

10. Receiving the event confirming the successful stream publishing

StreamStatusEvent PUBLISHING code

On receiving this event preview stream is created with Session.createStream() and Stream.play() is invoked to play it.

```
                                    publishStream.on(new StreamStatusEvent() {
                                        @Override
                                        public void onStreamStatus(final Stream stream, final StreamStatus
streamStatus) {
                                            runOnUiThread(new Runnable() {
                                                @Override
                                                public void run() {
                                                    if (StreamStatus.PUBLISHING.equals(streamStatus)) {

                                                        /**
                                                         * The options for the stream to play are set.
                                                         * The stream name is passed when StreamOptions object
is created.
                                                         */
                                                        StreamOptions streamOptions = new StreamOptions
(streamName);
                                                        streamOptions.getConstraints().updateAudio(mMicCheckBox.
isChecked());

                                                        /**
                                                         * Stream is created with method Session.createStream().
                                                         */
                                                        playStream = session.createStream(streamOptions);
                                                        ...
                                                        playStream.play();
                                                    } else {
                                                        Log.e(TAG, "Can not publish stream " + stream.getName()
+ " " + streamStatus);
                                                    }
                                                    mStatusView.setText(streamStatus.toString());
                                                }
                                            });
                                        }
                                    });
```

11.Session disconnection.

Session.disconnect() code

```
mStartButton.setEnabled(false);

/**
  * Connection to WCS server is closed with method Session.disconnect().
  */
session.disconnect();
```

12. Starting foreground service

Service.onCreate(), startForeground() code

```
    @Override
    public void onCreate() {
        super.onCreate();

        NotificationChannel chan =
                new NotificationChannel(
                        CHANNEL_ID, CHANNEL_NAME, NotificationManager.IMPORTANCE_NONE);
        NotificationManager manager =
                (NotificationManager) getSystemService(Context.NOTIFICATION_SERVICE);
        chan.setLockscreenVisibility(Notification.VISIBILITY_PRIVATE);
        manager.createNotificationChannel(chan);

        final int notificationId = (int) System.currentTimeMillis();
        NotificationCompat.Builder notificationBuilder =
                new NotificationCompat.Builder(this, CHANNEL_ID);
        Notification notification =
                notificationBuilder
                        .setSmallIcon(R.drawable.service_icon)
                        .setOngoing(true)
                        .setShowWhen(true)
                        .setContentTitle("ScreenSharingService is running in the foreground")
                        .setPriority(NotificationManager.IMPORTANCE_MIN)
                        .setCategory(Notification.CATEGORY_SERVICE)
                        .build();
        NotificationManager notificationManager
                = (NotificationManager) getSystemService(Context.NOTIFICATION_SERVICE);
        notificationManager.notify(NOTIFICATION_ID, notification);

        startForeground(notificationId, notification);
    }
```

13. Stopping foreground service

Service.onDestroy(), stopForeground() code

```
    @Override
    public void onDestroy() {
        stopForeground(true);
        super.onDestroy();
    }
```