

RICOH THETA Wi-Fi API October Community Update

Last updated October 20, 2020.

This is a community document based on contributions of informal test results from the [theta360.guide independent community](#). This is not an official RICOH document. For official information, please contact RICOH. You should confirm these community tips with your own tests prior to deployment in a business setting. As these are unofficial tips, the official RICOH THETA API may change unexpectedly and these techniques could stop working.

Problem Description and Fixes

For Android mobile applications targeting API 29, the Wi-Fi hotspot connection functions are deprecated. When using the `NetworkSpecifier` function, API calls to the RICOH THETA fail.

Credit and Thanks

[Problem](#) and [solution](#) were reported by [saleh](#). Thanks.

Changes to Google Play Store Requirements

New Android apps must target Android 10, API level 29. From November 2, 2020, app updates will also need to target API level 29. Read [more](#) on the Android developer site.

Meet Google Play's target API level requirement

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When you upload an APK, it needs to meet Google Play's [target API level requirements](#). New apps must target Android 10 (API level 29) or higher and app updates must target Android 9 (API level 28) or higher.



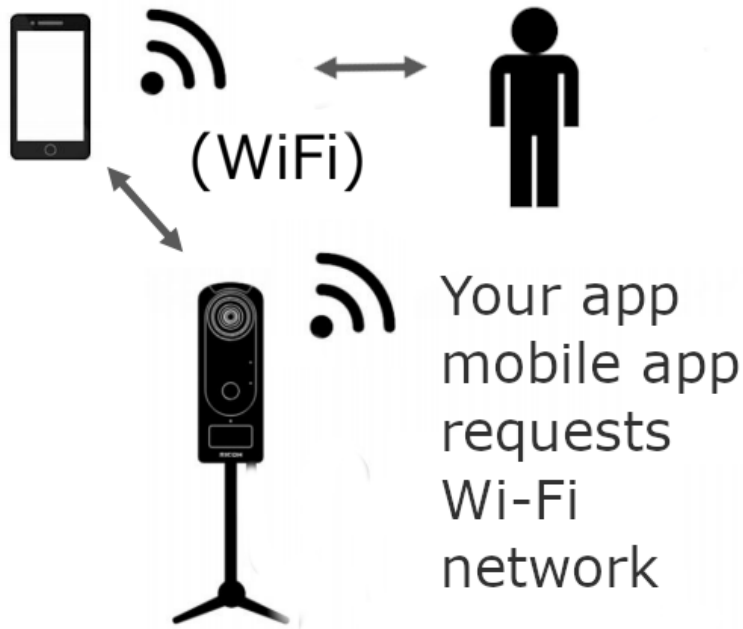
Note: From 2 November 2020, app updates must target Android 10 (API level 29) or higher.

Potential Impact on THETA Developers

If your THETA app uses `WifiNetworkSpecifier` or `WifiNetworkSuggestion` when your customers' mobile phones connect to RICOH THETA cameras in Wi-Fi in Access Point (AP) mode, you may need to adjust your application.

- Restricted access to Wi-Fi settings
 - Apps can no longer directly enable or disable Wi-Fi and need to do it [using settings panels](#).
 - Restrictions on initiating a connection to a Wi-Fi network, requiring the use of either `WifiNetworkSpecifier` or `WifiNetworkSuggestion`.

Problem is apparent if your app reduces the Wi-Fi setup steps to enhance the experience for your staff or customers.



Example Problem

```
final WifiNetworkSpecifier specifier = new WifiNetworkSpecifier.Builder()
    // .setSsidPattern(new PatternMatcher(ssid, PatternMatcher.PATTERN_PREFIX))
    .setSsid(ssid)
    .setWpa2Passphrase(passPhrase)
    .setBssid(MacAddress.fromString(i.BSSID))
    .build();

final NetworkRequest request = new NetworkRequest.Builder()
    .addTransportType(NetworkCapabilities.TRANSPORT_WIFI)
    .removeCapability(NetworkCapabilities.NET_CAPABILITY_INTERNET)
    .setNetworkSpecifier(specifier)
    .build();

final ConnectivityManager connectivityManager = (ConnectivityManager) context.getSystemService(Context.CONNECTIVITY_SERVICE);

final ConnectivityManager.NetworkCallback networkCallback = new ConnectivityManager.NetworkCallback() {
    @Override
    public void onAvailable(@NonNull android.net.Network network) {super.onAvailable(network);}
    @Override
    public void onUnavailable() { super.onUnavailable();}
    @Override
    public void onLost(@NonNull android.net.Network network) { super.onLost(network);}
};

//connectivityManager.registerNetworkCallback(request, networkCallback);
connectivityManager.requestNetwork(request, networkCallback);
```

Error

GET http://192.168.1.1/osc/info request will fail.

Error Message:

```
Caused by: java.net.ConnectException:
failed to connect to /192.168.1.1 (port 80) from /::
(port 0) after 10000ms:
connect failed: ENETUNREACH (Network is unreachable)
```

Workaround

Bind the THETA camera for all outgoing traffic. [Solution](#) from saleh.

```
private ConnectivityManager.NetworkCallback networkCallback = new ConnectivityManager.NetworkCallback() {

@Override
public void onAvailable(@NonNull android.net.Network network) {
    super.onAvailable(network);
    connectivityManager.bindProcessToNetwork(network);
    Timber.d("++++++ network connected - %s", network.toString());
}};
```

This tip and many more SC2 developer articles are available on the [SC2 Developers Community Site](#). Markdown to PDF conversion done with [Grip](#).

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