

# Using the Multicast Networking Additional Capability

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Greetings All

I've received a number of requests for help from folks who've been granted access to the [multicast entitlement](#) (`com.apple.developer.networking.multicast`) but are having problems actually enabling it in their project. I wrote up some instructions for doing this and I'm sharing them here for the benefit of all.

There are actually two processes involved here:

- In the new process you add the Multicast Networking additional capability to your *App ID* and then create a provisioning profile based on that.
- In the old process you add this additional capability to your *provisioning profile* in an Additional Entitlements step.

Each process is covered in a follow-up post below.

**Note** Almost everyone should be using the new process, but I've left the old process post in place just in case there's still a few old process folks around. It also makes a good reference for folks who are using different additional capabilities, ones that require the old process.

If you have follow-up questions about this, please put them in a new thread here on DevForums and tag it with both *Network* and *Entitlements*.

Finally, since I wrote these instructions Apple has published official documentation about this process, in the form of [Developer Account Help > Reference > Provisioning with managed capabilities](#).

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Quinn "The Eskimo!" @ Developer Technical Support @ Apple  
let myEmail = "eskimo" + "1" + "@" + "apple.com"


Change history:

- 30 Sep 2020 — First posted.
- 6 Oct 2020 — Made minor tweaks to the *No Additional Entitlements Page* section.
- 8 Oct 2020 — Expanded to cover the new process.
- 17 Mar 2021 — Clarified why I've left the *Old Process* post in place. Rewrote the *New Process* post to use automatic code signing.
- 11 May 2021 — Renamed everything to better match the terms used by the developer web site for the new process.
- 27 Jan 2022 — Updated the *New Process* section with some Mac-specific notes. Added a link to the [official documentation](#) for this process.

Entitlements

Network

Reply

Posted 2 years ago by  eskimo

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## Apple Recommended

### New Process

To use the [multicast entitlement](#) (`com.apple.developer.networking.multicast`) first ensure that you have an explicit App ID, then enable the Multicast Networking additional capability on that App ID, and finally enable the entitlement in your project. The following sections described each of those steps in detail.

These instructions assume you're building a typical app using Xcode with automatic code signing. Additional capabilities issued via the new process are compatible with manual code signing but I don't cover those details here.

These instructions were written for Xcode 13.2.1, running on macOS 12.1, and the developer web site at the time of posting.

**Mac Note** This basic process also works for macOS additional capabilities. However, there are a few points where the process differs, and I've called them out with Mac-specific notes like this one. **The most important of these is that the Multicast Networking additional capability is not applicable on the Mac.** macOS does not implement local network privacy. These Mac-specific notes are here to help you work with other additional capabilities, ones that are supported on the Mac. You will need to adjust the instructions accordingly, for example, replace `com.apple.developer.networking.multicast` with the entitlement associated with the additional capability you're using.

### Preparatory Work

Before getting started, you must prepare the ground:

- Make sure you have permission to create App IDs and provisioning profiles. If not, coordinate with the folks on your team who do. See [App Store Connect Help > Role permissions](#) for more information about roles and permissions.
- Go to the Account page on the developer web site.
- Pull down the menu at the top right and confirm that you're logged in to the right team.

### Adopt an Explicit App ID

To determine whether your app already has an explicit App ID:

- In Xcode, go to the Signing & Capabilities editor.
- The Provision Profile field should say Xcode Managed Profile. Click the little info button next to that. In the popup you'll see an App ID field whose value contains a \* if you're using a wildcard App ID or your bundle ID if you're using an explicit App ID.

**Mac Note** For a macOS target the Provision Profile field may say None Required. In that case you definitely don't have an explicit App ID.

If you're using a wildcard App ID you must switch to using an explicit one. The easiest way to do this is to add the App Groups capability. Xcode responds to this by creating an explicit App ID for your app. If you have no use for App Groups just remove the capability afterwards; the explicit App ID will 'stick'.

**Mac Note** Adding the App Groups capability won't trigger a switch to an explicit App ID for a macOS target (that's because [App Groups work differently on the Mac](#)). To force this switch for a macOS target, add the Custom Network Protocol capability. Don't forget to remove this at the end.

### Configure Your App ID

Once you have an explicit App ID, it's time to enable the Multicast Networking additional capability on it. To do this:

- On the developer web site, edit your App ID's capabilities using the process described in [Developer Account Help > Enable app capabilities](#).
- On the Edit Your App ID Configuration page, switch to the Additional Capabilities tab.
- Enable the Multicast Networking additional capability. If you don't see that capability, see *No Multicast Networking Additional Capability* below.
- Click Save and confirm that save.

### Enable the Entitlement

The next step is to enable the entitlement in your project:

- In your app's `.entitlements` file, add a `com.apple.developer.networking.multicast` entry with a Boolean value of true.
- Switch back to Signing & Capabilities and build your app for the device (not the simulator!). Xcode will then notice that you're using an entitlement that's not in the current provisioning profile's allowlist but *is* in your App ID's allowlist. It responds to this by rebuilding the provisioning profile. Yay!  
**Mac Note** Xcode won't do this profile rebuild for a macOS target so, to force a profile rebuild, add some other capability. I've found that Personal VPN works well for this. Don't forget to remove this at the end.
- In Terminal, run the first command below to confirm that your app was signed with the entitlement.
- Still in Terminal, run the second command below to confirm that your profile allows use of the entitlement.

```
% codesign -d --entitlements - /path/to/your.app | grep -A 2 "com.apple.developer.networking.multicast"
~
[Key] com.apple.developer.networking.multicast
[Value]
[Bool] true
% security cms -D -i /path/to/your.app/embedded.mobileprovision | grep -A 1 "com.apple.developer.networking.multicast"
~
<key>com.apple.developer.networking.multicast</key>
<true/>
~
```

**Mac Note** For a Mac app use `/path/to/your.app/Contents/embedded.provisionprofile` as the path in the second command. For more information about the structure of a bundle, see [Placing Content in a Bundle](#).


### No Multicast Networking Additional Capability

If, in step 3 of *Configure Your App ID*, you don't see the Multicast Networking additional capability, check the following:

- That you're not set up to use the old process, as described in the *Old Process* post below. If you are, follow those instructions instead.
- That you're logged in to the right team (step 3 of *Preparatory Work*). This is the most common cause of this problem.

If this doesn't help, wait a day and try again. It can take time for this access to propagate through our systems.

If you still can't get it working, run through the process again taking a screen shot at each step. Then get back in touch with us by replying to the email that notified you of your request's approval, making sure to include your follow-up number in the response.

Posted 2 years ago by  eskimo

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## Replies

### Old Process

To use the [multicast entitlement](#) (`com.apple.developer.networking.multicast`) you must manually create a provisioning profile that has this additional capability, then configure your app's target to use that profile, then actually enable the entitlement. The following sections described each of those steps in detail.

**IMPORTANT** These instructions assume you're building a typical app using Xcode. This will switch your app to use manual code signing. Additional capabilities issued via the old process are not compatible with automatic code signing.

**Note** These instructions were written for Xcode 12.0, iOS 14.0, and the developer web site at the time of publication.

### Preparatory Work

Before creating your profile, you must prepare the ground:

- Make sure you have permission to create provisioning profiles. If not, you'll need to coordinate with the folks on your team who do. See [App Store Connect Help > Role permissions](#) for more information about roles and permissions.
- Go to the [Account page on the developer web site](#).
- Pull down the menu at the top right and confirm that you're logged in to the right team.
- If your app does not already have an explicit App ID, create one for it. See [Developer Account Help > Register an App ID](#) for instructions.

### Create a Provisioning Profile

To create a provisioning profile that includes the multicast additional capability:

- In the [Account page on the developer web site](#), navigate to the Certificates, Identifiers & Profiles section.
- On the left, click Profiles.
- Click the add (+) button at the top.
- Select iOS App Development and click Continue (you can repeat this process for a distribution profile later on).
- Select your App ID and click Continue.
- Select the certificates and devices as you would for any other profile.
- You'll now find yourself on the Additional Entitlements page. Select Multicast Networking from the popup and click Continue. If you don't see the Additional Entitlements page, or you don't see Multicast Networking listed there, see *No Additional Entitlements Page* below.
- Give the profile a name and click Continue.
- Click Download.

### Configure Your Target

To configure your app's target to use the profile:

- Locate the downloaded profile in the Finder.
- Drop it on to Xcode.
- In the project editor, select your target on the left.
- Switch to the Signing & Capabilities tab.
- Disable "Automatically manage signing".
- Select your profile from the Provisioning Profile popup.

### Enable the Entitlement

To enable the entitlement in your app:

- In your app's `.entitlements` file, add a `com.apple.developer.networking.multicast` entry with a Boolean value of true.
- Build your app for the device (not the simulator!).
- In Terminal, run the following command to confirm that your app was signed with the entitlement:

```
1 % codesign -d --entitlements - /path/to/your.app | grep -A 1 "com.apple.developer.networking.multicast"
2 ~
3 <key>com.apple.developer.networking.multicast</key>
4 <true/>
5
```

- Still in Terminal, run the following command to confirm that your profile allows use of the entitlement:

```
1 % security cms -D -i /path/to/your.app/embedded.mobileprovision | grep -A 1 "com.apple.developer.networking.multicast"
2 <key>com.apple.developer.networking.multicast</key>
3 <true/>
4
```


### No Additional Entitlements Page

If, in step 7 of *Create a Provisioning Profile*, you don't see the Additional Entitlements page, check the following:

- That you're not set up to use the new process, as described in the *New Process* post above. If you are, follow those instructions instead.
- That you're logged in to the right team (step 3 of *Preparatory Work*). This is the most common cause of this problem.
- That you chose to create an iOS App Development profile (step 4 of *Create a Provisioning Profile*).

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~
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