# Dolby Voice Electron Framework patch for Apple macOS

## Software Guide

22 July 2020

# 1 Introduction to the Dolby Voice Electron Framework patch software guide

This documentation describes how to implement the Dolby Voice Electron Framework patch, and how to verify the DVC-2 codec usage. It also contains the license that describes its terms of use.

# 2 About the Dolby Voice Electron Framework patch

The Dolby Voice Electron Framework patch offers an improved audio connection quality for the applications created with the Electron framework.

The Dolby Voice Electron Framework patch modifies the Electron to enable its integration with the Dolby Voice Client and usage of the DVC-2 codec in WebRTC conferences. This codec provides features such as noise and echo reduction, voice leveling, and spatial audio (for three-dimensional, realistic sound).

# 3 System requirements

Before implementing the Dolby Voice Electron Framework patch, ensure that your system complies with the minimum requirements.

The minimum requirements are listed in the following table.

*Table 1: Dolby Voice Electron Framework patch requirements*

| Requirement | Version |
|---|---|
| Operating system | macOS 10.11.6 or later |
| Xcode | 9.0.0 or later |
| Python | 2.7 or later, with the support of Transport Layer Security (TLS) 1.2 |
| Git | NA |
| Node.js | NA |
| Dolby Voice Client SDK | Check the version in the release notes |
| 100 GB available disk space | NA |

For more information about Electron prerequisites, see: https://www.electronjs.org/docs/development/build-instructions-macos#prerequisites

# 4 Implementing the Dolby Voice Electron Framework patch

Apply the Dolby Voice Electron Framework patch on Electron to integrate it with the Dolby Voice Client.

**Prerequisites**

Make sure that you meet the system requirements.

**About this task**

Be prepared that the entire building process takes several hours.

**Note:** This procedure mentions the Electron 8.3.4 and Dolby Voice Client DVC_3.0.1_r5245647 as examples; refer to the release notes to find the proper version numbers.

**Procedure**

1. Create an empty working directory, such as *~/electron*:

```
mkdir -p ~/electron && cd ~/electron
```

2. Place the following items in the empty working directory you created:
   - The Dolby Voice Client SDK extracted from the *DVC_3.0.1_r5245647.zip* file
   - The *dvc_electron.patch* Dolby Voice Electron Framework patch file
3. Download Electron dependencies:

```
git clone https://chromium.googlesource.com/chromium/tools/depot_tools.git && export
PATH=`pwd`/depot_tools:$PATH
```

4. Download the Electron source code to a new, dedicated folder called *electron-gn*:

```
mkdir electron-gn && cd electron-gn && gclient config --name "src/electron" --
unmanaged https://github.com/electron/electron && gclient sync --with_branch_heads --
with_tags
```

   **Note:** Your working directory should now contain:
   - The *dvc_electron.patch* Dolby Voice Electron Framework patch file
   - The *DVC_3.0.1_r5245647* folder with the *client* directory inside it
   - The *electron-gn* folder containing the *src* folder inside it

5. Download Electron 8.3.4:

```
cd src/electron && git checkout v8.3.4 && gclient sync -f && gclient sync -D
```

6. Apply the Dolby Voice Electron Framework patch:

```
cd .. && patch -p1 < ../../dvc_electron.patch
```

7. Prepare the build environment:

```
export CHROMIUM_BUILDTOOLS_PATH=`pwd`/buildtools
export DVC_LIBRARY_PATH=`pwd`/../../DVC_3.0.1_r5245647
```

8. Generate the Electron build configuration:

```
gn gen out/Release --args="import(\"//electron/build/args/release.gn\") dvmc_sdk_root=
\"$DVC_LIBRARY_PATH\""
```

9. Build Electron:

```
ninja -C out/Release electron
```

10. Copy the Dolby Voice Client library to the newly built Electron application:

```
cp $DVC_LIBRARY_PATH/client/lib/macos/libdvclient.dylib out/Release/Electron.app/
Content/Frameworks
```

11. Run Electron with the Dolby Voice Client:

```
./out/Release/Electron.app/Contents/MacOS/Electron
```

**Results**
Electron is integrated with the Dolby Voice Client, and it is capable of using the DVC-2 codec.

# 5 Verifying DVC-2 usage

Check the usage of the DVC-2 codec in WebRTC conferences to confirm that it works correctly.

**Prerequisites**
Configure the Dolby Voice Electron Framework patch as described in the configuration procedure.

**About this task**

We recommend performing this procedure before using the product, to confirm that it works correctly. In case of any problems with DVC-2 support in created applications, use this procedure to verify that this codec is still supported in WebRTC conferences. Doing so makes it easier to find the root cause of the problem.

This verification requires checking the presence of the specific elements during the Session Description Protocol (SDP) negotiation.

**Procedure**

1. Open the Electron application.
2. Using the application, go to the WebRTC web page to test your connection.
3. Select: **Get media ‣ Create peer connection ‣ Create offer**.

   **Note:** This step creates a peer connection, which turns on the camera. Notice that after performing this step, connection details appear in the **Offer SDP** window visible on the left side of the page.

4. Check whether the content of the **Offer SDP** window includes the following entries:

   ```
   a=rtpmap:96 DVC-2/8000
   ```

5. Additionally, in the content of the **Offer SDP** window, look for the list of the supported codecs, similar to this example:

   ```
   m=audio 9 UDP/TLS/RTP/SAVPF 96 111 9 0 8 13 110 126
   ```

   Check whether the 96 ID is mentioned at the beginning of the list.

**Results**
The presence of the mentioned elements signals that during this connection, the DVC-2 codec works properly. If there is a different result, contact Dolby.

# 6 License agreement

The Dolby Voice Electron Framework patch can be utilized under conditions described in the license agreement.

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