04 May 2017

Chromecast Built-In For Audio™ Multi-Room Certification Process

After integrating Google Cast in a product it is mandatory to proceed with self certification and Multi-Room certification at SoundCertificate.

Self certification

It is required to run a self certification process after completing the Chromecast integration. The system integrator will provide all necessary documents regarding this process.
It is also possible to outsource this task to the system integrator or to SoundCertificate. After finishing the test suite, the results need to be provided to Google through the system integrator.

Multi-room certification at SoundCertificate

It is required to have the product's CCBI4A multi-room part certified by SoundCertificate.
Fill in an application form and send it to welcome@soundcertificate.com.
The data provided through the application form has to be truthful, otherwise the certificate will not be awarded or the already granted certificate will be revoked.
Be sure to sign up ahead of time so a test run can be scheduled. If the devices then arrive on the scheduled time, test results will be returned within one week.

An entire product family can be certified at once, without the need to certify each individual product. A family is defined as having the same SoC with identical SW running Google Cast and having identical SW upgrade procedures.
Within a family, devices that have different host controllers or different sound paths (DSPs, etc.) will also need to pass partial certification.
For each product family an application form needs to be filled in.

For each certification, a minimum of three devices is required to be submitted to the test lab:
- For a single product certification, 3 devices of the same product
- For a product family with 2 or 3 variations, 2 or 3 different devices, respectively (total of 3 devices)
- For a product family with >3 variations, one product of each variation

SoundCertificate will let you know which devices to submit based on the information provided in the application form.

All devices sent to SoundCertificate are used for certification measurements and re-testing of system SW upgrades, and they will become part of a plug-fest set-up. They will not be returned.
If issues are encountered during the certification run, they will be reported. Also, possible improvements will be suggested, so that a required re-certification run will be successful. Once all tests are performed, a detailed test report will be sent, including detailed remarks if anything failed. Certification runs are not stopped if a test fails, except when basic functionality is not yet fully implemented.

All devices for the certification run have to arrive at following address before the scheduled date (if they arrive too late, a new test run will be scheduled):

Apollo SoundCertificate GmbH
High Tech Campus Vienna
Gutheil-Schoder-Gasse 8
1100 Vienna
Austria
email: welcome@soundcertificate.com

Make sure that accurate device pricing and shipping cost is declared and a proforma invoice is attached when sending samples, as the devices will get stuck in customs otherwise. This will delay the certification.

Plug-fest

As last step in the certification process, SoundCertificate maintains a permanent plug-fest that is used to continuously test Google Cast multi-room functionality, especially when grouping devices of different manufacturers. Devices that pass all MR tests will then be added to the plug-fest setup and are tested against other models that have passed certification in the past.
These tests are not critical to the certification. If problems occur, affected partners are informed and provided with details, so immediate measures can be taken. Also, Google is informed.

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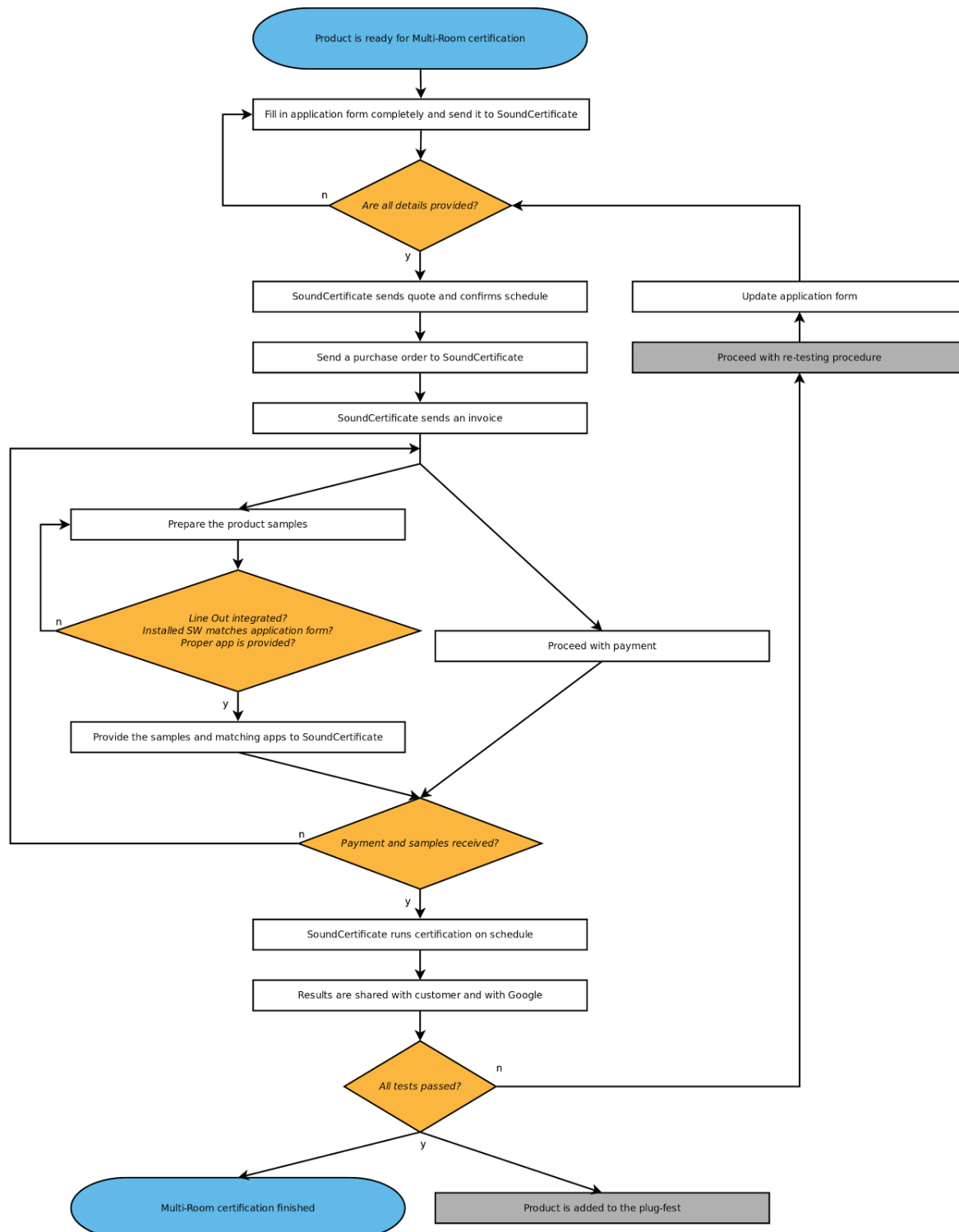E-mail: welcome@soundcertificate.com
Web: www.soundcertificate.com,

Graphical representation of the certification process at SoundCertificate

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                    ╭─────────────────────────────────╮
                    │  Product is ready for Multi-Room │
                    │           certification          │
                    ╰─────────────────────────────────╯
                                    │
                                    ▼
      ┌──────────────────────────────────────────────────┐
   ┌─▶│ Fill in application form completely and send it   │
   │  │ to SoundCertificate                               │
   │  └──────────────────────────────────────────────────┘
   │                        │
   │                        ▼
   │                   ◇─────────────◇
   │  n             ◇                   ◇
   └──────────────◇  Are all details    ◇◀──────────────────┐
                   ◇    provided?      ◇                     │
                     ◇─────────────◇                         │
                           │ y                               │
                           ▼                                 │
      ┌──────────────────────────────────┐   ┌──────────────────────────┐
      │ SoundCertificate sends quote and │   │  Update application form │
      │ confirms schedule                │   └──────────────────────────┘
      └──────────────────────────────────┘                 ▲
                           │                  ┌──────────────────────────┐
                           ▼                  │ Proceed with re-testing  │
      ┌──────────────────────────────────┐   │ procedure                │
      │ Send a purchase order to          │   └──────────────────────────┘
      │ SoundCertificate                  │                 ▲
      └──────────────────────────────────┘                 │
                           │                                │
                           ▼                                │
      ┌──────────────────────────────────┐                 │
      │ SoundCertificate sends an invoice │                 │
      └──────────────────────────────────┘                 │
```

Line Out integrated? Installed SW matches application form? Proper app is provided?

- Prepare the product samples
- Provide the samples and matching apps to SoundCertificate
- Proceed with payment
- *Payment and samples received?*
- SoundCertificate runs certification on schedule
- Results are shared with customer and with Google
- *All tests passed?*
- Multi-Room certification finished
- Product is added to the plug-fest

Things to keep in mind

In order to run certification measurements, SoundCertificate needs to be provided with certain information, like how to access a device's shell or how to upgrade the software. See the application form for details.

Also, the devices need to meet certain conditions. Access to an analog Line Out is required (either through a connector or added cables). If a device does not offer any Line Out option, cables need to be soldered in parallel to the L/R speakers. Details on this can be found in the certification test specification. Alternatively, SoundCertificate can do this re-work against payment.
Development software and production keys need to be used.
Devices need to be operable in Austria (230 Volts power, software downloads need to be enabled in this region, etc.) and the SW needs to be an engineering build to grant access to the device's shell.

Re-Testing

If the initial certification run fails or when a system SW upgrade is performed during the product life cycle (excluding minor updates like bug fixes or Google approved exceptions), a re-certification run needs to be performed.
SoundCertificate just needs to be provided with the new SW and usually does not need any new devices.

Certification fees

The certification charges are the following:

- Basic Certification run: 4.5k EUR
    - Adder per extra product family member: 1k EUR
- Re-Testing: 2.5k EUR
    - Adder per extra product family member: 500 EUR

Example:
If all products in a family are identical (host, SoC, DSP, all SW, SW upgrade procedure), then only the basic certification is required, so the total cost is 4.5k EUR. A total of 3 devices is needed, best would be to get 3 different devices from this family.

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If there are differences between the products (same SoC, but different DSP, or different SW), then the extra 1k EUR charge applies as some tests with those units need to be performed, such as verifying that synchronization works properly throughout the different audio paths.

Therefore, a product family with 4 different DSPs will require one product each, and the basic fee plus 3 extra family member fees apply for a total of 7.5k EUR).

Host Controller definition:

Most often the products have an extra microcontroller managing power states, IR control, buttons, volume, sound path switching, etc. - as most of the time this is not done in the SoC running Google Cast.

All members of a family need to be certified at the same time in order to apply the 1k EUR adder for extra family members. If this is not possible, a new Basic Certification run is scheduled.

Payment

An invoice is sent out as soon as the certification run is applied for and the family members to be tested are identified. A single payment for the entire product family has to be received by SoundCertificate before the scheduled test run. Let us know the payment contact (can be with the brand, SI or ODM). If you need to set up SoundCertificate as vendor in your system, please let us know the information you will need so that this is all in place in due time to ensure payment takes place while you prepare the devices for certification. Payment delays will result in schedule delays.

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