

androidtv

APPLICATION **VARIANTS**

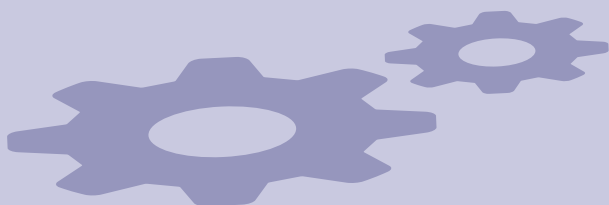
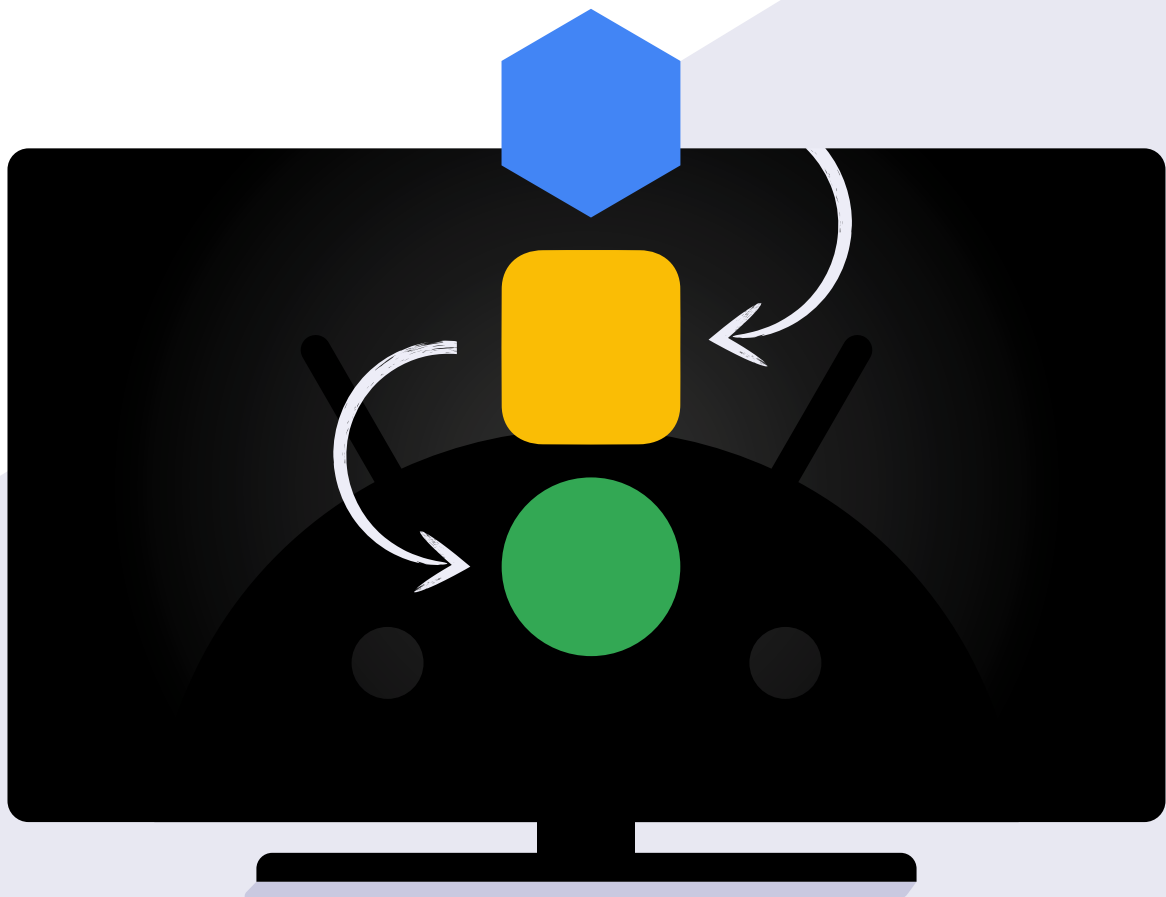


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For the dynamic landscape of our industry, it's pivotal to promptly adapt to the alterations of the supply line, consumers' tastes & preferences, and embrace the diversity that the Android TV ecosystem offers.

With the vast know-how and team of experts at Beenius, we dealt with all the scenarios and possible combinations, and can assure great results and support regardless of the selection you opt for.

In this solution brief, our product development team prepared an overview of Android TV Application Variants, their advantages, and - naturally - their limitations. This solution brief comes as an addition to our white paper [Android TV](#) and industry paper [The never-ending battle: Android TV vs. AOSP](#), which provides a comprehensive overview of Android TV.

Feel free to e-mail us your feedback: marketing@beenius.tv

Enjoy reading!



Development



While the Beenius Android TV application utilizes a single codebase for all the variants, there are certain platform limitations we had to consider during the development and while some of them are benign, there are some that have a significant impact on the application.

Application

While the other two variants, the custom launcher & the pre-installed application are applications with elevated privileges, which can do whatever they want, the normal application variant is exactly what the name suggests - a normal, vanilla Android TV app, distributed through the Google Play store and limited to what all the other applications are limited to.

This is the basis of the Beenius Android TV Application, while the other variants are just extensions on top of it. We understand the importance and the flexibility that not being dependent on a specific device brings and want our operators to be able to reach a wide audience of Android TV users.

It does, however, mean, that the operators cannot pre-provision the devices since the applications do not have access to the MAC address due to privacy concerns. Fortunately, this is no longer a real limitation, especially with the introduction of the [Concurrent Stream Limitation](#) functionality (limiting the number of simultaneous stream sessions) and the ID Manager service, which simplifies the onboarding and login processes.

Pre-installed Application

The pre-installed application approach is an interesting mix of both worlds - it allows the application to access most of the data the launcher has access to, but the application itself does not become the de facto entry point to the system, meaning that pressing the home button on the remote control will navigate to the default Android TV Launcher (or the new Google Home Experience).

Most of the challenges are therefore not directly related to the development process, but the story gets interesting when dealing with the customization - a topic we'll be covering in the next section.

Launcher

The launcher variant comes as a part of the system firmware which means it does not have to deal with some of the limitations the Android operating system imposes on normal applications.

In practice, that means that the Launcher can offer a fully customized experience and, most importantly, it becomes the entry point to the entire system, which makes being a good citizen inside the platform a quality that is not only encouraged but enforced through the Android TV certification process.

The launcher must play nice with the entire ecosystem and must allow the viewer to access any application they installed and not interfere with their usage in any way.

In addition, since we always strive to be an amazing member of the Android TV ecosystem, we added support for the application to expose their content through the Launcher and mimic the vanilla Android TV launcher experience. If the viewers feel at home, they are more likely to return!

And, not to forget, the tight integration between the Launcher and the underlying system means that there is some additional wiggle room regarding the player integration, including adding support for the IPTV stack, but more on that at another time.





Customization



Android TV experience can be customized depending on the variant of the application and system permissions. The Launcher variant can be maxed out with custom ideas and designs since it has all the necessary permissions on the STB, while the regular Android application is very much limited because it behaves as an ordinary downloaded application from the Google Play Store. Somewhere in between, we have the pre-installed application variant which can offer the operators a variety of customization options since it will have similar permissions to the ones of the Launcher variant.

Application

The regular application is the most limited one regarding customization and is limited to the theme of the application and its behavior.

We allow operators to customize their theme using our dedicated Figma document where the designers will feel right at home. The theme can be customized by modifying the color scheme of the application using their brand's colors for some of the items on the application and also by adding, moving, or replacing certain icons with different ones as desired.

Additionally, there are also some additional options, such as populating the home screen or other application menus with certain content rows, which can be either moveable and allow the users to change position of the row with an option to remove it, or non-moveable where the position of the row will be locked, and viewer will not be able to remove it.

As one of the most popular rows here we can mention the Recommendation row on the application home screen which offers the users personal or general recommendation, taking the viewers a step closer to the operator's VOD content, or the Trending row which offers the viewers trending and most watched Live TV programs, putting the most popular channels in the region just a click away.

Even with this variant of the Android TV application, operators can get their content closer to their consumers by adding a row filled with their content to the home screen of the default Android launcher automatically right after the application is downloaded and installed. There is an option to add more than one row of content, but those rows will not be shown until the viewer enables them and manually adds them to the home screen.

Finally for the Android TV application, having in mind that there are many different remote controllers (RCs) on the market, operators can also modify the behavior of certain buttons on the RC, while preserving the standard DPAD and home button functionality.

Pre-installed Application

There is not much difference in what or how can be customized between the regular and the pre-installed application. All theme customization that can be done in the regular application can be also done on the pre-installed application, and additionally the pre-installed variant offers operators to make some changes or modify the default Android launcher on the STB because of the way that it's deployed/distributed through the FW.

Therefore, we can say that the pre-installed application variant is a little bit more suitable for the operators since they can have their logo and icons on the default Android launcher. That's right, with this variant the operators can also make some slight modifications to the default launcher.

Operators can position their content rights on the home screen of the default launcher and not just in one row, but as many as wanted. Since the application is "burned" in the STB firmware by the vendor, operators can control the position of the rows on the default home screen and whether they will be locked or not. Having some of the previously mentioned recommendation and trending content with the operator logo as a row icon, visible at the top of the home screen while using other functionalities on the STB and right after boot is a nice bonus compared to the limitations on the regular variant of the Android TV application.

Another, and maybe the most important feature that we can add for this variant, is that the operator can decide on the STB behavior after boot or standby. The pre-installed application can be started/launched right after boot, so the viewer will land on the application home screen by default. This feature can be used only on STBs with pre-installed application and not on the ones that will have to download and install it.

Not to forget the RC modification here, naturally that can be also done in this variant of pre-installed application with the same options to modify the buttons and assign them a custom function.

Launcher

The launcher variant is the one that can be maxed out with custom modifications. This variant is pre-installed on the STB and burned on the STBs FW and allows operators to modify things previously mentioned such as theme, color schemas, icons, logos, etc.

On the STB it behaves as a default launcher that is started and visible right after boot and whose home screen is almost fully customizable. So, no limitations on the number of rows, the amount of content or anything else. Even the Apps and Games row is customizable allowing viewers to move and reorder all icons.

While having the operator's locked rows on the home screen, there are of course the moveable rows that the viewers can edit, move, enable, or disable per device as they wish. This makes the custom launcher twice as customizable since users can mix content on the same screen from both operators and third-party applications.

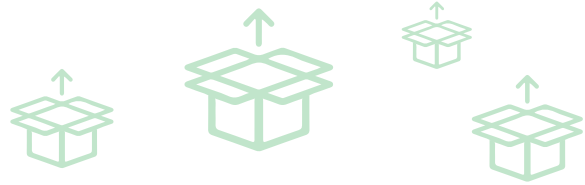
This variant can be fully integrated with other third-party applications which can be presented as additional rows on the home screen, together with the rows that are defined by the operator, allowing consumers to have non-stop streaming in the background while also surfing through other's applications content on screen.

Application management on the devices is easily done by the viewer by simply installing/uninstalling, favoriting/un-favoriting applications and enabling or disabling third-party applications rows on the home screen.

Regarding the RC, custom mapping of buttons is easily done and what is different than the other variants, home button will always land the viewers' on the custom Launcher's home screen.



Deployment



The application, no matter how good, does not have much value if the viewers cannot get it and there is no effortless way for it to be kept up to date. Whether there is an important update that must be immediately delivered to the viewer or a subtle UI change that does not require an immediate update Beenius has you covered!

Application

The Beenius Android TV application, like any other app available on the platform, can easily be uploaded and made available on the Google Play Store. While it can be published worldwide the store also allows access to be limited to certain accounts, regions, or even device models.

We prefer to deliver the updates through the Google Play Store, with a gentle reminder inside the application that an update is available and a shortcut to start the update process but also offer a mandatory upgrade option.

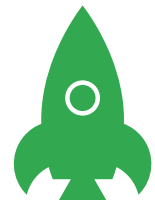
Pre-installed Application

Depending on the agreement with the STB manufacturer the application can either be pre-installed on the device or a required install during the setup process but should still utilize the Google Play Store to deliver the application updates, using the exact same mechanism as the regular application. As a bonus the pre-installed applications can be updated through the Google Play Store even if the viewer is not signed in with their Google account.

If the deployment includes any form of device management software that can also be a convenient way for the operator to manage the upgrades, and the Beenius Application also contains a built-in upgrade mechanism that can install the update automatically.

Launcher

The custom launcher deployment requires firmware updates multiple times per year that are usually delivered using the Google OTA system, which also makes it easy for us to test the compatibility with the latest versions. This process can also be an ideal opportunity to deliver the newest application version to all the viewers.



Regardless of which Android TV application variant you opt for, at Beenius we have the resources, knowledge, and experience to provide you with a holistic approach to your project.

Avoid the uncertainty for your next project and book your consulting session at marketing@beenius.tv

