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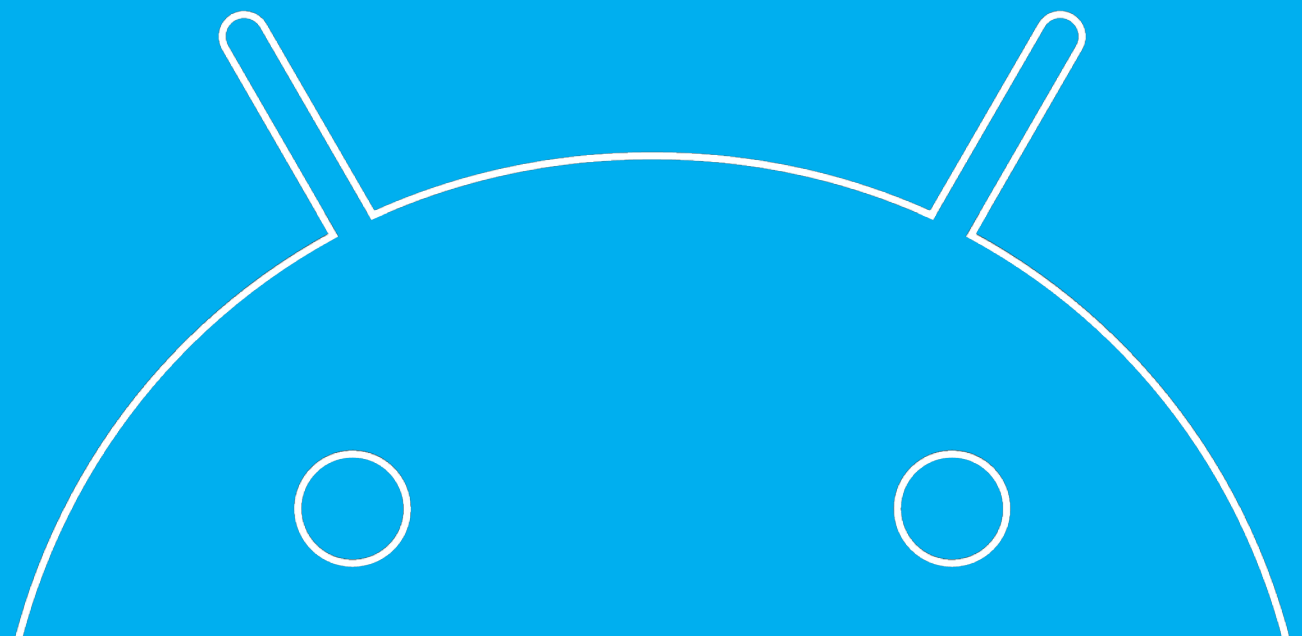
Android Tech Report

The latest news and updates

June 2023



Content

Android 14 Developer Preview

Developer Preview 1 is now available, with the latest features and changes to try with your apps. Install a system image and update the tools to get started. Visit the feedback page to report an issue or submit a feature request.

https://developer.android.com/about/versions/14

Behavior changes for all apps installed on the device with Android 14. The following behavior changes apply to all apps running on Android 14, regardless of **targetSdkVersion**. You should test your app and then modify it as needed to support these properly where applicable:

Read more

Core Functionality

Schedule exact alarms are defined by default - exact alarms are meant for user-intentioned notifications or actions that need to happen at a precise time. Starting in Android 14, the SCHEDULE_EXACT_ALARM permission is **no longer being pre-granted to most newly installed apps targeting Android 13 and higher** - the permission is denied by default.

Read more

Context-registered broadcasts are queued while apps are cached – on Android 14, the system may place context-registered broadcasts in a queue while the app is in the cached state. This is similar to the queuing behavior that Android 12 (API level 31) introduced for async binder transactions.

Read more

https://developer.android.com/about/versions/14

Security

Minimum installable target API level - starting with Android 14, apps with targetSdkVersion lower than 23 cannot be installed. Requiring zapps to meet these minimum target API level requirements improves security and privacy for users.

Read more

Accessibility

Non-linear font scaling to 200% - starting with Android 14, the system supports font scaling up to 200%, providing low-vision users with additional accessibility options that align with Web Content Accessibility Guidelines (WCAG).

The following behavior changes apply exclusively to apps that target Android 14 or higher. If your app targets Android 14 or higher, you should modify your app to support these behaviors properly, where applicable.

Core Functionality

If your app targets Android 14, it must specify at least one foreground service type for each foreground service within your app. You should choose a foreground service type that represents your app's use case. The system expects foreground services with a particular type to satisfy a particular use case.

Read more

Security

Restriction to implicit and pending intents

For apps targeting Android 14, Android restricts apps from sending implicit intents to internal app components in the following ways: implicit intends and pending indents.

https://developer.android.com/about/versions/14

Implicit intents are only delivered to exported components. Apps must either use an explicit intent to deliver to unexported components or mark the component as exported

If an app creates a mutable **pending intent** with an intent that doesn't specify a component or package, the system now throws an exception.

Check for warning messages in logcat

While testing your app on Android 14, you will see a warning message in logcat if the system detects any unsafe usage of implicit intents that will throw an exception after your app targets Android 14. The following example shows what this message would look like for the example using com.example.action.APP_ACTION.

Read more

Runtime-registered broadcasts receivers must specify export behavior

Apps and services that target Android 14 and use context-registered receivers are required to specify a flag to indicate whether or not the receiver should be exported to all other apps on the device: either RECEIVER_EXPORTED or RECEIVER_NOT_EXPORTED, respectively. This requirement helps protect apps from security vulnerabilities by leveraging the features for these receivers introduced in Android 13.

Read more

https://developer.android.com/about/versions/14

Safer dynamic code loading

If your app targets Android 14 and uses Dynamic Code Loading (DCL), all dynamically-loaded files must be marked as read-only. Otherwise, the system throws an exception. We recommend that apps avoid dynamically loading code whenever possible, as doing so dramatically increases the risk of compromising an app by code injection or code tampering.

Read more

Updated non-SDK restrictions

Android 14 includes updated lists of restricted non-SDK interfaces based on collaboration with Android developers and the latest internal testing. Whenever possible, we ensure that public alternatives are available before restricting non-SDK interfaces.

Read more

Features and APIs overview

Android 14 introduces great new features and APIs for developers. The sections below help you learn how they benefit your apps and how to get started with the related APIs.

Internationalization

Pre-app language preferences - Android 14 expands on the per-app language features that were introduced in Android 13 (API level 33) with additional capabilities.

https://developer.android.com/about/versions/14

Grammatical Inflection API

The Grammatical Inflection API allows you to easily add support for users who speak languages where grammatical gender changes the sentence based on the person being addressed, providing a more personalized and natural-sounding user experience for those languages.

Read more

Accessibility

Non-linear font scaling to 200%

Starting in Android 14, the system supports font scaling up to 200%, providing low-vision users with additional accessibility options that align with Web Content Accessibility Guidelines (WCAG). The system applies a non-linear scaling curve to prevent large text elements on the screen from scaling too much.

This scaling strategy means that large text doesn't scale at the same rate as smaller text. Non-linear font scaling helps preserve the proportional hierarchy between elements of different sizes while mitigating issues with linear text scaling at high degrees (such as cutting text or text that is hard to read due to extremely large display sizes).

Read more

https://developer.android.com/about/versions/14

What's New for Enterprise in Android 14?

Contacts

Android 14 adds the following two fields:

- ContactsContract.Contacts#ENTERPRISE_CONTENT_URI
- ContactsContract.CommonDataKinds.Phone#ENTERPRISE_CONTENT_URI

Together, these fields allow personal apps with the READ_CONTACTS permission to list all work profile contacts and phone numbers as long as the cross-profile contacts policy in DevicePolicyManager allows it.

- Cross-profile access to contacts - the policy can be set and queried using the following methods in DevicePolicyManager, which specify which packages are allowed to access work contacts from the personal profile.

- Cross-profile caller ID searches - similarly, Android 14 adds some methods for cross-profile caller ID searches.

- Deprecations

https://developer.android.com/about/versions/14

Google Play

Upcoming Google Play Deadlines

May 2023	Apps must comply with the Families Self-Certified Ads SDK policy.
June 2023	Migrate from SafetyNet Attestation to Play Integrity API.
July 2023	Apps must comply with Exact Alarm Permission policy update.
June 2024	SafetyNet Attestation will be turned off.

Google Play Past Deadlines

January 2023	Apps must comply with the Deceptive Ads policy update.
February 2023	Apps must comply with the Stalkerware policy update.

Google Play Policies | Android Developers

Google Play Important Updates

Wear OS apps

New apps must target Android 12 (API level 31) or higher except for Wear OS apps, which must target Android 11 (API level 30) or higher. Meet Google Play's target API level requirement | Android Developers

Read more

Play Billing Library changes

We recommend updating your apps to version 5 of the library soon so you can start taking advantage of these new subscription features.
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Read more

Family Policy

Clarifying existing language in the Families policy to make it clear that apps that solely target children may not request location permission, or collect, use, and transmit precise location.

Read more

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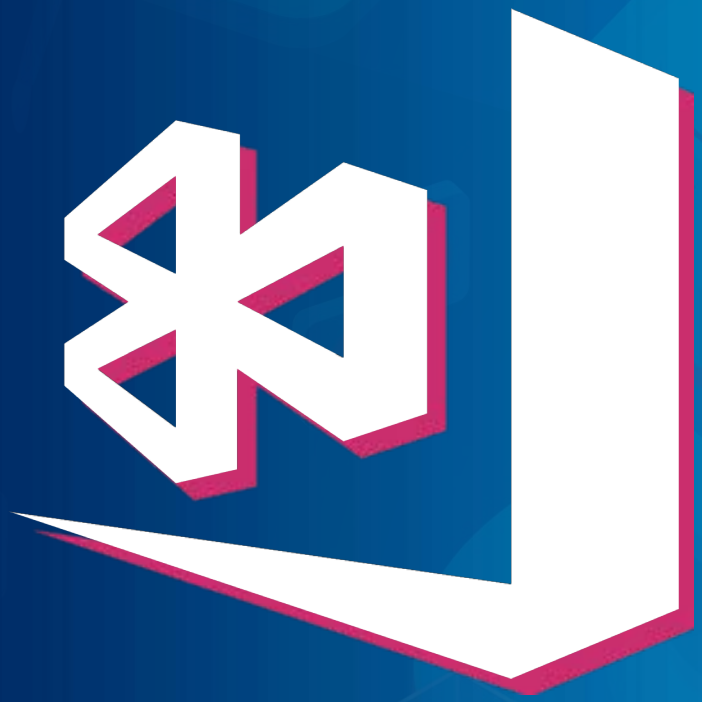


App Center

The Latest News and Updates for Mobile Developers

Private Preview for App Store Connect API support

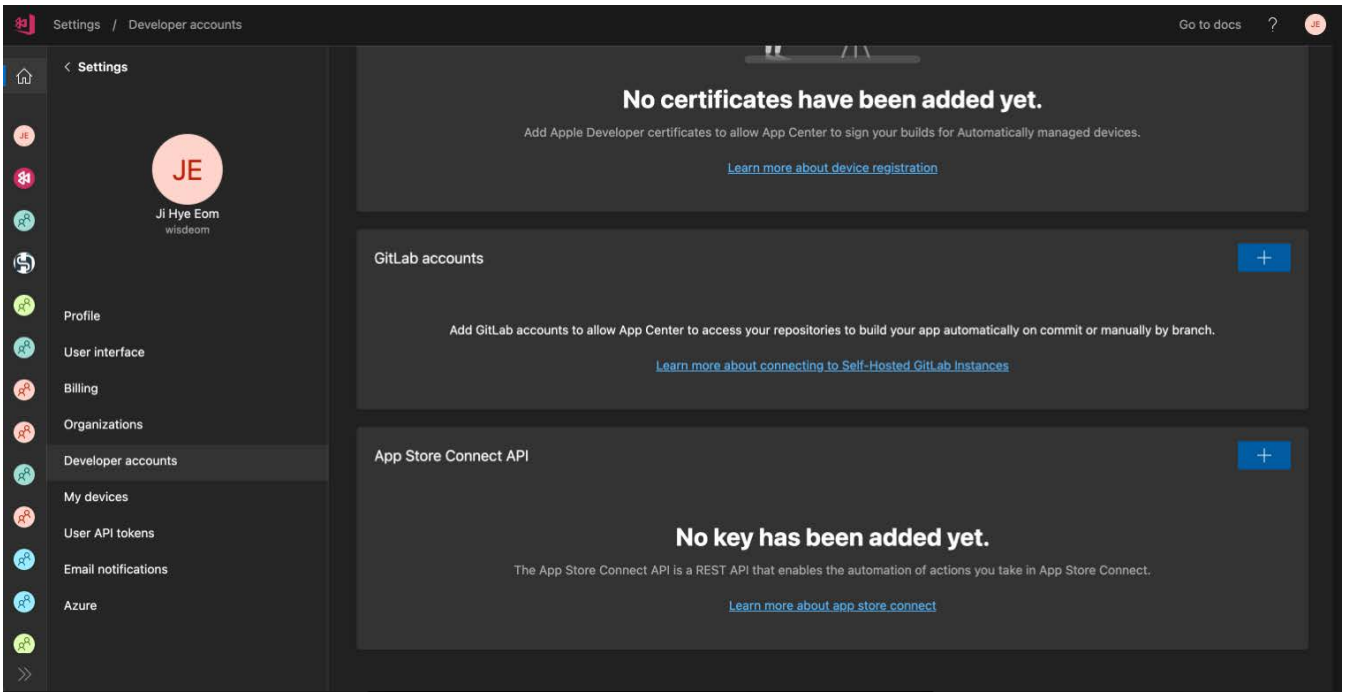
Introducing JSON Web Token-based authorization to Apple Developer Connection.

Read more

Deprecating macOS 10.15 image in App Center Build

If you are building iOS or Xamarin apps using Xcode 12.4 (except 11.7), Xamarin.iOS 13.20, or Xamarin.Android 11.0 or below versions, you will be impacted by this change.

Read more



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Firebase

What's New on Firebase?

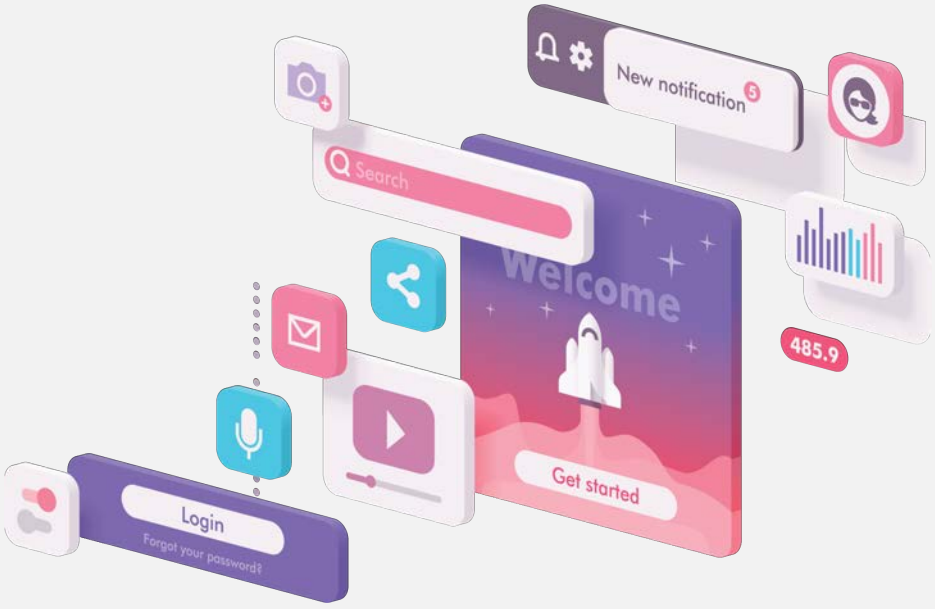
Accelerate App Development

Firebase helps get apps up and running by providing tools that streamline time-consuming tasks so apps can deliver value to users in less time.

Faster deployment of modern web apps with Firebase Hosting - Firebase Hosting is a service that enables easy building and deployment of websites globally without managing any infrastructure, with integrated security and a streamlined developer experience. There is an update that takes Firebase Hosting beyond static websites and allows to easily deploy dynamic web frameworks, such as Next.js and Angular Universal. Deployment of all these frameworks with the same single CLI command is possible - firebase deploy. The CLI will detect which frameworks are used automatically, run the build, generate the Cloud Function when required, set up any needed configuration, and handle the entire deployment. Also, there is added support for client-side builds using frameworks like Vite, Preact, Lit, and Svelte.

To try this update in preview, download the latest version of the Firebase CLI, and enable the experiment with firebase experiments: enable webframeworks.

Read more



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Reduce time spent managing your database with Firestore

Cloud Firestore is a NoSQL document database that lets you store, sync, and query data for mobile and web apps at scale without touching a server. There are three updates to Cloud Firestore to help manage and query the database.

[Developer Preview] Count() function: with the new count function in Firstore, developers can now get the count of the matching documents when they run a query or read from a collection without loading the actual documents, which saves a lot of time.

[General Availability] Scalable BaaS: improved Firestore's core capability to handle database writes and connections without hard limits, which makes it easier to scale and support the app's growth through large traffic spikes.

[General Availability] Time to live (TTL): developers can now specify a document field that determines the document's lifetime. Firestore then deletes each document when it has expired, so it no longer needs to spend time managing data retention policies, which saves storage costs.

Read more

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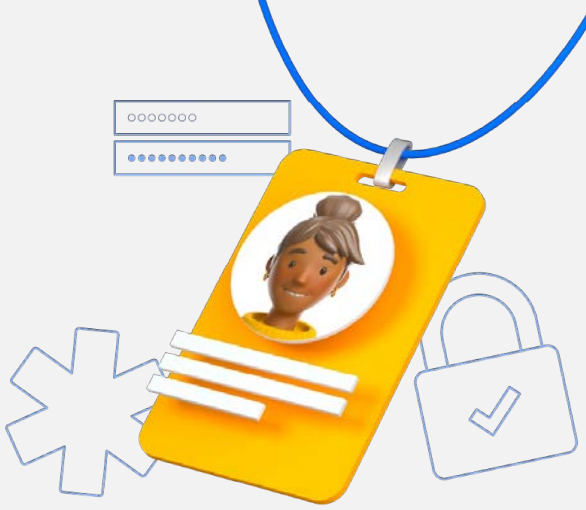
Help protect users and data with Authentication and Security Rules



Safeguarding user data and protecting customers' privacy is a tough challenge every developer faces.

Firebase Authentication is an end-to-end identity solution that facilitates signing in and user management. There are new Authentication features, in partnership with Google Cloud Identity Platform, that help protect users. **First**, the Firebase team has launched Multi-Factor Authentication, or MFA, to help safeguard user accounts, even if their password is compromised. **Second**, they've added support for the OpenID Connect standard and SAML, so developers can use a wide range of sign-in methods, like Slack and Discord, without waiting for custom integrations. **Third**, to help create custom requirements for signing in or signing up, Blocking Functions are launched, which run synchronously and can enforce any logic that Cloud Functions for Firebase supports.

And finally, to make sure all the changes to authentication settings are auditable and you have insight into Authentication usage, they've added full audit and activity logging to Authentication. The updated Security Rules in Cloud Storage for Firebase support cross-server requests and ensure users only have access to their own data. This new functionality allows building flexible permissions to protect access to storage files based on data within Firestore.

Read more

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New Extension Marketplace to easily browse and find extensions

Firebase Extensions are pre-packaged bundles of code that make it easy to add core features to apps from Google and other companies you trust with minimal code and without requiring to learn many different third-party APIs.

The Extensions Marketplace is a new surface for discovering and finding extensions that suit developers' needs. They're also introducing new third-party extensions for adding search, chat, and payment processing to apps.

With the new Vonage extension, customers can receive tech support via video chat.

The Meilisearch extension facilitates document search in Firestore.

The Purchasely extension makes it simple to integrate in-app payments.

Check out extensions.dev to explore Firebase Extensions and sign up for the Extensions Provider Alpha program to start building your own extensions.

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Improve App Quality and User Engagement

In addition to accelerating app development, Firebase provides actionable insights and easy-to-use tools to help run high-performing apps and deliver the best experience to users.

More efficient testing across devices with Test Lab - Research has shown **88%** of app users will abandon apps based on bugs and glitches, so maintaining a high-quality app is incredibly important for success. That's why Firebase provides tools to run tests and identify issues early.

Firebase Test Lab is a cloud-based app testing product that integrates with existing workflow and allows testing apps on thousands of physical and virtual devices. However, as apps grow, managing and running consistent configuration tests at scale becomes increasingly difficult. To help standardize test configuration, there's **a new preview of Firebase Test Lab support in Gradle Managed Devices.**

Read more

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With this integration, devs can access all the devices supported by Firebase Test Lab with a simple and consistent test configuration format introduced in Android's Gradle Managed Devices with just a single command line without going into the Firebase Console. To try this out, upgrade to the latest Preview release of Android Gradle Plugin 8.0.0.

Even more features come to our Crashlytics + Android Studio integration

Earlier this year, they introduced the new App Quality Insights window, an integration between Crashlytics and Android Studio that allows seeing crash reports and navigating from crash to code entirely within the context of the IDE, enabling devs to find and fix crashes even faster. The App Quality Insights window graduated to the Beta Channel in Android Studio Electric Eel. In addition, they are bringing more Crashlytics features directly into Android Studio in the latest Canary release of Android Studio Flamingo. Devs can now filter for crashes in Play Tracks, which means they can easily filter out the crashes happening in internal build and prioritize the issues impacting your users in production. Secondly, they've added signals to the App Quality Insights window to help quickly identify characteristics of crashes - whether they are fresh, early, repetitive, or a regression. Finally, the ability to now add notes to crashes lets the dev team know how your fix is progressing and close the issue from Android Studio.

Read more

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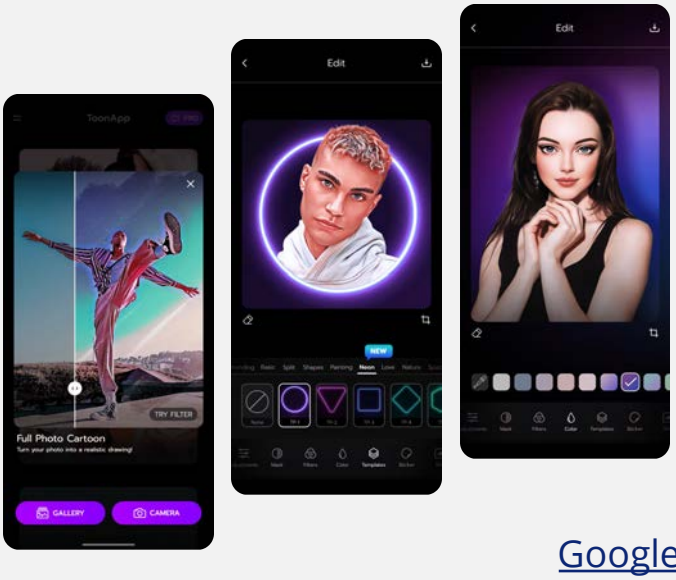
Improve user engagement with Remote Config personalization

Part of delivering that great experience is tailoring apps to your users' individual needs and preferences. But doing that manually is a cumbersome and time-consuming process.

Remote Config personalization can help automatically optimize individual user experiences to maximize the objectives - like user engagement time, feature utilization, or ad clicks - using the power of Google's machine learning. And now, in addition to optimizing for a particular type of event in apps, personalization also takes into account the value of that event. So, for example, you can go beyond maximizing the total number of in-app purchases and optimize for the dollar amount of those in-app purchases.

Lyrebird Studio, a company that makes a collection of mobile photo editing apps, wanted to find the right ad frequency, but they knew there wouldn't be a one-size-fits-all solution. With Remote Config personalization, they fed ad impression values into their app, allowing personalization to optimize ad frequency while considering the ads' value, leading to a 4% increase in ad revenue with minimal work.

Read more



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HUAWEI
HMS Core

App Services

Navi Kit

Provides a reasonable route planning engine, precise turn-by-turn navigation, and lane-level guidance, giving apps a navigation service that is easy to use, understand, and expand on all platforms.

Read more

Android

The Navi SDK for Android is a set of APIs you can call to add navigation functions, including easy route planning and navigation start to the Android app.

System

HEM Kit

HUAWEI Enterprise Manager (HEM) is a mobile device management solution based on Huawei's powerful platform and hardware.

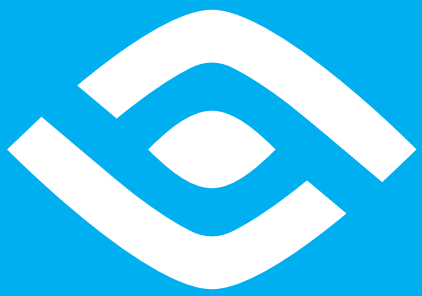
The device deployment service in HEM helps automatically install a Device Policy Controller (DPC) app on enterprise devices in batches.

Read more

MDM Engine

Equips enterprise apps with system-level permission management functions by providing an abundance of device management and app permission management APIs. This engine is intended for developers of enterprise apps. It supports security management on mobile devices and apps across various scenarios, such as mobile office and education services.

Read more



Thank you!

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