

GMS Go Requirements

Draft 2017-11-21

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Introduction

This document describes the Android Go specific additions and changes to [GMS requirements](#), i.e. the GMS Go requirements. All Android devices shipping GMS Go MUST be compliant with [the GMS requirements](#) and when applicable replaced or complemented by the GMS Go requirements.

Fundamental Requirements

Please note the [fundamental requirements](#) for shipping a device with GMS Go are the same as for a device with GMS subject to the differences described in this document.

GMS Go Devices

New GMS low memory devices (i.e. return “true” for isLowRamDevice) MUST seek additional approvals from Google.

For New GMS devices that launch with Android 8.0 (O Release) or newer Android releases:

- MUST sign MADA addendum for Android Go, please contact your TAM/BD for this
- MUST comply with the GMS Go Requirements

Geo-availability

All Android devices shipping GMS Go MUST be compliant with the [GMS](#) and GMS Go geo-availability requirements. In addition to the GMS geo-availability requirement each Google product included in GMS Go has a corresponding geo-availability definition. It outlines the availability of Google products on Android in given countries. As Google launches the products in new countries, the geo-availability definition is subject to change over time. The latest geo-availability information for GMS Go is available from the [URL].

GMS Go Core apps and services

GMS Go Core apps and services include required apps with launcher icons shown below plus commonly used services.

GMS Go Core apps

Subject to geo-availability the following are the SMS Go Core apps, they replace the [GMS Core apps](#):

- Assistant Go
- Chrome
- Gmail Go
- Maps Go*
- Play Store
- Google Go
- YouTube Go / YouTube

** Note: On 512 MB devices Maps Go is a SMS Go Optional app*

GMS Go Optional apps

Partners MAY distribute the optional SMS Go apps and optional SMS apps, subject to geo-availability. The optional SMS Go apps and optional SMS apps will count towards Application Preload Requirements unless the app is of an exempt category.

- Files Go*

** Note: Files Go is exempt from counting toward the preload quota (Files category)*

GMS Go Core services

The following are the SMS Go Core services, they complement the [GMS Core services](#) which must also be preloaded on an SMS Go device:

- SearchSpeechServices.apk / com.google.android.apps.speechservices
- Gboard.apk / com.google.android.inputmethod.latin (the version bundled with the SMS Go apps)

Disk Space Requirements

In order to provide a consistent user experience that allow users to install applications and store content on their device the user data partition size MUST NOT be less than specified in below table.

Minimum User Data Partition Size

Flash storage size (GB*)	4	8	16
User data partition size (GB*)	1.5	5.5	13.5

* Numbers are [specified in GB using decimal definition](#), based on powers of 10, this definition uses the prefix as defined in the International System of Units (SI).

** If the device implementation use a file based swap, outside user data partition, the size of user data partition can be reduced by 0.2 GB* for 512 MB RAM devices and 0.4 GB* for 1 GB RAM devices.

RAM Usage Requirements

In order to provide good user experience and performance the device free memory on boot MUST exceed the specified limits in below table and persistent processes total PSS MUST NOT exceed below specified limit.

Device free memory on boot

Warm boot (i.e. every time you boot the device except first boot) the PSS value of free memory + cached should exceed thresholds defined below, for the device configured screen size.

Screen Size	HVGA	(F)WVGA	qHD	HD
512 MB RAM	150 MB	140 MB	N/A	N/A
1 GB RAM	625 MB	550 MB	475 MB	400 MB

Calculation of device free memory

Device setup

- The apps on the device must only be the ones pre-installed by the device manufacturer
- All setting should be in default state
- Reboot the device after initial setup (must not be the first boot after flash), wait for 1 min
- Keep screen on and the device unlocked when measuring values

Calculation

- Step 1: Run command `adb shell cat /proc/meminfo` to get MemAvailable values
- Step 2: Identify all the cached processes by running command `dumpsys meminfo`
- Step 3: Sum private dirty + private clean memory of each process identified in step 2

- Step 4: Add result in step 1 and step 3
- Repeat test 5 times and use average values

Persistent processes total memory usage

Persistent processes total PSS must not exceed 90 MB. This is calculated using `dumpsys meminfo`, looking at the Total PSS by OOM adjustment under the Persistent header.

Calculation of device persistent memory

Device setup

- The apps on the device must only be the ones pre-installed by the device manufacturer
- All setting should be in default state
- Reboot the device after initial setup (must not be the first boot after flash), wait for 1 min
- Keep screen on and the device unlocked when measuring values

512 MB RAM Devices

Screen Size & Camera resolution Limits

In order to provide good user experience and performance the display resolution and camera resolution MUST NOT exceed below limits.

RAM Size	512 MB
Maximum Display Resolution	FWVGA
Maximum Camera Resolution	5MP

Application Preload Requirements

In order to provide a performant and simple user experience the number of preloaded applications as defined below and in addition to the GMS Go Core apps, MUST NOT exceed below numbers.

Minimum Target SDK Version

- All preloaded apps must target SDK 26 (Oreo) or higher, i.e. the value of `android:targetSdkVersion` must be 26 or higher
- *Note: This will be effective July 1, 2018 for new devices*

Definition of headed application

An application that register for the below intent filter is a headed application.

```
<intent-filter>
  <action android:name="android.intent.action.MAIN" />
  <category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
```

Number of preloaded headed applications

- Maximum number of headed applications preloaded on the device MUST NOT exceed below limits
- GMS Go Core apps and 1 app each from exempt headed app categories listed below will not count toward this requirement

Flash storage size (GB)	4	8	>= 16
Max number of headed applications	7	7	System: 7 User Data: 7

Exempt Headed App Categories

Note: if there are no defaults for the categories below then 1 application per category will be exempt and rest will count towards the limit of preloaded headed applications.

App category	Identifying the exempt app for category
Calculator	Action: ACTION_MAIN Category: CATEGORY_APP_CALCULATOR
Calendar	Action: ACTION_MAIN

	Category: CATEGORY_APP_CALENDAR
Camera	Provider for intent with Action: ACTION_IMAGE_CAPTURE
Clock	Action: ACTION_SHOW_ALARMS Category: CATEGORY_APP_DEFAULT
Contacts	Action: ACTION_MAIN Category: CATEGORY_APP_CONTACTS
Dialer	Provider for intent with action: ACTION_DIAL
Files	Action: android.os.storage.action.MANAGE_STORAGE Category: android.intent.category.DEFAULT
FM Radio	
Gallery	Action: ACTION_MAIN Category: CATEGORY_APP_GALLERY
SMS	Action: ACTION_MAIN Category: CATEGORY_APP_MESSAGING
Music Player	Action: ACTION_MAIN Category: CATEGORY_APP_MUSIC
Launcher	Action: ACTION_MAIN Category: android.intent.category.HOME
Settings	Action: android.settings.SETTINGS Category: android.intent.category.DEFAULT
SIM Toolkit	
Sound Recorder	

Application Memory Requirements

In order to provide good user experience and performance all apps preloaded (including Google apps) or otherwise installed by OEMs (including apps requested or required by a Telecom Operator and apps installed via OTA mechanisms in user data) without user action on the device, MUST meet the following performance requirements:

Peak PSS memory usage requirements

Preloaded apps in each app category below MUST meet the following peak PSS memory usage requirements for the device configured screen size on a clean device:

App Category	Test Scenario Steps	Peak PSS Usage (MB)			
		HVGA	(F)WVGA	qHD	HD
Dialer Default	<ol style="list-style-type: none"> 1. Open the phone app 2. Place a phone call [dial a number] 3. Hang up 4. Exit to home screen 	35	40	45	50
Browsers All preloads	<ol style="list-style-type: none"> 1. Open browser 2. Navigate to www.google.com 3. Stay in browser for 5s post page load 4. Close the browser and exit to home screen 	90	100	110	120
SMS App Default	<ol style="list-style-type: none"> 1. Open the app 2. Send a text message 3. Close the app and exit to home screen 	50	55	60	65
Gallery Default	<ol style="list-style-type: none"> 1. Open the Gallery 2. Open a predefined image 3. View image for 5s 4. Close the Gallery and exit to home screen <p>Note: Whitelisted cloud galleries are exempt from this test</p>	55	60	65	70
Camera Default	<ol style="list-style-type: none"> 1. Open camera app 2. Use the front camera 3. Shoot a picture 4. Exit to home screen 	35	40	45	50
Music App Default	<ol style="list-style-type: none"> 1. Open the music app 2. Play a music file for 30 seconds 3. Close the app 4. Exit to the home screen 	35	40	45	50
Launcher Default	<ol style="list-style-type: none"> 1. Reboot the device 2. Unlock the screen and stay on home screen 3. Wait 30s 4. Lock screen 	25	30	30	35

All preloaded apps, not covered in the requirement above, MUST meet the following peak PSS memory usage requirements for the device configured screen size:

		Peak PSS Usage (MB)			
App Category	Test Scenario Steps	HVGA	(F)WVGA	qHD	HD
All other apps	<ol style="list-style-type: none">1. Open the app and wait for 30s2. Grant all permissions and set up the app3. Open the app4. Wait for 5 seconds	45	50	55	60

Home Screen Appearance

Default Home Screen Layout

Default Home Screen is the default display of a device, prior to any changes made by end users, that appears without scrolling in both portrait and landscape modes when the device is in active idle mode. This screen **MUST** be same as the one displayed by pressing the physical home button or tapping the home button on the navigation bar.

The default home screen **MUST** feature the following:

1. Google-provided Search Widget at the the top
2. Google Collection folder, named "Google", containing the GMS Go Core app icons
3. Play Store app icon

The default home screen **MAY** feature the following:

1. Two additional applications of Company's choice on the Default Home Screen right above the hotseat



An example layout for the default home screen

Additional Home Screens

If the Launcher application contain an Apps Menu then no additional home screens are allowed, else one additional home screen is allowed to the right of the Default Home Screen.

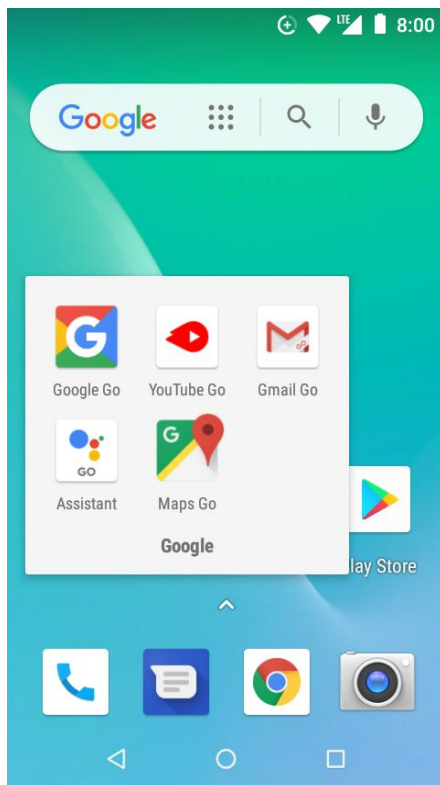
Placement of the Google Search Widget

In order to provide a consistent user experience, the approved implementation of the Google Search Widget is provided via Google Search app included in the Core GSM Go.

Placement of the Google Collections Folder

The folder on the default home screen MUST:

- be labeled "Google"
- have the Core GSM Go app icons in the following order left to right, top to bottom.
(subject to geo-availability and device memory configuration)
 - Search Go
 - Youtube or YouTube Go
 - Gmail Go
 - Assistant Go
 - Maps Go
- NOT include any non-Google apps



Appearance of Google Collections Folder

Placement of apps in hotseat or default home screen

Any GMS app MAY be placed in the hotseat or default home screen. Core GMS Go app icons SHOULD be removed from the Google collections folder if they are placed in the hotseat or default home screen.

Placement of the Optional GMS apps

Optional GMS app icons SHOULD adhere to one of the following placements:

- an icon on the default home screen; or
- the hotseat; or
- within the Google folder, at the end of the collection (i.e., after the Maps Go app)

Placement on Apps Menu

Placement of GMS apps on the Apps Menu is subject to the following requirements:

- All GMS apps MUST be placed in the Apps Menu.
- If an OEM chooses to implement folders within the Apps Menu, the Core GMS Go app icons SHOULD be placed within the Google folder.
- Play Store SHOULD be in the top level of the Apps menu and MAY NOT reside within any folder on the Apps Menu.
- Other GMS app icons MAY be placed within the Google folder or at the top level of the Apps Menu.