📁 Android Public Tracker > App Development > Jetpack (androidx) > Emoji   170587912 🔽

← C ☆   hasGlyph performance   +1 ²   Hotlists   Mark as Duplicate   🔔   ⋮

| Comments (6) | Dependencies | Duplicates (0) | Blocking (0) | Resources (3) |

Fixed   Bug   P1   + Add Hotlist

👥 **STATUS UPDATE** No update yet.   Edit

📄 **DESCRIPTION** si...@google.com created issue #1   Oct 12, 202

We had reports that `EmojiProcessor.hasGlyph` is rather heavy on API 23+ despite the cache where each emoji is checked for rendering only once for each EmojiCompat instance.

Investigate the culprit.

✓ **Links (3)**

🔗 **Links (3)**

" ...hortcut of single code point + variation selector. https://source.corp.google.com/android/frameworks/base/libs/hwui/jni/Paint.cpp;rcl=9b83d2dbb65bb6792e6eb26e0cc5a85a7a7e0194;l=448"

"Here is the benchmark code I used: https://android-review.googlesource.com/c/platform/frameworks/support/+/1456895"

"https://android-review.googlesource.com/1456995"

COMMENTS   All comments 🔽

si...@google.com <si...@google.com> #2   Oct 12, 2020

I tested the `PaintCompat.hasGlyph` performance.

`PaintCompat.hasGlyph` has two components:

- before API 23 it uses `measureText` for some heuristics to check if emoji is on the system
- on and after API 23 it uses `Paint.hasGlyph`

Whenever EmojiCompat matches an emoji in a given CharSequence, it makes a call to an internal `hasGlyph` implementation.

- Since the heuristics applied in PaintCompat does not work very well, before API 23, EmojiCompat has a shortcut of

```
if (CurrentSdk < 23 && emoji.metadata.sdkAdded > CurrentSdk) return false
```

I suspect the report was comparing this shortcut with the regular check while checking the difference for before SDK 23 and after.

The time Paint.hasGlyph takes is

Device	Version	ns	ms
Nexus 5X	6.0.1	12014	0.012
Pixel XL	7.1.2	15220	0.015
Pixel XL	8.1	13482	0.013
Pixel XL	9	13544	0.014
Pixel XL	10	15029	0.015

On the same devices the measureText is around 2x to 3.5x slower.

Device	Version	ns	ms	mesaure/hasGlyph
Nexus 5X	6.0.1	39292	0.039	3.27
Pixel XL	7.1.2	34128	0.034	2.24
Pixel XL	8.1	36356	0.036	2.70
Pixel XL	9	35544	0.036	2.62
Pixel XL	10	35850	0.036	2.39

no...@google.com <no...@google.com> #3   Oct 12, 2020

What string are you querying?

There are shortcut of single code point + variation selector. https://source.corp.google.com/android/frameworks/base/libs/hwui/jni/Paint.cpp;rcl=9b83d2dbb65bb6792e6eb26e0cc5a85a7a

Also, if there is no glyph in the Typeface, it is always slow path of the query.

I don't know how EmojiCompat uses hasGlyph APIs but if you querying all emojis (let's say over 1000), maybe it would be good to parse cmap/GSUB table by ourselves. You may still need to for checking the platform capability though.

Hi Nonasan,

Here is the benchmark code I used: https://android-review.googlesource.com/c/platform/frameworks/support/+/1456895

I query random emoji.

> I don't know how EmojiCompat uses hasGlyph APIs but if you querying all emojis (let's say over 1000), maybe it would be good to parse cmap/GSUB table by ourselves.

This wouldn't work. I am not interested in the EmojiCompat font, but the platform itself. If we knew that there is only NotoEmoji we might be able to check the system font, but I don't think it i

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ap...@google.com <ap...@google.com> #5

Oct 14, 2020

Project: platform/frameworks/support
Branch: androidx-master-dev

commit 1b3056f484ecb3b82e300362d42327dce145205a
Author: Siyamed Sinir <siyamed@google.com>
Date: Sun Oct 11 19:25:27 2020

    Expose GlyphChecker interface

    EmojiCompat.Config accepts GlyphChecker in the API.

    Test: Added new tests
    Test: ./gradlew emoji:test
    Test: ./gradlew emoji:connectedAndroidTest

    Relnote: "Added new API `EmojiCompat.Config#setGlyphChecker` that enables developers
      to provide custom emoji glyph check behavior."

    Bug: 170587912
    Change-Id: Ibc95e158765d392cb8726e53b0f8cac7961f0373

M   emoji/core/api/current.txt
M   emoji/core/api/public_plus_experimental_current.txt
M   emoji/core/api/restricted_current.txt
M   emoji/core/src/androidTest/java/androidx/emoji/text/ConfigTest.java
M   emoji/core/src/androidTest/java/androidx/emoji/text/EmojiCompatTest.java
M   emoji/core/src/androidTest/java/androidx/emoji/text/TestConfigBuilder.java
M   emoji/core/src/main/java/androidx/emoji/text/EmojiCompat.java
M   emoji/core/src/main/java/androidx/emoji/text/EmojiProcessor.java

https://android-review.googlesource.com/1456995

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si...@google.com <si...@google.com>

Oct 14

Marked as fixed.

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se...@google.com <se...@google.com> #6

Jul 23, 2021

Leaving closed, but listing another option for developers reading this thread:

- `hasGlyph` is cached in emojicompat per glyph, so one option would be to process a string containing all emoji in a background thread. This would effectively avoid any calls to `hasGlyp` user-defined strings later.