Android Camera2 API专题

Hardware Level详解

Agenda

- 为什么要判断是否支持某个Feature
- Camera Hardware Level
- Camera Capability
- Hardware Level与Capability的关系
- 如何判断是否支持某个Feature

为什么要判断是否支持某个Feature

- App需要兼容不同的平台、不同的Camera硬件设备
- 实战经验
  - 任何Camera的功能，在使用前都必须动态判断是否支持

Camera Hardware Level

- Hardware Level从宏观上描述Camera设备具备的能力等级。每一个等级都是在前一个等级上增加更多的功能。
- LEGACY < LIMITED < FULL < LEVEL_3

Camera Hardware Level

Hardware Level	Description
INFO_SUPPORTED_HARDWARE_LEVEL_**LEGACY**	这种Level表示：Camera底层工作在HAL1，上层使用API2，Camera能力非常受限
INFO_SUPPORTED_HARDWARE_LEVEL_**LIMITED**	HAL3最基础的功能
INFO_SUPPORTED_HARDWARE_LEVEL_**EXTERNAL**	跟LIMITED类似，但可能无法获取到Sensor或Lens的信息、帧率也不稳定
INFO_SUPPORTED_HARDWARE_LEVEL_**FULL**	在LIMITED Level基础上，再加上 • **per-frame manual control** of sensor, flash, lens and post-processing settings • image capture at a **high rate**
INFO_SUPPORTED_HARDWARE_LEVEL_**3**	在FULL Level基础上，再加上 • support YUV reprocessing **and** RAW image capture

Camera Hardware Level

```
// Returns true if the device supports the required hardware level, or better.
boolean isHardwareLevelSupported(CameraCharacteristics c, int requiredLevel) {
    final int[] sortedHwLevels = {
        CameraCharacteristics.INFO_SUPPORTED_HARDWARE_LEVEL_LEGACY,
        CameraCharacteristics.INFO_SUPPORTED_HARDWARE_LEVEL_EXTERNAL,
        CameraCharacteristics.INFO_SUPPORTED_HARDWARE_LEVEL_LIMITED,
        CameraCharacteristics.INFO_SUPPORTED_HARDWARE_LEVEL_FULL,
        CameraCharacteristics.INFO_SUPPORTED_HARDWARE_LEVEL_3
    };
    int deviceLevel = c.get(CameraCharacteristics.INFO_SUPPORTED_HARDWARE_LEVEL);
    if (requiredLevel == deviceLevel) {
        return true;
    }

    for (int sortedlevel : sortedHwLevels) {
        if (sortedlevel == requiredLevel) {
            return true;
        } else if (sortedlevel == deviceLevel) {
            return false;
        }
    }
    return false; // Should never reach here
}
```

如何判断是否支持某个 Hardware Level?

Thanks