

How Amigo works

About me

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- 4 years mobile dev
- Amigo project director
- a senior developer in [eleme](#)
- good at hotfix, hook, modulization
- run a wechat official account(id:android_share)

What is Amigo

- public [repo](#) in github, with Apache Licence 2.0
- the coolest [hotfix](#) lib for Android
 - you shall never worry about [online bugs](#)
- upgrade app [automatically](#) without reinstallation
 - [parallel development](#) or [low adoption](#) will never be a problem

Usage (dependency)

```
dependencies {  
    classpath 'me.ele.amigo:0.3.1'  
    ....  
}  
  
apply plugin: 'me.ele.amigo'  
...
```

That's all your need, good to go

Usage (configuration)

```
<meta-data
  android:name="amigo_layout"
  android:value="{your-layout-name}" />

<meta-data
  android:name="amigo_theme"
  android:value="{your-theme-name}" />
```

`ApkReleaseActivity` in another process will consume some time, you may want to customize it

Usage (api)

- make it work
 - work later (recommended)

```
Amigo.workLater(context, patchApkFile);
```

- work immediately

```
Amigo.work(context, patchApkFile);
```

- make it clear

```
Amigo.clear(context);
```

Comparison

	Amigo	Tinker	QZone	AndFix
class fix	yes	yes	yes	depends
so fix	yes	yes	-	-
resource fix	yes	yes	-	-
instant work	optional	-	-	yes
compatibility	high	high	high	low
patch size	largest	small	large	small
usage	easy	hard	hard	hard
upgrade	yes	-	-	-

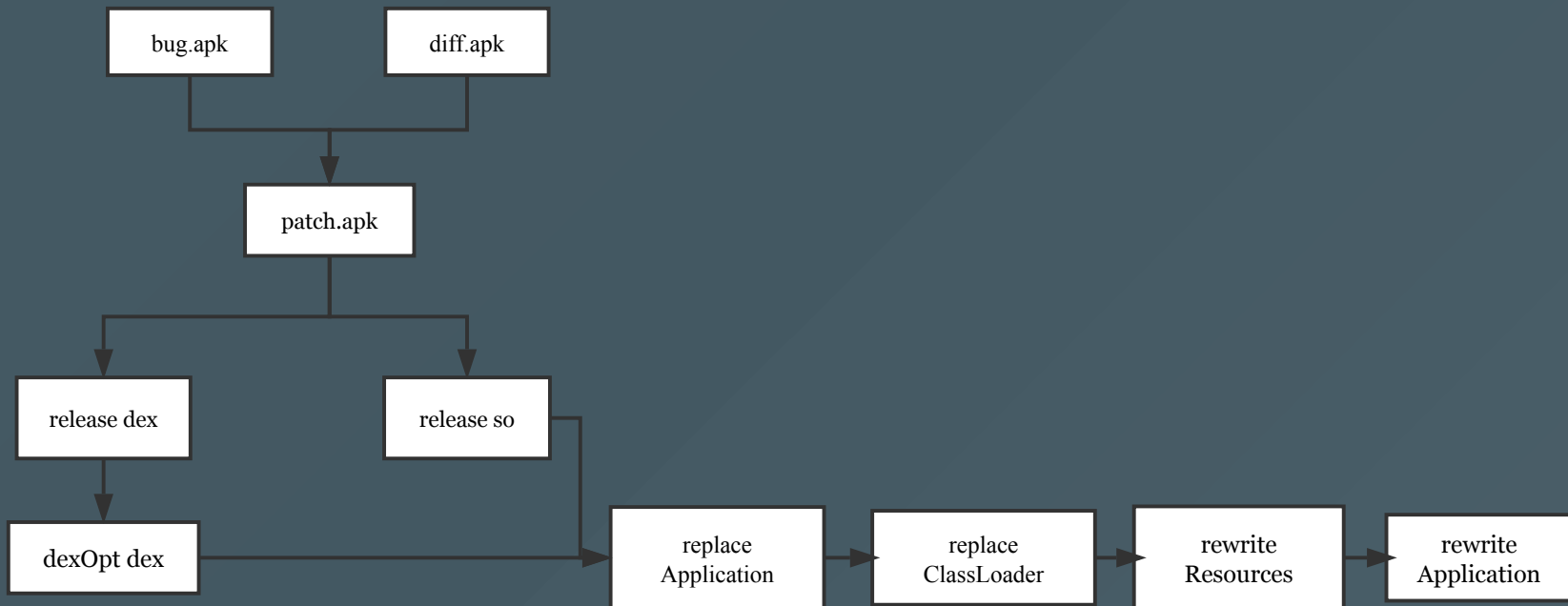
How Amigo works (preparation)

- patch diff.apk & bug.apk to patch.apk with [bspatch](#)
 - [diff.apk](#) can be downloaded from cdn server
- copy apk to `/data/data/{pkg}/files/amigo/{checksum}/patch.apk`
- release `classes{N}.dex` from patch.apk
- release `lib{XXX}.so` from patch.apk
- [dexopt/dex2oat](#) released `dexes`
 - check [dalvik dexopt proc](#)

How Amigo works (core)

- replace original ~~application~~ with Amigo
- replace ~~PathClassLoader~~ with AmigoClassLoader
- use patch.apk as new AssetManager's addAssetPath
- replace ~~Amigo~~ with original application

How Amigo works (core diagram)



How Amigo works (auto-upgrade)

- support new Activity
- support new Receiver
- support new Service
- support new Provider
- permission? meta-data?

How Amigo works (internal)

- if any step fails, run original logic
- if no hotpatch, what shall Amigo do?
- security check, version check ...
- customize `ApkReleaseActivity`
- work `immediately` & avoid ~~ANR~~

How Amigo works (plugin)

- Amigo is an Application? & how do that?
- how to save original application info, & obfuscated?
 - you know Amigo can even fix your Application?
- deal with Mess
 - Mess is another lib for components obfuscation
- which classes should be contained in classes.dex ?

limits

- `LauncherActivity`'s name cannot be changed
- `AndroidManifest.xml`'s change may not supported
- changing remote view's layout not supported ?
 - notification
 - widget
 - shortcut
- may conflict with google play terms
- **the only limit is your imagination**

Amigo's advantages

- intergation
 - intergrate easier than others 👍
 - no intrusion to your code 👍
- hotfix
 - fix **everything** (resource & code) 👍
 - **100%** compatibility(all android devices with 4.0-7.0~X) 👍
- upgrade without reinstallation, no other lib can 👍
- even with bsdiff, patch size may be some large 👎

Amigo's Future

- continuous **feature** & **bugfix** will be merged
 - something like Amigo fix itself
- we need more **cool guys** to do this great work
- if someone fix a bug or dev a cool feature, we hope a PR is submitted to our repo
 - anyone can retrieve source code from github
- **This is just a start, that's much more to explore**

Q & A

that's all about Amigo

Thanks