

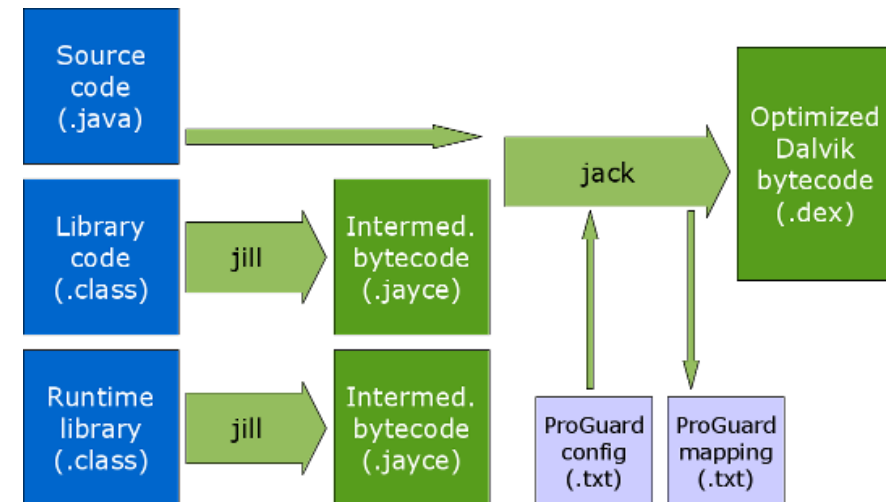
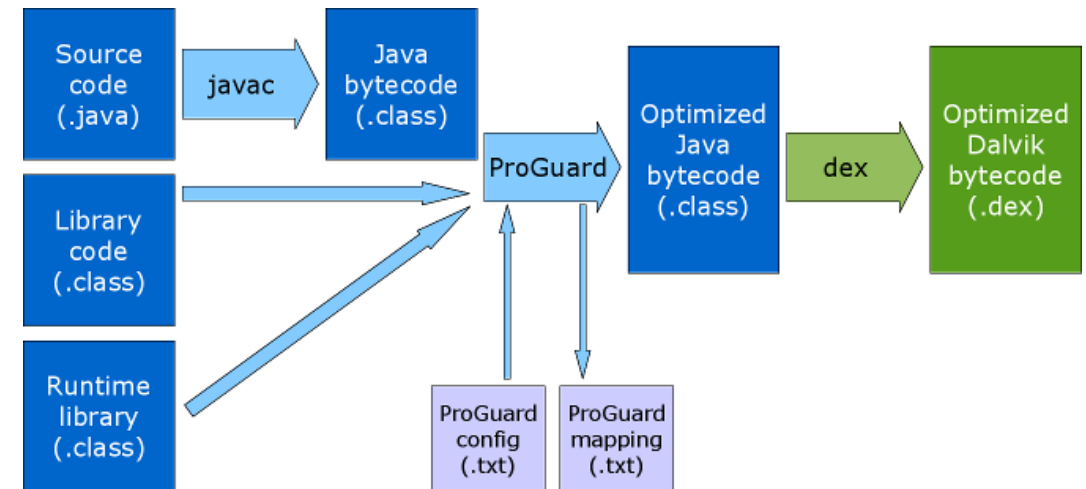


GDG Rzeszów #4 - Firebase day  
Łukasz Byjoś

# Po co nam Proguard

# Proguard

- Ratunek przy limicie 65K metod
- Optymalizacja kodu i jego rozmiaru
- Zaciemnianie kodu



# Rozmiar

## Bez Proguard

- Ponad 53K metod
- Do pobrania 3,8MB

Raw File Size: 2,5 MB, Download Size: 3,8 MB Compare with...

File	Raw File Size	Download Size	% of Total Download size
classes.dex	4 MB	3 MB	78,5%
resources.arsc	441 KB	105,2 KB	2,7%
res	362,9 KB	538,2 KB	13,7%
META-INF	223,6 KB	68,9 KB	1,8%
org	174,3 KB	110,5 KB	2,8%
me	89,7 KB	13,5 KB	0,3%
com	38,8 KB	6,2 KB	0,2%
AndroidManifest.xml	8 KB	2 KB	0,1%
build-data.properties	934 B	511 B	0%
jsr305_annotations	133 B	104 B	0%

This dex file defines **6867** classes with **53214** methods, and references **63114** methods.

# Rozmiar

## Bez Proguard

- Ponad 53K metod
- Do pobrania 3,8MB

## Z Proguard

- Ponad 29K metod
- Do pobrania 2MB



Raw File Size: 2,5 MB, Download Size: 3,8 MB					Compare with...
File	Raw File Size	Download Size	% of Total Download size		
classes.dex	4 MB	3 MB	78,5%		
resources.arsc	441 KB	105,2 KB	2,7%		
res	362,9 KB	538,2 KB	13,7%		
META-INF	223,6 KB	68,9 KB	1,8%		
org	174,3 KB	110,5 KB	2,8%		
me	89,7 KB	13,5 KB	0,3%		
com	38,8 KB	6,2 KB	0,2%		
AndroidManifest.xml	8 KB	2 KB	0,1%		
build-data.properties	934 B	511 B	0%		
jsr305_annotations	133 B	104 B	0%		
This dex file defines 6867 classes with 53214 methods, and references 63114 methods.					
Raw File Size: 2,5 MB, Download Size: 2 MB					Compare with...
File	Raw File Size	Download Size	% of Total Download size		
classes.dex	4 MB	1,5 MB	73,4%		
resources.arsc	441 KB	105,2 KB	5,1%		
res	362,9 KB	254,8 KB	12,3%		
META-INF	223,6 KB	60,4 KB	2,9%		
org	174,3 KB	110,5 KB	5,3%		
me	89,7 KB	13,5 KB	0,6%		
com	38,8 KB	6,2 KB	0,3%		
AndroidManifest.xml	8 KB	2 KB	0,1%		
build-data.properties	934 B	511 B	0%		
jsr305_annotations	133 B	104 B	0%		
This dex file defines 4559 classes with 29708 methods, and references 36810 methods.					

# Zaciemnienie

```
@Keep
public class KeepAllClass {
    private String name;
    private int age;
    public KeepAllClass() {
    }
    public KeepAllClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
}
```

```
public class KeepNameOnly {
    private String name;
    private int age;
    public KeepNameOnly() {
    }
    public KeepNameOnly(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    @Keep
    public String getName() {
        return name;
    }
}
```

```
public class NinjaClass {
    private String name;
    private int age;
    public NinjaClass() {
    }
    public NinjaClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
}
```

# Zaciemnienie

```
@Keep
public class KeepAllClass {
    private String name;
    private int age;
    public KeepAllClass() {
    }
    public KeepAllClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
}
```

```
public class KeepNameOnly {
    private String name;
    private int age;
    public KeepNameOnly() {
    }
    public KeepNameOnly(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    @Keep
    public String getName() {
        return name;
    }
}
```

```
public class NinjaClass {
    private String name;
    private int age;
    public NinjaClass() {
    }
    public NinjaClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
}
```

# Zaciemnienie

```
@Keep
public class KeepAllClass {
    private String name;
    private int age;
    public KeepAllClass() {
    }
    public KeepAllClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
}
```

```
public class KeepNameOnly {
    private String name;
    private int age;
    public KeepNameOnly() {
    }
    public KeepNameOnly(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    @Keep
    public String getName() {
        return name;
    }
}
```

```
public class NinjaClass {
    private String name;
    private int age;
    public NinjaClass() {
    }
    public NinjaClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
}
```

# Zaciemnienie

```
@Keep
public class KeepAllClass {
    private String name;
    private int age;
    public KeepAllClass() {
    }
    public KeepAllClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
```

```
public class KeepNameOnly {
    private String name;
    private int age;
    public KeepNameOnly() {
    }
    public KeepNameOnly(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    @Keep
    public String getName() {
        return name;
    }
}
```

```
public class NinjaClass {
    private String name;
    private int age;
    public NinjaClass() {
    }
    public NinjaClass(String name,
                        int age) {
        this.name = name;
        this.age = age;
    }
    // get,set
```



# Zaciemnienie

## Bez Proguard

Class	Defined ...	Referenced Methods
gdgproguard	45	45
model	18	18
KeepAllClass	6	6
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int getAge()	1	1
java.lang.String getName()	1	1
void setAge(int)	1	1
void setName(java.lang.String)	1	1
KeepNameOnly	6	6
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int getAge()	1	1
java.lang.String getName()	1	1
void setAge(int)	1	1
void setName(java.lang.String)	1	1
NinjaClass	6	6
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int getAge()	1	1
java.lang.String getName()	1	1
void setAge(int)	1	1
void setName(java.lang.String)	1	1
MainActivity	8	8
MainActivity\$1	2	2

# Zaciemnienie

## Bez Proguard

Class	Defined ...	Referenced Methods
gdgproguard	45	45
model	18	18
KeepAllClass	6	6
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int getAge()	1	1
java.lang.String getName()	1	1
void setAge(int)	1	1
void setName(java.lang.String)	1	1
KeepNameOnly	6	6
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int getAge()	1	1
java.lang.String getName()	1	1
void setAge(int)	1	1
void setName(java.lang.String)	1	1
NinjaClass	6	6
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int getAge()	1	1
java.lang.String getName()	1	1
void setAge(int)	1	1
void setName(java.lang.String)	1	1
MainActivity	8	8
MainActivity\$1	2	2

## Z Proguard

Class	Define...	Referenced Methods
gdgproguard	23	23
model	13	13
KeepAllClass	6	6
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int getAge()	1	1
java.lang.String getName()	1	1
void setAge(int)	1	1
void setName(java.lang.String)	1	1
KeepNameOnly	4	4
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int a()	1	1
java.lang.String getName()	1	1
a	3	3
void <init>()	1	1
void <init>(java.lang.String, int)	1	1
int a()	1	1
MainActivity	8	8
a	2	2
butterknife	18	21

# Zaciemnienie



Caused by: com.google.firebase.database.c: No properties to serialize found on class  
pl.lukaszbyjos.gdgproguard.model.a

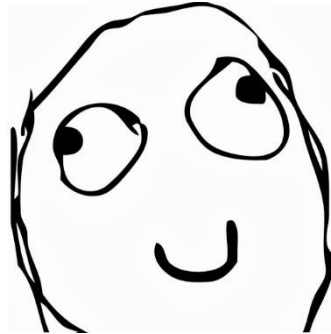


# Zaciemnienie



Caused by: com.google.firebase.database.c: No properties to serialize found on class  
pl.lukaszbyjos.gdgproguard.model.a

@Keep na całej klasie  
lub  
-keepclassmembers class...



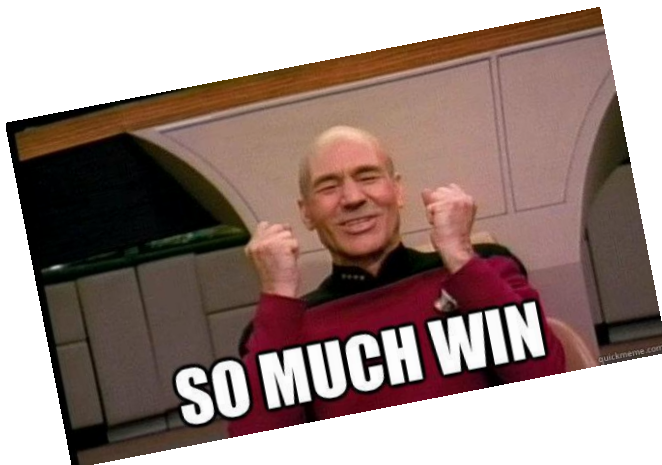
# Zaciemnienie



Caused by: com.google.firebase.database.c: No properties to serialize found on class pl.lukaszbyjos.gdgproguard.model.a

@Keep na całej klasie  
lub  
-keepclassmembers class

```
public class NinjaClass {  
    @PropertyName("name")  
    public String name;  
    @PropertyName("age")  
    public int age;  
  
    @Exclude  
    public int getAge() { return age; }
```



# Podsumowując

## Plusy

- Mniejszy rozmiar aplikacji i liczba metod
- Bezpieczeństwo dzięki zaciemnieniu kodu

# Podsumowując

## Plusy

- Mniejszy rozmiar aplikacji i liczba metod
- Bezpieczeństwo dzięki zaciemnieniu kodu

## Minusy

- Dłuższy czas buildu
- Skomplikowana konfiguracja
- Brak możliwości odczytania stacktrace po utracie pliku mapping.txt

# Linki

- <https://developer.android.com/studio/build/shrink-code.html>
- <http://proguard.sourceforge.net/>
- <https://github.com/krschultz/android-proguard-snippets>
- <https://speakerdeck.com/chalup/proguard>
- <https://realm.io/news/360andev-jake-wharton-java-hidden-costs-android/>

Dzięki za uwagę!