New Developments in Mobile Gaming

Todd Kerpelman, Steve Martin, Dave Santoro

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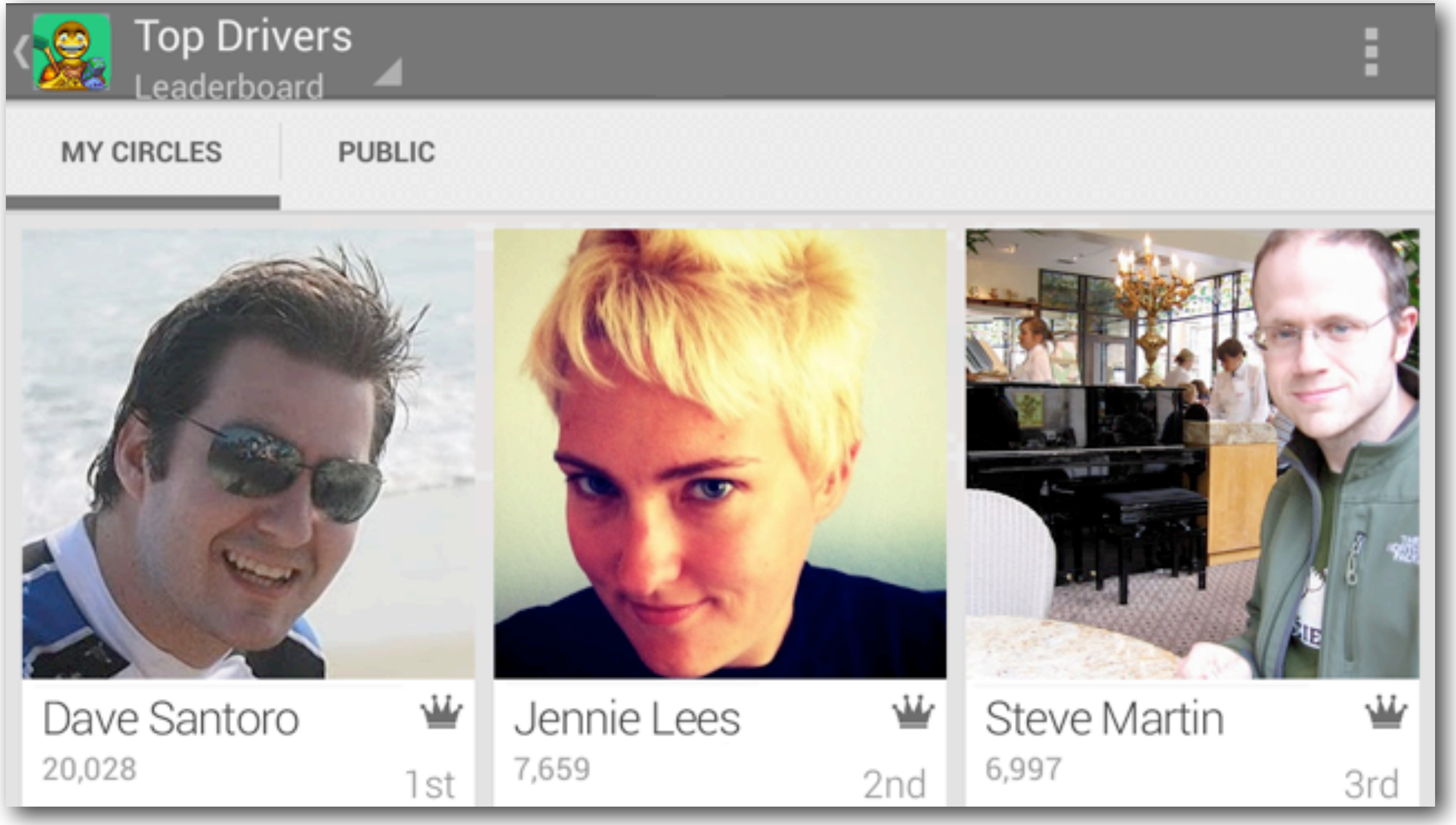
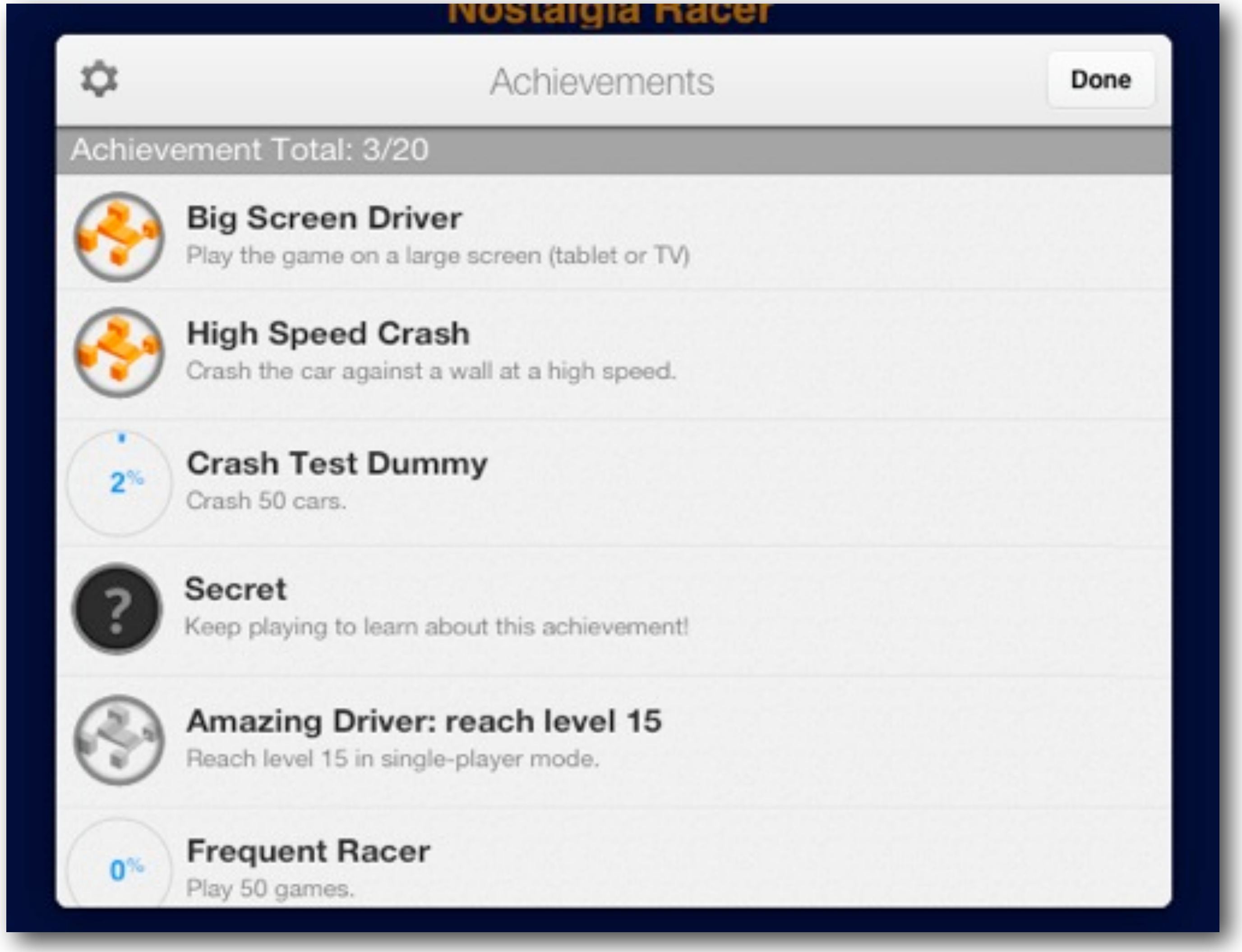
An Introduction to Play Game Services



Dave Santoro 20,028 1st

Jennie Lees 7,659 2nd

Steve Martin 6,997 3rd



Achievement Total: 3/20

Big Screen Driver
Play the game on a large screen (tablet or TV)

High Speed Crash
Crash the car against a wall at a high speed.

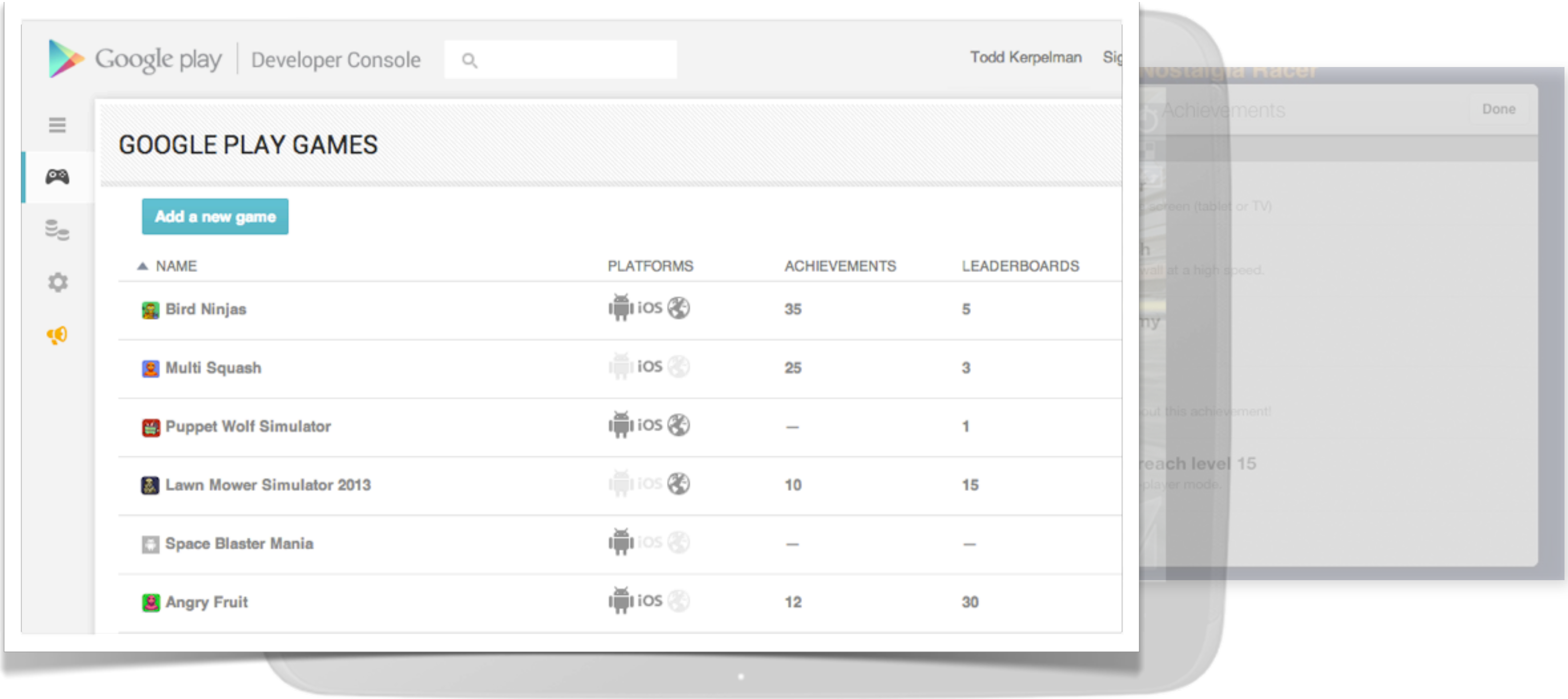
2%
Crash Test Dummy
Crash 50 cars.

?
Secret
Keep playing to learn about this achievement!

Amazing Driver: reach level 15
Reach level 15 in single-player mode.

0%
Frequent Racer
Play 50 games.

Top Drivers
Leaderboard
MY CIRCLES
PUB
Dave Santoro
20,028
8/8
0:07
1/1
Done
ments
15



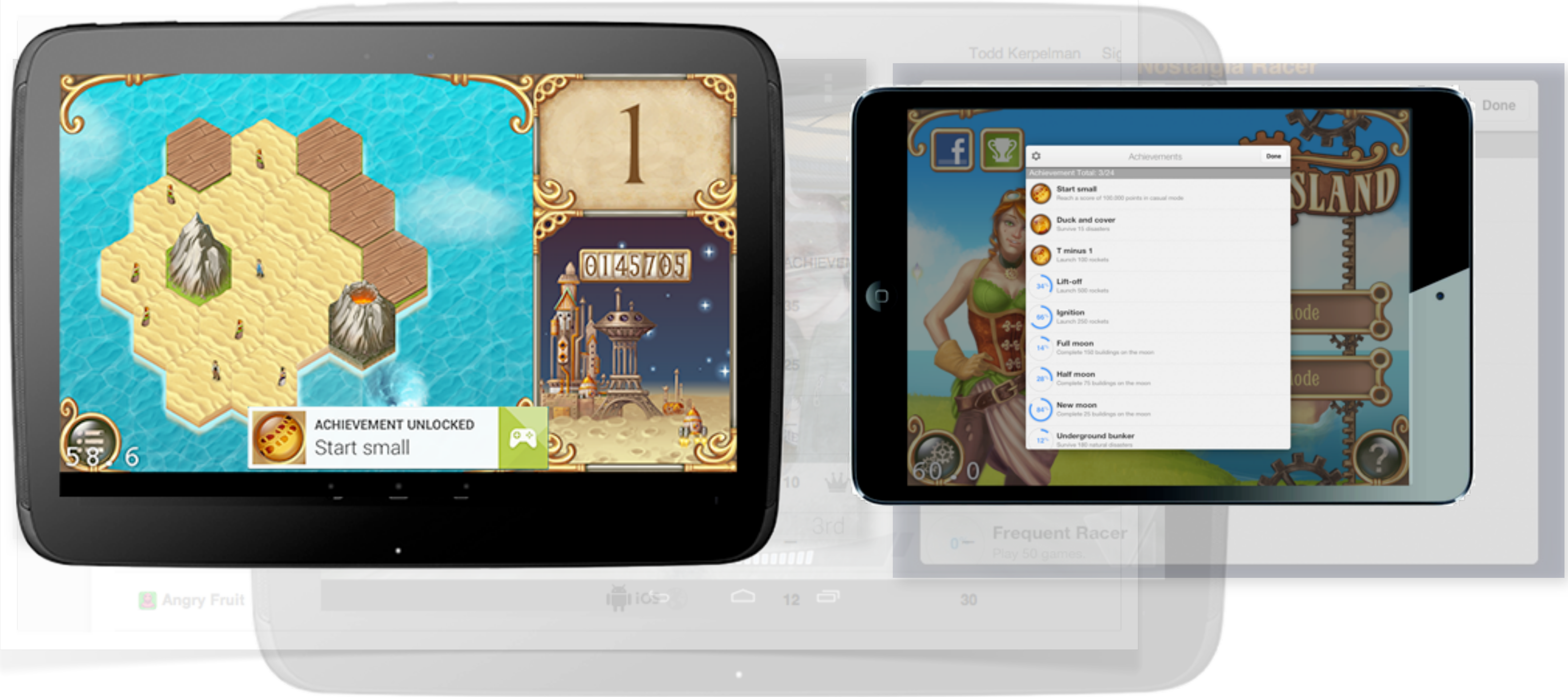
Google play | Developer Console

Todd Kerpelman Sig

GOOGLE PLAY GAMES

Add a new game

▲ NAME	PLATFORMS	ACHIEVEMENTS	LEADERBOARDS
Bird Ninjas	iOS	35	5
Multi Squash	iOS	25	3
Puppet Wolf Simulator	iOS	—	1
Lawn Mower Simulator 2013	iOS	10	15
Space Blaster Mania	iOS	—	—
Angry Fruit	iOS	12	30



ACHIEVEMENT UNLOCKED
Start small

Achievements Done

Achievement Total: 3/24

- Start small — Reach a score of 100,000 points in casual mode
- Duck and cover — Survive 15 disasters
- T minus 1 — Launch 100 rockets
- 34% Lift-off — Launch 500 rockets
- 56% Ignition — Launch 250 rockets
- 14% Full moon — Complete 150 buildings on the moon
- 28% Half moon — Complete 75 buildings on the moon
- 84% New moon — Complete 25 buildings on the moon
- 12% Underground bunker — Survive 180 natural disasters

PWNED!

Achievements

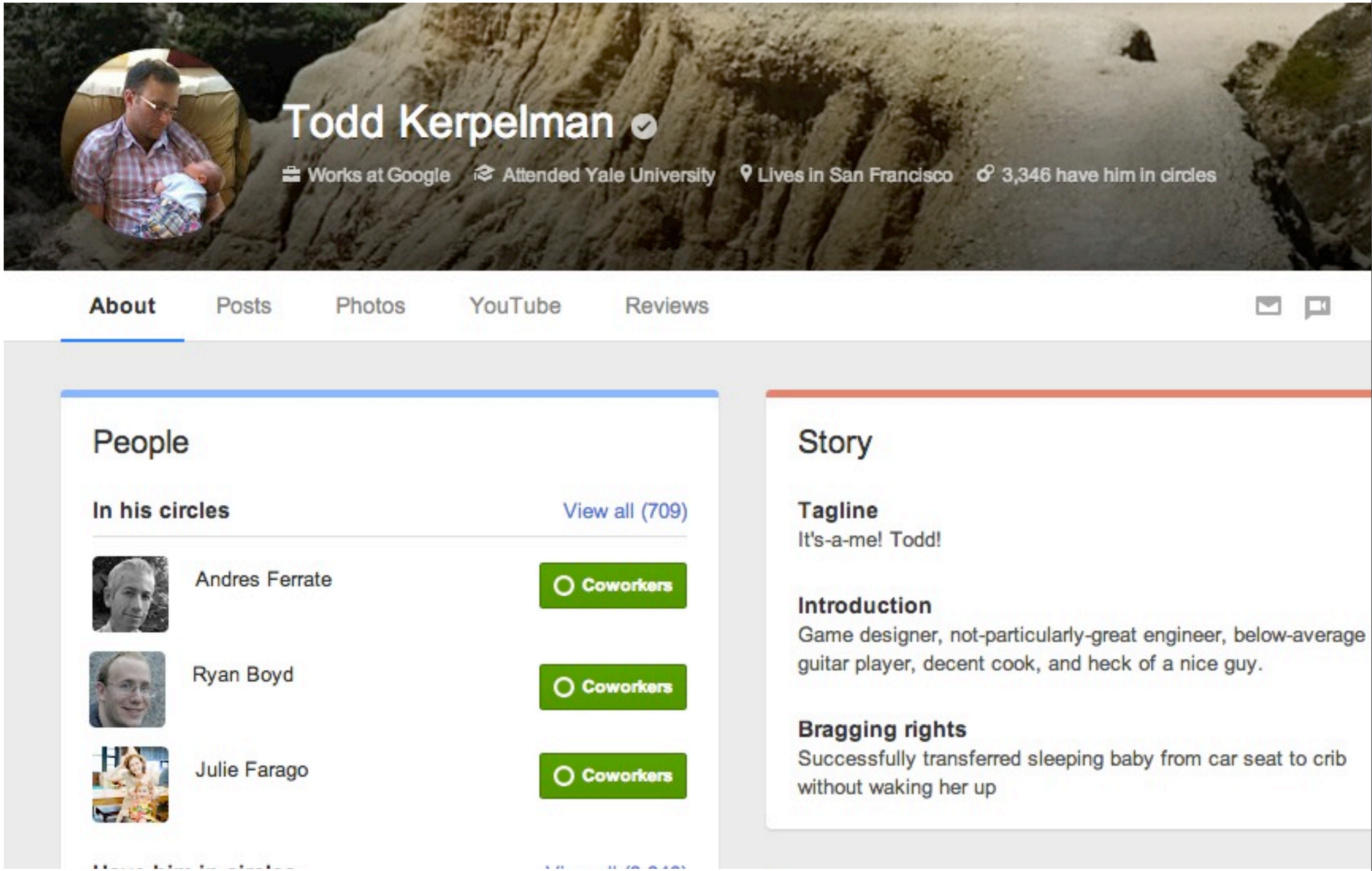
Leaderboards

Cloud Save

Real-time Multiplayer

We’ll get to these soon. Honest.

The Game Services Ecosystem



Todd Kerpelman

Works at Google · Attended Yale University · Lives in San Francisco · 3,346 have him in circles

People

In his circles View all (709)

- Andres Ferrate ○ Coworkers
- Ryan Boyd ○ Coworkers
- Julie Farago ○ Coworkers

Have him in circles View all (3,346)

Story

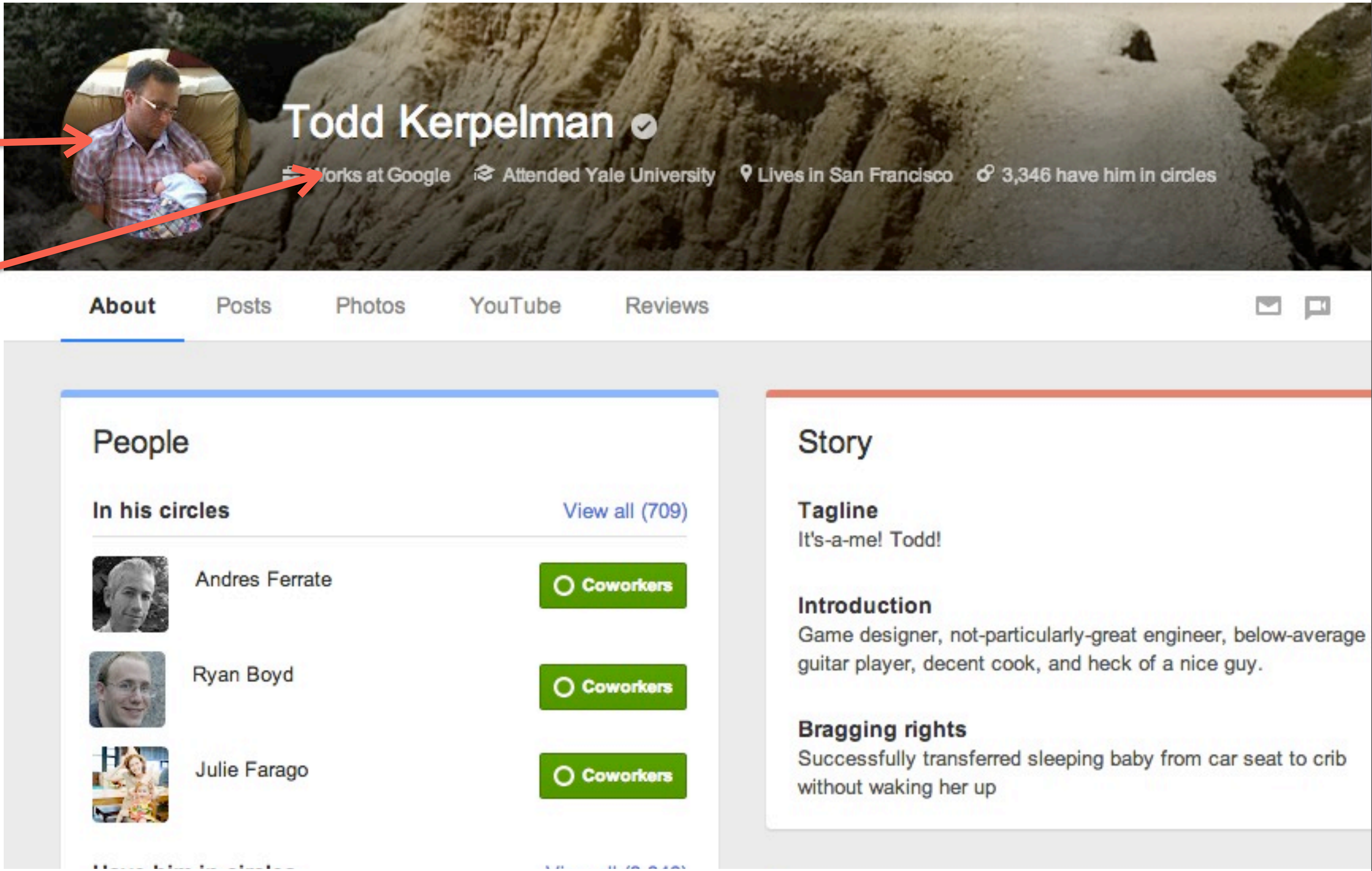
Tagline
It's-a-me! Todd!

Introduction
Game designer, not-particularly-great engineer, below-average guitar player, decent cook, and heck of a nice guy.

Bragging rights
Successfully transferred sleeping baby from car seat to crib without waking her up

Profile image

Name



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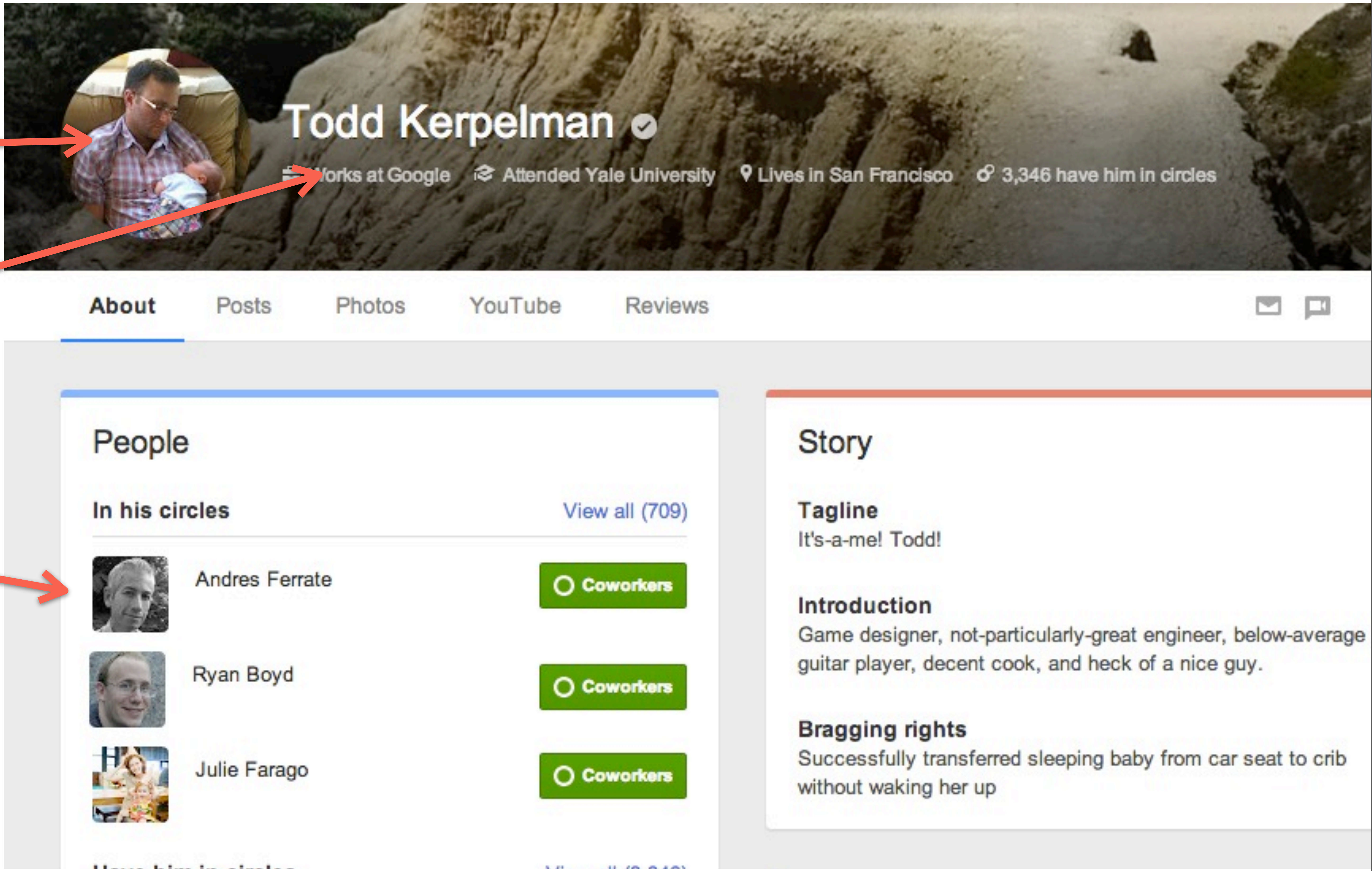

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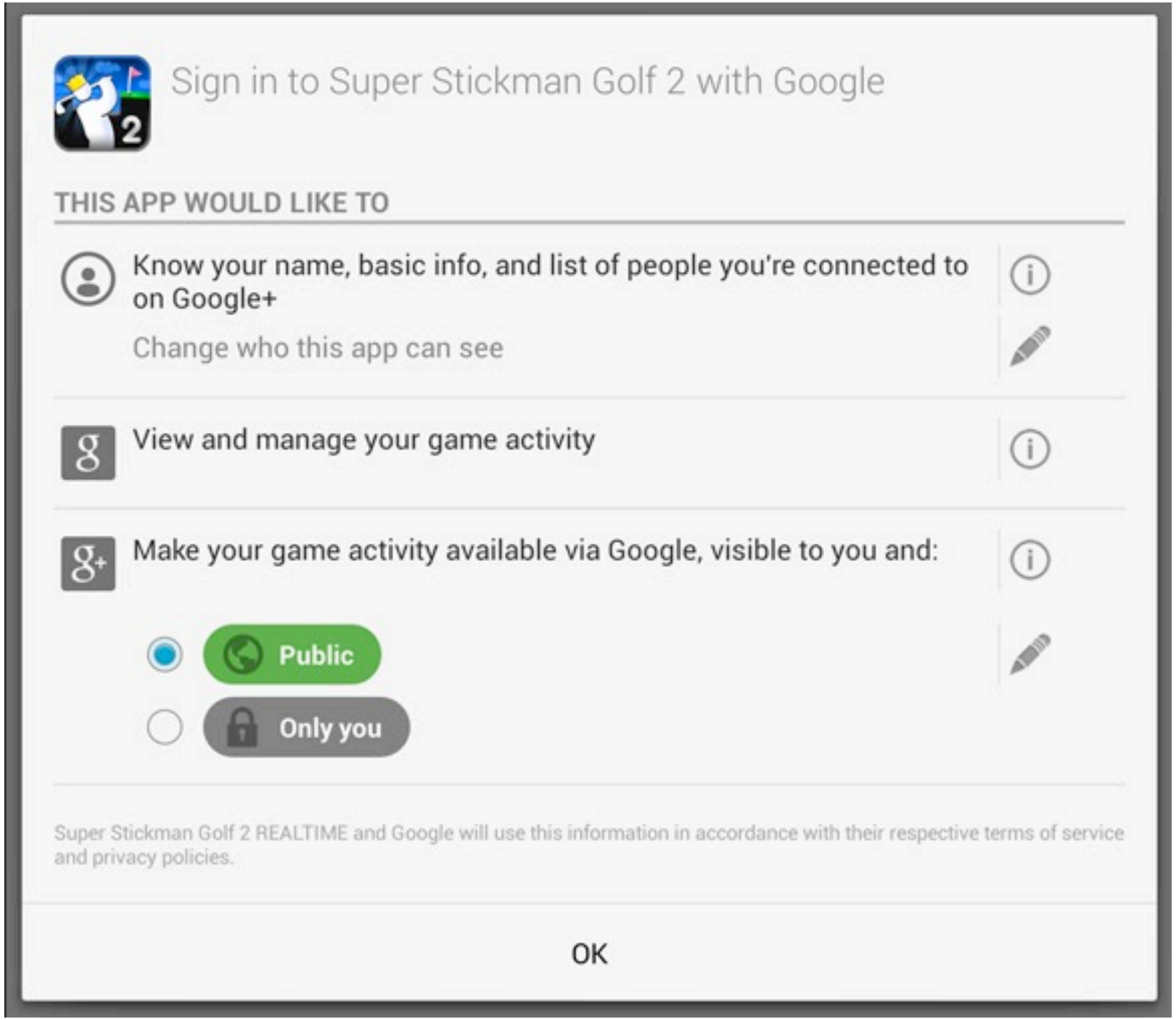


Sign in to Super Stickman Golf 2 with Google

THIS APP WOULD LIKE TO

Know your name, basic info, and list of people you're connected to on Google+

Change who this app can see

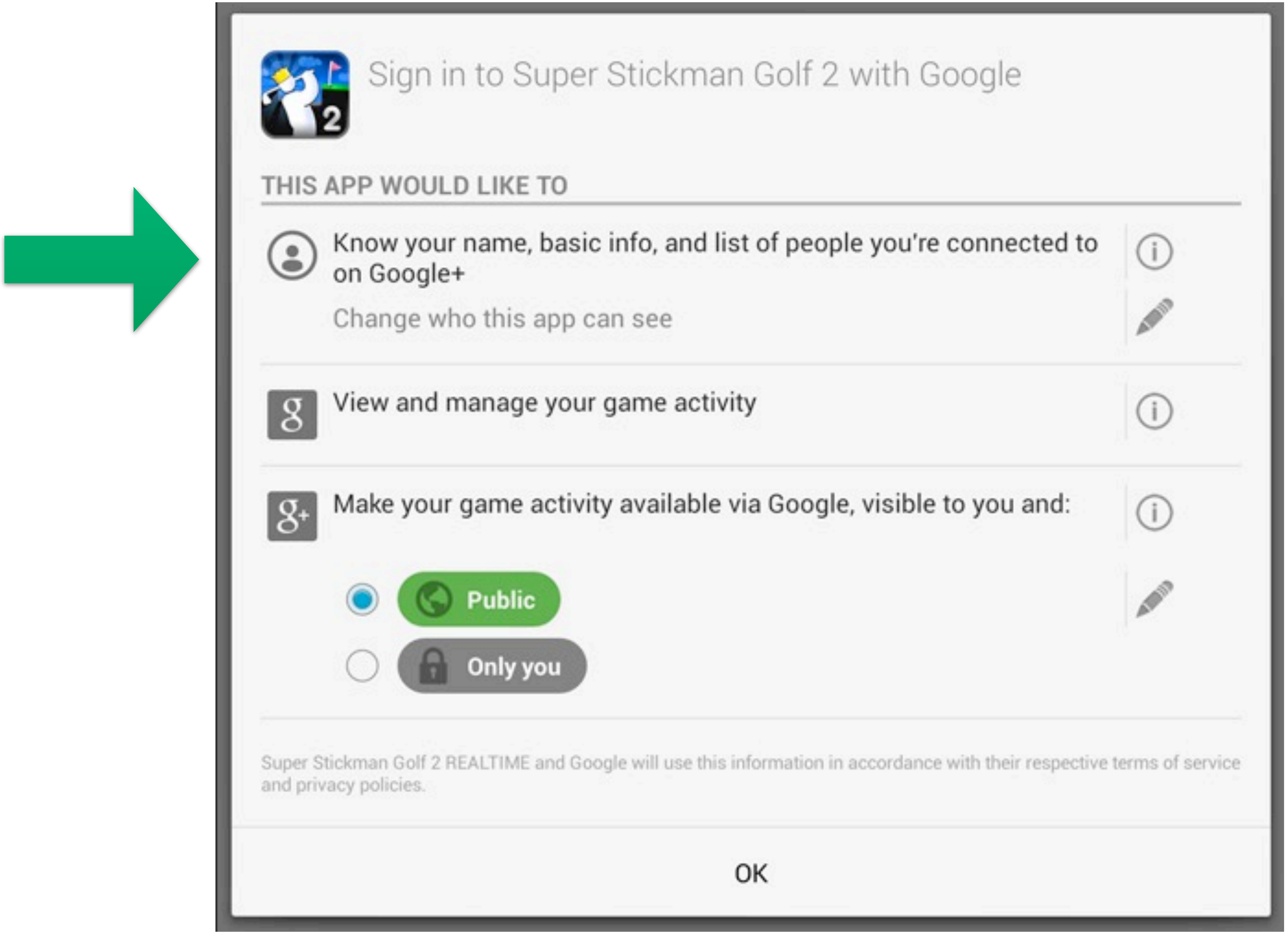
View and manage your game activity

Make your game activity available via Google, visible to you and:

● Public

○ Only you

Super Stickman Golf 2 REALTIME and Google will use this information in accordance with their respective terms of service and privacy policies.



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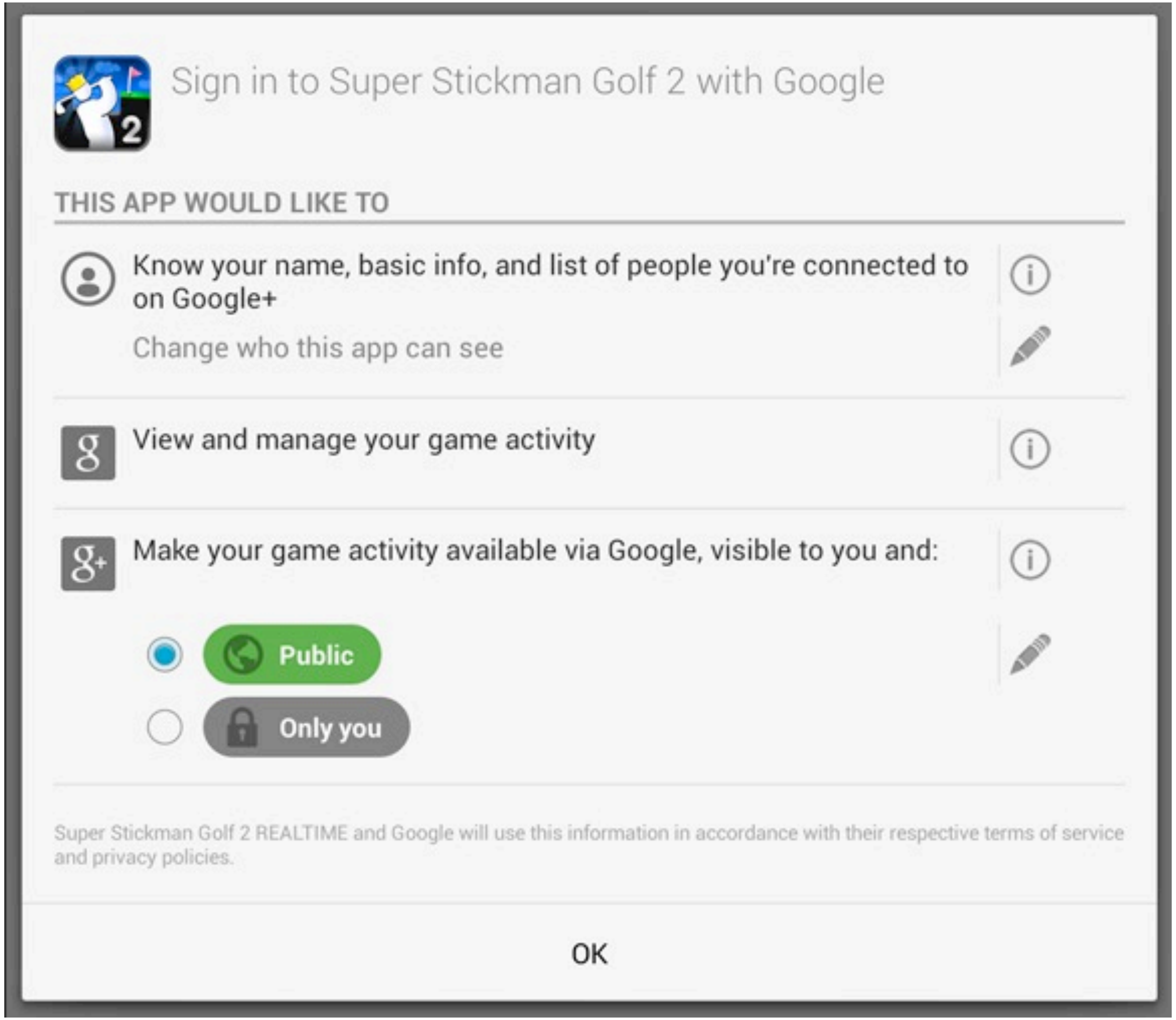

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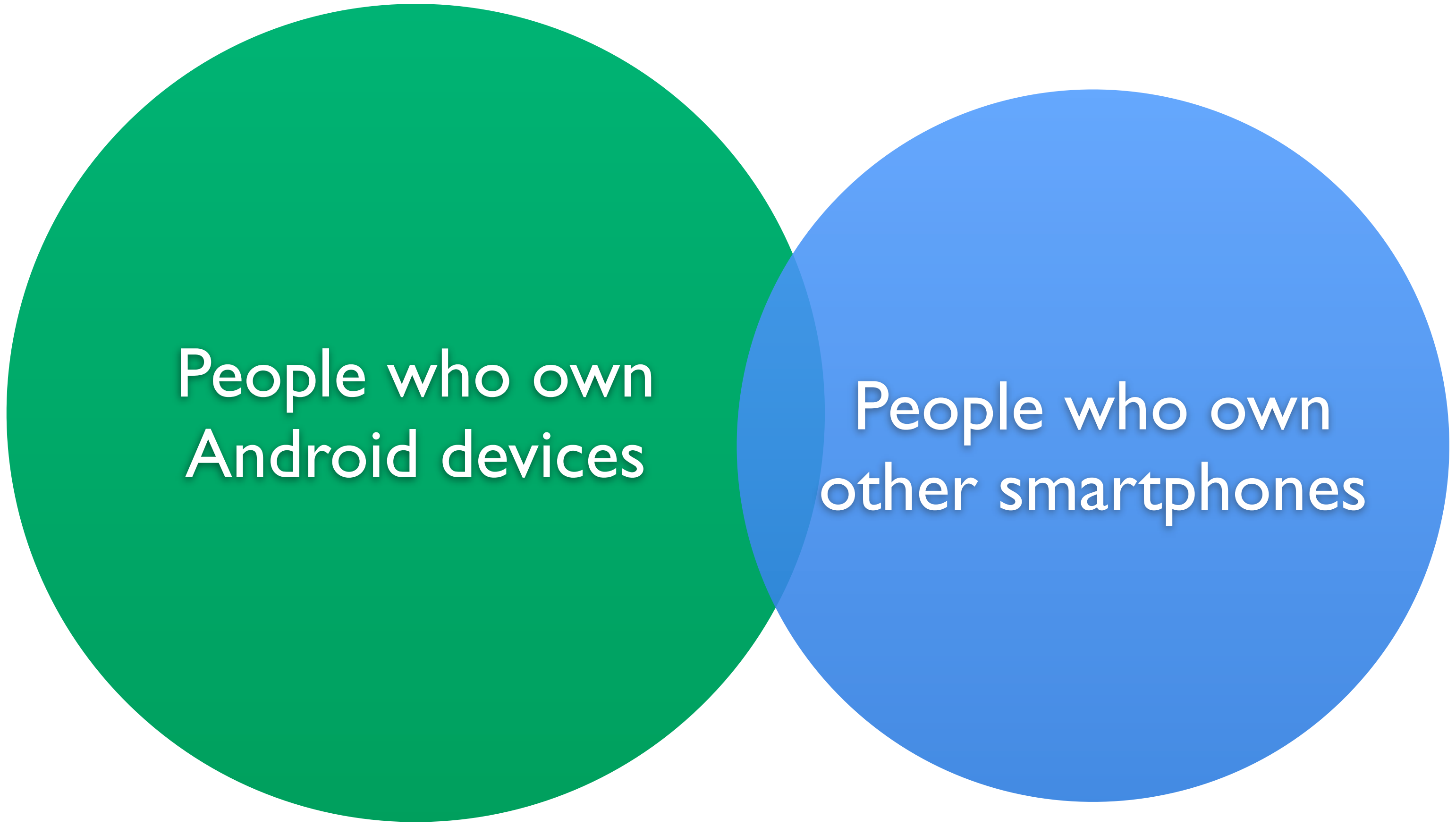
OK

Cross Platform and Accessible

Cross Platform and Accessible

People who own Android devices

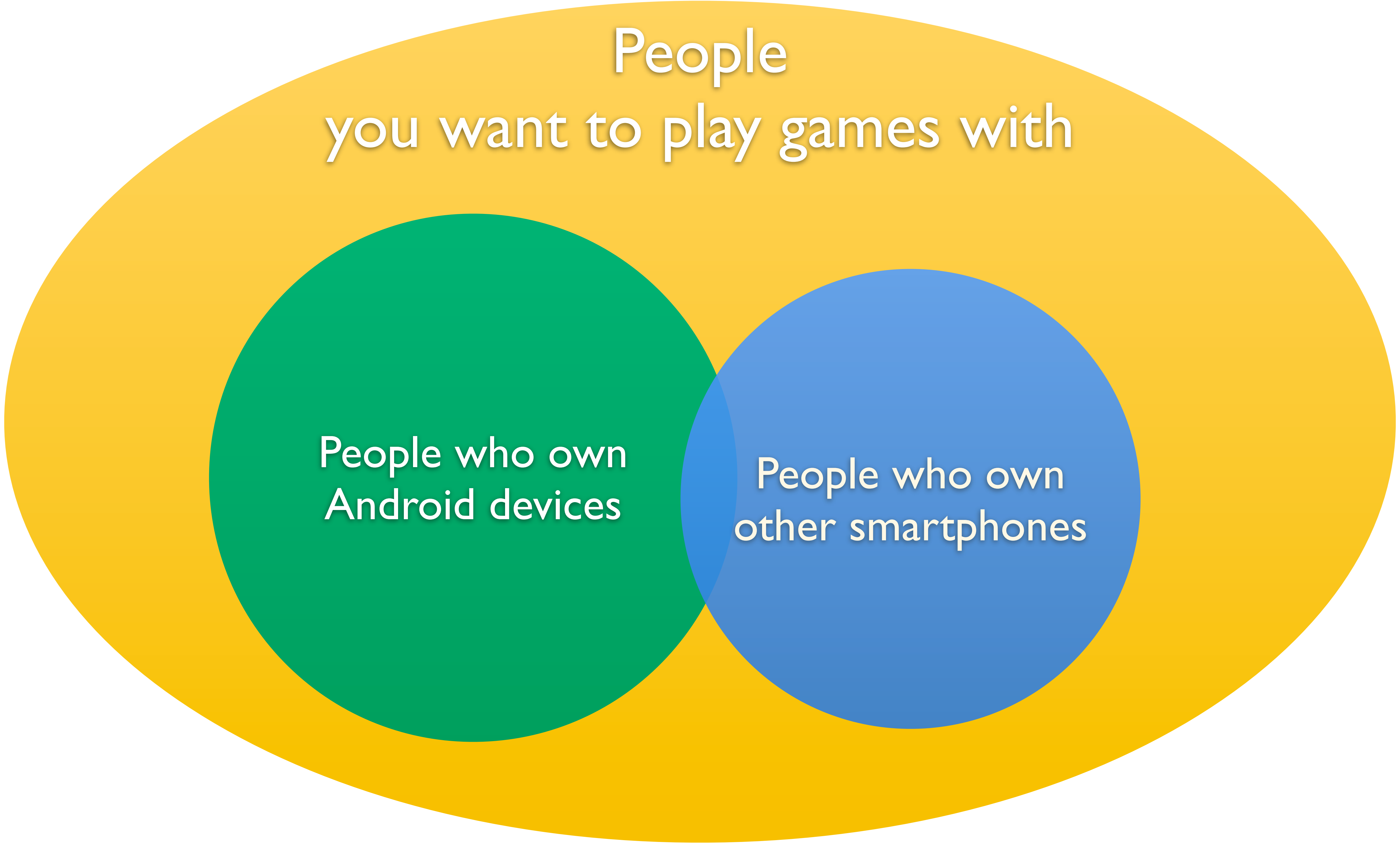
Cross Platform and Accessible



People who own Android devices

People who own other smartphones

Cross Platform and Accessible



Cross Platform and Accessible

Cross Platform and Accessible

- REST API

Cross Platform and Accessible

- REST API
- Platform-agnostic

Cross Platform and Accessible

- REST API
- Platform-agnostic
- Multiple libraries provided

Custom Libraries

Custom Libraries

- Use them on iOS and Android!

Custom Libraries

- Use them on iOS and Android!
- Simplify development

Custom Libraries

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- Simplify development
- Extra conveniences

Custom Libraries

- Use them on iOS and Android!
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Lots of examples ahead!

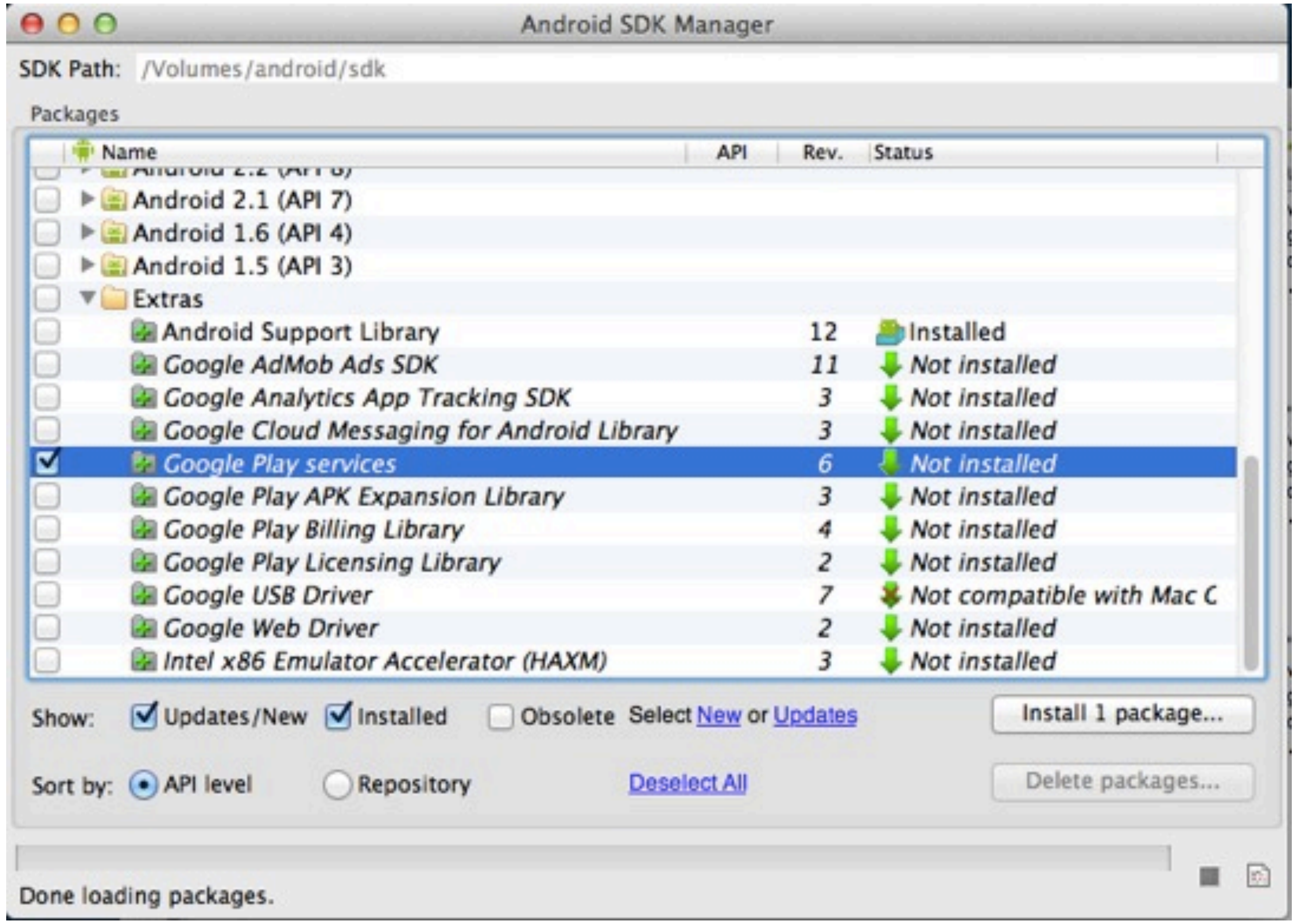
Library Integration

Library Integration

- iOS
    - Downloadable framework

Library Integration

- iOS
  - Downloadable framework
- Android
  - Thin client and Google Play Services



Android SDK Manager

SDK Path: /Volumes/android/sdk

Packages

	Name	API	Rev.	Status
□	▸ Android 2.2 (API 8)			
□	▸ Android 2.1 (API 7)			
□	▸ Android 1.6 (API 4)			
□	▸ Android 1.5 (API 3)			
□	▾ Extras			
□	Android Support Library		12	Installed
□	*Google AdMob Ads SDK*		*11*	*Not installed*
□	*Google Analytics App Tracking SDK*		*3*	*Not installed*
□	*Google Cloud Messaging for Android Library*		*3*	*Not installed*
☑	*Google Play services*		*6*	*Not installed*
□	*Google Play APK Expansion Library*		*3*	*Not installed*
□	*Google Play Billing Library*		*4*	*Not installed*
□	*Google Play Licensing Library*		*2*	*Not installed*
□	*Google USB Driver*		*7*	*Not compatible with Mac C*
□	*Google Web Driver*		*2*	*Not installed*
□	*Intel x86 Emulator Accelerator (HAXM)*		*3*	*Not installed*

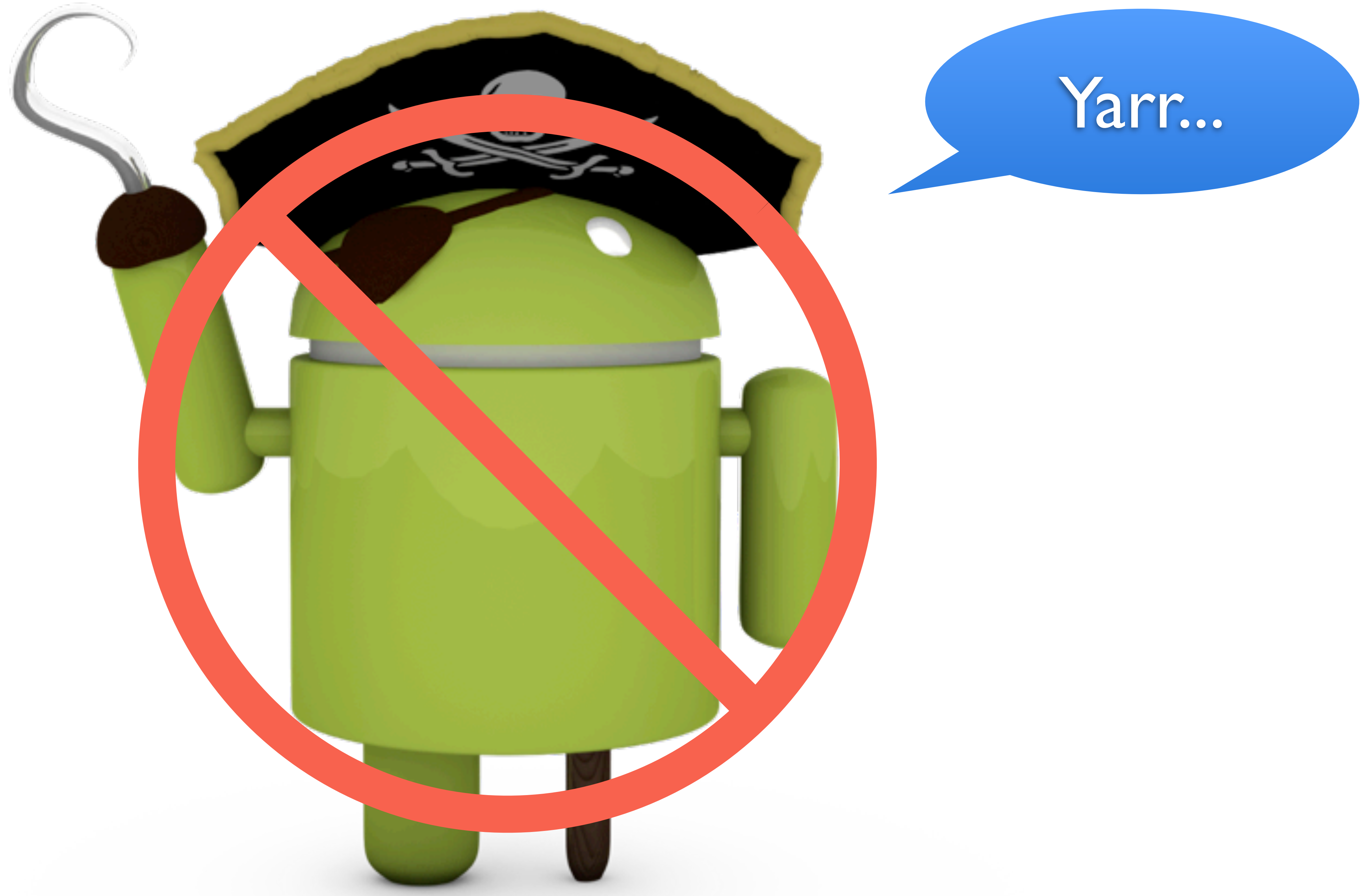
Show: ☑ Updates/New ☑ Installed □ Obsolete Select New or Updates

Sort by: ● API level ○ Repository Deselect All

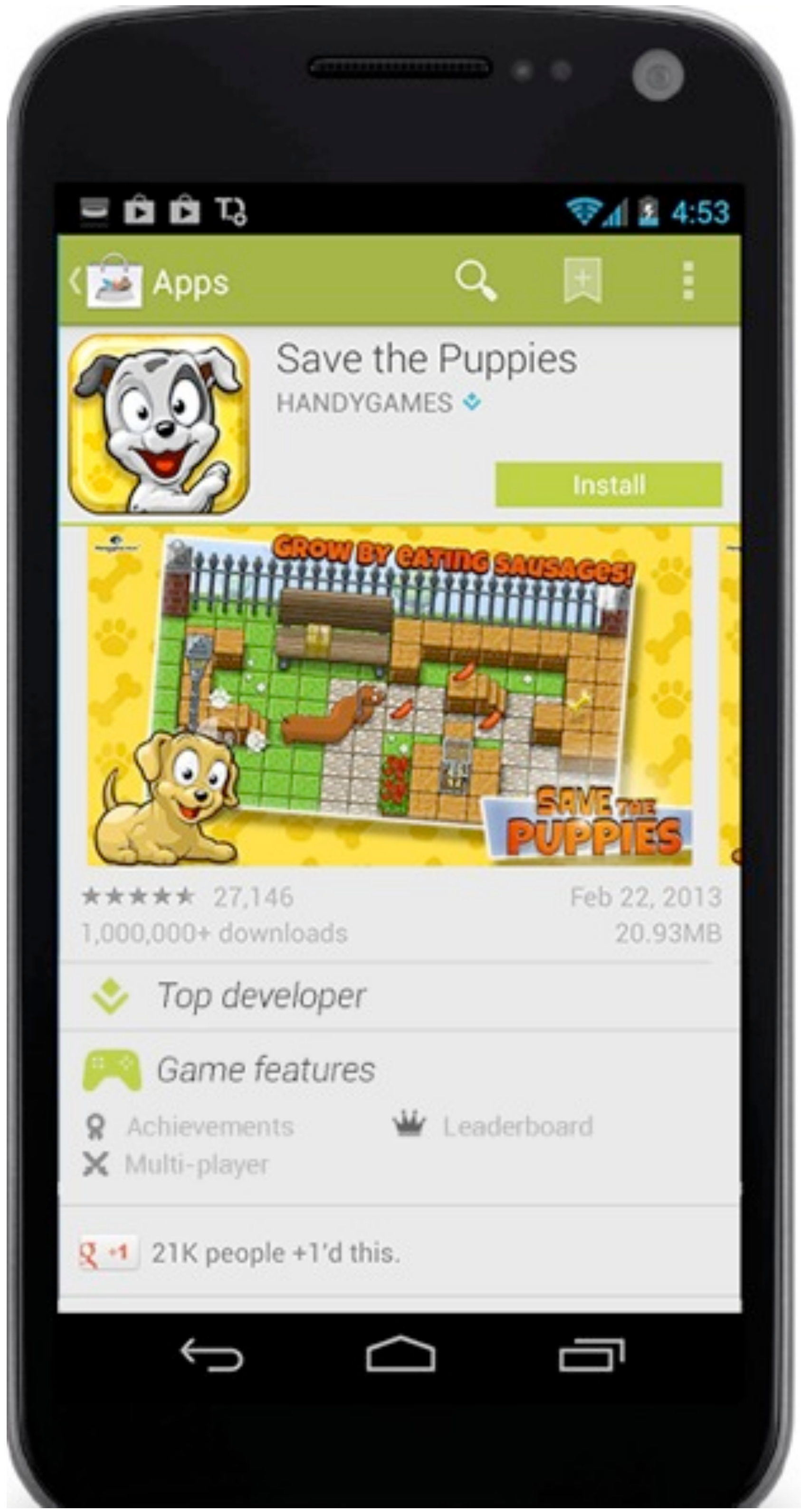
Done loading packages.

Anti-Piracy on Android

Anti-Piracy on Android



Play Store Badging



Save the Puppies
HANDYGAMES

★★★★★ 27,146 Feb 22, 2013
1,000,000+ downloads 20.93MB

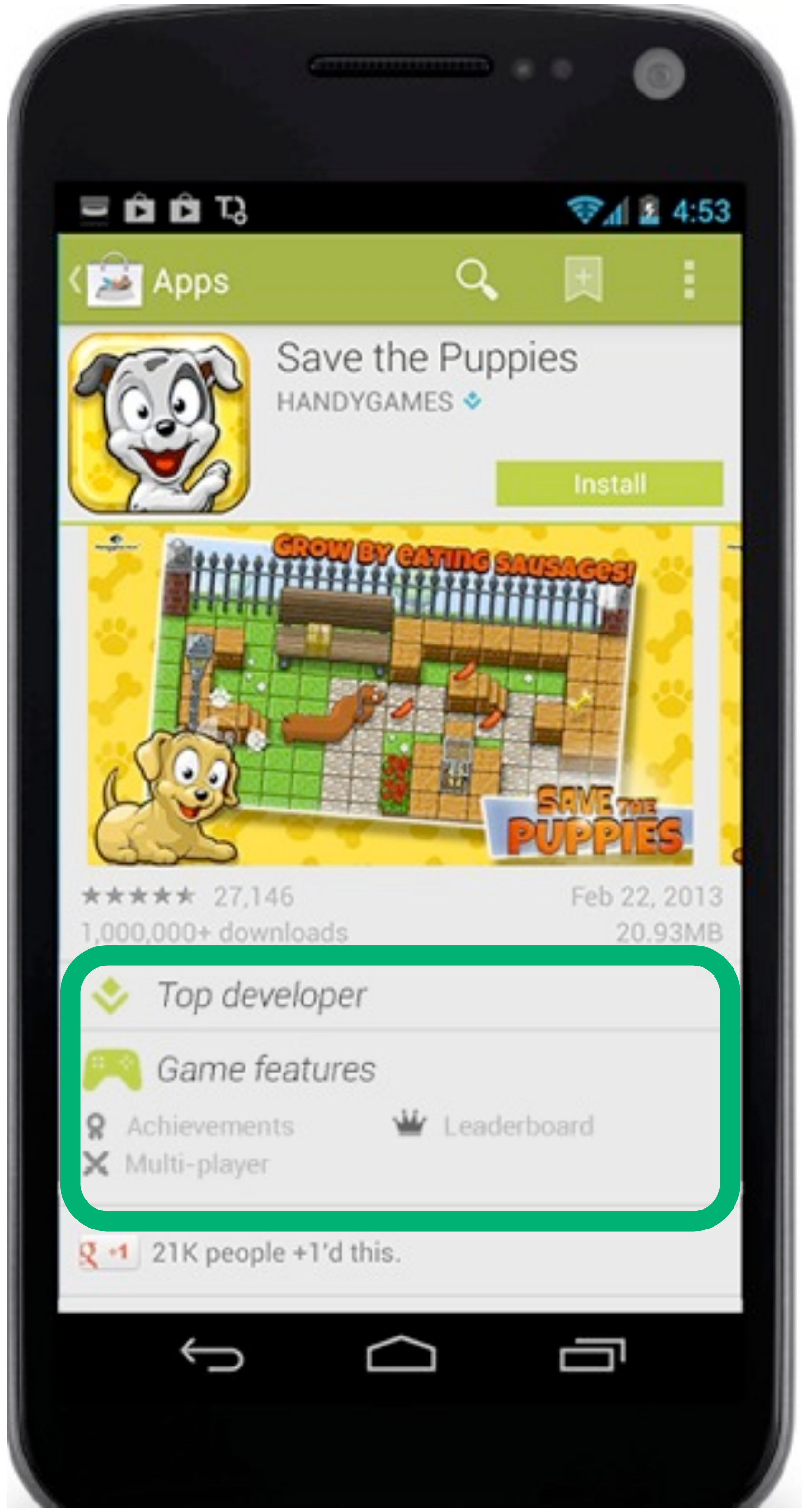
Top developer

Game features

Achievements Leaderboard
Multi-player

+1 21K people +1'd this.

Play Store Badging



Apps

Save the Puppies

HANDYGAMES

Install

★★★★★ 27,146

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20.93MB

Top developer

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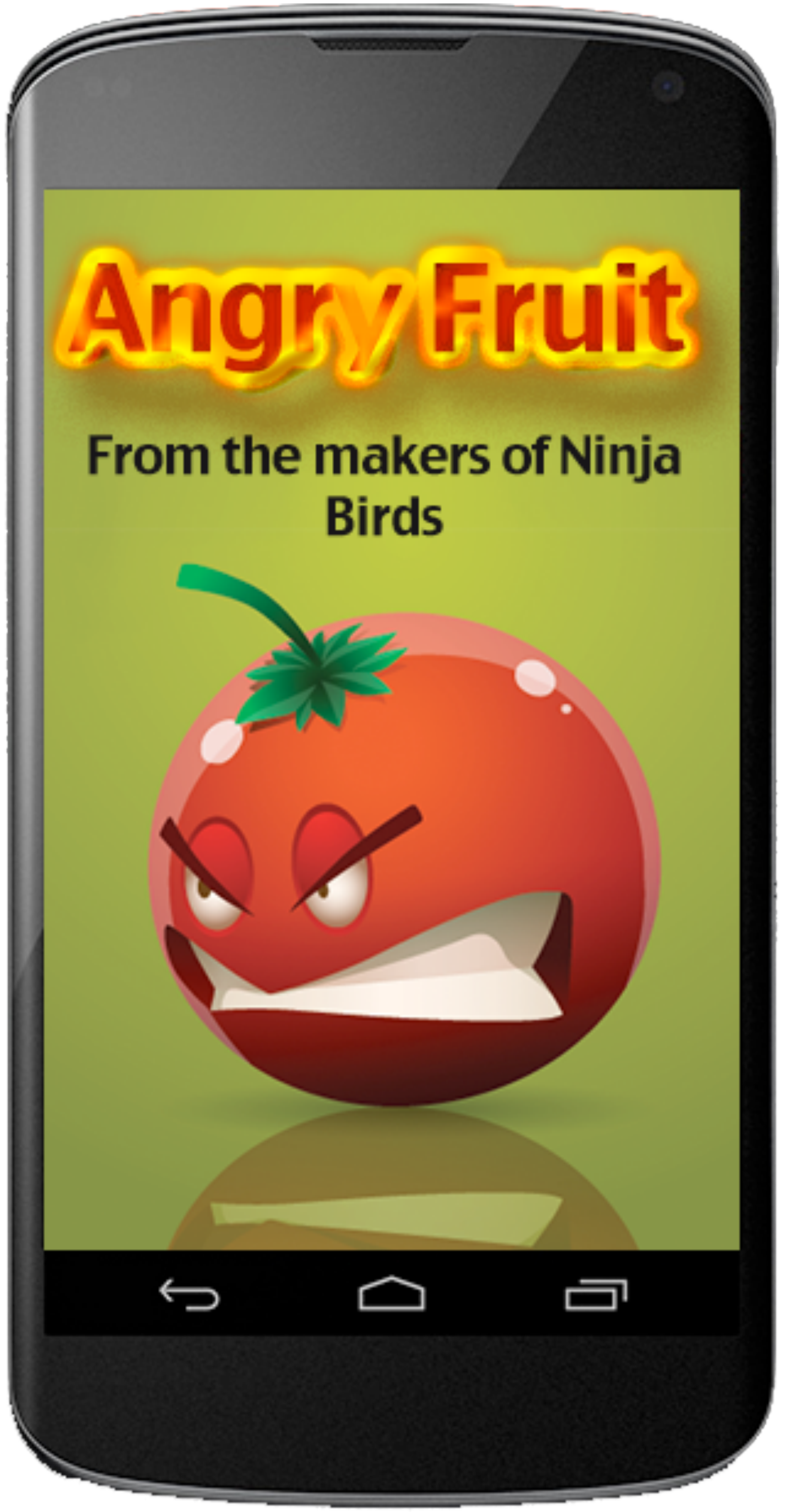
+1 21K people +1'd this.

Case Study: Angry Fruit


Angry Fruit
From the makers of Ninja Birds

Angry Fruit

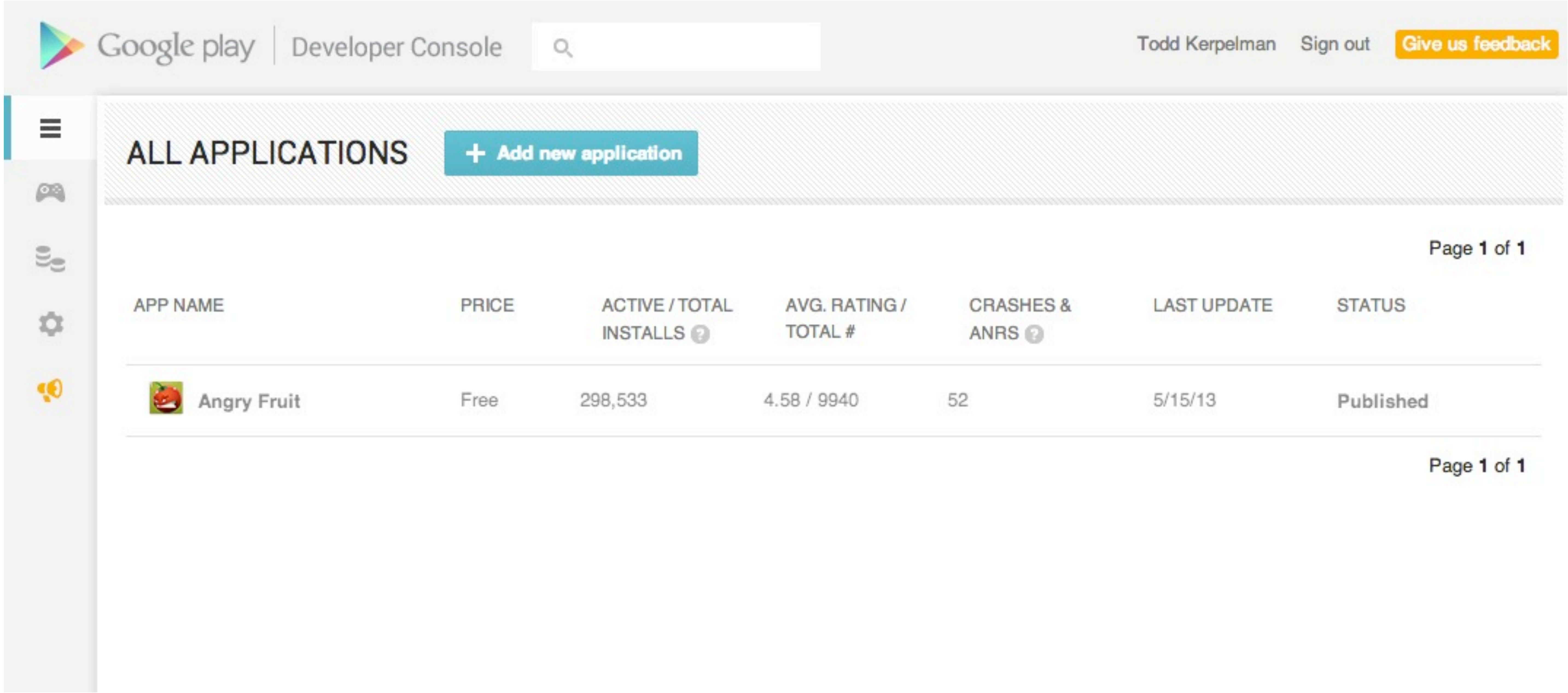
From the makers of Ninja Birds

1. Nobody is trying Blended Fruit Mode

1. Nobody is trying Blended Fruit Mode

2. Endless Mode isn't retaining well

The New Play Developer Console



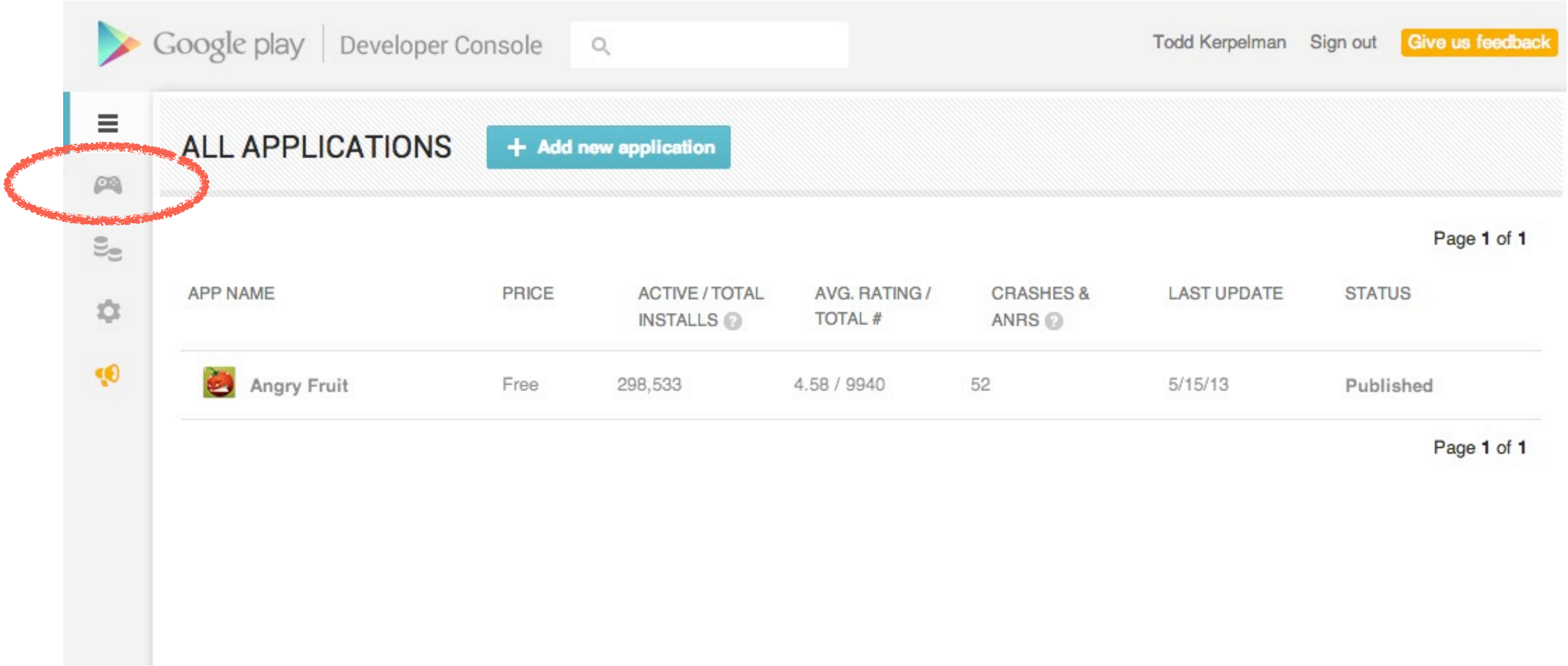
ALL APPLICATIONS

Page **1** of **1**

APP NAME	PRICE	ACTIVE / TOTAL INSTALLS	AVG. RATING / TOTAL #	CRASHES & ANRS	LAST UPDATE	STATUS
Angry Fruit	Free	298,533	4.58 / 9940	52	5/15/13	Published

Page **1** of **1**

The New Play Developer Console



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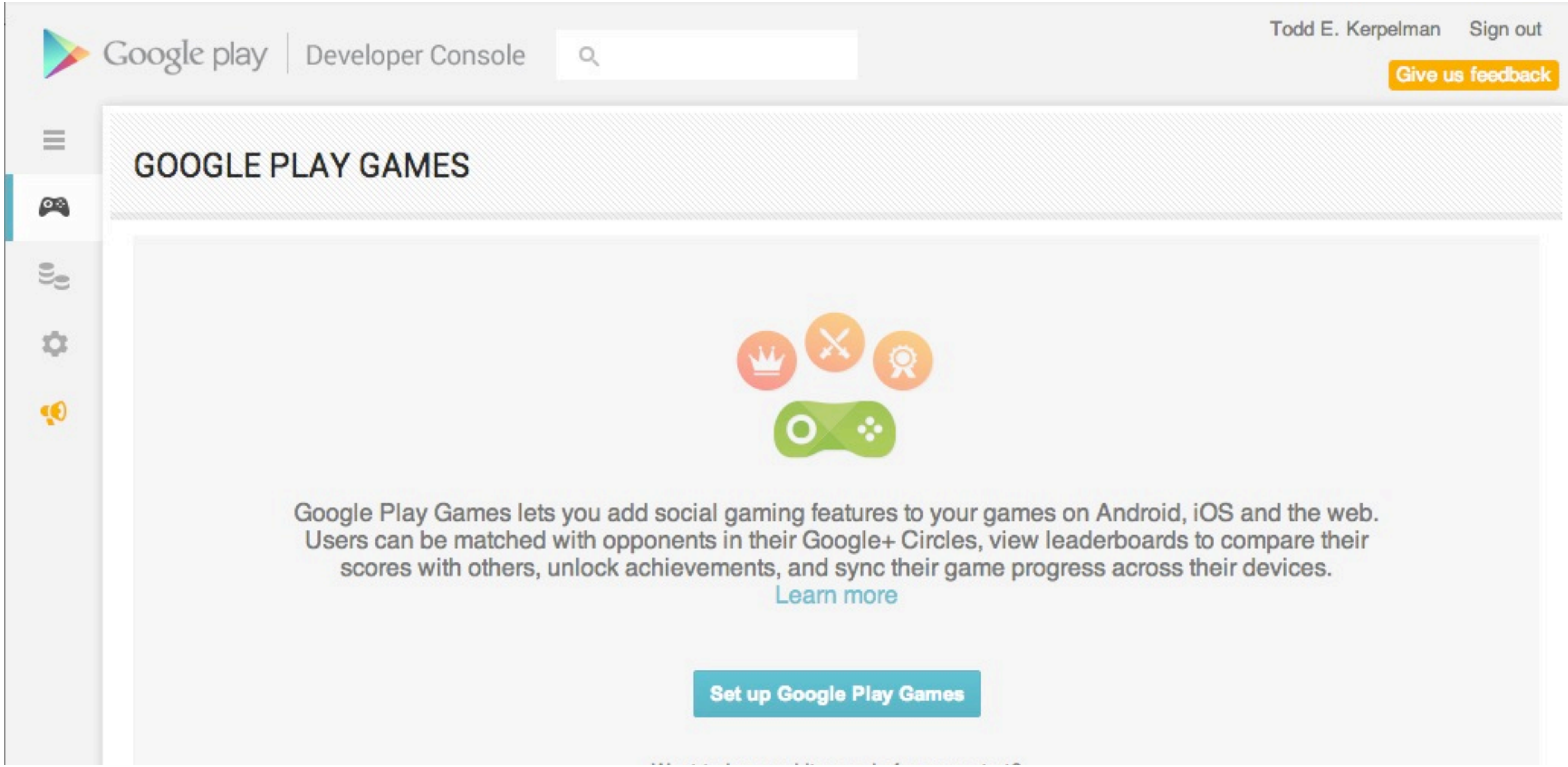
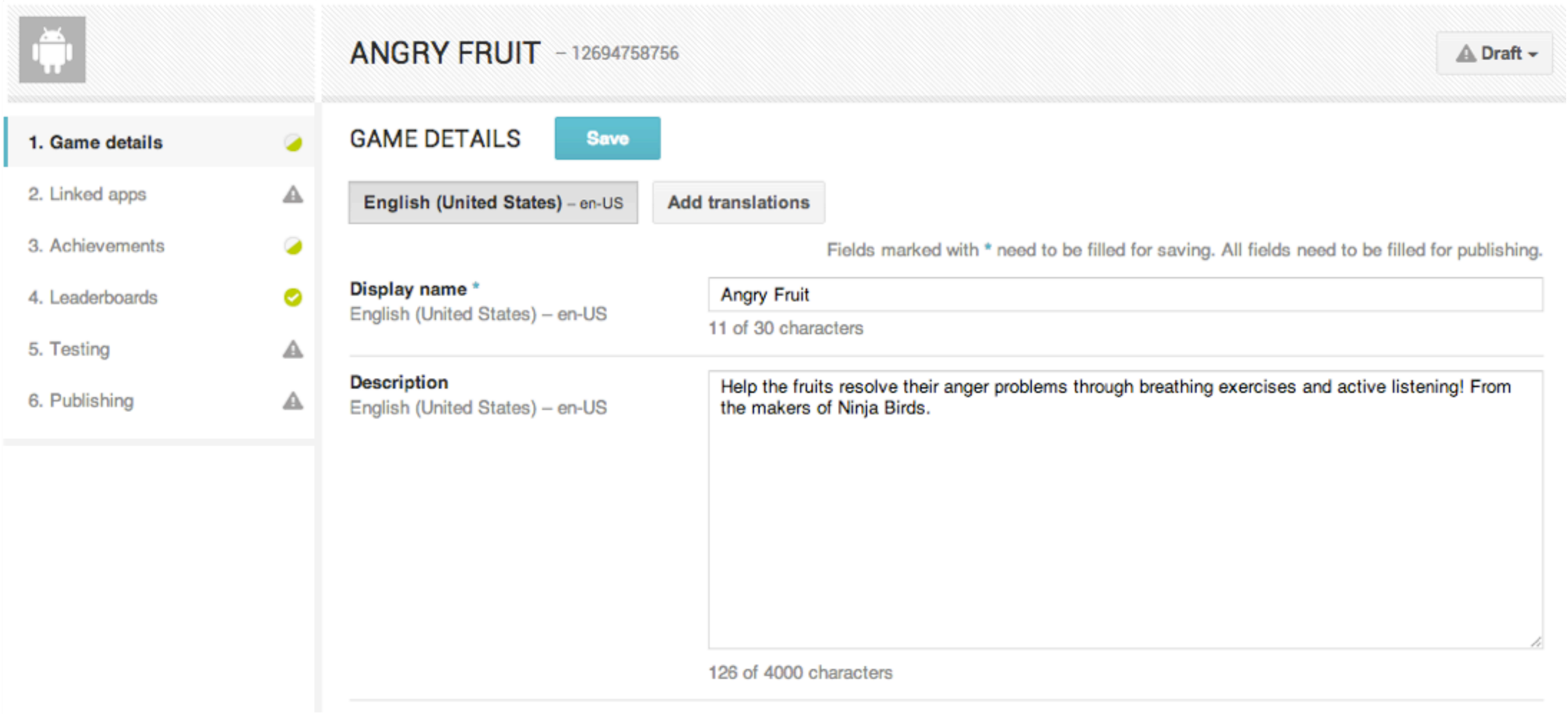


GOOGLE PLAY GAMES

Google Play Games lets you add social gaming features to your games on Android, iOS and the web. Users can be matched with opponents in their Google+ Circles, view leaderboards to compare their scores with others, unlock achievements, and sync their game progress across their devices.

The New Play Developer Console



Fields marked with * need to be filled for saving. All fields need to be filled for publishing.

Display name *
English (United States) – en-US

Angry Fruit

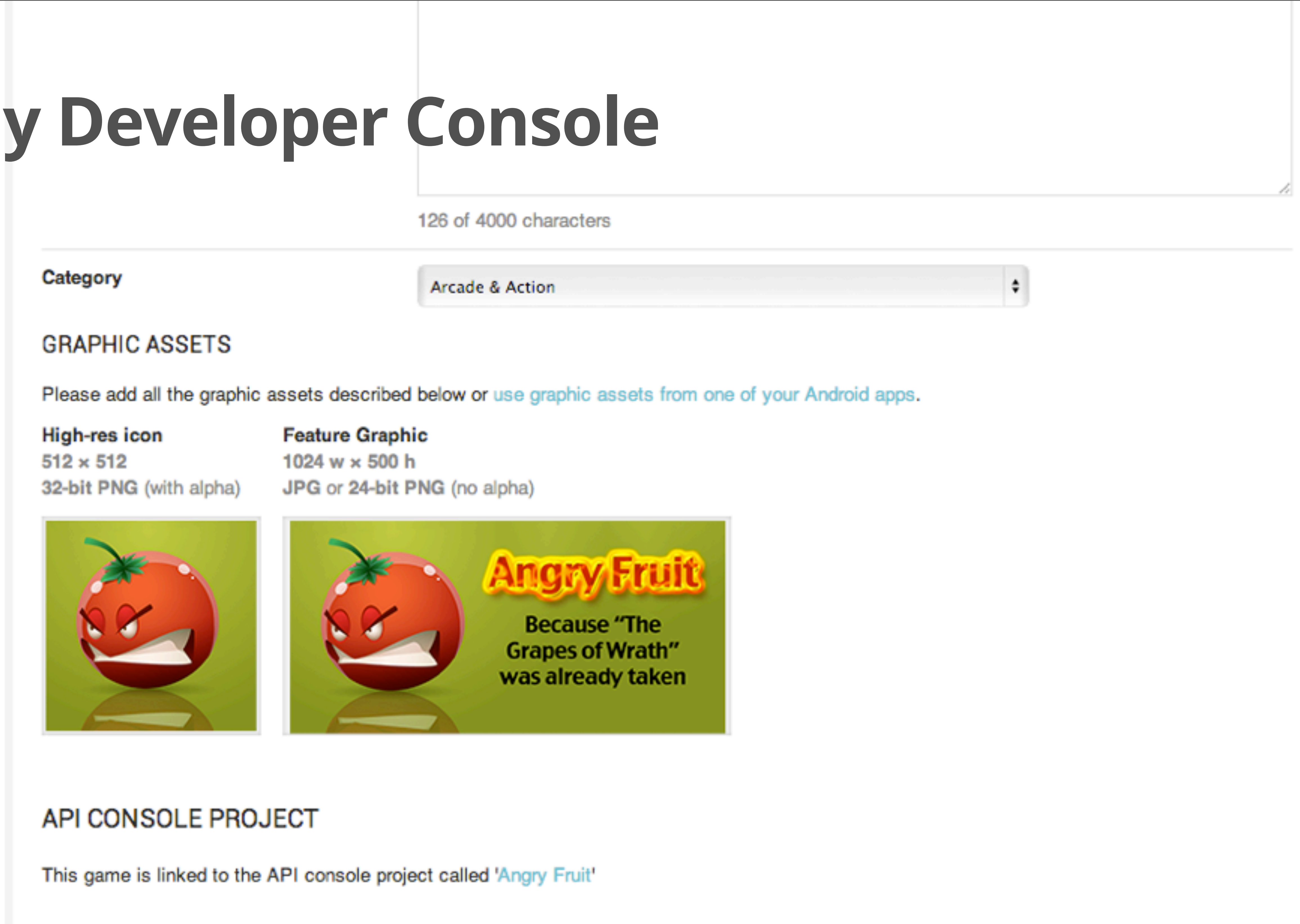
11 of 30 characters

Description
English (United States) – en-US

Help the fruits resolve their anger problems through breathing exercises and active listening! From the makers of Ninja Birds.

126 of 4000 characters

The New Play Developer Console



126 of 4000 characters

Category Arcade & Action

GRAPHIC ASSETS

Please add all the graphic assets described below or use graphic assets from one of your Android apps.

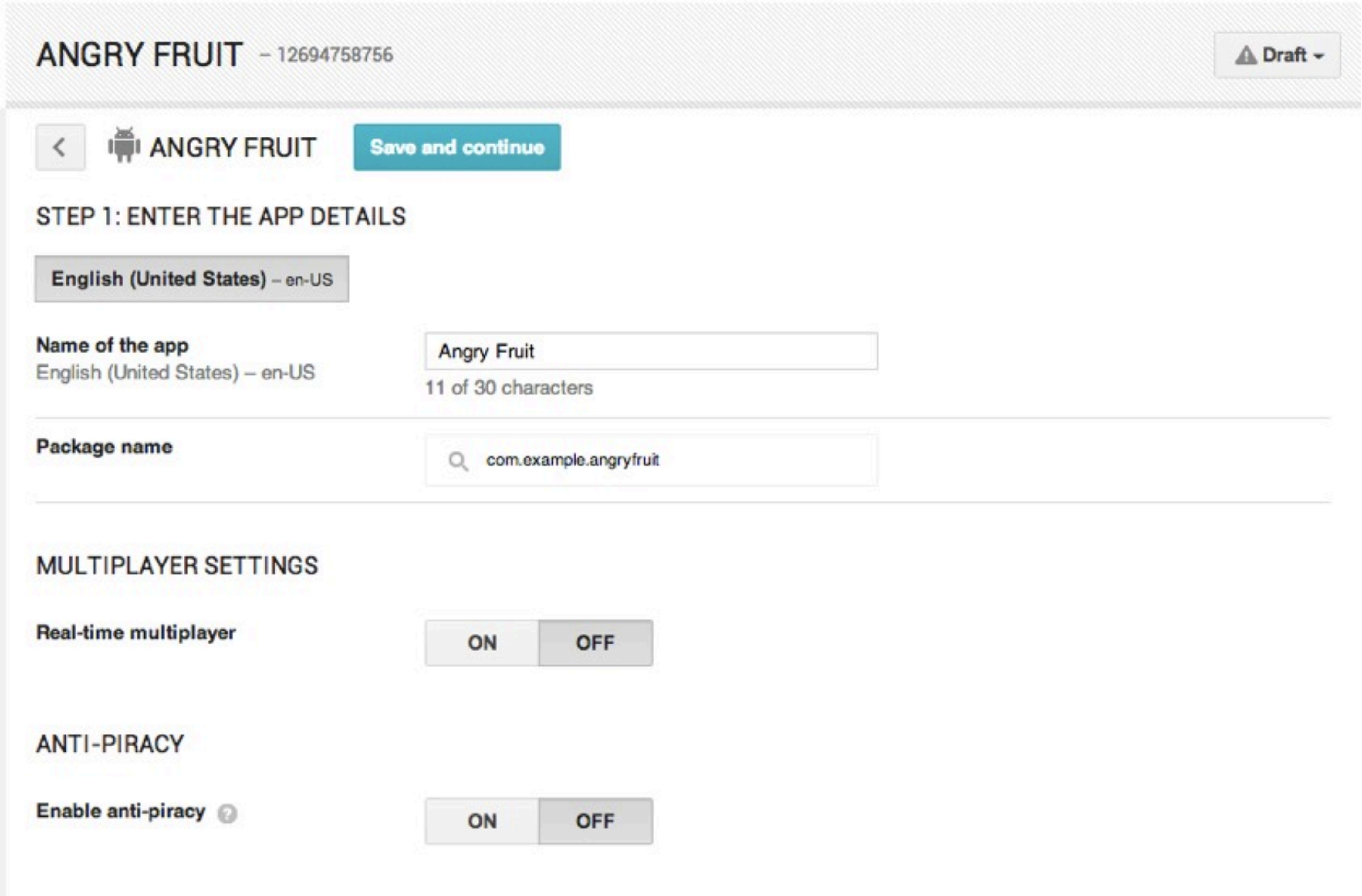
High-res icon
512 × 512
32-bit PNG (with alpha)

Feature Graphic
1024 w × 500 h
JPG or 24-bit PNG (no alpha)

API CONSOLE PROJECT

This game is linked to the API console project called 'Angry Fruit'

The New Play Developer Console



ANGRY FRUIT – 12694758756

STEP 1: ENTER THE APP DETAILS

English (United States) – en-US

Name of the app
English (United States) – en-US

Angry Fruit
11 of 30 characters

Package name

com.example.angryfruit

MULTIPLAYER SETTINGS

Real-time multiplayer: ON [✓ OFF]

ANTI-PIRACY

Enable anti-piracy: ON [✓ OFF]

Want More Developer Console?

“Practical Play Games Pointers”

Today at 2:35, Room 5

I CAN HAZ TEH CODES?

General Usage - Android

One main class for accessing Games APIs: *GamesClient*

General Usage - Android

One main class for accessing Games APIs: *GamesClient*

Create it in onCreate()...

Java

```
public class AngryFruitActivity
     implements ConnectionCallbacks, OnConnectionFailedListener {

 private GamesClient mGamesClient;

 @Override
 public void onCreate(Bundle savedInstanceState) {
     mGamesClient = new GamesClient.Builder(
             this /* Context */,
             this /* ConnectionCallbacks */,
             this /* OnConnectionFailedListener */)
             .create();
 }
 ...
```

General Usage - Android

Connect in onStart(), and disconnect in onStop()

Java

```
public class AngryFruitActivity
     implements ConnectionCallbacks, OnConnectionFailedListener {
 ...
 @Override
 public void onStart() {
     super.onStart();
     mGamesClient.connect();
 }

 @Override
 public void onStop() {
     super.onStop();
     mGamesClient.disconnect();
 }
 ...
```

General Usage - Android

Handle onConnectionFailed

Java

```
public class AngryFruitActivity
     implements ConnectionCallbacks, OnConnectionFailedListener {
 ...
 @Override
 public void onConnectionFailed(ConnectionResult result) {
     // User isn't signed in - see if we can resolve that.
     if (result.hasResolution()) {
         result.startResolutionForResult(this, REQUEST_RESOLVE_FAILURE);
     } else {
         Dialog dialog = GooglePlayServicesUtil.getErrorDialog(
                 result.getErrorCode(), this, REQUEST_RESOLVE_FAILURE);
         if (dialog != null) {
             dialog.show();
         }
     }
 }
 ...
```

General Usage - Android

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         if (dialog != null) {
             dialog.show();
         }
     }
 }
 ...
```

General Usage - Android

Handle onConnected

Java

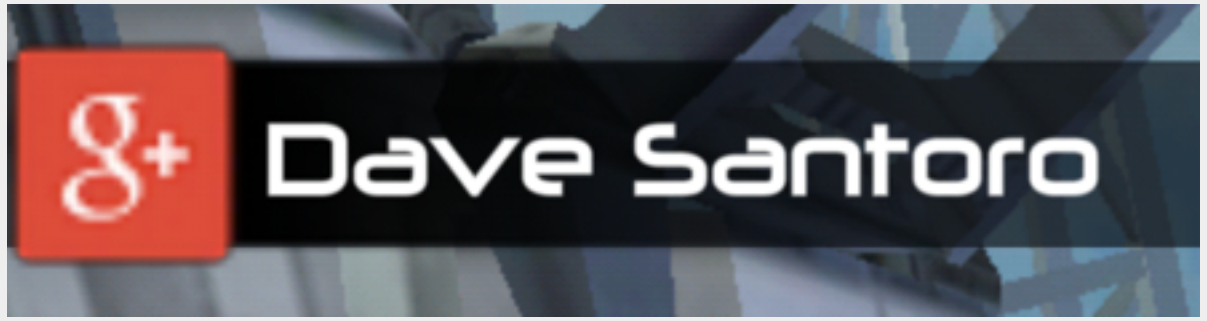
```
public class AngryFruitActivity
     implements ConnectionCallbacks, OnConnectionFailedListener {
 ...
 @Override
 public void onConnected(Bundle connectionHint) {
     // User is signed in and ready to go! Let's show the username.
     showUsername(mGamesClient.getCurrentPlayer().getDisplayName());
 }
 ...
```

General Usage - Android

Handle onConnected

Java

```
 public class AngryFruitActivity
      implements ConnectionCallbacks, OnConnectionFailedListener {
  ...
  @Override
  public void onConnected(Bundle connectionHint) {
      // User is signed in and ready to go! Let's show the username.
      showUsername(mGamesClient.getCurrentPlayer().getDisplayName());
  }
  ...
```



General Usage - iOS

- Set up your GPPSignIn object

Obj-C

```
MyGameViewController.m

- (void)viewDidLoad
{
  [super viewDidLoad];
  GPPSignIn *signIn = [GPPSignIn sharedInstance];

  signIn.clientID = CLIENT_ID;
  signIn.scopes = [NSArray arrayWithObjects:
                   @"https://www.googleapis.com/auth/games”,
                   nil];
  signIn.language = [[NSLocale preferredLanguages] objectAtIndex:0];
  signIn.delegate = self;
  signIn.shouldFetchGoogleUserID = YES;
  ...
}
```

General Usage - iOS

- Set up your GPPSignIn object

MyGameViewController.m

Obj-C

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  signIn.delegate = self;
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  ...
}
```

General Usage - iOS

- Call authenticate

Obj-C

```
MyGameViewController.m

- (IBAction)signInClicked:(id)sender {
  [[GPPSignIn sharedInstance] authenticate];
}
```

General Usage - iOS

- Capture sign-in completion with in finishedWithAuth:error

Obj-C

```
MyGameViewController.m

-(void)finishedWithAuth:(GTMOAuth2Authentication *)auth error:(NSError *)error
{
  if (error == nil && auth) {
    NSLog(@"User has signed in!”);
  } else {
    NSLog(@"Failed to sign in\n\tError=%@\n\tAuthObj=%@",error,auth);
  }
}
```

General Usage - iOS

- Capture sign-in completion with in finishedWithAuth:error

```
MyGameViewController.m                                                    Obj-C

-(void)finishedWithAuth:(GTMOAuth2Authentication *)auth error:(NSError *)error
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  if (error == nil && auth) {
    NSLog(@"User has signed in!”);
    [[GPGManager sharedInstance] signIn:[GPPSignIn sharedInstance]
        reauthorizeHandler:...]
  } else {
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{
  if (error == nil && auth) {
    NSLog(@"User has signed in!”);
    [[GPGManager sharedInstance] signIn:[GPPSignIn sharedInstance]
        reauthorizeHandler:^(BOOL requiresKeychainWipe, NSError *error) {
      if (requiresKeychainWipe) {
        [[GPPSignIn sharedInstance] signOut];
      }
      [[GPPSignIn sharedInstance] authenticate];
    }]
  } else {
    NSLog(@"Failed to sign in\n\tError=%@\n\tAuthObj=%@",error,auth);
  }
}
```
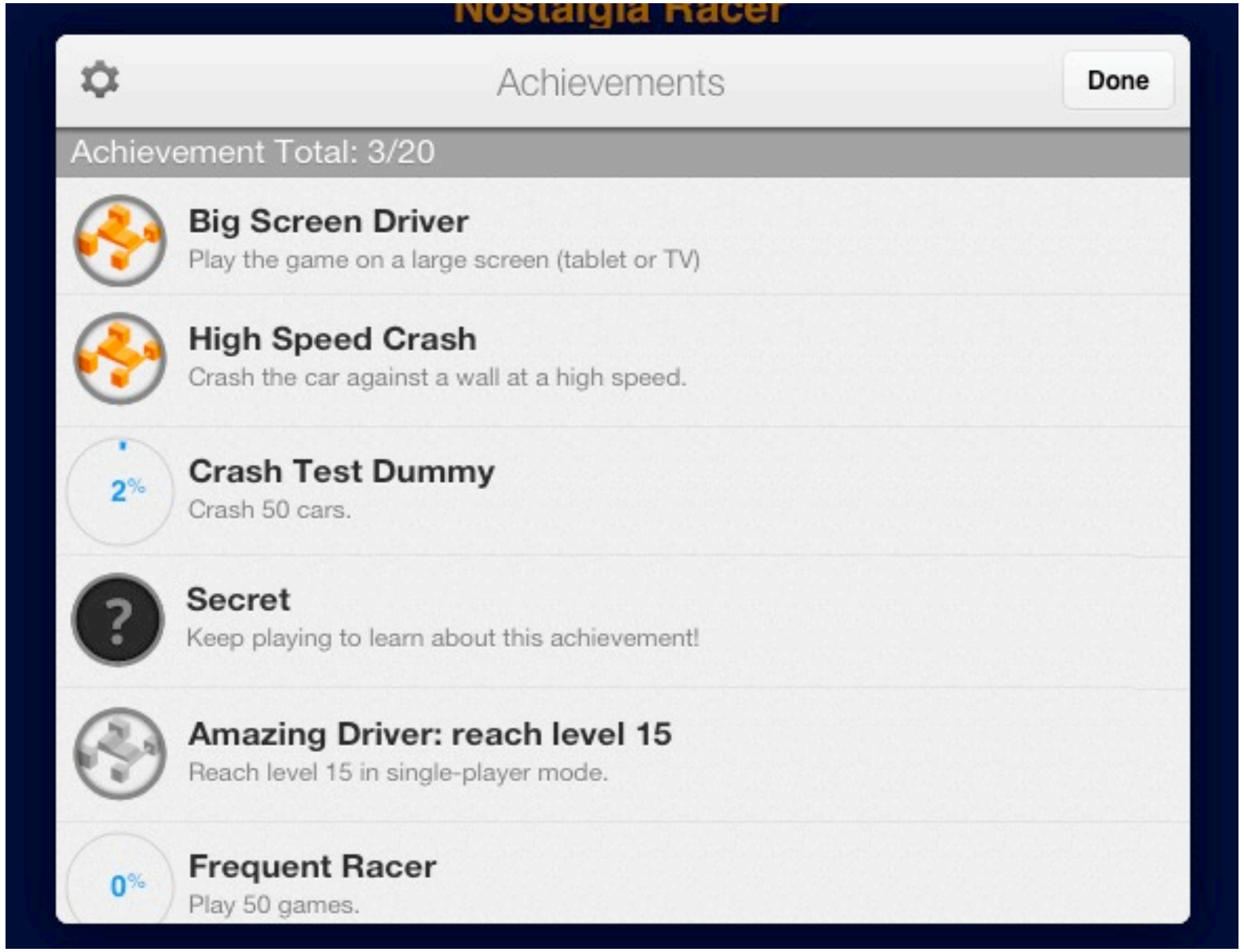

Achievements



Nostalgia Racer

Achievement Total: 3/20

Big Screen Driver
Play the game on a large screen (tablet or TV)

High Speed Crash
Crash the car against a wall at a high speed.

Crash Test Dummy
Crash 50 cars.

Secret
Keep playing to learn about this achievement!

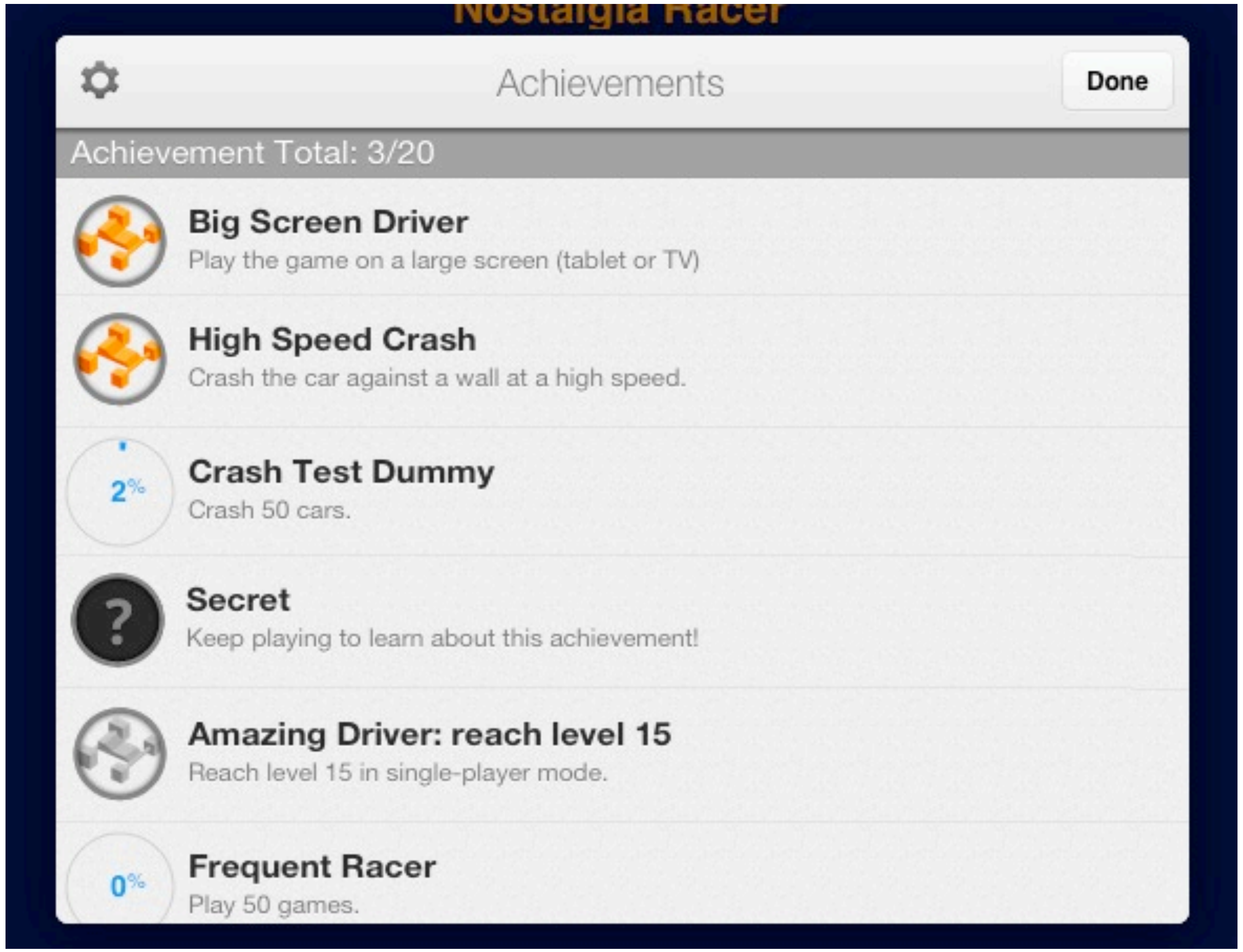
Amazing Driver: reach level 15
Reach level 15 in single-player mode.

Frequent Racer
Play 50 games.

Unlocked

Hidden

Locked



Nostalgia Racer

Achievements

Done

Achievement Total: 3/20

Big Screen Driver
Play the game on a large screen (tablet or TV)

High Speed Crash
Crash the car against a wall at a high speed.

2%
Crash Test Dummy
Crash 50 cars.

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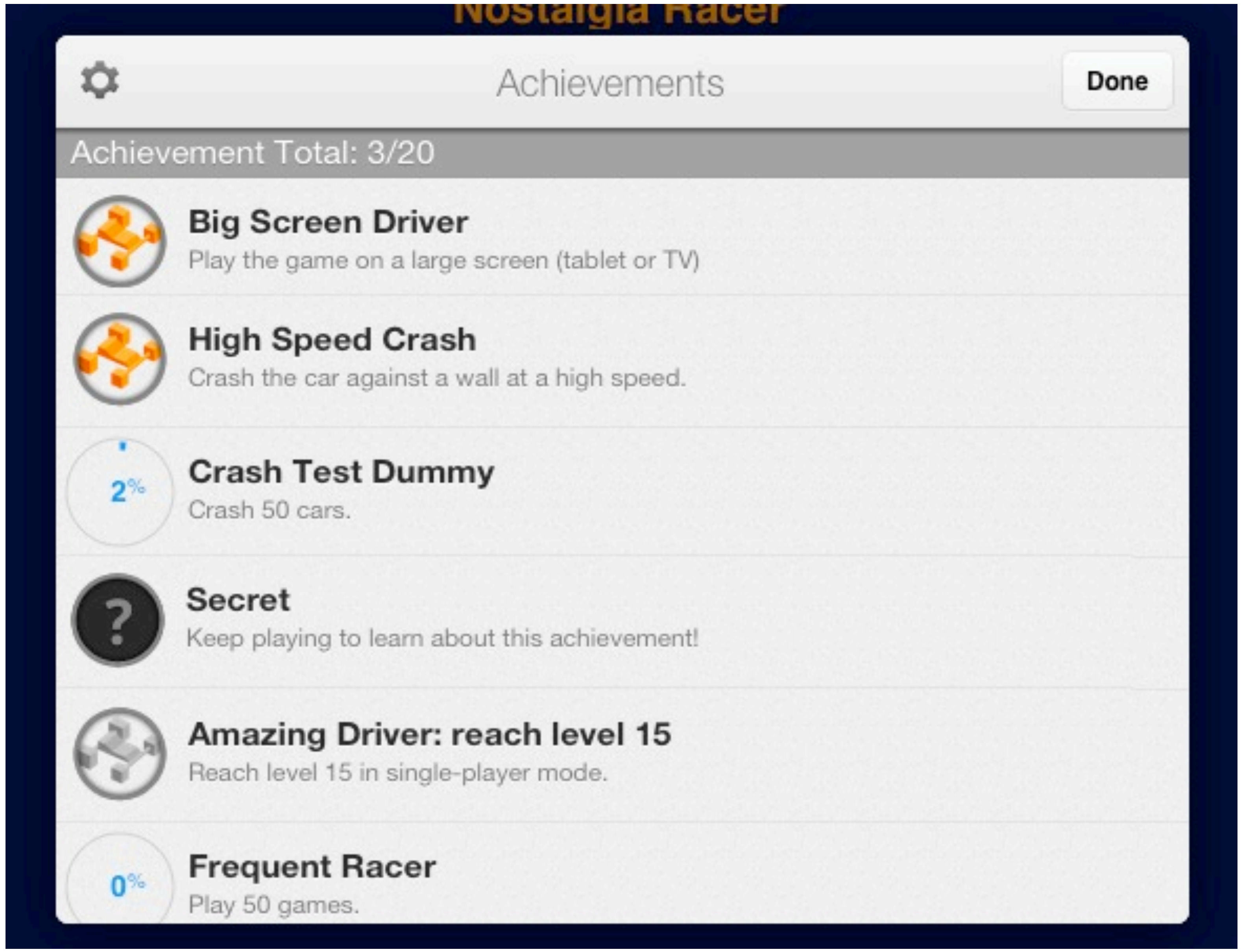
Play 50 games.



Achievement Total: 3/20

Big Screen Driver
Play the game on a large screen (tablet or TV)

High Speed Crash
Crash the car against a wall at a high speed.

2%

Crash Test Dummy
Crash 50 cars.

?

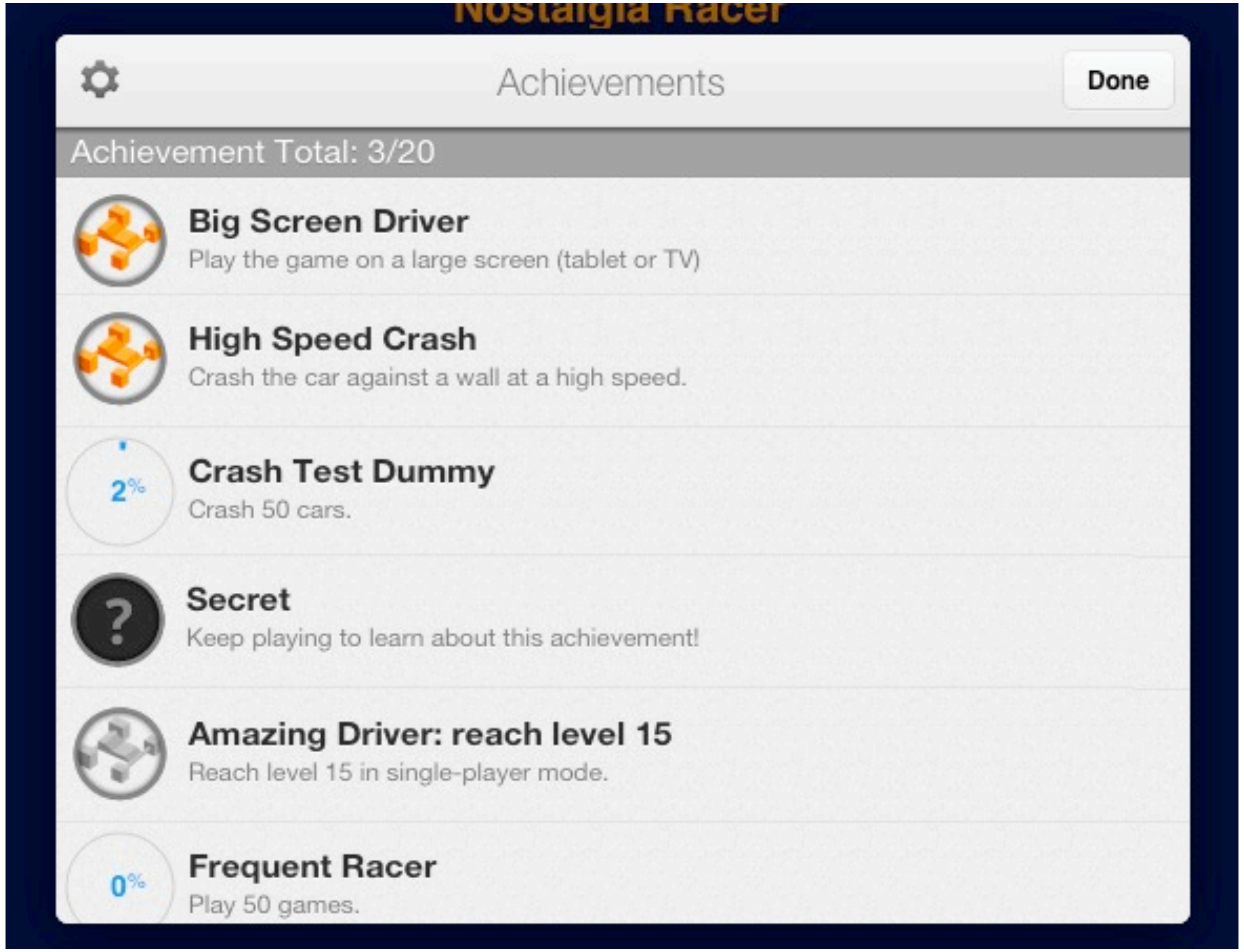
Secret
Keep playing to learn about this achievement!

Amazing Driver: reach level 15
Reach level 15 in single-player mode.

0%

Frequent Racer
Play 50 games.

Traditional



Achievement Total: 3/20

Big Screen Driver
Play the game on a large screen (tablet or TV)

High Speed Crash
Crash the car against a wall at a high speed.

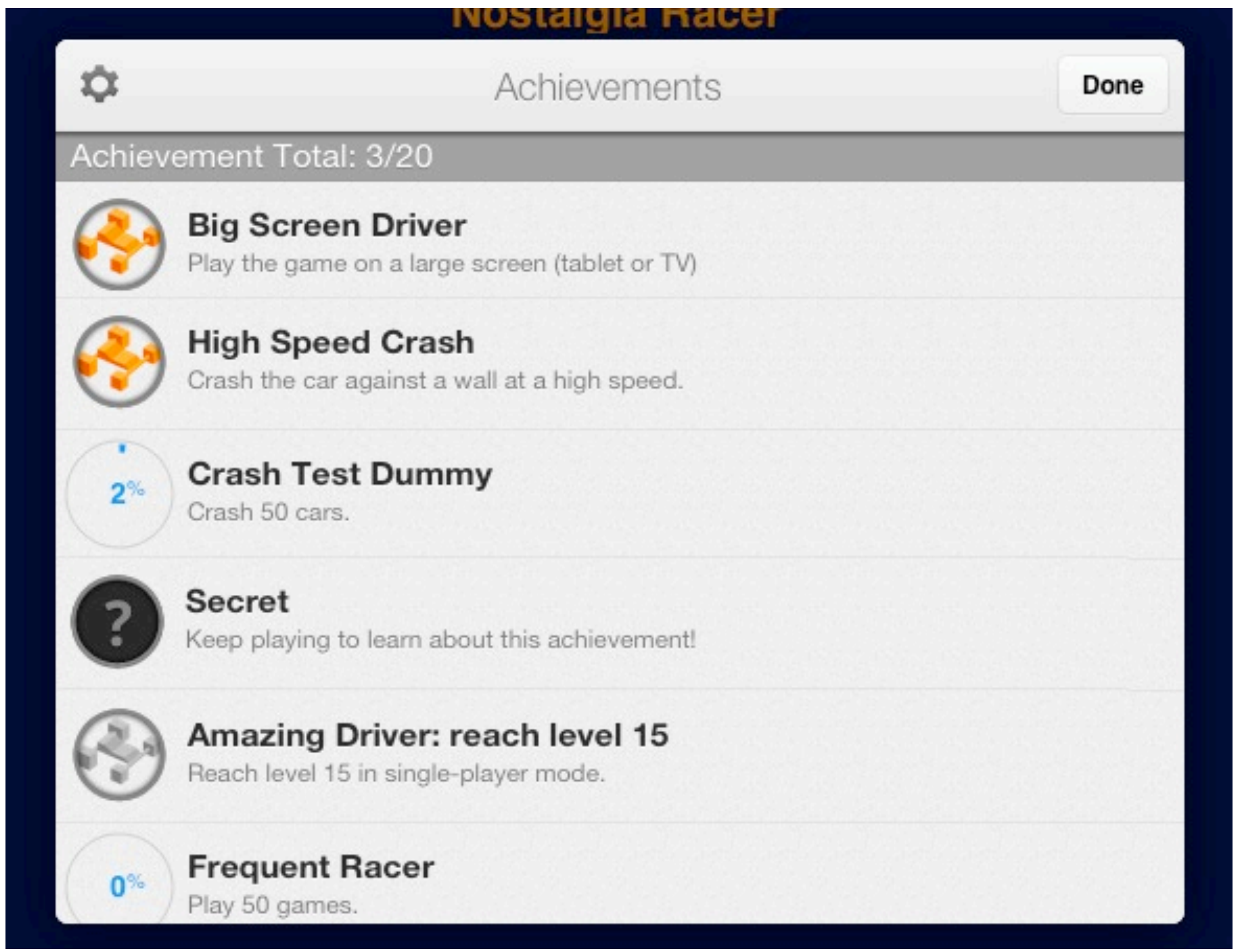
Crash Test Dummy 2%
Crash 50 cars.

Secret
Keep playing to learn about this achievement!

Amazing Driver: reach level 15
Reach level 15 in single-player mode.

Frequent Racer 0%
Play 50 games.

Incremental →



Nostalgia Racer

Achievements

Done

Achievement Total: 3/20

Big Screen Driver
Play the game on a large screen (tablet or TV)

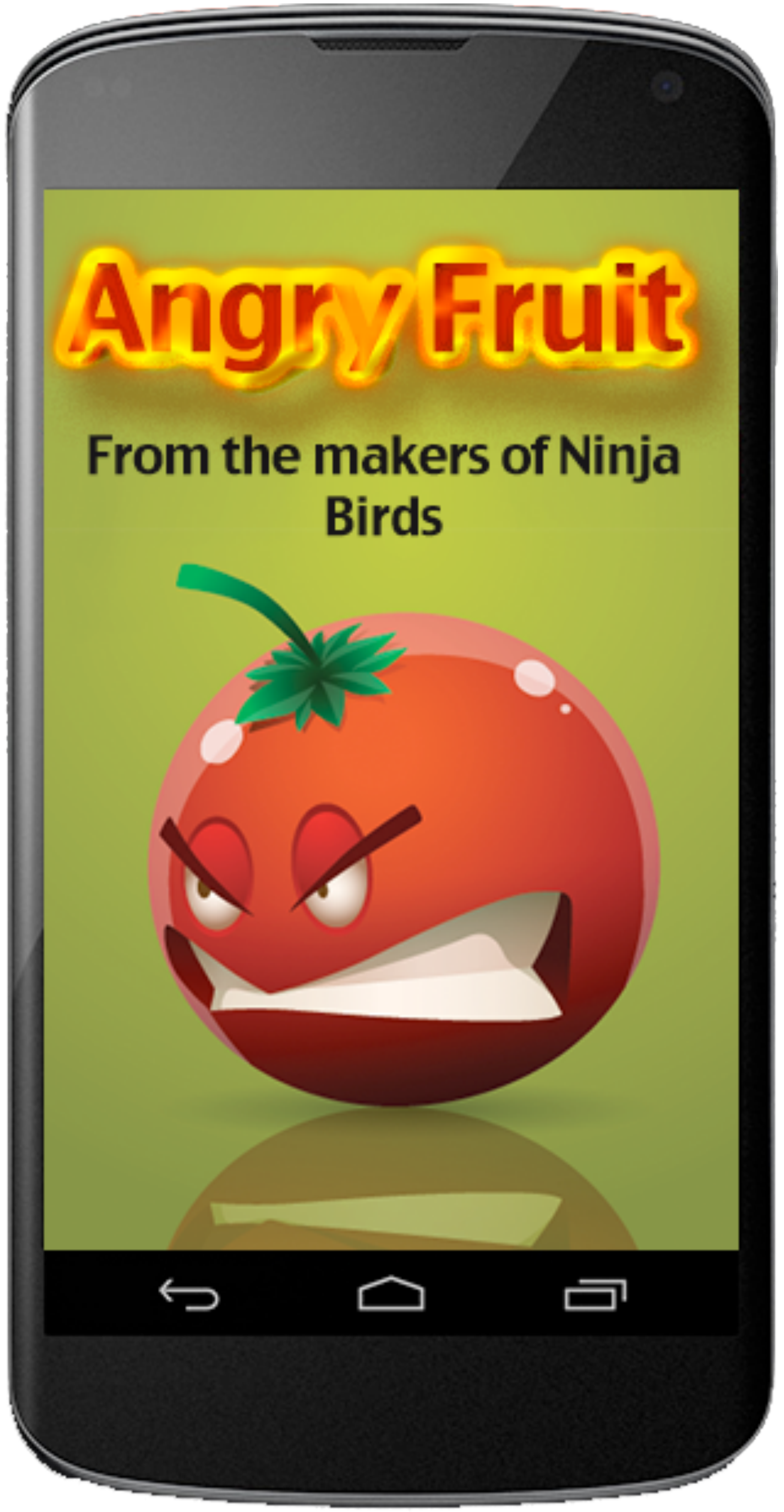
High Speed Crash
Crash the car against a wall at a high speed.

2%
Crash Test Dummy
Crash 50 cars.

Secret
Keep playing to learn about this achievement!

Amazing Driver: reach level 15
Reach level 15 in single-player mode.

0%
Frequent Racer
Play 50 games.

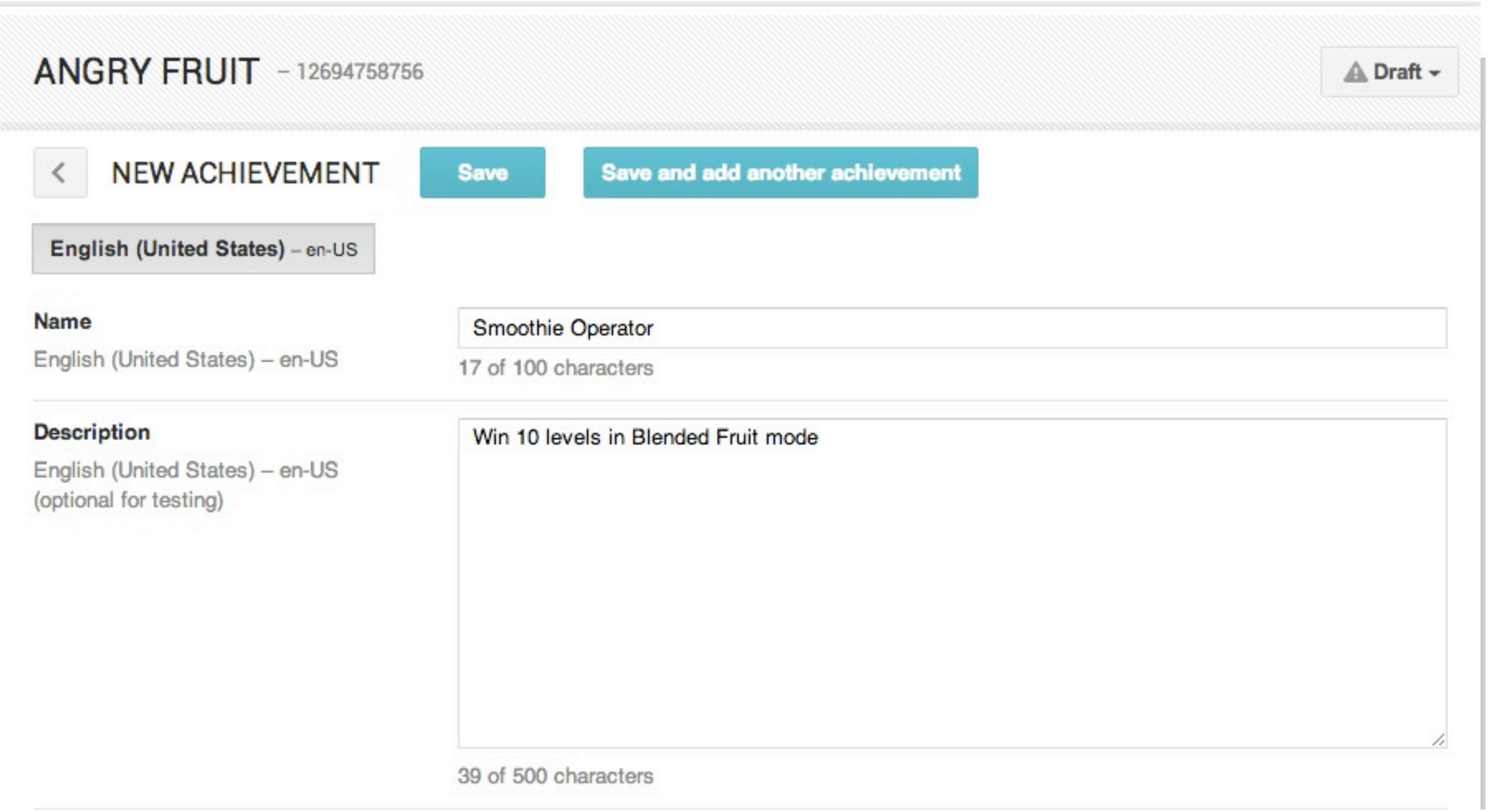


Angry Fruit

From the makers of Ninja Birds

1. Nobody is trying Blended Fruit Mode

Creating an Achievement



ANGRY FRUIT – 12694758756
⚠ Draft ▾
NEW ACHIEVEMENT
Save
Save and add another achievement
English (United States) – en-US

Name
English (United States) – en-US

Smoothie Operator
17 of 100 characters

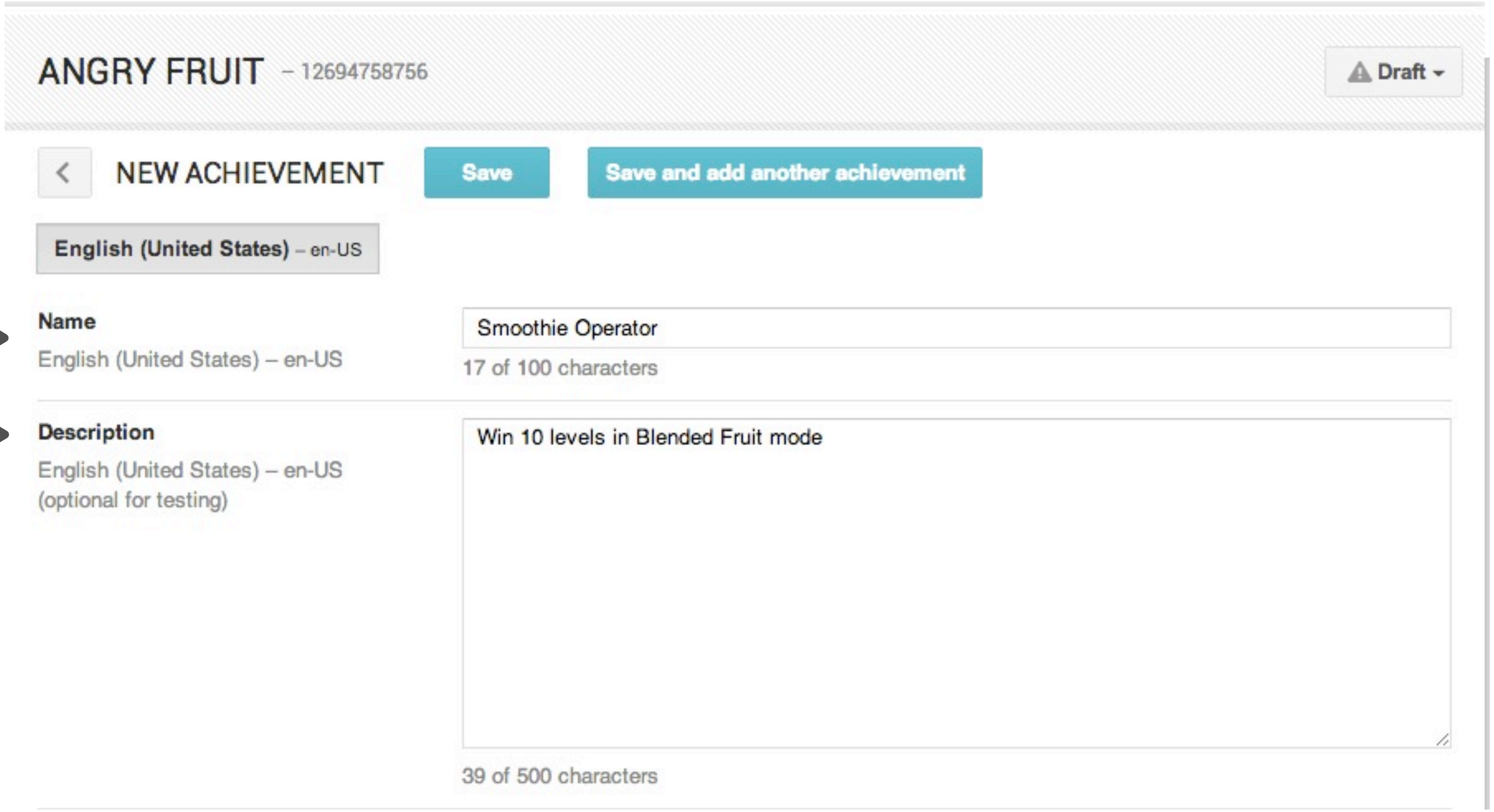
Description
English (United States) – en-US
(optional for testing)

Win 10 levels in Blended Fruit mode
39 of 500 characters

Creating an Achievement

Name →

Description →



ANGRY FRUIT – 12694758756

NEW ACHIEVEMENT

English (United States) – en-US

Name
English (United States) – en-US

Smoothie Operator

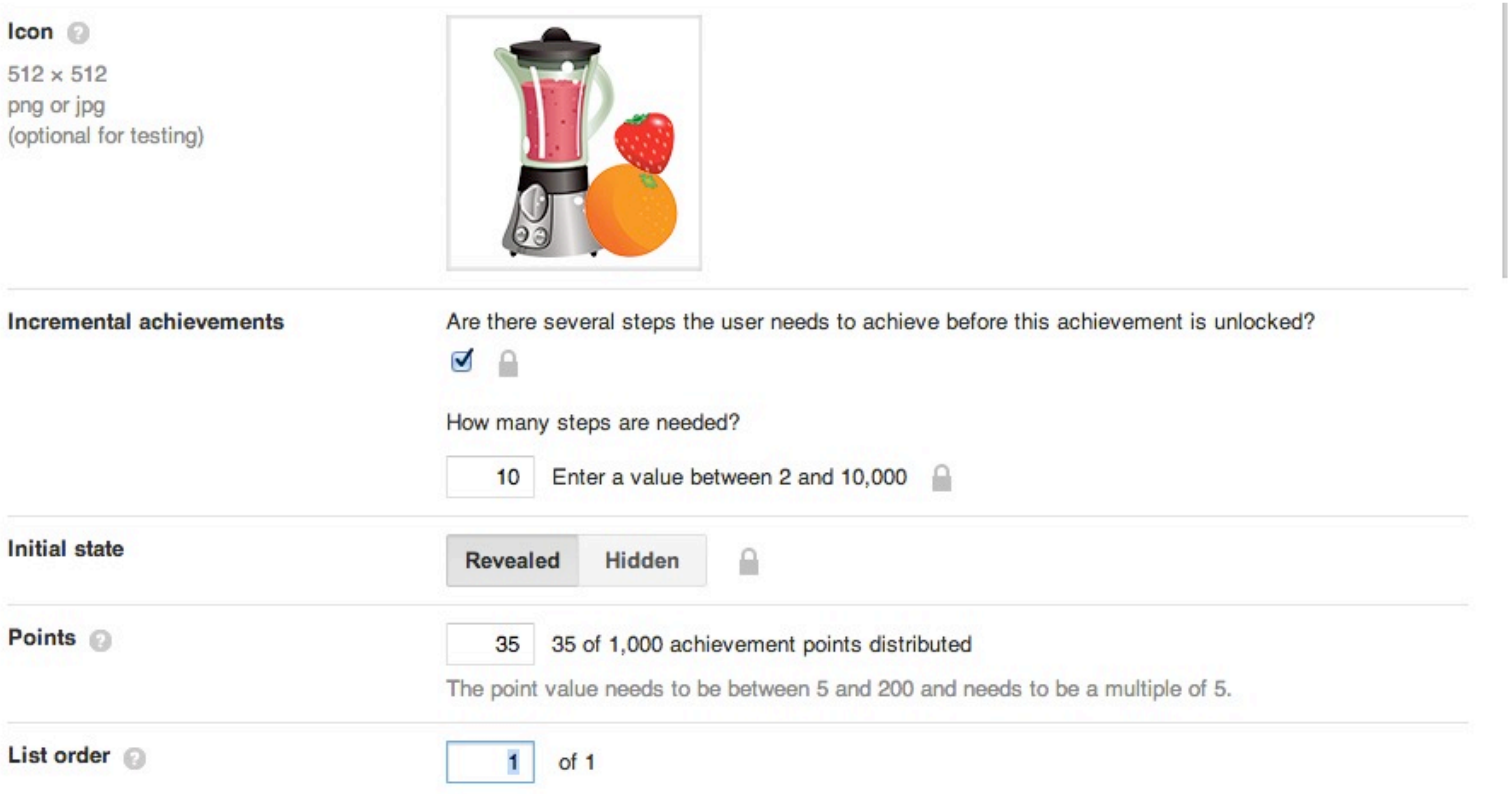
17 of 100 characters

Description
English (United States) – en-US
(optional for testing)

Win 10 levels in Blended Fruit mode

39 of 500 characters

Creating an Achievement



Icon →

Icon

512 × 512
png or jpg
(optional for testing)

Incremental →

Incremental achievements

Are there several steps the user needs to achieve before this achievement is unlocked?

☑

How many steps are needed?

10 Enter a value between 2 and 10,000

Not Hidden →

Initial state

[✓ Revealed] Hidden

35 Points →

Points

35 35 of 1,000 achievement points distributed

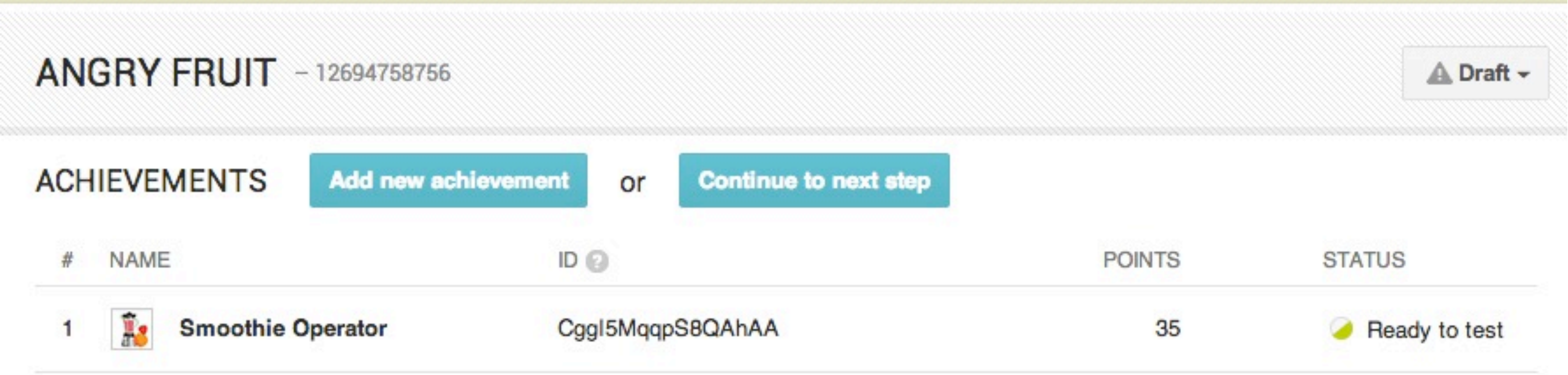
The point value needs to be between 5 and 200 and needs to be a multiple of 5.

Shown 1st →

List order

1 of 1

Creating an Achievement

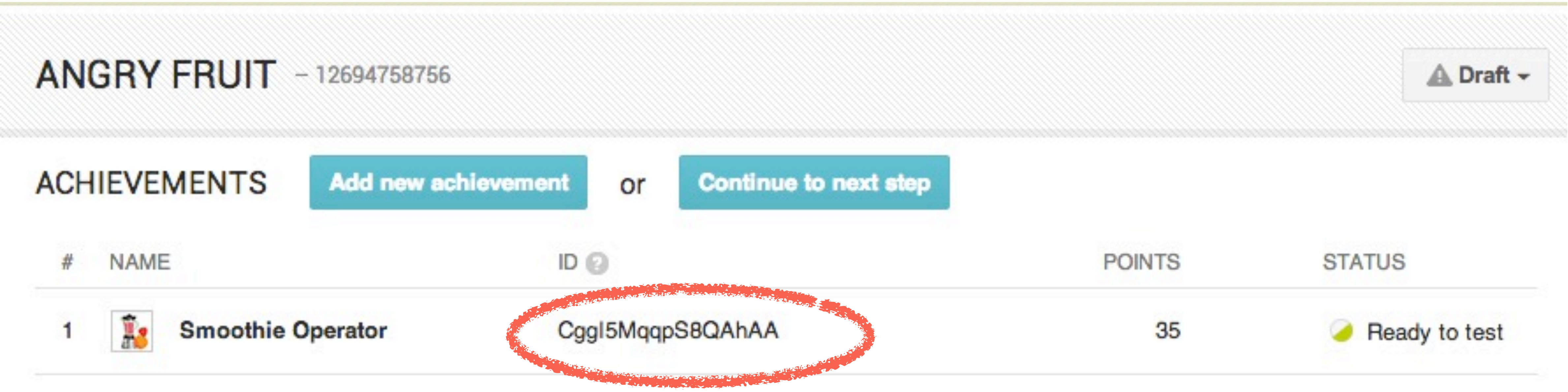


ANGRY FRUIT – 12694758756

ACHIEVEMENTS

#	NAME	ID	POINTS	STATUS
1	**Smoothie Operator**	CggI5MqqpS8QAhAA	35	Ready to test

Creating an Achievement

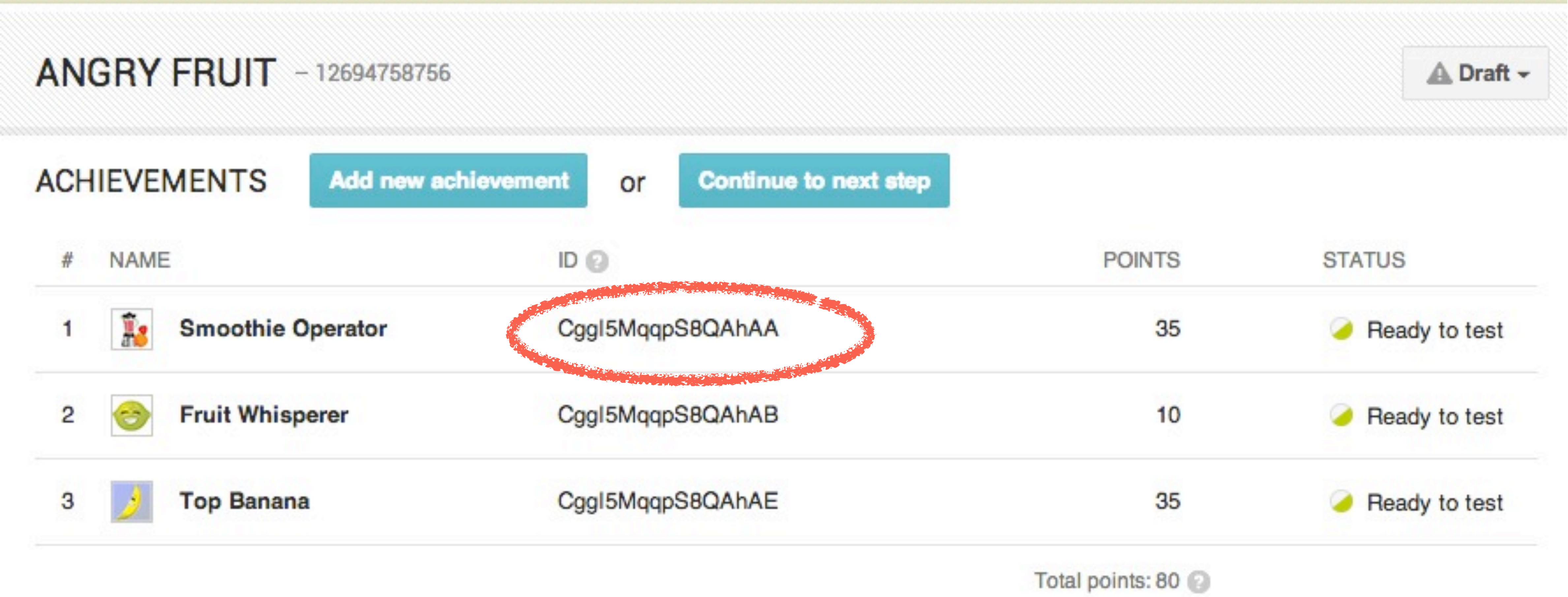


ANGRY FRUIT – 12694758756

ACHIEVEMENTS

#	NAME	ID	POINTS	STATUS
1	**Smoothie Operator**	CggI5MqqpS8QAhAA	35	Ready to test

Creating an Achievement



ANGRY FRUIT – 12694758756

Draft

ACHIEVEMENTS Add new achievement or Continue to next step

#	NAME	ID	POINTS	STATUS
1	Smoothie Operator	CggI5MqqpS8QAhAA	35	Ready to test
2	Fruit Whisperer	CggI5MqqpS8QAhAB	10	Ready to test
3	Top Banana	CggI5MqqpS8QAhAE	35	Ready to test

Total points: 80

Achievements - Android

Java

Achievements - Android

Java

```
// Incremental achievement - unlock after 10 wins.
private static final String SMOOTHIE_OPERATOR_ID = "CggI5MqqpS8QAhAA";
...
```

Achievements - Android

Java

```java
// Incremental achievement - unlock after 10 wins.
private static final String SMOOTHIE_OPERATOR_ID = "CggI5MqqpS8QAhAA";
...

private void onGameWon() {
    // Try unlocking every time (fire and forget).
    mGamesClient.unlockAchievement(FRUIT_WHISPERER_ID);
}
```

Achievements - Android

Java

```java
// Incremental achievement - unlock after 10 wins.
private static final String SMOOTHIE_OPERATOR_ID = "CggI5MqqpS8QAhAA";
...

private void onGameWon() {
    // Try unlocking every time (fire and forget).
    mGamesClient.unlockAchievement(FRUIT_WHISPERER_ID);
    if (mGameType == BLENDED_FRUIT_MODE) {
      // Increment, but check to see if this unlocks it...
      mGamesClient.incrementAchievementImmediate(
              this /* OnAchievementUpdatedListener */,
              SMOOTHIE_OPERATOR_ID,
              1 /* steps to increment by */);
    }
}
```

Achievements - Android

Java

```
@Override
public void onAchievementUpdated(
        int statusCode, String achievementId) {
}
```

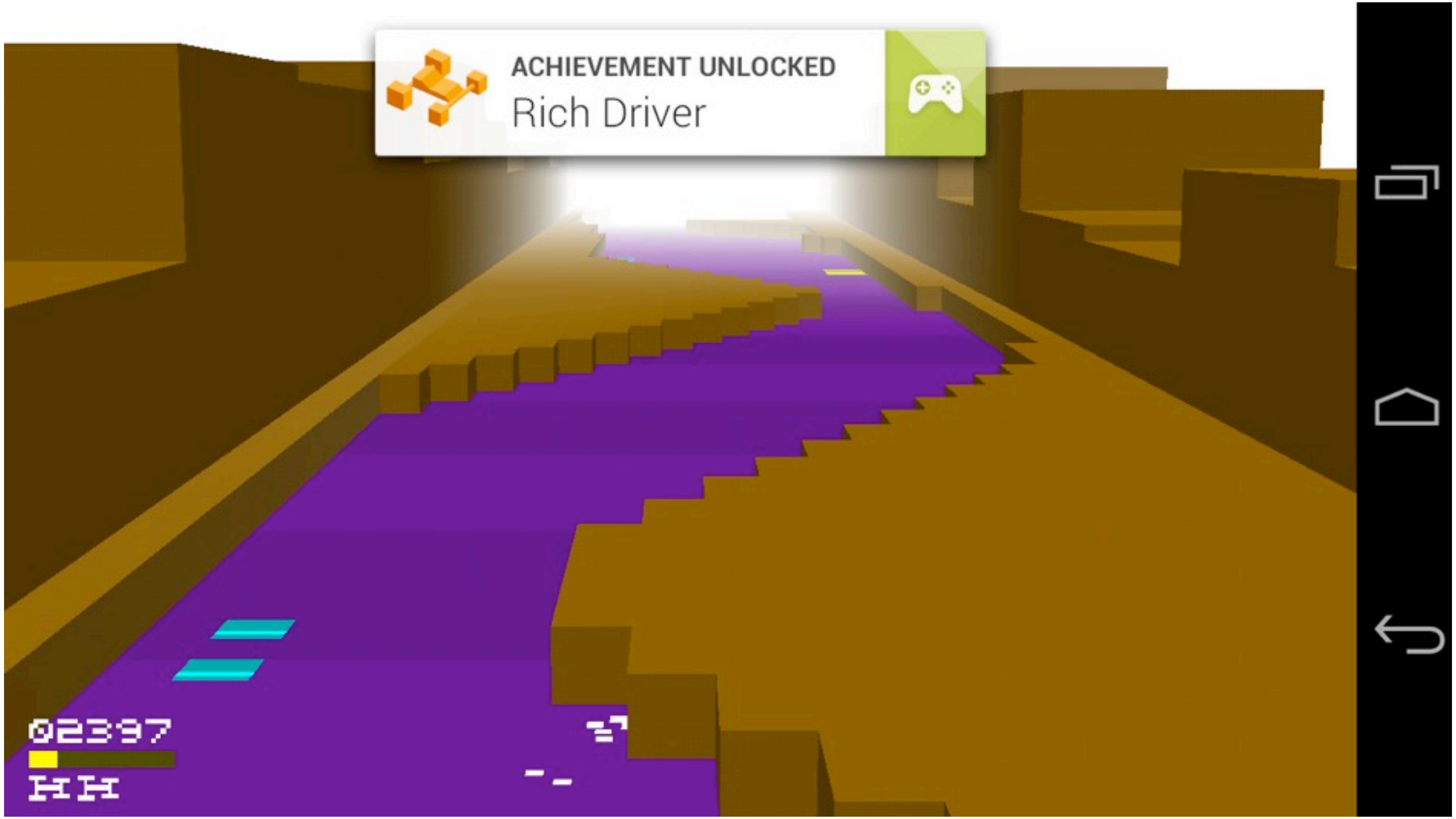
Achievements - Android

Java

```java
@Override
public void onAchievementUpdated(
        int statusCode, String achievementId) {
    if (SMOOTHIE_OPERATOR_ID.equals(achievementId)
            && statusCode == STATUS_ACHIEVEMENT_UNLOCKED) {
        // Great! Unlock the bonus stage and reveal the
        // associated achievement.
        enableBonusStage();
        mGamesClient.revealAchievement(HIDDEN_TOP_BANANA_ID);
    }
}
```

Displaying Achievements

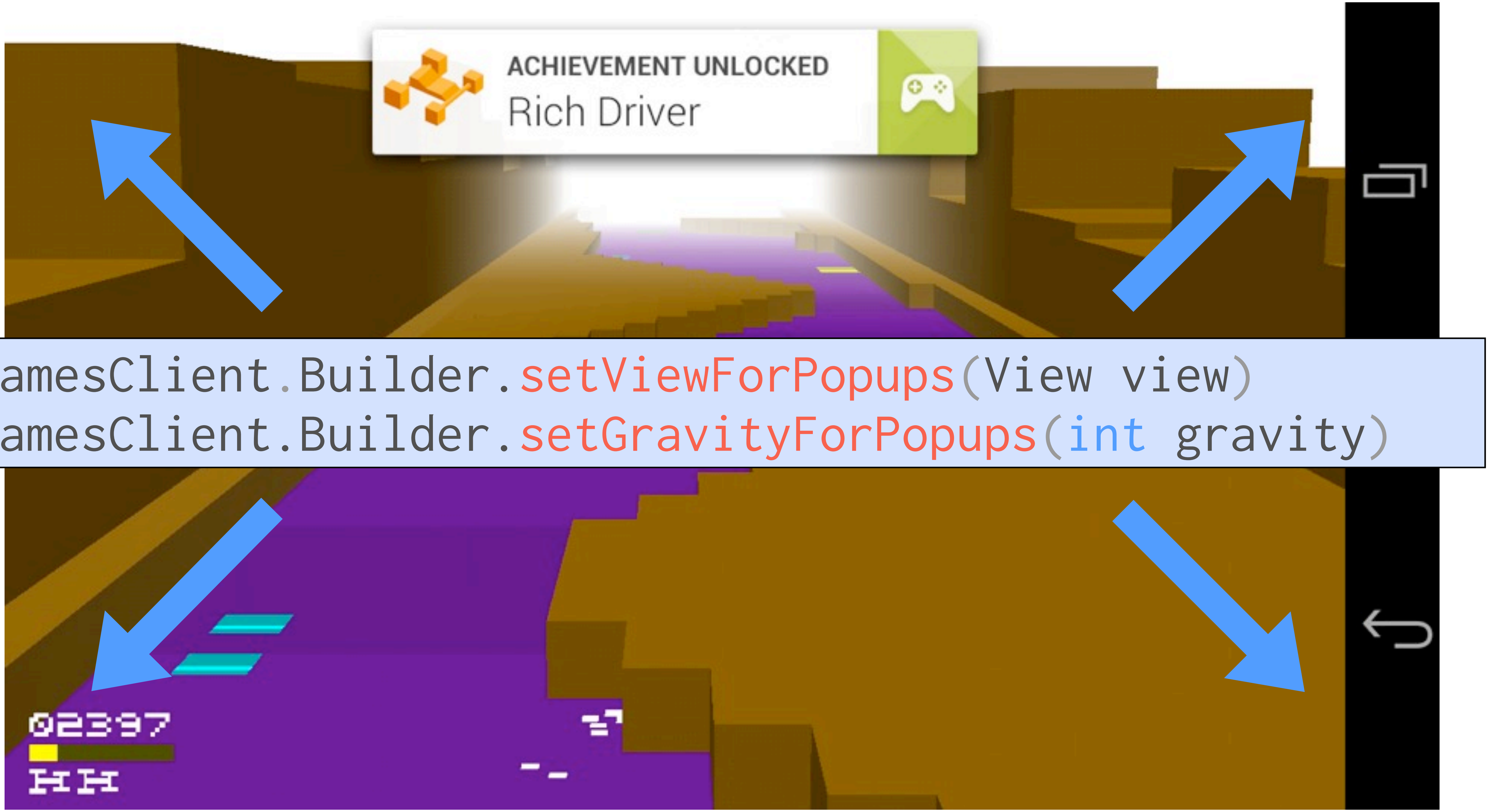
Displaying Achievements



ACHIEVEMENT UNLOCKED

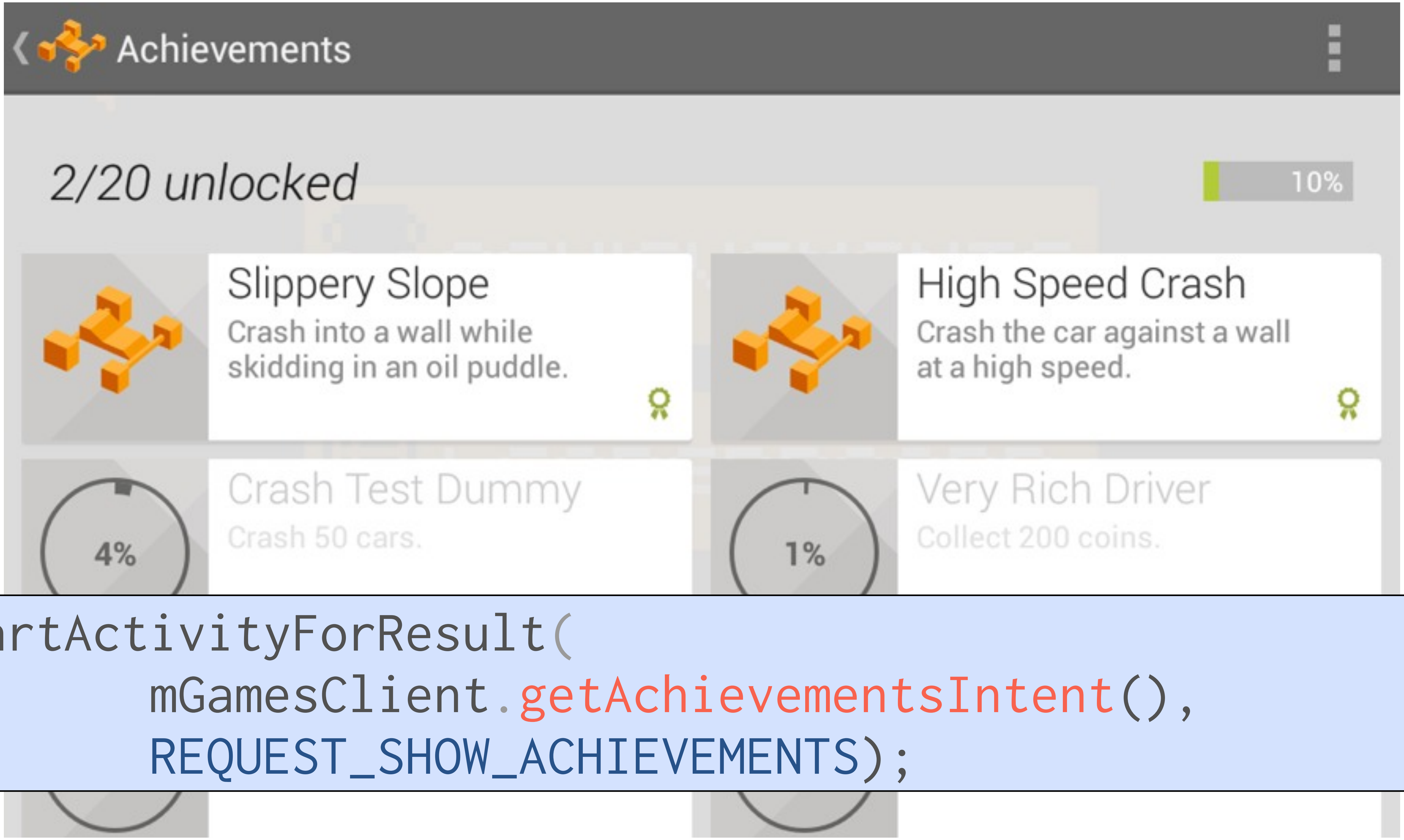
Rich Driver

Displaying Achievements



```
GamesClient.Builder.setViewForPopups(View view)
GamesClient.Builder.setGravityForPopups(int gravity)
```

Displaying Achievements



Achievements

2/20 unlocked

10%

Slippery Slope

Crash into a wall while skidding in an oil puddle.

High Speed Crash

Crash the car against a wall at a high speed.

Crash Test Dummy

Crash 50 cars.

Very Rich Driver

Collect 200 coins.

```
startActivityForResult(
        mGamesClient.getAchievementsIntent(),
        REQUEST_SHOW_ACHIEVEMENTS);
```

Raw Data Access

Don’t like our UI? Do it yourself!

Java

```java
mGamesClient.loadAchievements(listener)

void onAchievementsLoaded(int statusCode, AchievementBuffer buffer)
```

Raw Data Access

Don’t like our UI? Do it yourself!

Java

```
mGamesClient.loadAchievements(listener)

void onAchievementsLoaded(int statusCode, AchievementBuffer buffer)
```

ID	TYPE	NAME	ICON_IMAGE_URI	CURRENT_STEPS	STATE	PLAYER_INFO
CggI5MqqpS8QAhAA	INCREMENTAL	Compost Bin	https://lh3.ggpht.c/...	5	REVEALED	[Object]
CggI5MqqpS8QAhAB	STANDARD	Fruit Whisperer	https://lh3.ggpht.c/...	0	UNLOCKED	[Object]
CggI5MqqpS8QAETA	STANDARD	Top Banana	https://lh3.ggpht.c/...	0	HIDDEN	[Object]

Achievements - iOS

Create a GPGAchievement

Obj-C

```
#define SMOOTHIE_OPERATOR_ID @”CggI5MqqpS8QAhAB”

GPGAchievement *smoothieAch =
       [GPGAchievement achievementWithId:SMOOTHIE_OPERATOR_ID];
```

Achievements - iOS

Unlock it!

Obj-C

```
- (void)gameOverForMode:(int)gameMode {
    GPGAchievement *fruitWhispererAch =
        [GPGAchievement achievementWithId:FRUIT_WHISPERER_ID];
    [fruitWhispererAch unlockAchievementWithCompletionHandler:nil];
}
```

Achievements - iOS

Unlock it!

Obj-C

```
- (void)gameOverForMode:(int)gameMode {
    GPGAchievement *fruitWhispererAch =
        [GPGAchievement achievementWithId:FRUIT_WHISPERER_ID];
    [fruitWhispererAch unlockAchievementWithCompletionHandler:^(BOOL newlyUnlocked, NSError
*error) {
        // Perhaps handle errors here
    }];
}
```

Achievements - iOS

Increment it!

Obj-C

```
-(void)gameOverForMode:(int)gameMode {
   ...
  if (gameMode == kAFGameModeRotten) {
    // Increment our achievement
    GPGAchievement *smoothieAch = [GPGAchievement achievementWithId:SMOOTHIE_OPERATOR_ID];
    [smoothieAch incrementAchievementNumSteps:1
           completionHandler:^(BOOL newlyUnlocked, int currentSteps, NSError *error) {
             if (newlyUnlocked) {
               [self activateBonusMode];
             }
     }];
}
```

Achievements - iOS

Increment it!

Obj-C

```
-(void)gameOverForMode:(int)gameMode {
   ...
  if (gameMode == kAFGameModeRotten) {
    // Increment our achievement
    GPGAchievement *smoothieAch = [GPGAchievement achievementWithId:SMOOTHIE_OPERATOR_ID];
    [smoothieAch incrementAchievementNumSteps:1
           completionHandler:^(BOOL newlyUnlocked, int currentSteps, NSError *error) {
             if (newlyUnlocked) {
               [self activateBonusMode];
             }
     }];
}
```

Achievements - iOS

Reveal hidden ones!

Obj-C

```
-(void)gameOverForMode:(int)gameMode {
   ...
  if (gameMode == kAFGameModeRotten) {
    // Increment our achievement
    GPGAchievement *smoothieAch = [GPGAchievement achievementWithId:SMOOTHIE_OPERATOR_ID];
    [smoothieAch incrementAchievementNumSteps:1
           completionHandler:^(BOOL newlyUnlocked, int currentSteps, NSError *error) {
             if (newlyUnlocked) {
               [self activateBonusMode];
               GPGAchievement *topBanana = [GPGAchievement
                                            achievementWithId:TOP_BANANA_ID];
               [topBanana revealAchievementWithCompletionHandler:nil];
             }
     }];
}
```

Achievements - iOS

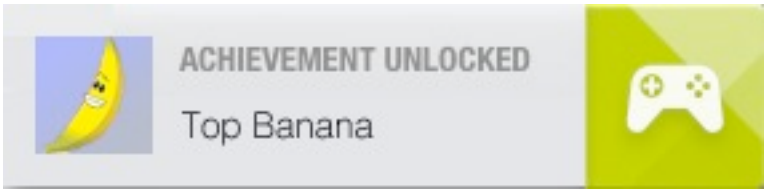
Reveal hidden ones!

Obj-C

```
-(void)gameOverForMode:(int)gameMode {
   ...
  if (gameMode == kAFGameModeRotten) {
    // Increment our achievement
    GPGAchievement *smoothieAch = [GPGAchievement achievementWithId:SMOOTHIE_OPERATOR_ID];
    [smoothieAch incrementAchievementNumSteps:1
           completionHandler:^(BOOL newlyUnlocked, int currentSteps, NSError *error) {
             if (newlyUnlocked) {
               [self activateBonusMode];
               GPGAchievement *topBanana = [GPGAchievement
                                            achievementWithId:TOP_BANANA_ID];
               [topBanana revealAchievementWithCompletionHandler:nil];
             }
     }];
}
```

Achievements Display

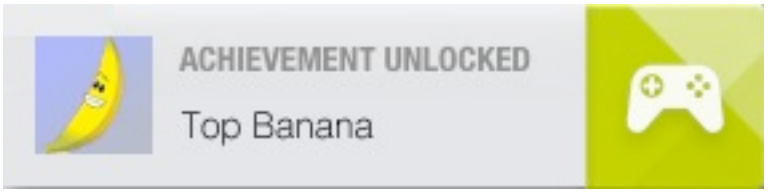
Achievements Display



ACHIEVEMENT UNLOCKED

Top Banana

Achievements Display



ACHIEVEMENT UNLOCKED

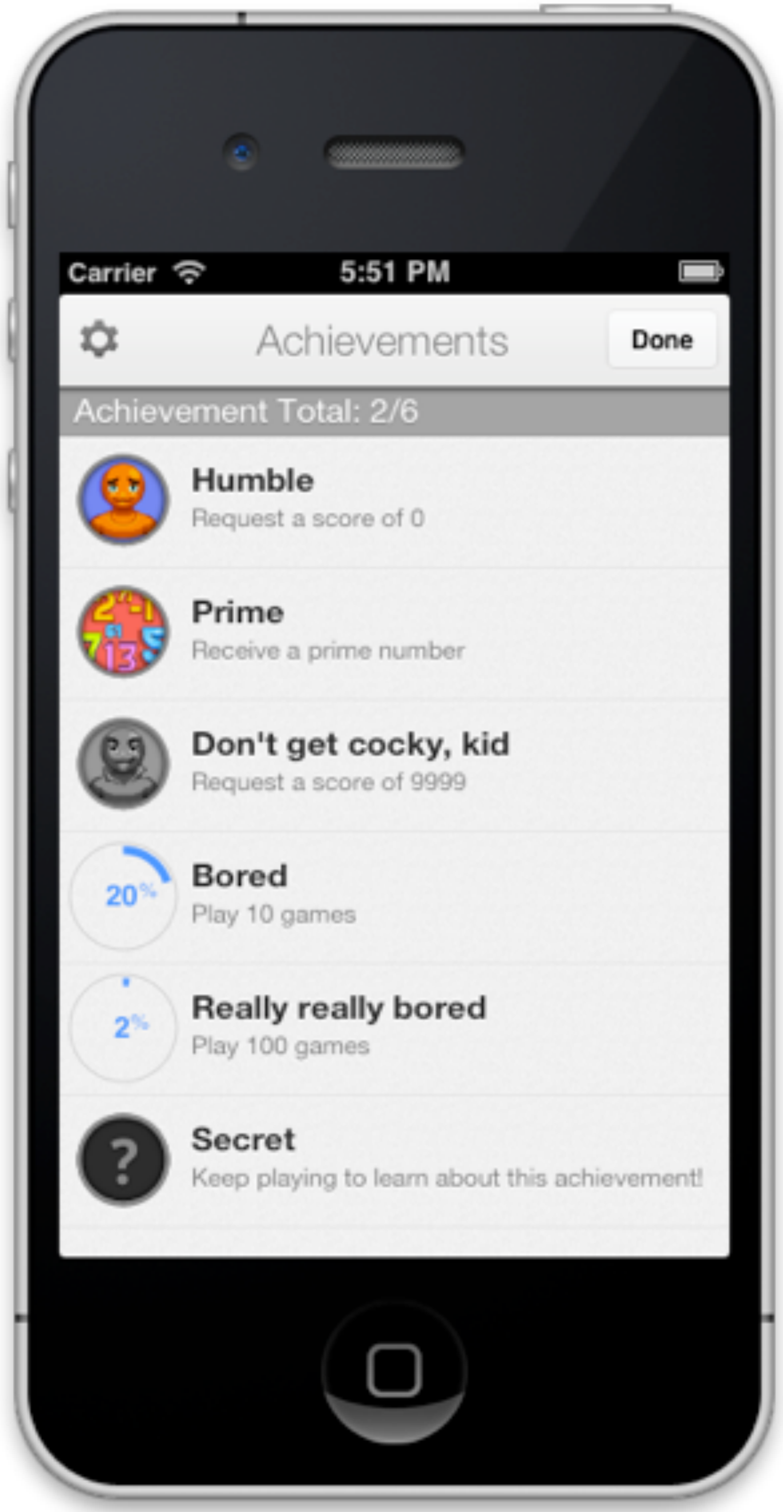
Top Banana

```
topBananaAch.showsCompletionNotification = NO;
```

Achievements Display

```
topBananaAch.showsCompletionNotification = NO;
```

Achievements Display



Carrier 5:51 PM

Achievements

Achievement Total: 2/6

Humble
Request a score of 0

Prime
Receive a prime number

Don't get cocky, kid
Request a score of 9999

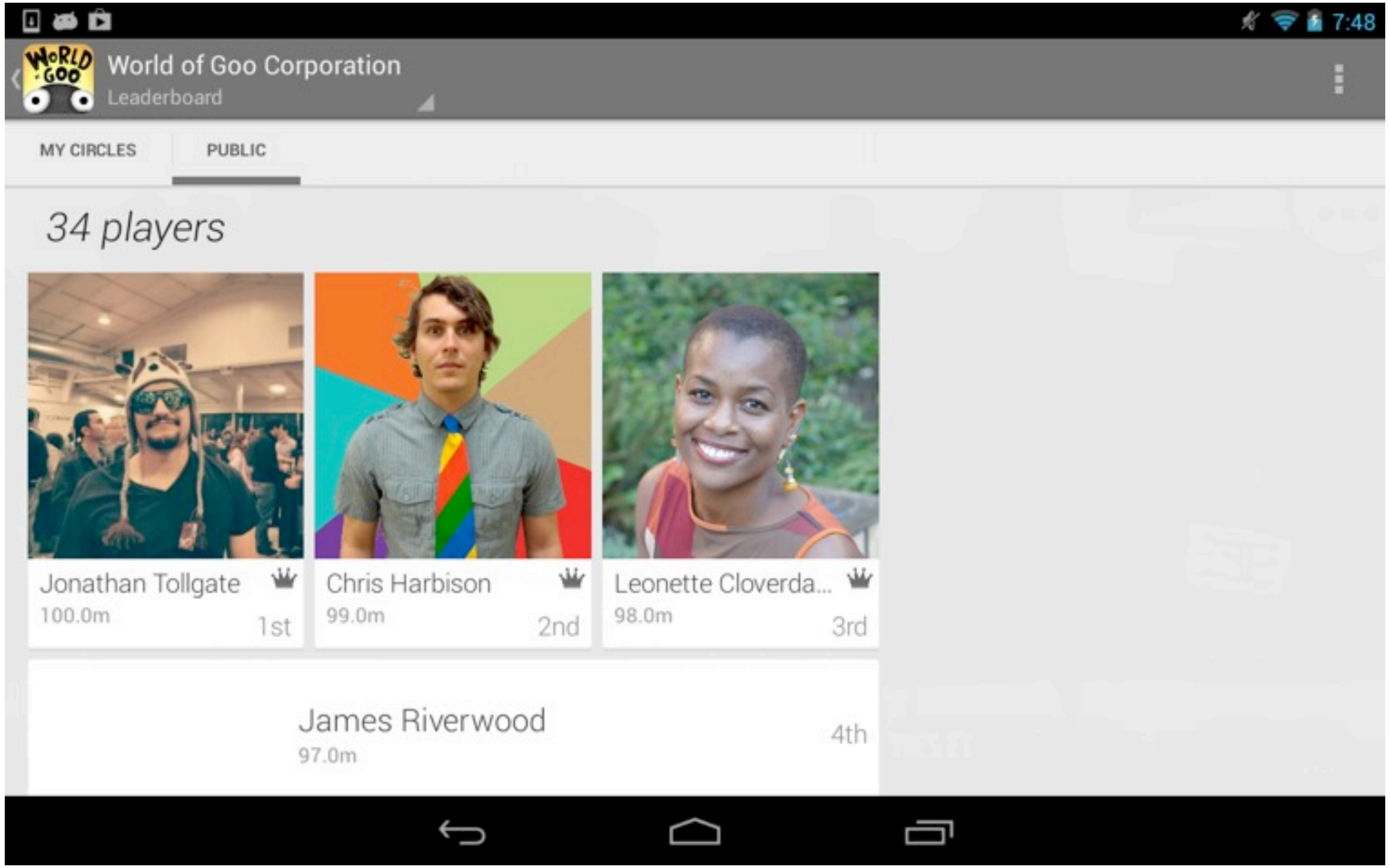
Bored
Play 10 games

Really really bored
Play 100 games

Secret
Keep playing to learn about this achievement!

```
GPGAchievementController *achController =
    [[GPGAchievementController alloc] init];
achController.achievementDelegate = self;
[self presentModalViewController:achController
                        animated:YES];
```

Leaderboards



7:48

World of Goo Corporation

Leaderboard

MY CIRCLES | PUBLIC

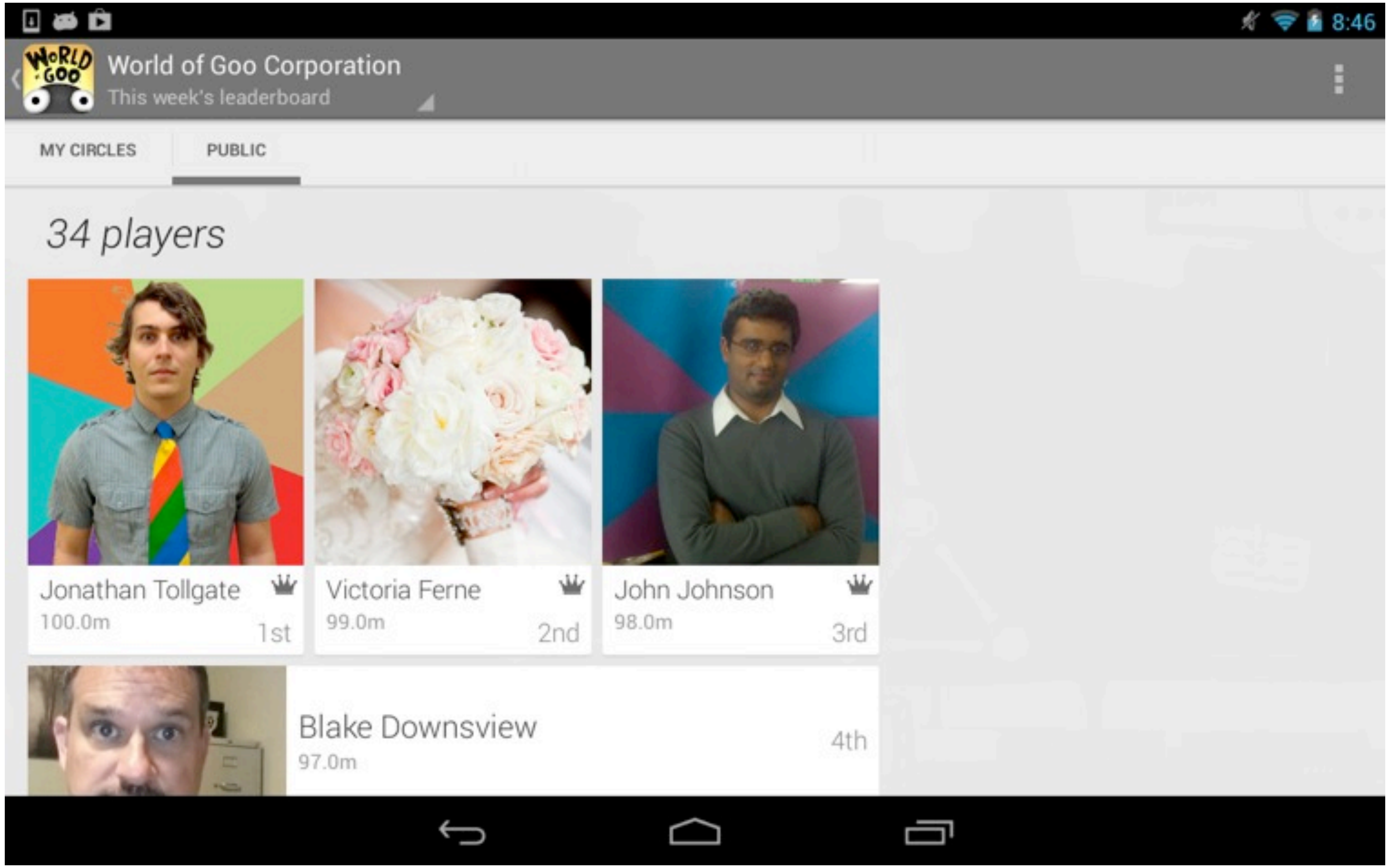
34 players

Jonathan Tollgate
100.0m
1st

Chris Harbison
99.0m
2nd

Leonette Cloverda...
98.0m
3rd

James Riverwood
97.0m
4th



8:46

World of Goo Corporation

This week's leaderboard

MY CIRCLES

PUBLIC

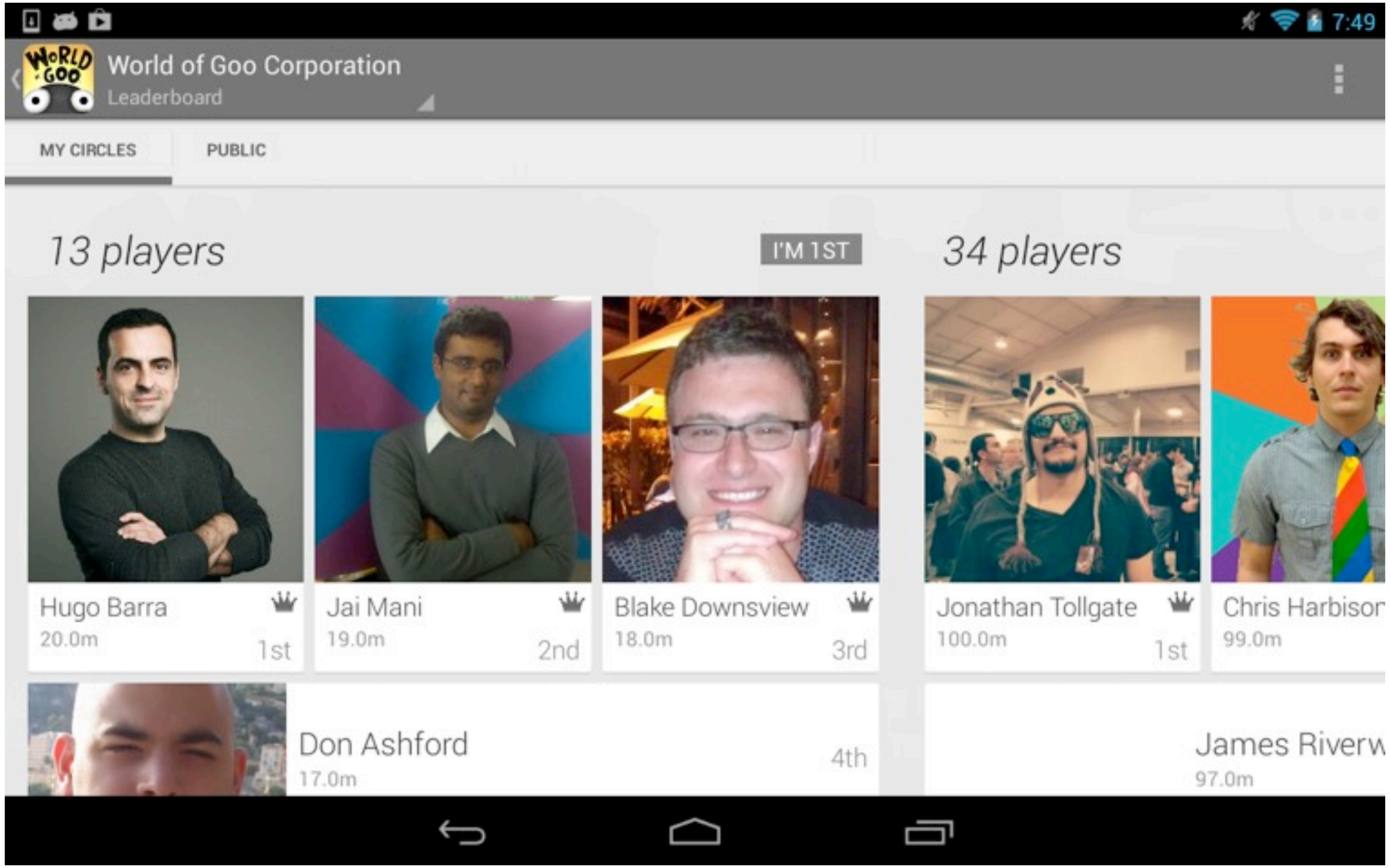
34 players

Jonathan Tollgate
100.0m
1st

Victoria Ferne
99.0m
2nd

John Johnson
98.0m
3rd

Blake Downsview
97.0m
4th



7:49

World of Goo Corporation

Leaderboard

MY CIRCLES | PUBLIC

13 players

I'M 1ST

Hugo Barra 20.0m 1st

Jai Mani 19.0m 2nd

Blake Downsview 18.0m 3rd

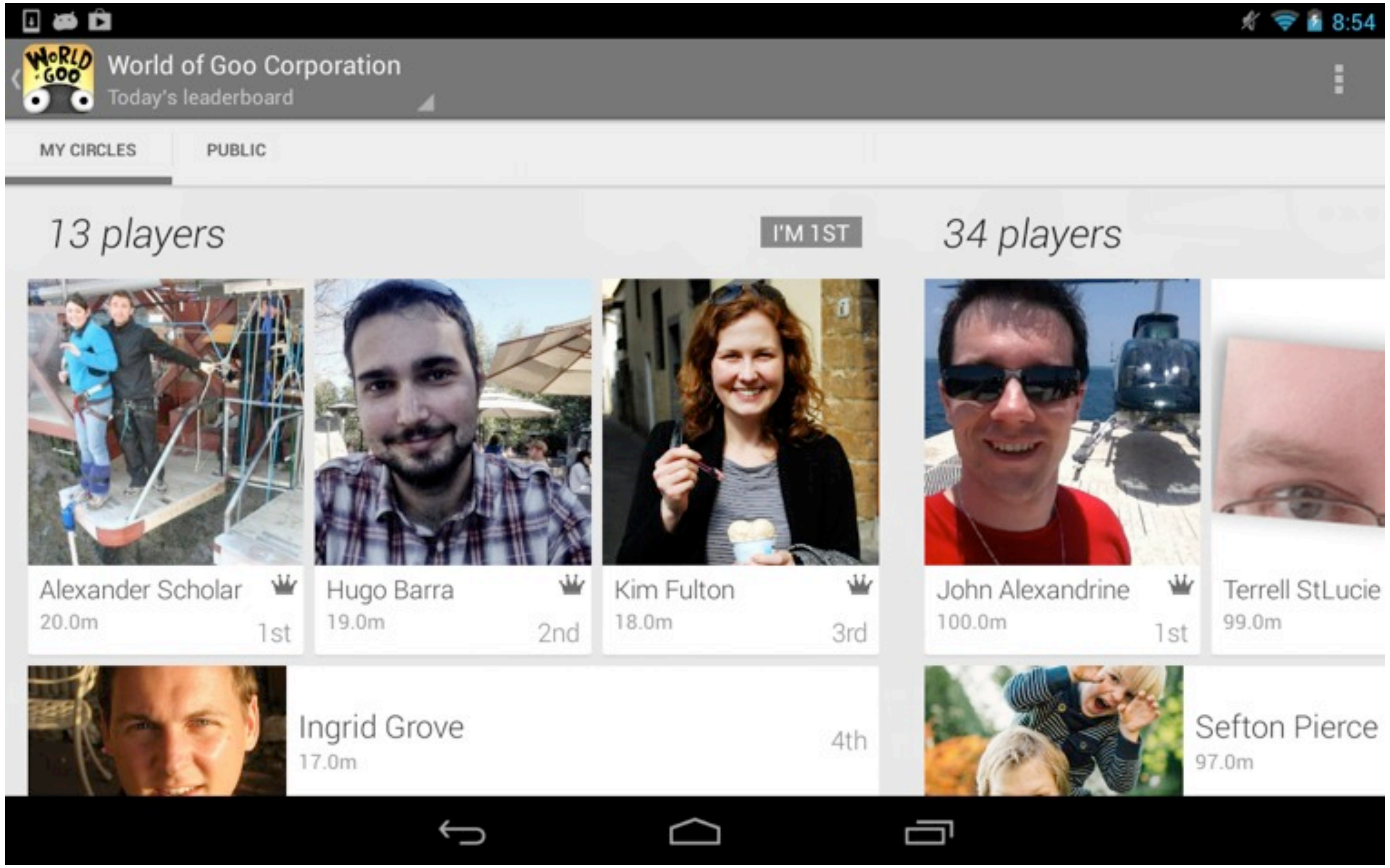
Don Ashford 17.0m 4th

34 players

Jonathan Tollgate 100.0m 1st

Chris Harbisor 99.0m

James Riverw 97.0m


World of Goo Corporation

Today's leaderboard

MY CIRCLES | PUBLIC

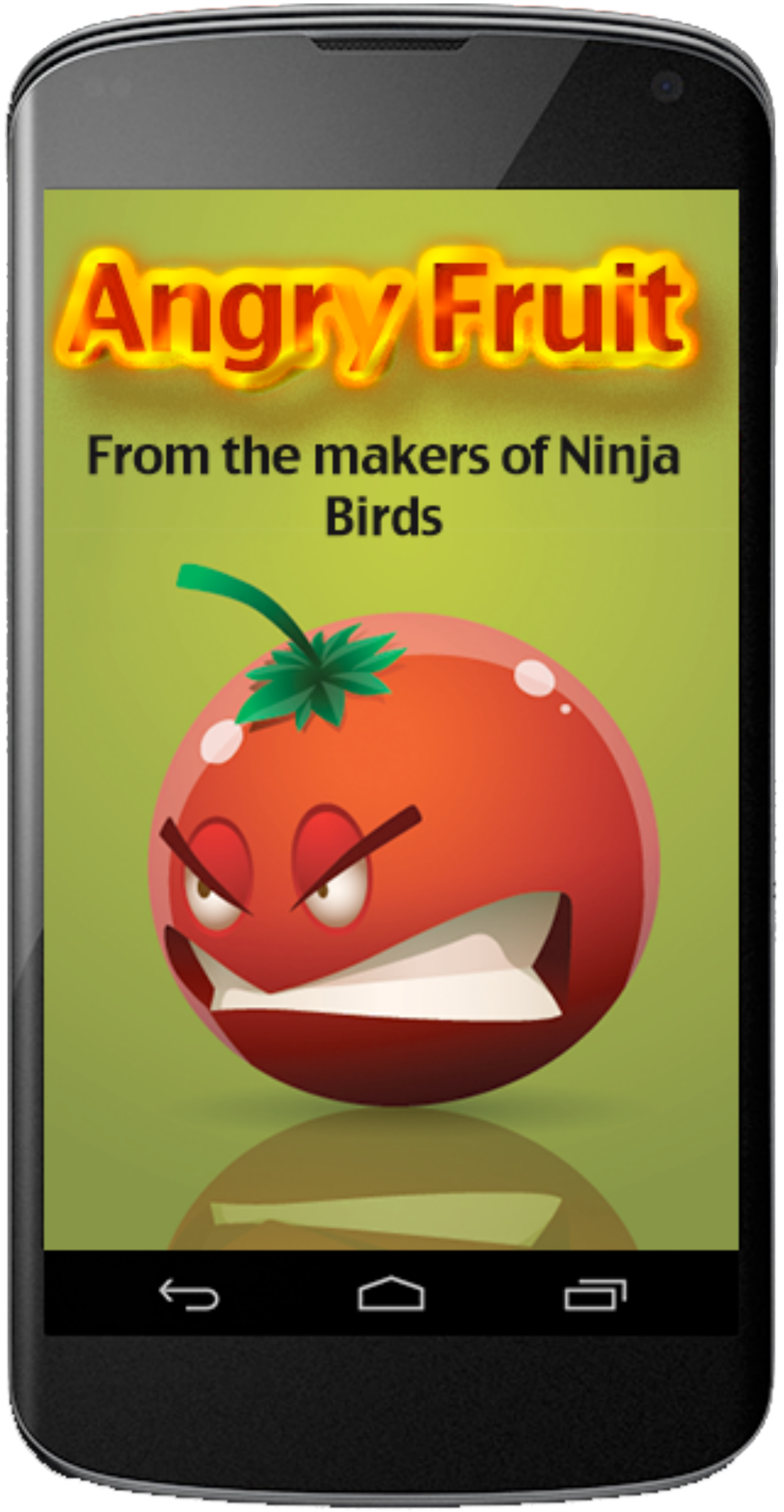
13 players

I'M 1ST

Name	Distance	Rank
Alexander Scholar	20.0m	1st
Hugo Barra	19.0m	2nd
Kim Fulton	18.0m	3rd
Ingrid Grove	17.0m	4th

34 players

Name	Distance	Rank
John Alexandrine	100.0m	1st
Terrell StLucie	99.0m	
Sefton Pierce	97.0m	



Angry Fruit

From the makers of Ninja Birds

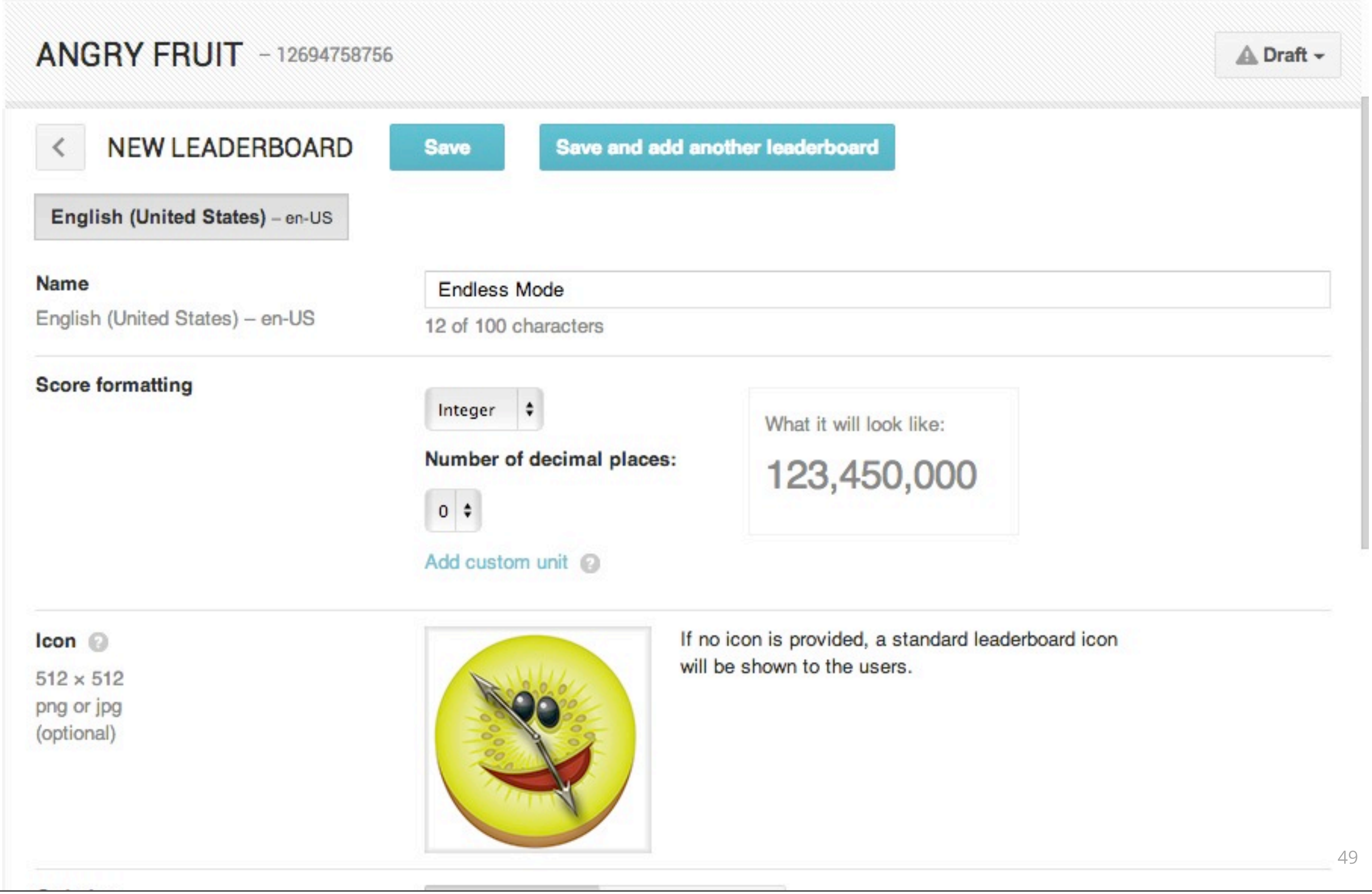
1. Nobody is trying Blended Fruit Mode

~~1. Nobody is trying Blended Fruit Mode~~

~~1. Nobody is trying Blended Fruit Mode~~

2. Endless Mode isn't retaining well

Creating a Leaderboard



ANGRY FRUIT – 12694758756

NEW LEADERBOARD

English (United States) – en-US

Name
English (United States) – en-US

Endless Mode
12 of 100 characters

Score formatting

Integer

Number of decimal places:

0

What it will look like:

123,450,000

Add custom unit

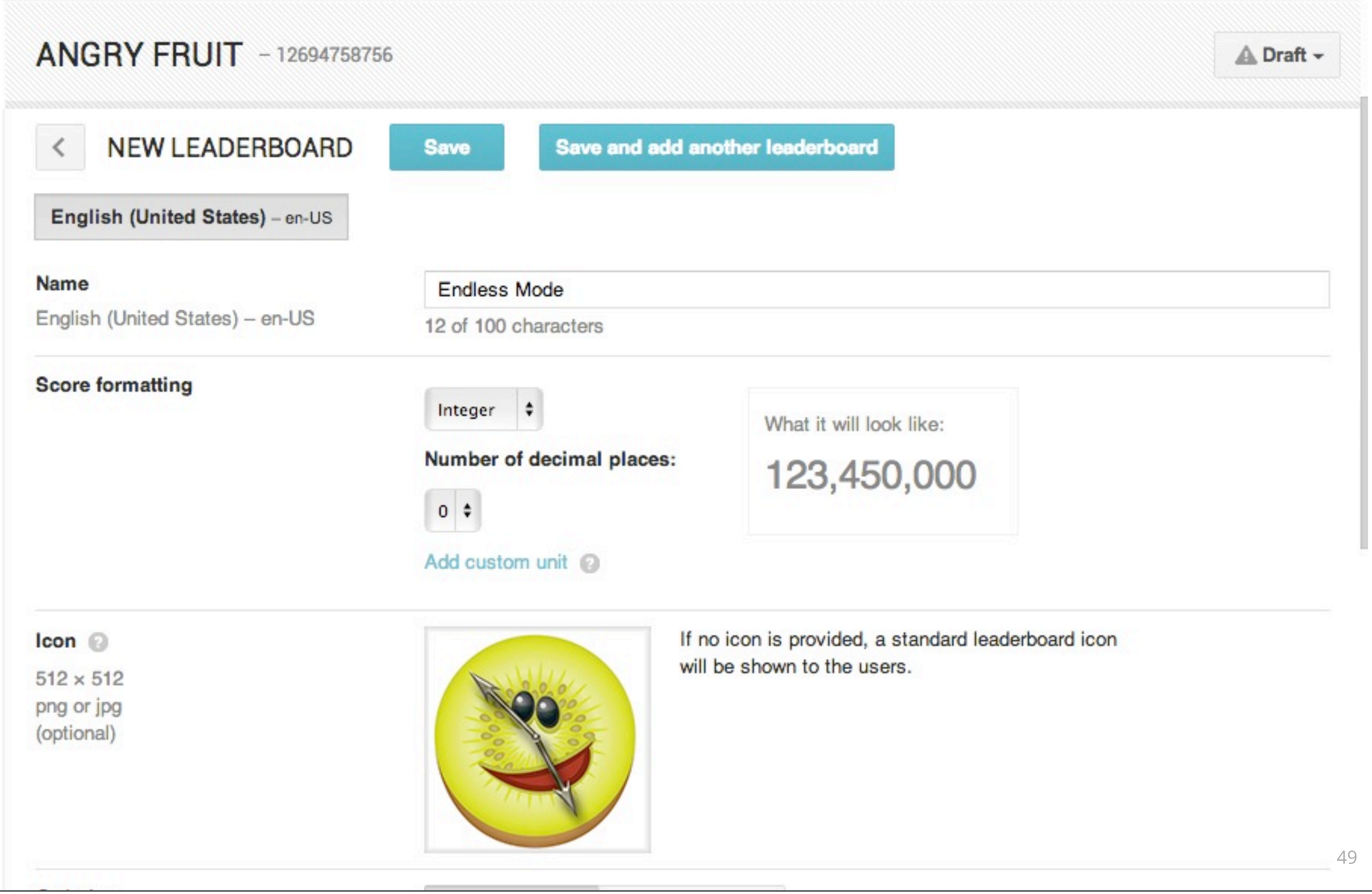
Icon
512 × 512
png or jpg
(optional)

If no icon is provided, a standard leaderboard icon will be shown to the users.

Creating a Leaderboard

Name →

Formatting →



ANGRY FRUIT – 12694758756

English (United States) – en-US

Name
English (United States) – en-US

Endless Mode
12 of 100 characters

Score formatting

Integer

Number of decimal places:

0

Add custom unit

What it will look like:

123,450,000

Icon
512 × 512
png or jpg
(optional)

If no icon is provided, a standard leaderboard icon will be shown to the users.

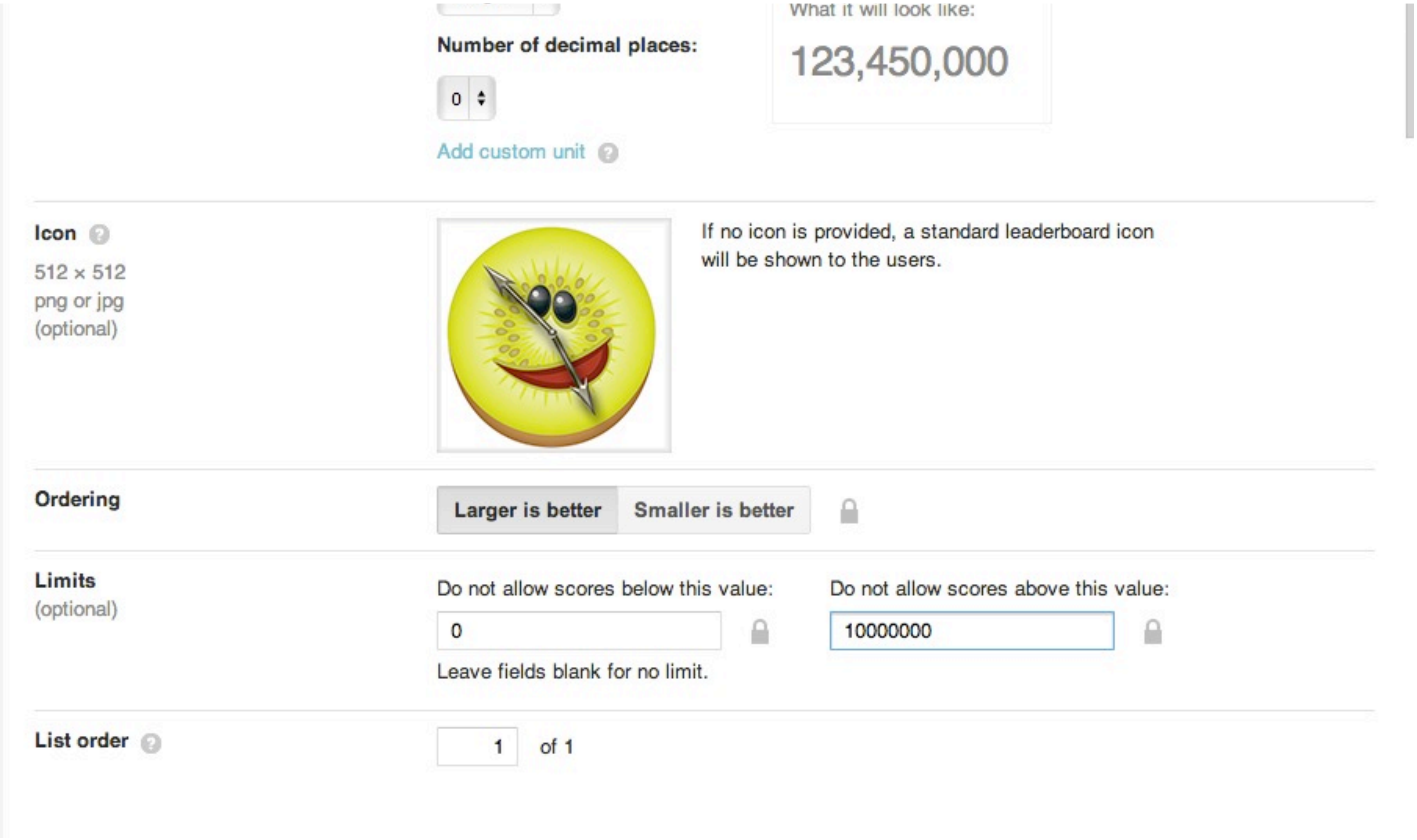
Creating a Leaderboard

Icon →

Ordering →

Limits →

Shown 1st →



What it will look like:

123,450,000

Number of decimal places:

0

Add custom unit

Icon

512 × 512
png or jpg
(optional)

If no icon is provided, a standard leaderboard icon will be shown to the users.

Ordering

Larger is better | Smaller is better

Limits
(optional)

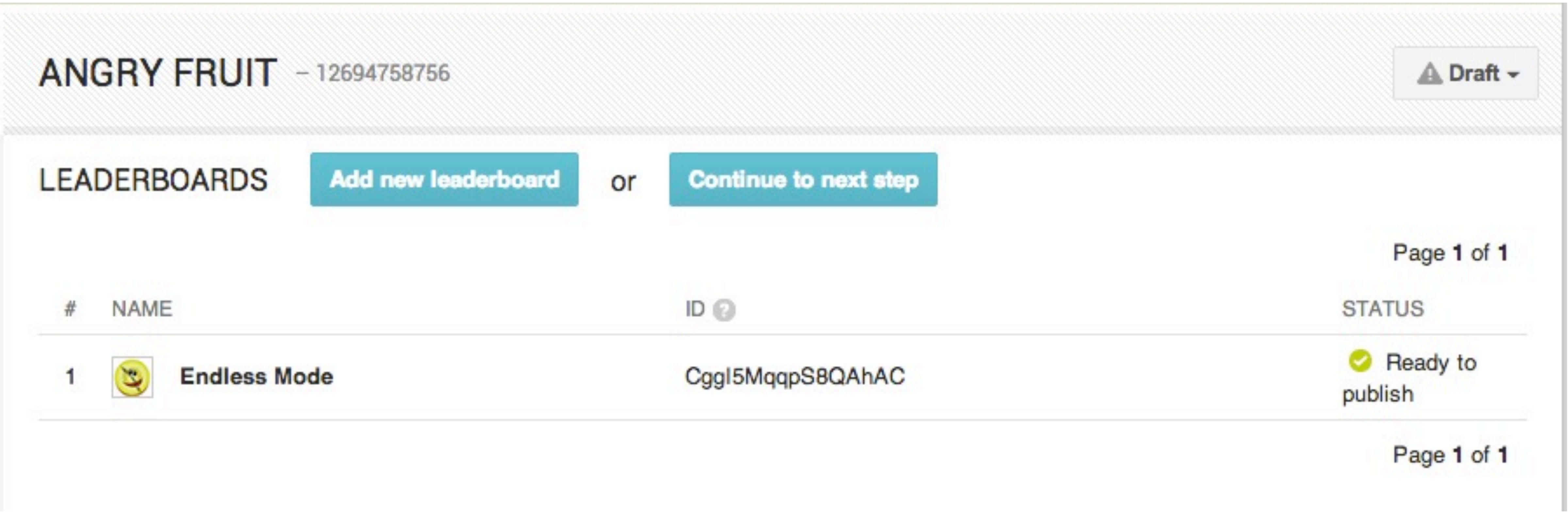
Do not allow scores below this value: 0

Do not allow scores above this value: 10000000

Leave fields blank for no limit.

List order 1 of 1

Creating a Leaderboard



ANGRY FRUIT – 12694758756

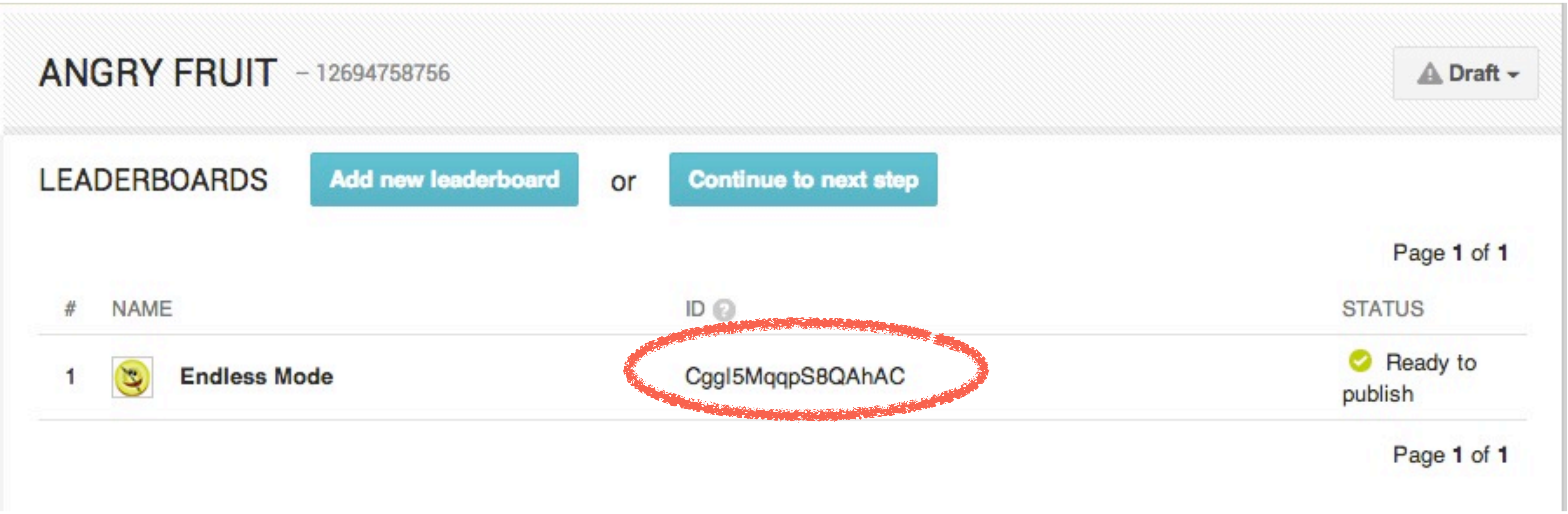
LEADERBOARDS

Page **1** of **1**

#	NAME	ID	STATUS
1	**Endless Mode**	CggI5MqqpS8QAhAC	✓ Ready to publish

Page **1** of **1**

Creating a Leaderboard



ANGRY FRUIT – 12694758756

LEADERBOARDS

Page **1** of **1**

#	NAME	ID	STATUS
1	**Endless Mode**	CggI5MqqpS8QAhAC	✓ Ready to publish

Page **1** of **1**

Leaderboard Score Formatting

Scores are submitted as 64-bit integers.

Leaderboard Score Formatting

Scores are submitted as 64-bit integers.

Example: 1234567

	English	German
Integer	1,234,567	1.234.567
Fixed Point	12,345.67	12.345,67
Time	20:34.57	20:34.57
Currency	$1.23	1,23 $

Leaderboards - Android

Submitting a score

Java

```java
// Define our leaderboard ID
private static final String ENDLESS_MODE_ID = "CggI5MqqpS8QAhAC”;

// Submit score - with a listener
mGamesClient.submitScoreImmediate(listener, ENDLESS_MODE_ID, 1337);

// Submit score - fire-and-forget
mGamesClient.submitScore(ENDLESS_MODE_ID, 1337);
```

Leaderboards - Android

Use the OnScoreSubmittedListener to listen for results

Java

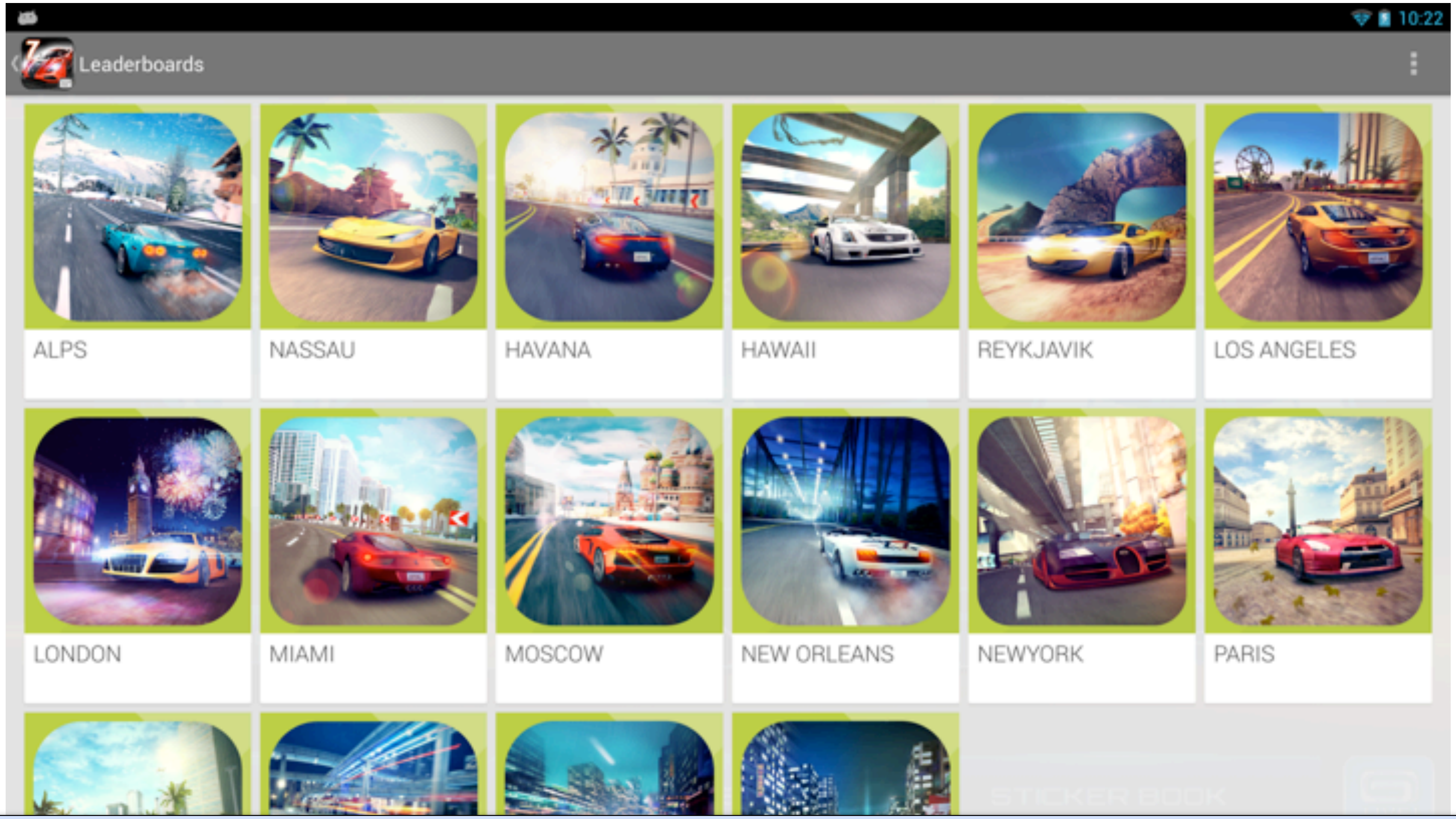
```
void onScoreSubmitted(int statusCode, SubmitScoreResult result) {
  if (statusCode == GamesClient.STATUS_OK) {
    // Analyze the score report
    if (result.getScoreResult(
            LeaderboardVariant.TIME_SPAN_DAILY).newBest) {
        // Congratulate the user for being awesome!
    }
  } else {
    // Handle odd cases here
  }
}
```

Leaderboards - Android

Displaying Leaderboards

Leaderboards - Android

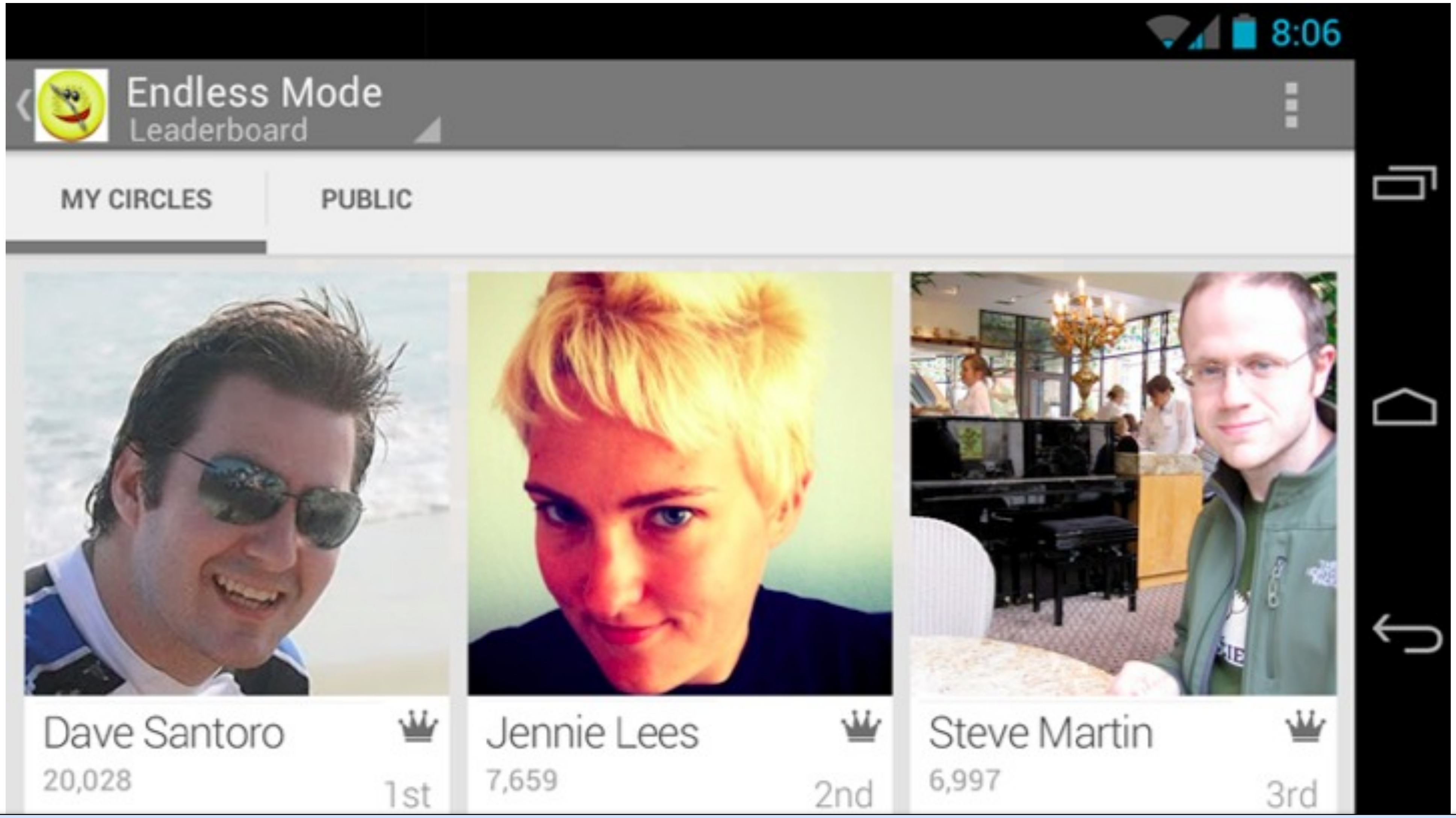
Displaying Leaderboards



```
startActivityForResult(
        mGamesClient.getAllLeaderboardsIntent(),
        REQUEST_SHOW_ALL_LEADERBOARDS);
```

Leaderboards - Android

Displaying Leaderboards



```
startActivityForResult(
          mGamesClient.getLeaderboardIntent(ENDLESS_MODE_ID),
          REQUEST_SHOW_LEADERBOARD);
```

Leaderboards - iOS

Create a GPGScore

Obj-C

```
#define ENDLESS_LEADERBOARD @”CggI5MqqpS8QAhAC”

GPGScore *submitMe = [GPGScore scoreWithLeaderboardId:kAFHighScore];
submitMe.value = 100;
```

Leaderboards - iOS

Submit a GPGScore

Obj-C

```
#define ENDLESS_LEADERBOARD @”CggI5MqqpS8QAhAC”

GPGScore *submitMe = [GPGScore scoreWithLeaderboardId:kAFHighScore];
submitMe.value = 100;

[submitMe submitScoreWithCompletionHandler:^(GPGScoreReport *report, NSError *error) {
  if (error) {
    // Handle errors
  }
}];
```

Leaderboards - iOS

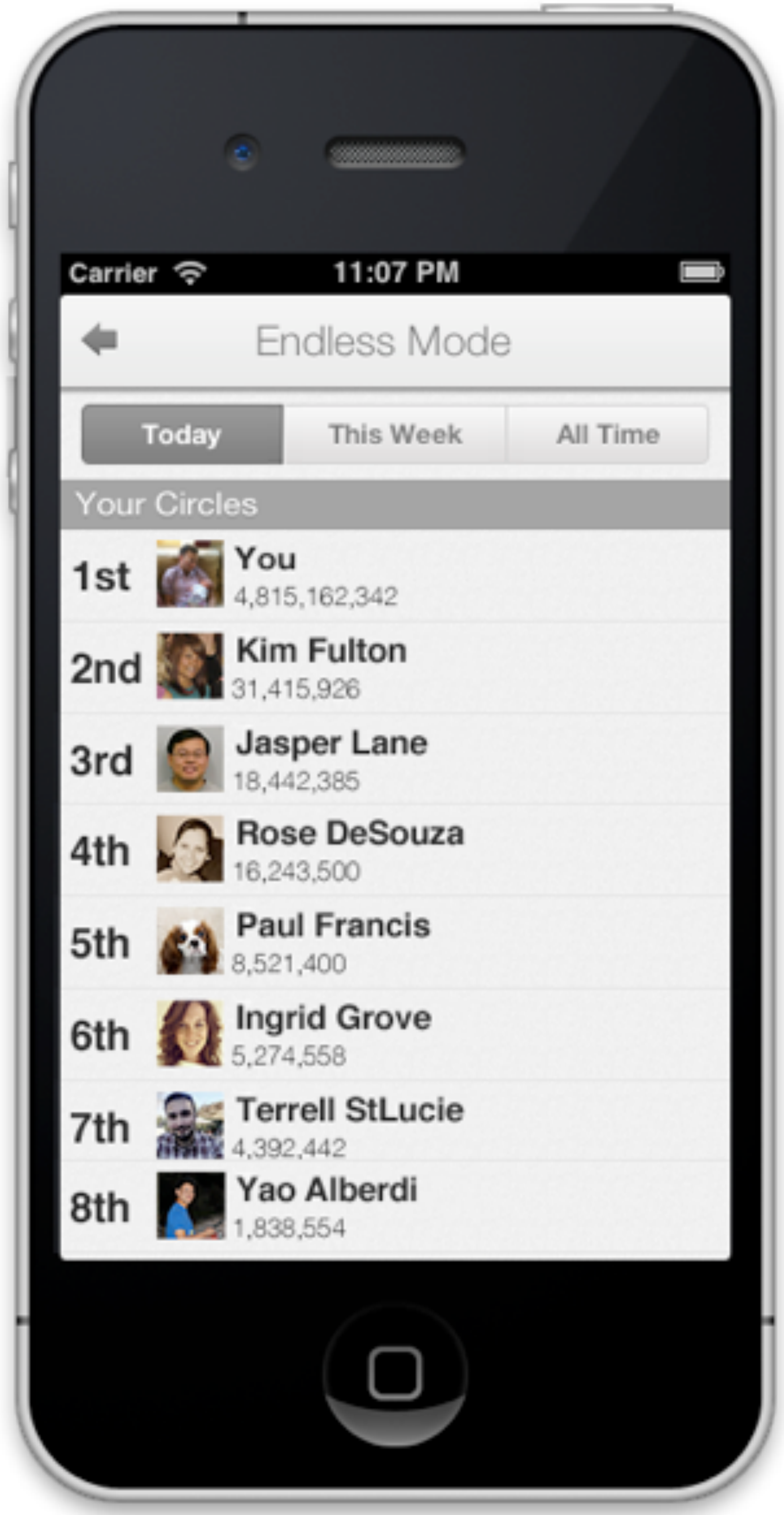
Analyze the GPGScoreReport

Obj-C

```
#define ENDLESS_LEADERBOARD @”CggI5MqqpS8QAhAC”

GPGScore *submitMe = [GPGScore scoreWithLeaderboardId:kAFHighScore];
submitMe.value = 100;

[submitMe submitScoreWithCompletionHandler:^(GPGScoreReport *report, NSError *error) {
  if (error) {
    // Handle errors
  }  else {
    if (report.isHighScoreForLocalPlayerToday) {
      NSLog(@”Woo hoo! Daily high score!”);
    }
  }
}];
```

Leaderboards Display

Leaderboards Display

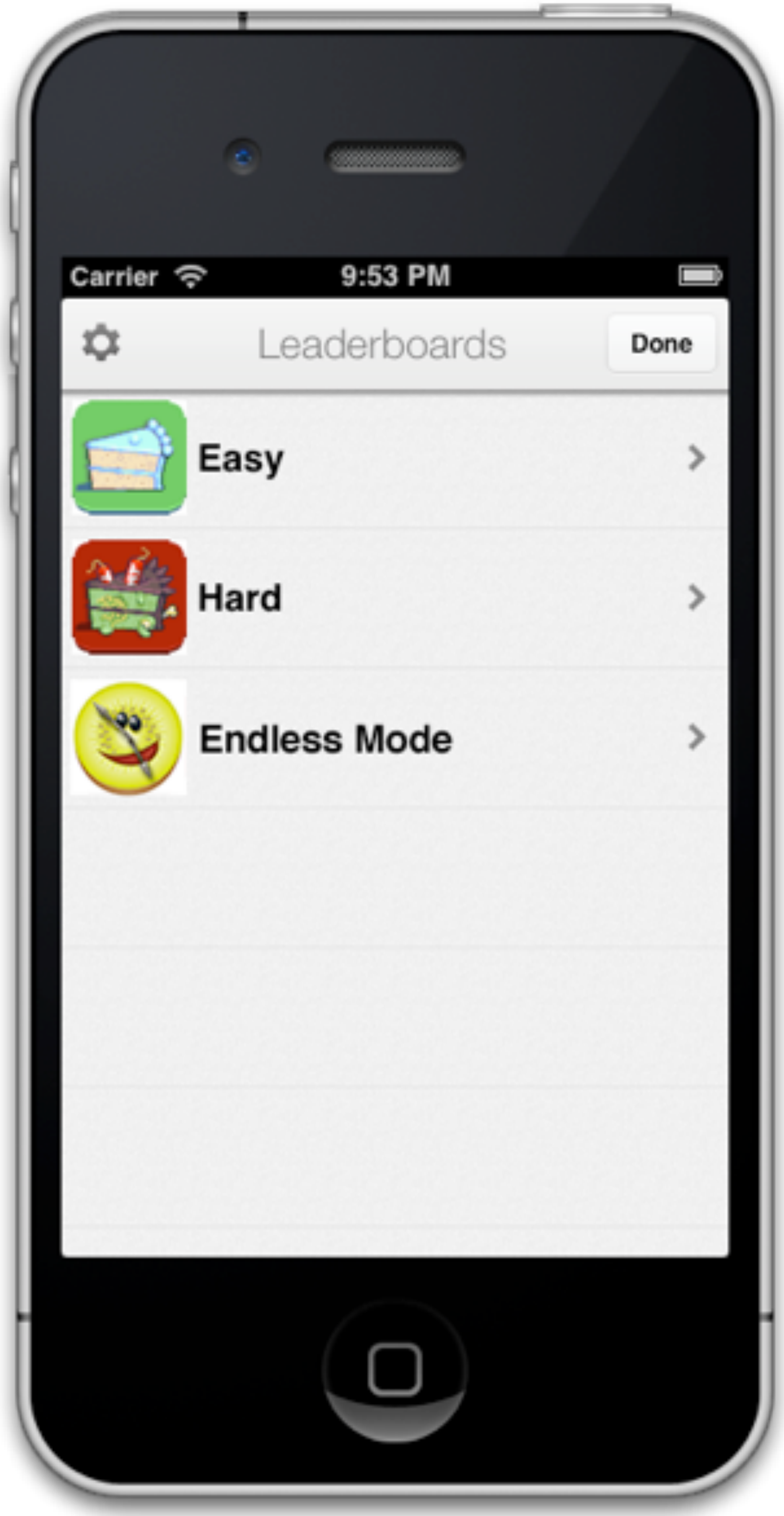


Your Circles

1st	You	4,815,162,342
2nd	Kim Fulton	31,415,926
3rd	Jasper Lane	18,442,385
4th	Rose DeSouza	16,243,500
5th	Paul Francis	8,521,400
6th	Ingrid Grove	5,274,558
7th	Terrell StLucie	4,392,442
8th	Yao Alberdi	1,838,554

```
GPGLeaderboardController *endlessLead =
   [[GPGLeaderboardController alloc]
    initWithLeaderboardId:targetLeaderboardId];
endlessLead.leaderboardDelegate = self;
[self presentModalViewController:endlessLead
                        animated:YES];
```

Leaderboards Display



Carrier 9:53 PM

Leaderboards

Done

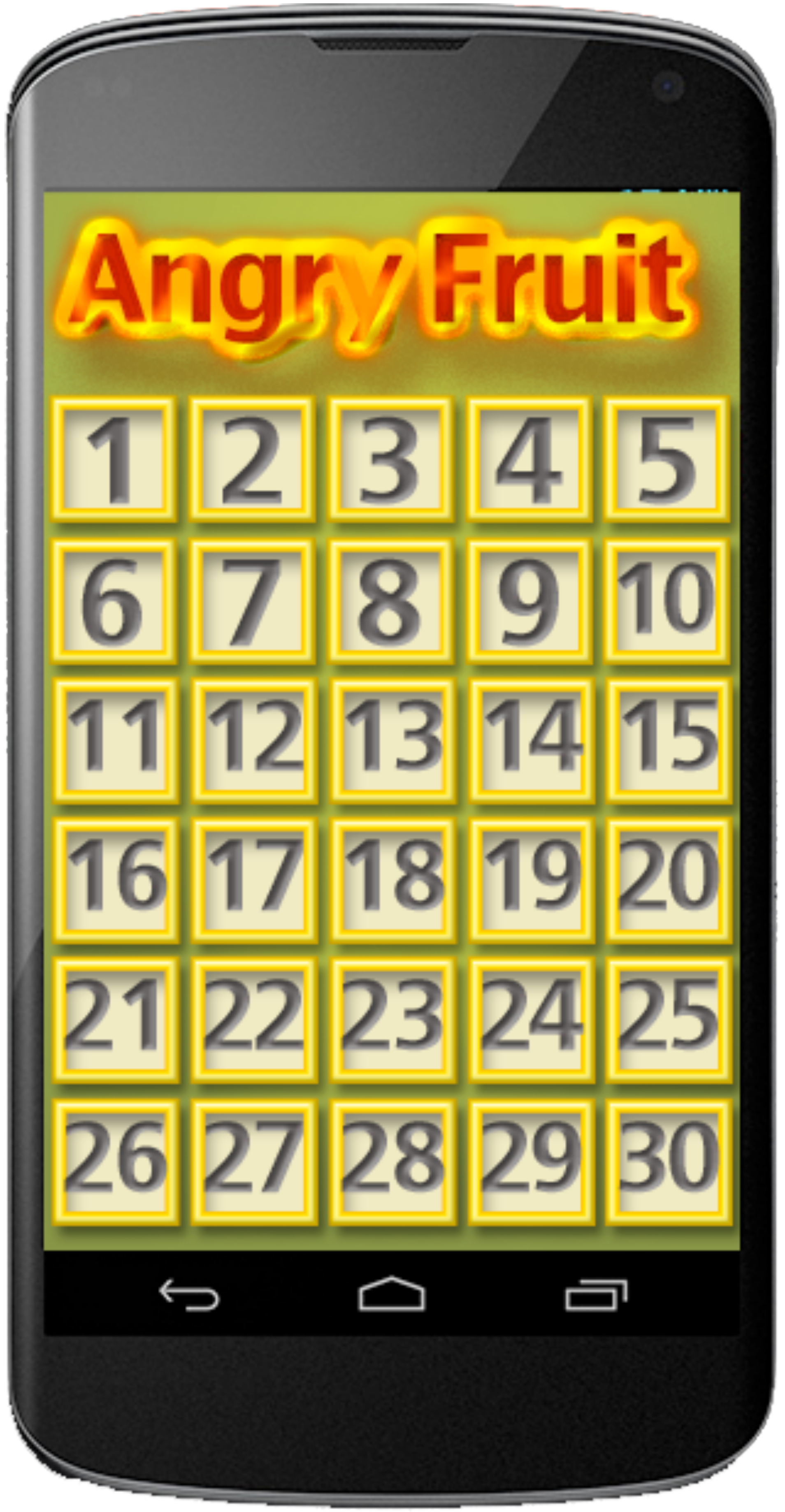
Easy

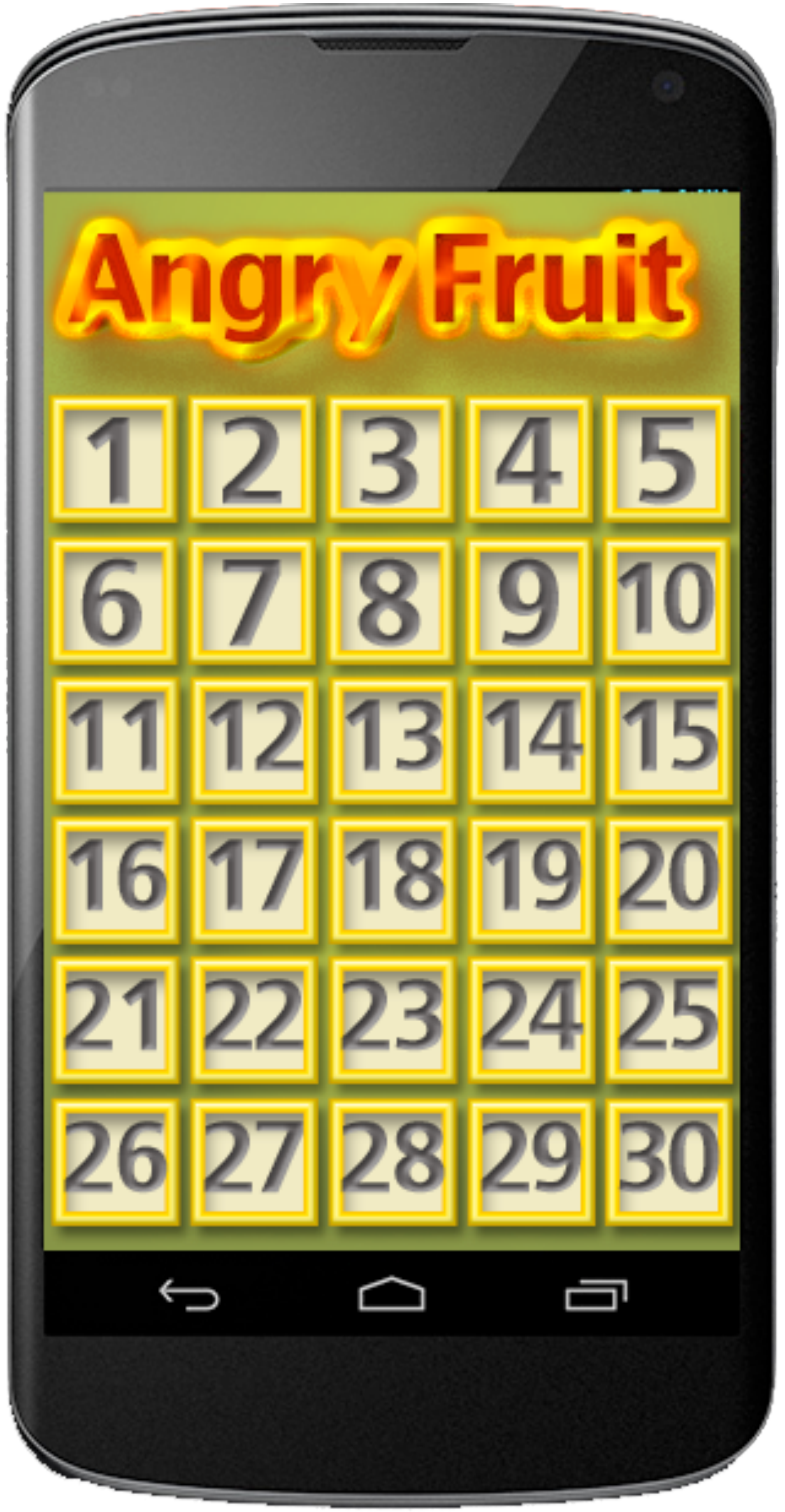
Hard

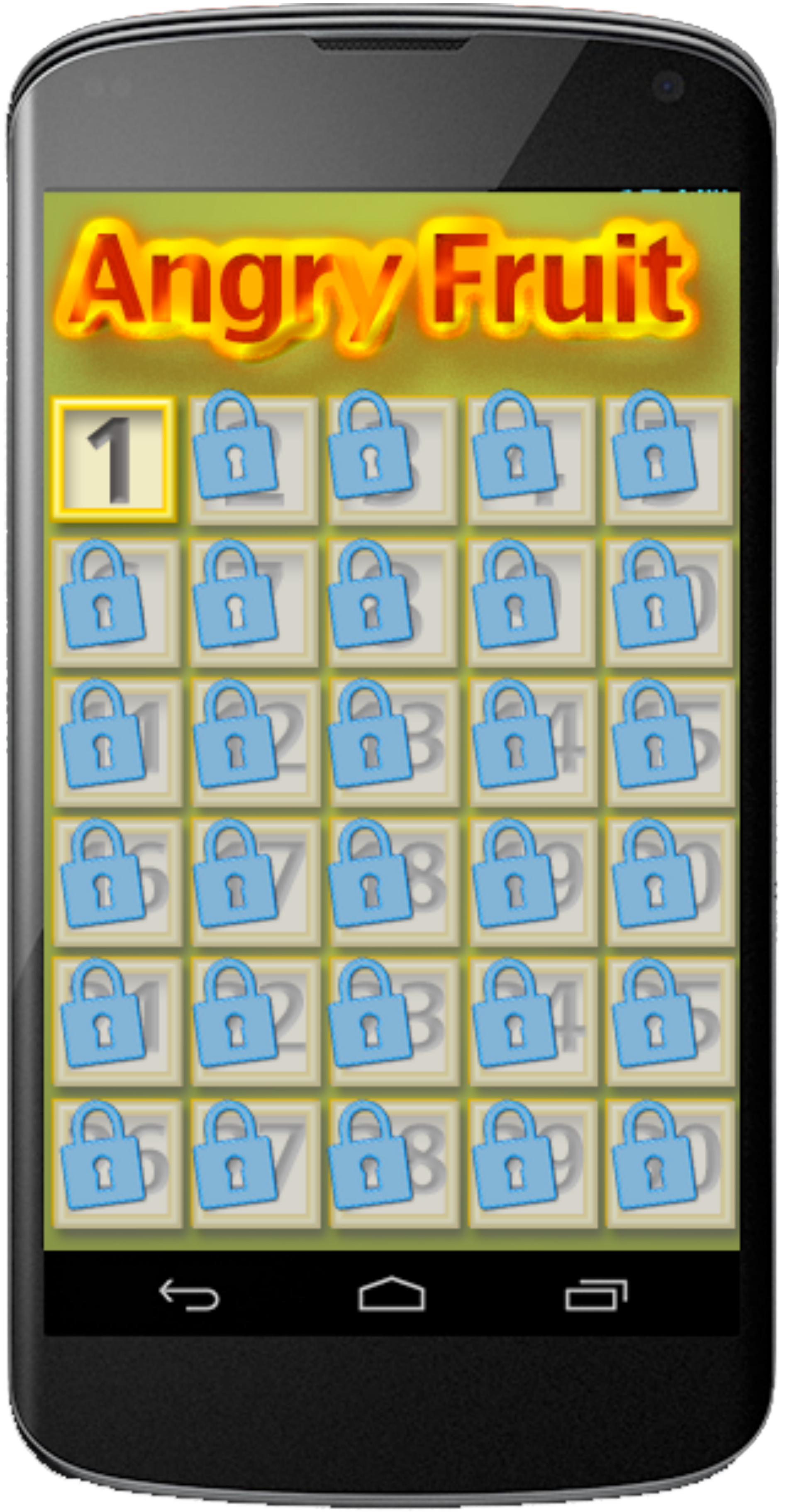
Endless Mode

```
GPGLeaderboardsController *allLeadsController =
    [[GPGLeaderboardsController alloc] init];
allLeadsController.leaderboardsDelegate = self;
[self presentModalViewController:allLeadsController
                        animated:YES];
```

Cloud Save


Angry Fruit
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30


Angry Fruit
1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30


Angry Fruit
1

Google Drive

Google Drive

App Engine

Cloud Save

Google Drive

App Engine

Cloud Save

Google Drive

App Engine

	Cloud Save	Google Drive App Engine
Cut Trees	No	Yes
Carve Ice Sculptures	No	Yes
Fight Zombies	No	Yes

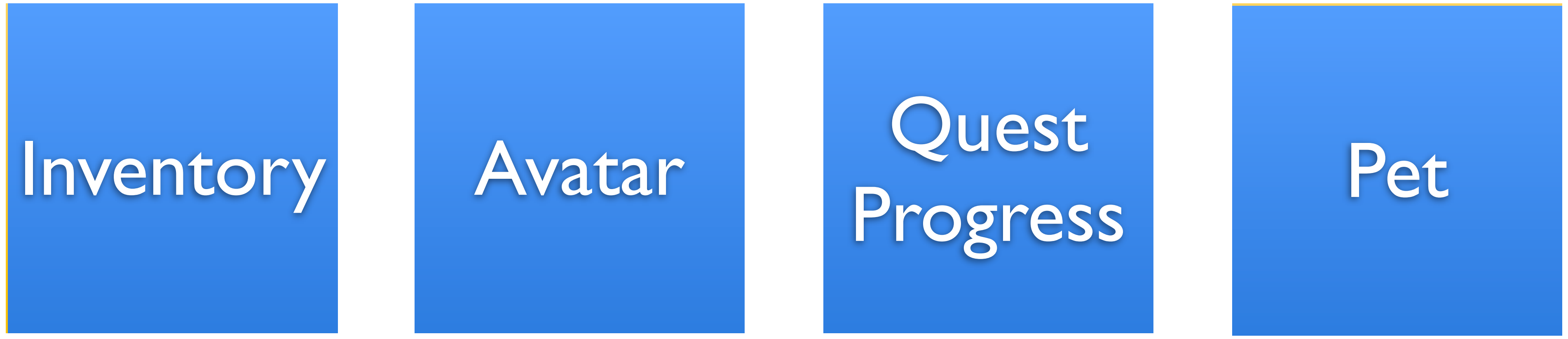
	Cloud Save	Google Drive App Engine
Cut Trees	No	Yes
Carve Ice Sculptures	No	Yes
Fight Zombies	No	Yes
Grate Cheese?	**Yes**	No

Save Game Slots

Save Game Slots

0 1 2 3

Save Game Slots



Inventory

Avatar

Quest Progress

Pet

Save Game Slots

Inventory

Avatar

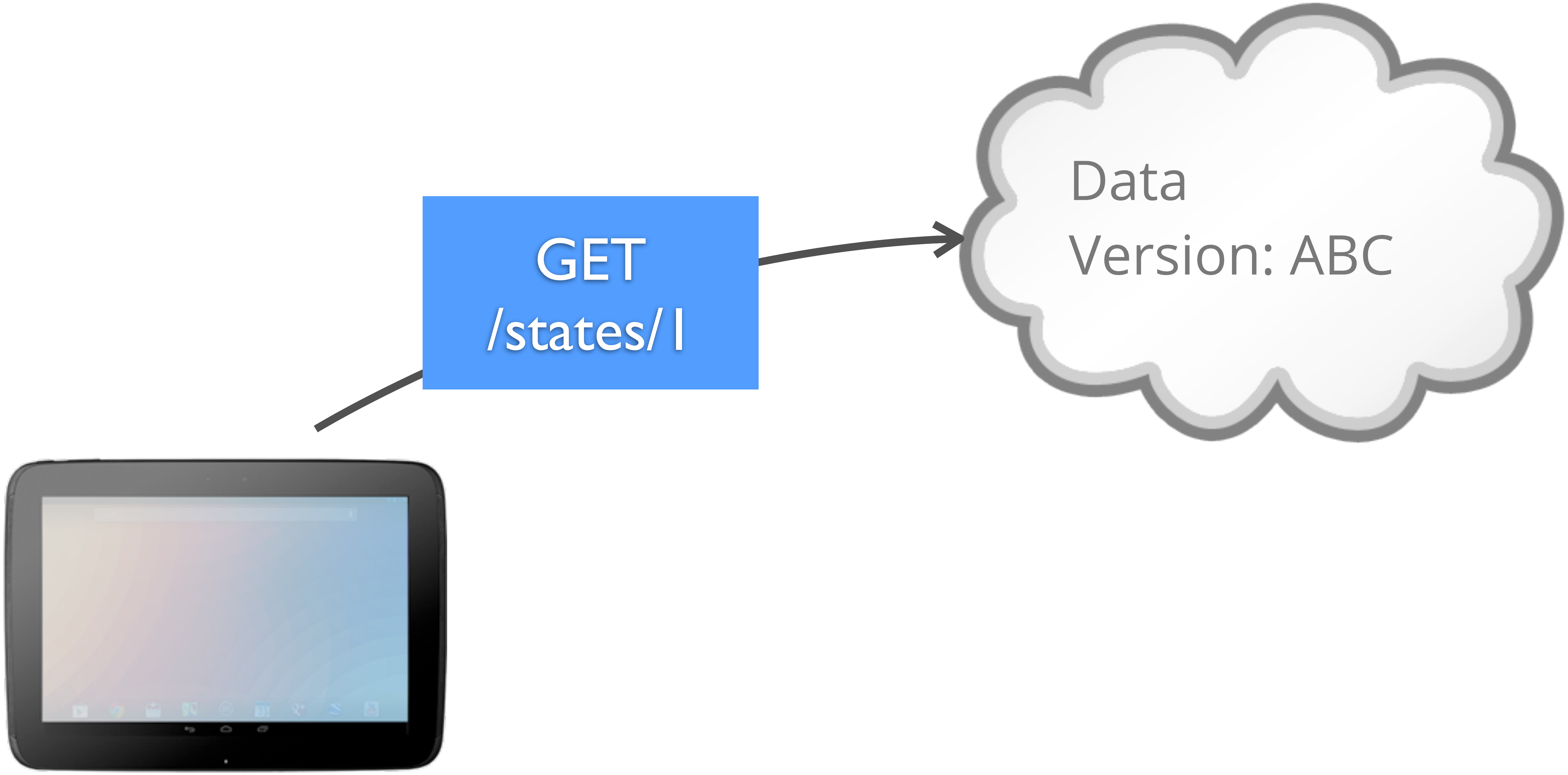
Quest Progress

Pet

Cloud Save - Get

Data
Version: ABC

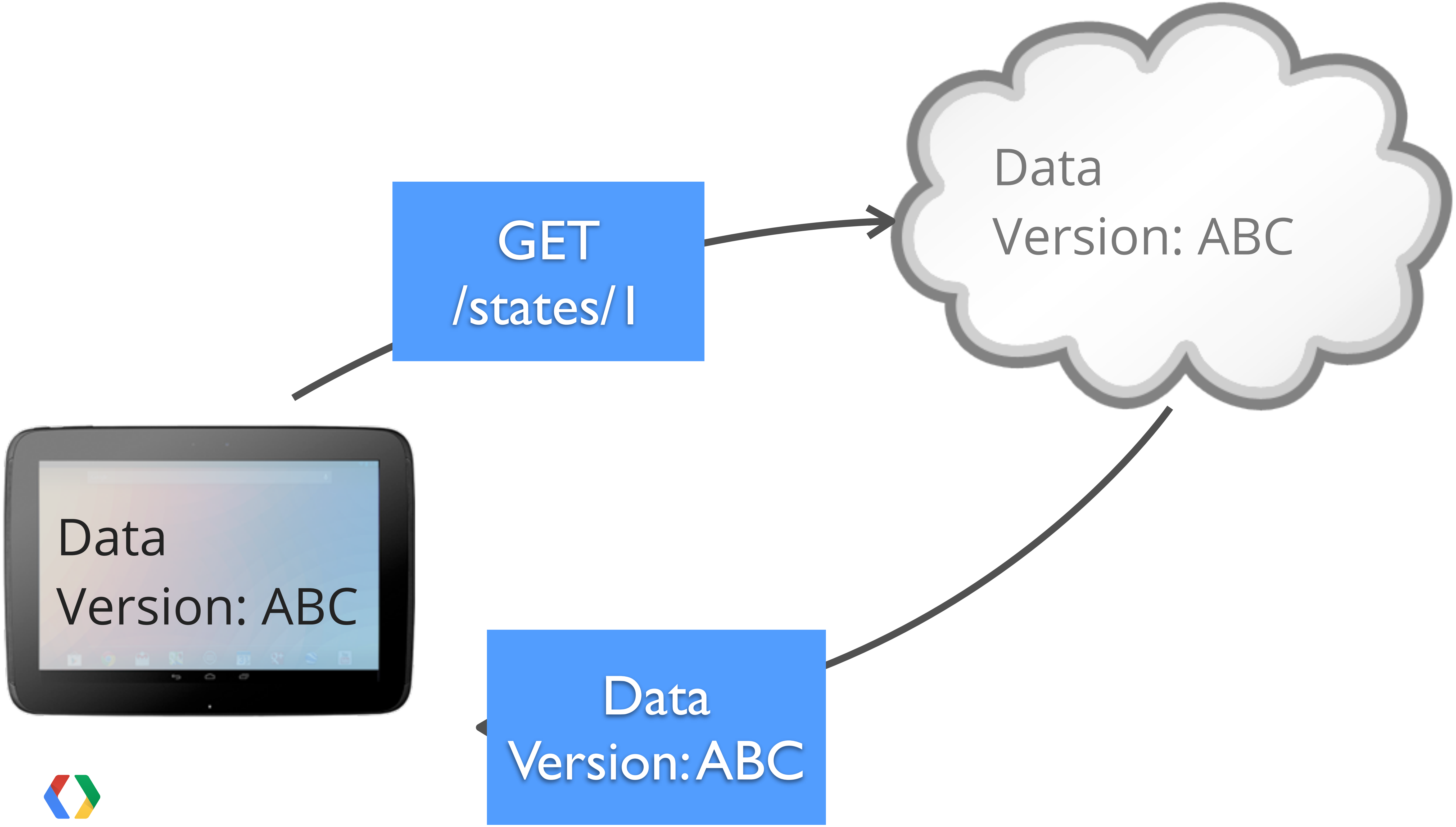
Cloud Save - Get



GET
/states/1

Data
Version: ABC

Cloud Save - Get



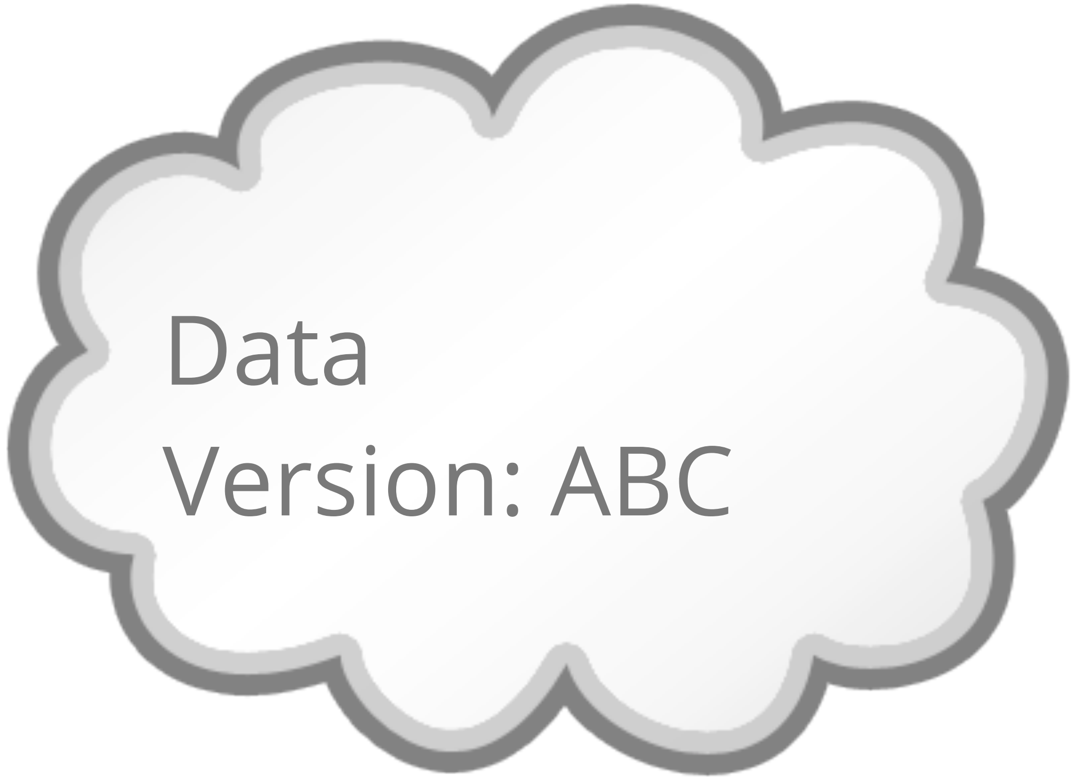
Data
Version: ABC

GET
/states/1

Data
Version: ABC

Data
Version:ABC

Cloud Save - Update



Data

Version: ABC

Data

Version: ABC

Cloud Save - Update

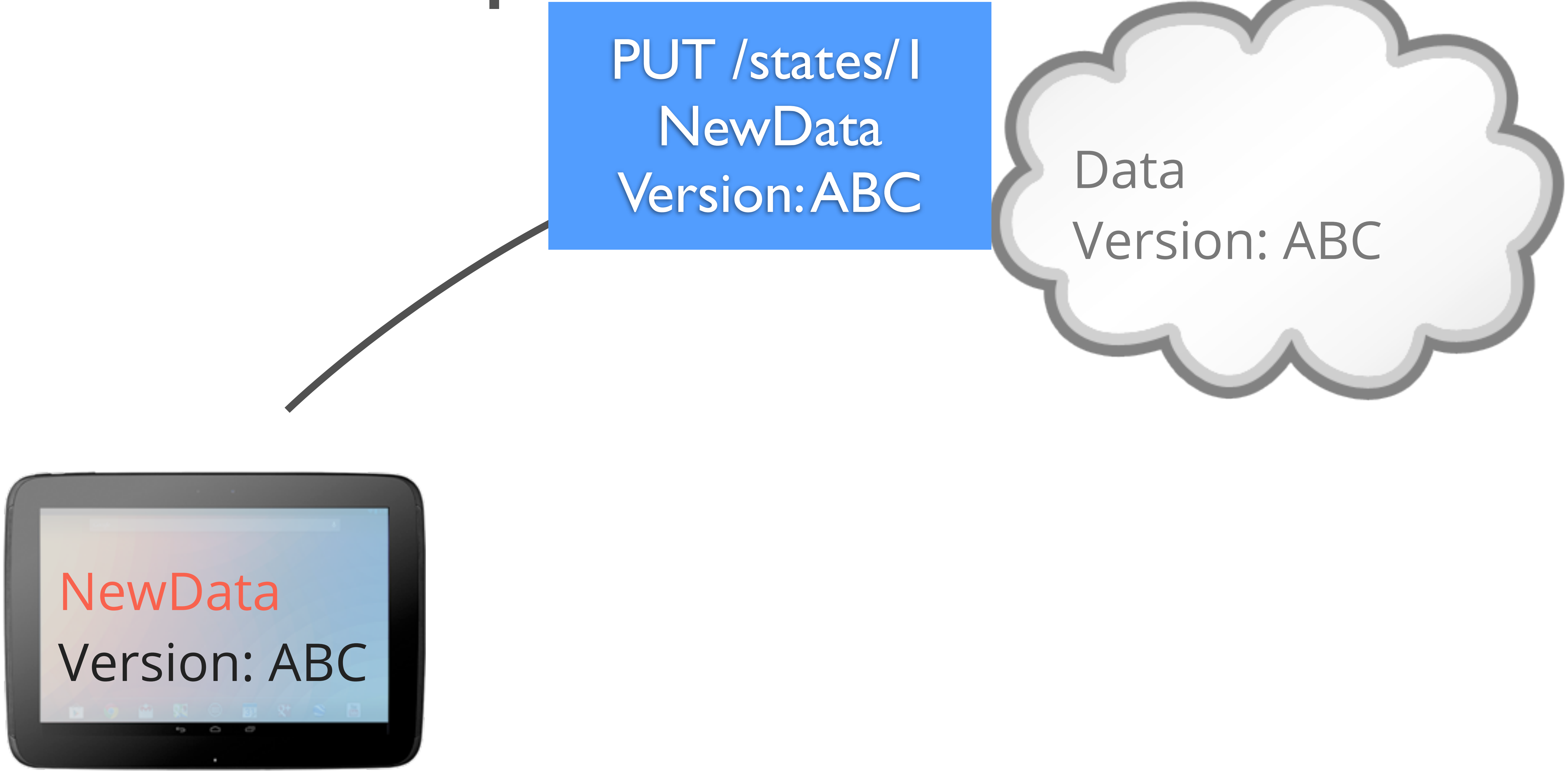
Data

Version: ABC

NewData

Version: ABC

Cloud Save - Update

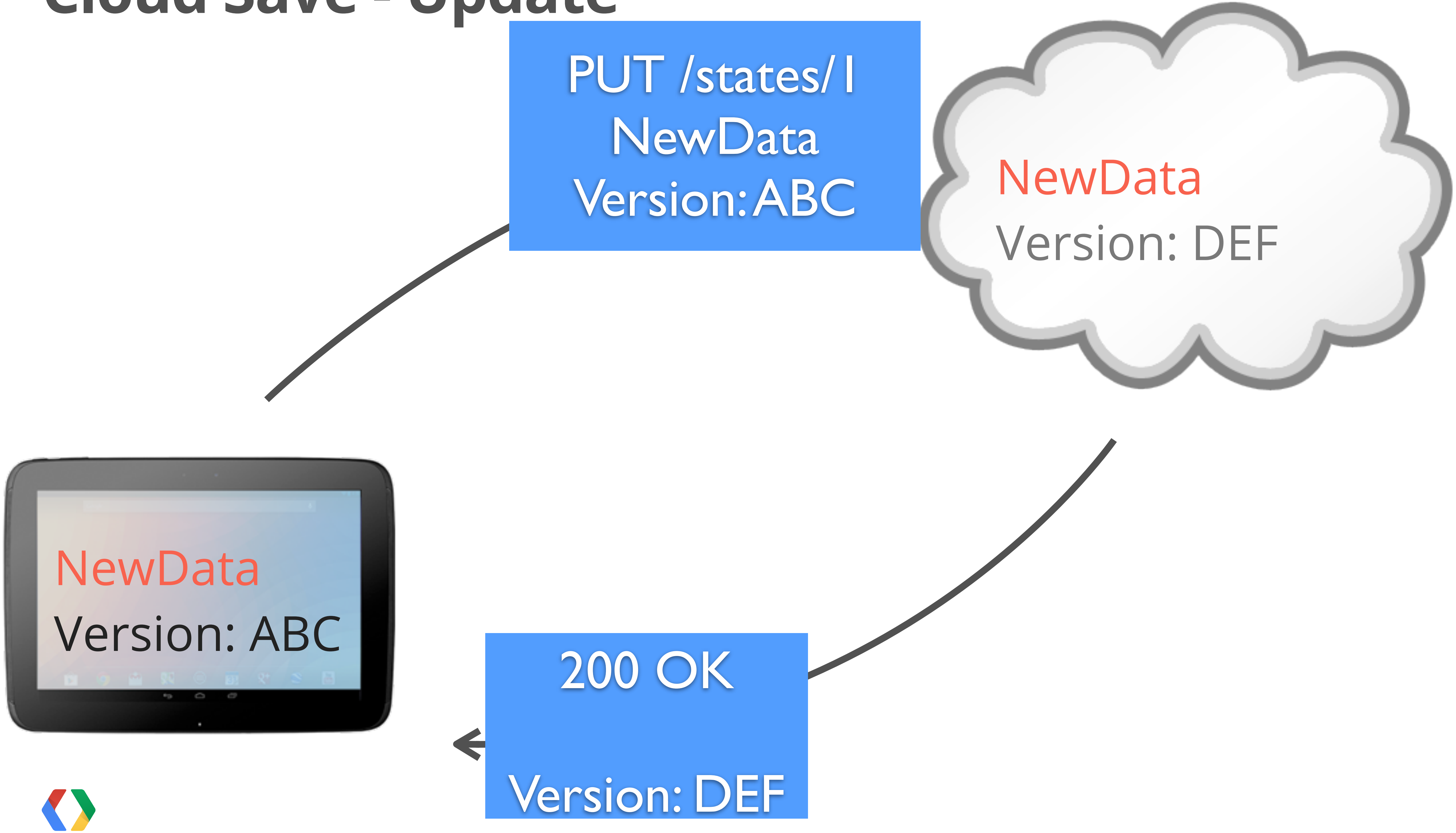


PUT /states/1
NewData
Version:ABC

Data
Version: ABC

NewData
Version: ABC

Cloud Save - Update



PUT /states/1
NewData
Version:ABC

NewData
Version: DEF

200 OK

Version: DEF

NewData
Version: ABC

Cloud Save - Conflict

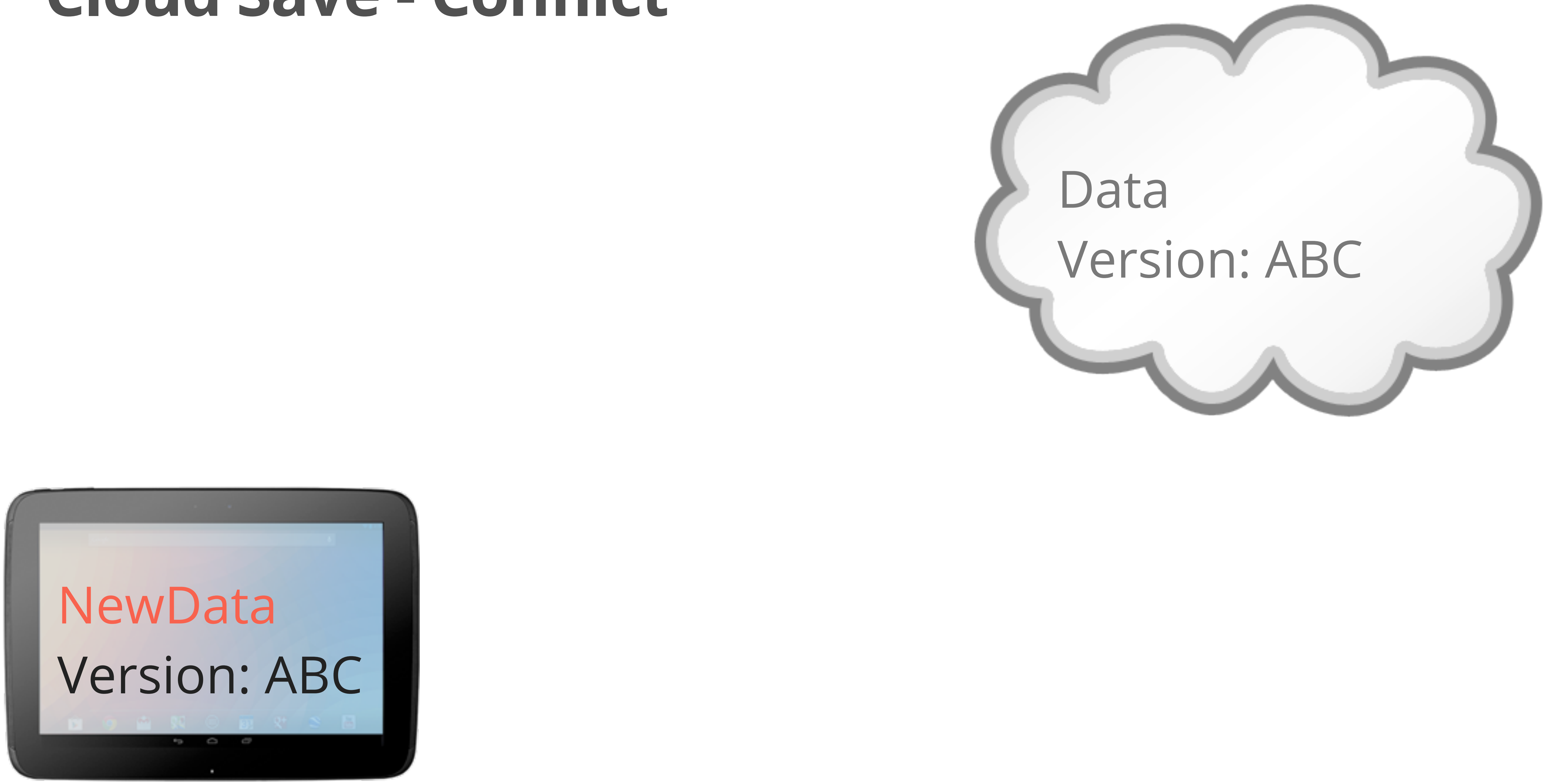
Data

Version: ABC

Data

Version: ABC

Cloud Save - Conflict



Data

Version: ABC

NewData

Version: ABC

Cloud Save - Conflict

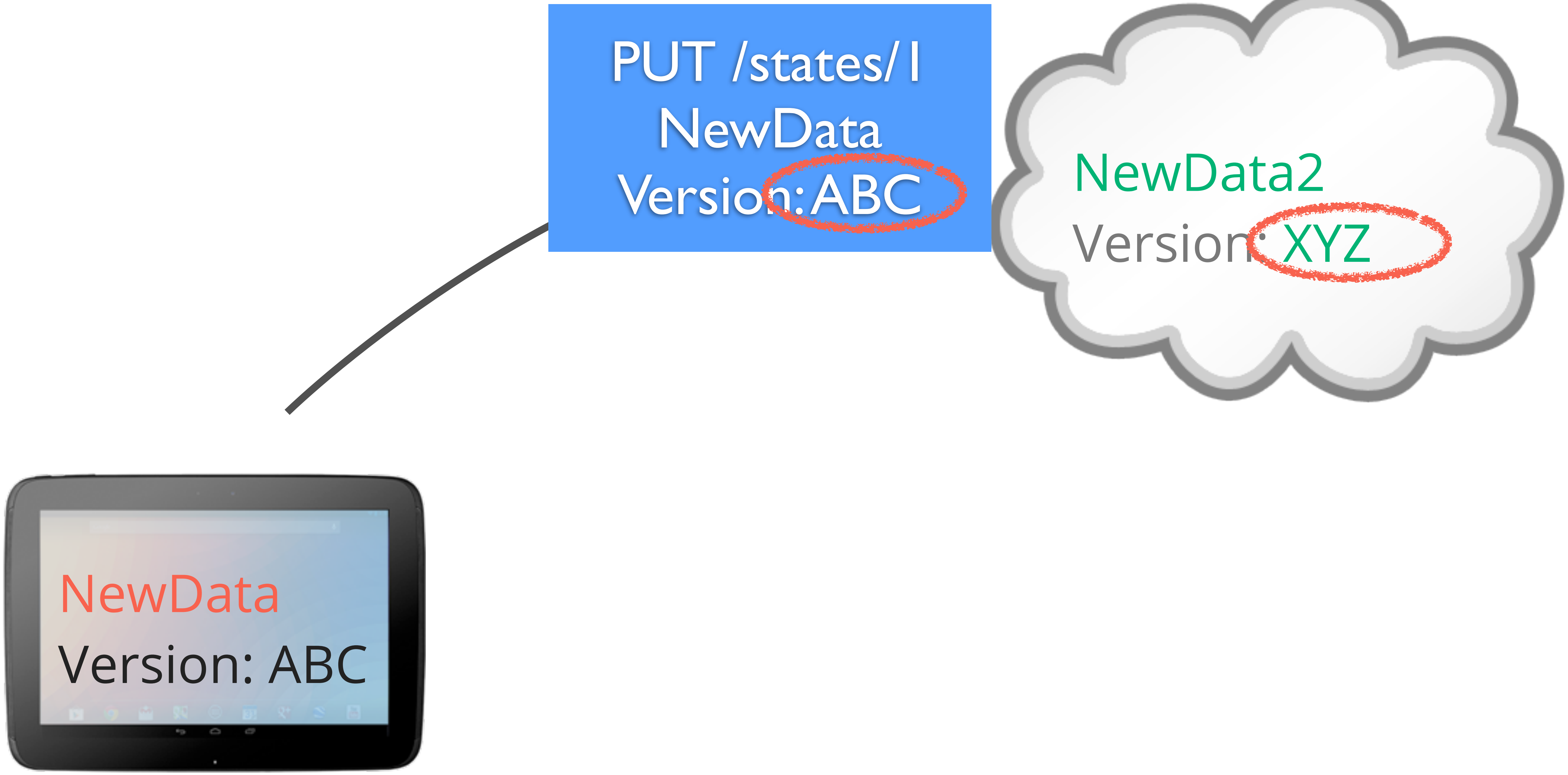
NewData2

Version: XYZ

NewData

Version: ABC

Cloud Save - Conflict



PUT /states/1

NewData

Version:ABC

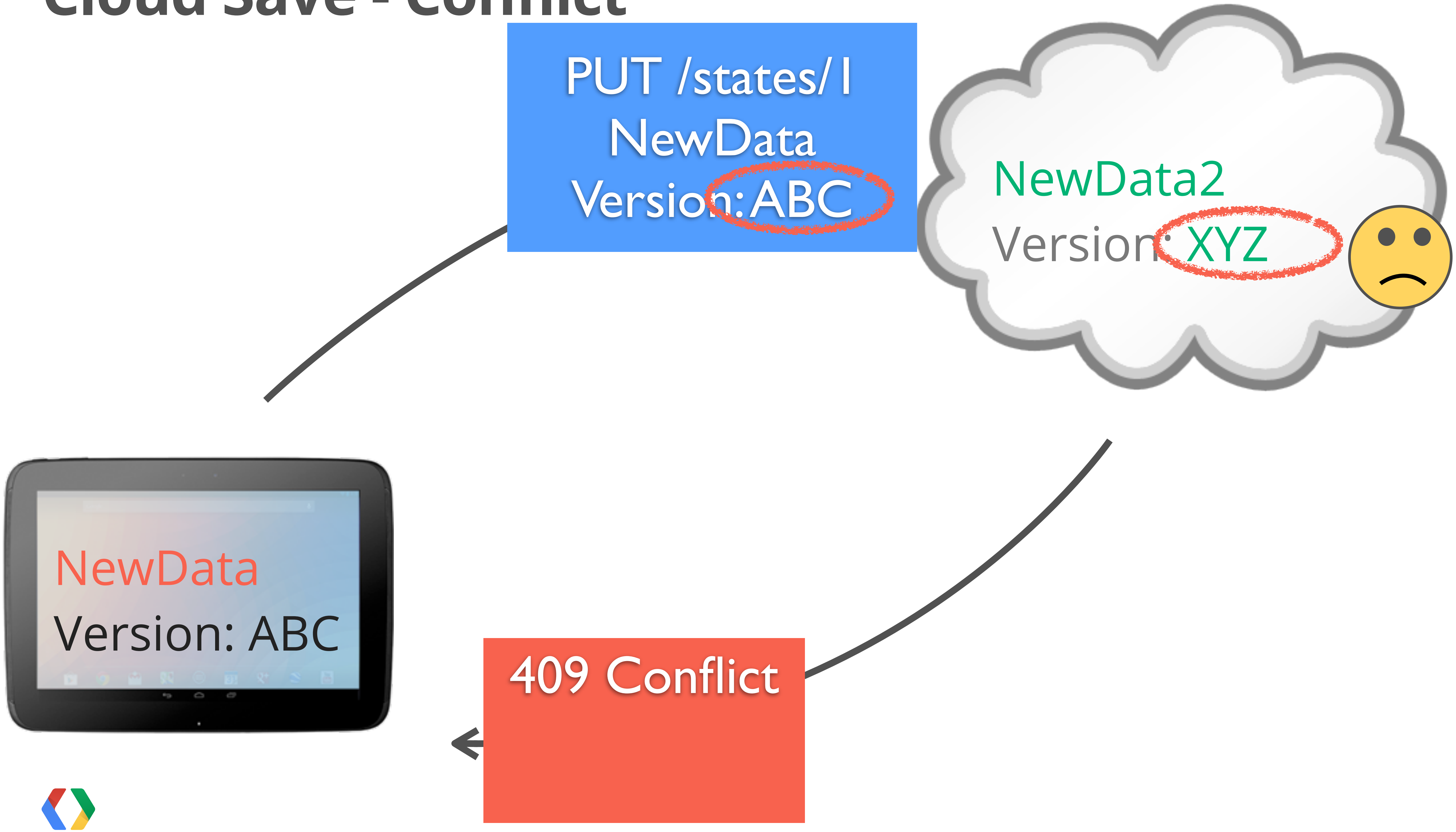
NewData2

Version: XYZ

NewData

Version: ABC

Cloud Save - Conflict



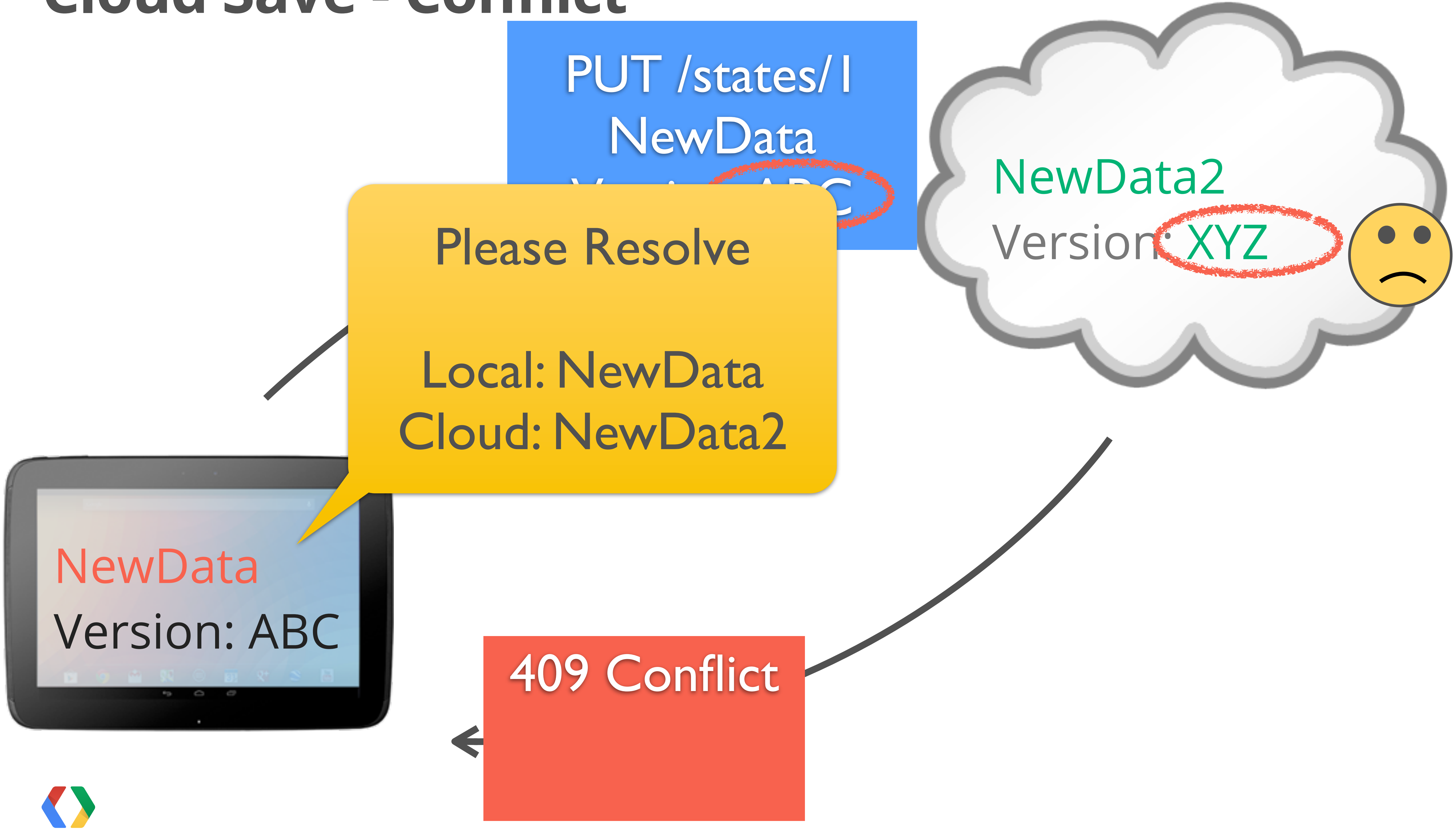
PUT /states/1
NewData
Version:ABC

NewData2
Version: XYZ

NewData
Version: ABC

409 Conflict

Cloud Save - Conflict



PUT /states/1

NewData

Version: ABC

NewData2

Version: XYZ

Please Resolve

Local: NewData

Cloud: NewData2

NewData

Version: ABC

409 Conflict

Cloud Save - Android

AppStateClient - works just like GamesClient!

Cloud Save - Android

AppStateClient - works just like GamesClient!

Java

```
mAppStateClient = new AppStateClient.Builder(
                this /* context */,
                this /* onConnectedListener */,
                this /* onConnectionFailedListener */)
                .create();
```

Cloud Save - Android

AppStateClient - works just like GamesClient!

Java

```
mAppStateClient = new AppStateClient.Builder(
                this /* context */,
                this /* onConnectedListener */,
                this /* onConnectionFailedListener */)
                .create();
```

- Same lifecycle pattern for Activities and Fragments:

- onCreate() - construct client
- onStart() - connect it
- onConnected() - do work
- onStop() - disconnect it

Cloud Save - Android

Once you're connected...

Load

```
loadState(OnStateLoadedListener listener, int key)
```

Java

Cloud Save - Android

Once you're connected...

Load

```java
loadState(OnStateLoadedListener listener, int key)
```

Java

List

```java
listStates(OnStateListLoadedListener listener)
```

Java

Cloud Save - Android

Once you're connected...

Load

```
loadState(OnStateLoadedListener listener, int key)
```

Java

List

```
listStates(OnStateListLoadedListener listener)
```

Java

Update

```
updateStateImmediate(OnStateLoadedListener listener, int stateKey, byte[] data)

// or fire-and-forget...
updateState(int stateKey, byte[] data)
```

Java

Cloud Save - Android

Handling Conflicts

Listen for result

Java

```
interface OnStateLoadedListener {
    onStateLoaded(int statusCode, int stateKey,
            byte[] localData); // Everything's OK!

    onStateConflict(int stateKey, String resolvedVersion,
            byte[] localData, byte[] serverData); // Uh-oh!
}
```

Cloud Save - Android

Handling Conflicts

Listen for result

Java

```
interface OnStateLoadedListener {
    onStateLoaded(int statusCode, int stateKey,
            byte[] localData); // Everything's OK!

    onStateConflict(int stateKey, String resolvedVersion,
            byte[] localData, byte[] serverData); // Uh-oh!
}
```

Cloud Save - Android

Handling Conflicts

Listen for result

Java

```java
interface OnStateLoadedListener {
    onStateLoaded(int statusCode, int stateKey,
            byte[] localData); // Everything's OK!

    onStateConflict(int stateKey, String resolvedVersion,
            byte[] localData, byte[] serverData); // Uh-oh!
}
```

Cloud Save - Android

Handling Conflicts

Listen for result

Java

```
interface OnStateLoadedListener {
    onStateLoaded(int statusCode, int stateKey,
            byte[] localData); // Everything's OK!

    onStateConflict(int stateKey, String resolvedVersion,
            byte[] localData, byte[] serverData); // Uh-oh!
}
```

Resolve

Java

```
mGamesClient.resolveState(OnStateLoadedListener listener, int stateKey,
        String resolvedVersion, byte[] resolvedData)
```

Cloud Save - iOS

Reference your model

Obj-C

```
GPGAppStateModel *model =
   [GPGManager sharedInstance].applicationModel.appState;
```

Cloud Save - iOS

Call loadForKey:completionHandler:conflictHandler

Obj-C

```
GPGAppStateModel *model =
   [GPGManager sharedInstance].applicationModel.appState;

[model loadForKey:kAFLevelProgress
  completionHandler:^(GPGAppStateLoadStatus status, NSError *error) {
    if (status == GPGAppStateLoadStatusNotFound) {
      // StatusNotFound = "Brand new player!"
      [self startNewGame];
    } else if (status == GPGAppStateLoadStatusSuccess) {
      [self loadLevelProgress:[model stateDataForKey:kAFLevelProgress]];
    }
 }
```

Cloud Save - iOS

Call loadForKey:completionHandler:conflictHandler

Obj-C

```
GPGAppStateModel *model =
   [GPGManager sharedInstance].applicationModel.appState;

[model loadForKey:kAFLevelProgress
  completionHandler:^(GPGAppStateLoadStatus status, NSError *error) {
    if (status == GPGAppStateLoadStatusNotFound) {
      // StatusNotFound = "Brand new player!”
      [self startNewGame];
    } else if (status == GPGAppStateLoadStatusSuccess) {
      [self loadLevelProgress:[model stateDataForKey:kAFLevelProgress]];
    }
  } conflictHandler:^NSData *(NSNumber *key, NSData *existingState, NSData  *newState) {
    // More like a "Heads up” handler
    return newState;
  }
];
```

Cloud Save - iOS

Call updateForKey:completionHandler:conflictHandler

Obj-C

```
GPGAppStateModel *model =
   [GPGManager sharedInstance].applicationModel.appState;

[model updateForKey:[NSNumber numberWithInt:kAFLevelProgress]
  completionHandler:^(GPGAppStateWriteStatus status, NSError *error) {
    if (status == GPGAppStateWriteStatusSuccess) {
      NSLog(@”Hooray! Cloud update is complete”);
      // Refresh just in case data changed
      [self loadLevelProgress:[model stateDataForKey:kAFLevelProgress]]
    }
  }
```

Cloud Save - iOS

Call updateForKey:completionHandler:conflictHandler

Obj-C

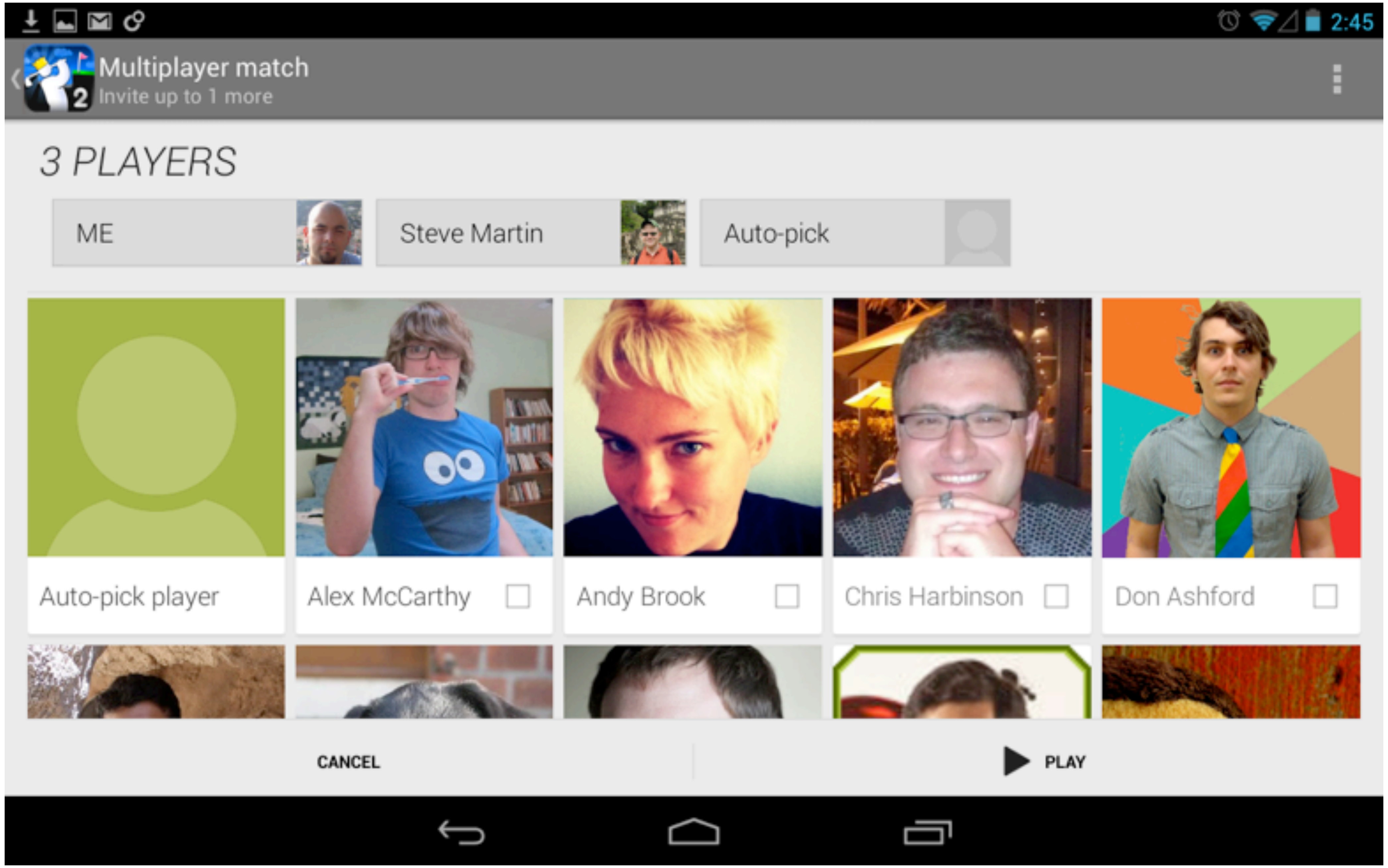
```
GPGAppStateModel *model =
   [GPGManager sharedInstance].applicationModel.appState;

[model updateForKey:[NSNumber numberWithInt:kAFLevelProgress]
  completionHandler:^(GPGAppStateWriteStatus status, NSError *error) {
    if (status == GPGAppStateWriteStatusSuccess) {
      NSLog(@”Hooray! Cloud update is complete”);
      // Refresh just in case data changed
      [self loadLevelProgress:[model stateDataForKey:kAFLevelProgress]]
    }
  } conflictHandler:^NSData *(NSNumber *key, NSData *localState, NSData *serverState) {
    // Resolve these two states in a way that makes sense for you game
    NSData *resolvedData = [self resolveLocal:localState andServer:serverState];
    return resolvedData;
  }
];
```

Real-time Multiplayer

7/8

8/8
0:07
1/1

Creating a Real-Time Multiplayer Match



Multiplayer match
Invite up to 1 more

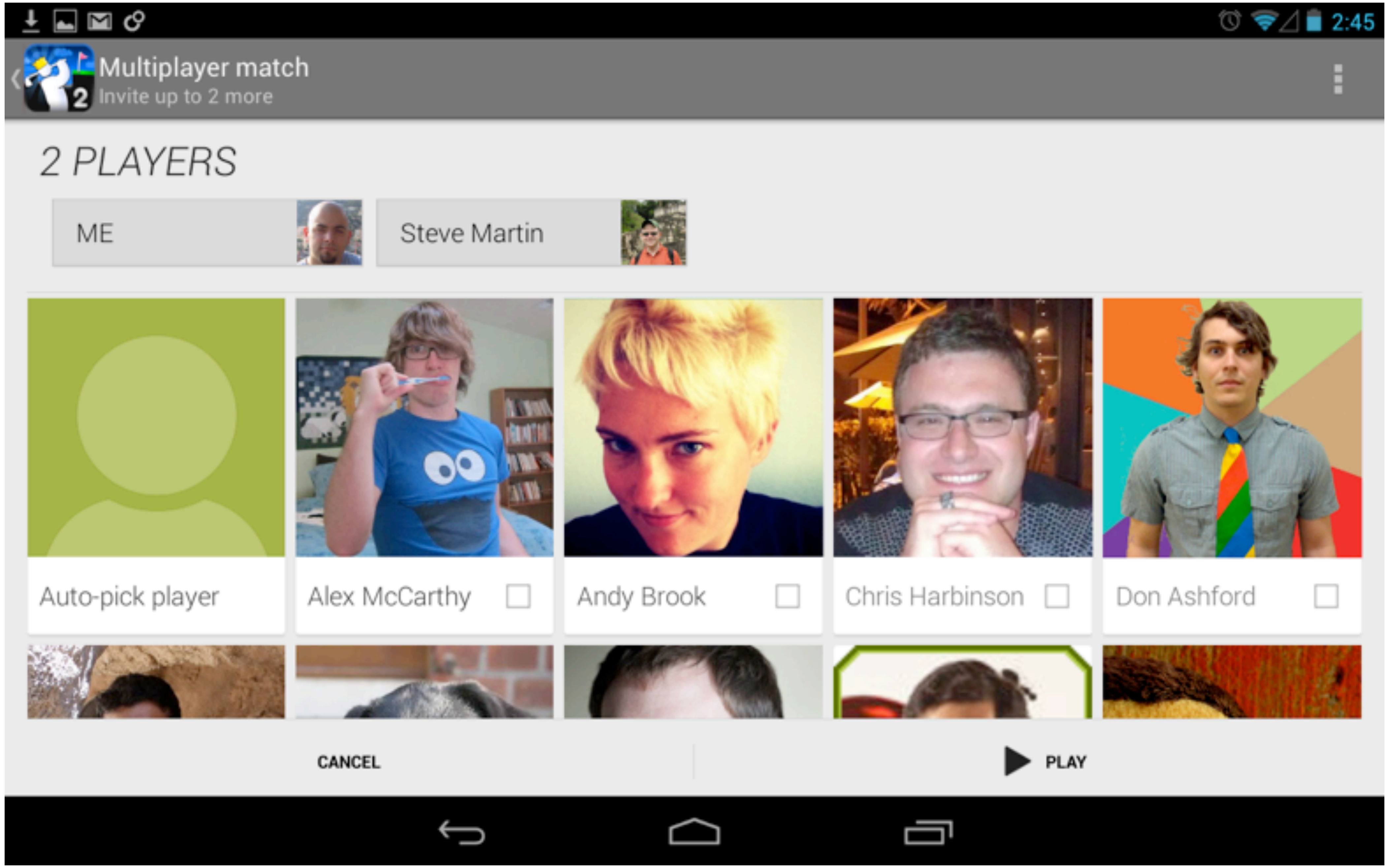
3 PLAYERS

ME	Steve Martin	Auto-pick

Auto-pick player
Alex McCarthy □
Andy Brook □
Chris Harbinson □
Don Ashford □

Discovering Games via Real-Time Multiplayer

Discovering Games via Real-Time Multiplayer



Multiplayer match

Invite up to 2 more

2 PLAYERS

ME

Steve Martin

Auto-pick player

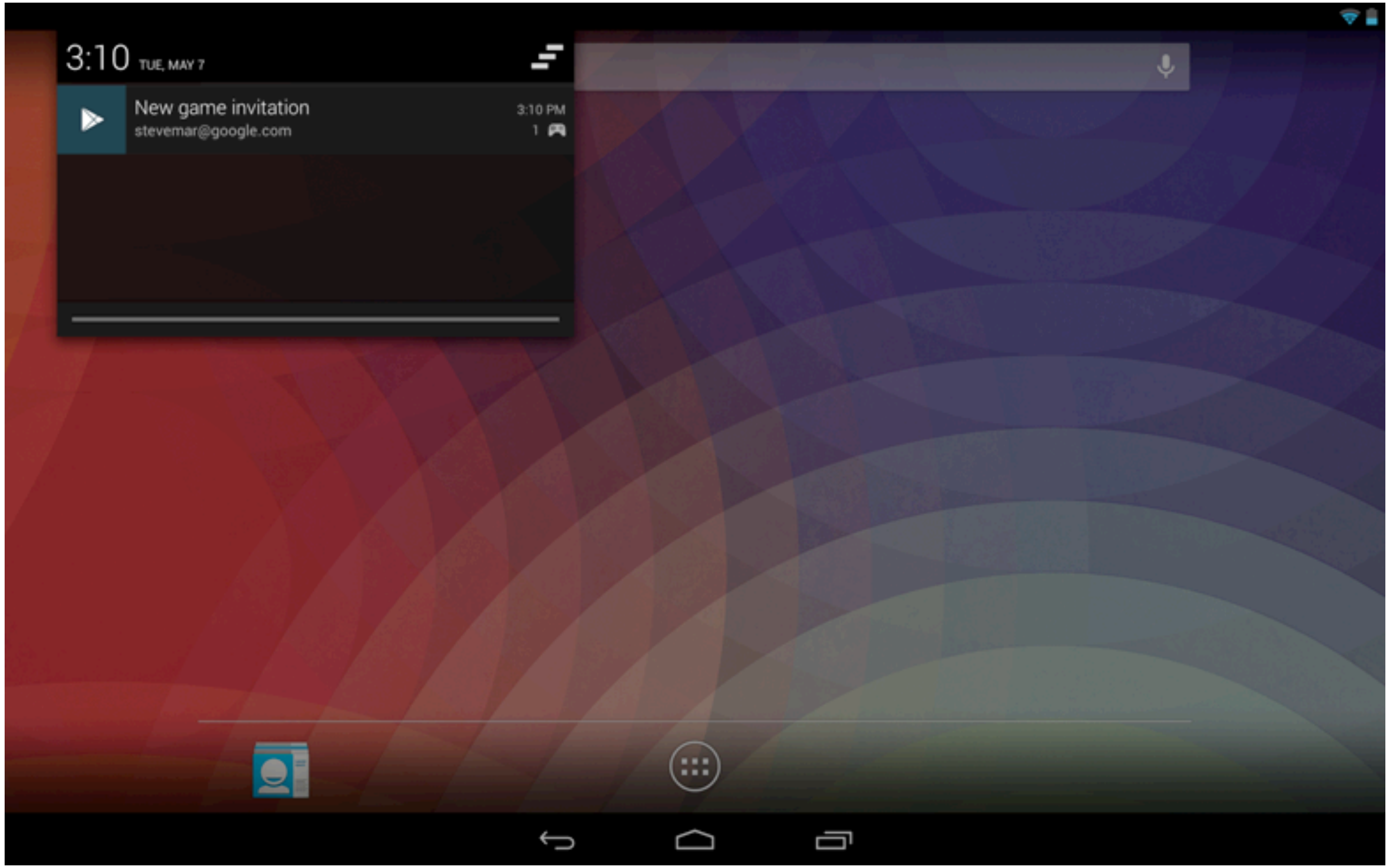
Alex McCarthy □

Andy Brook □

Chris Harbinson □

Don Ashford □

Discovering Games via Real-Time Multiplayer

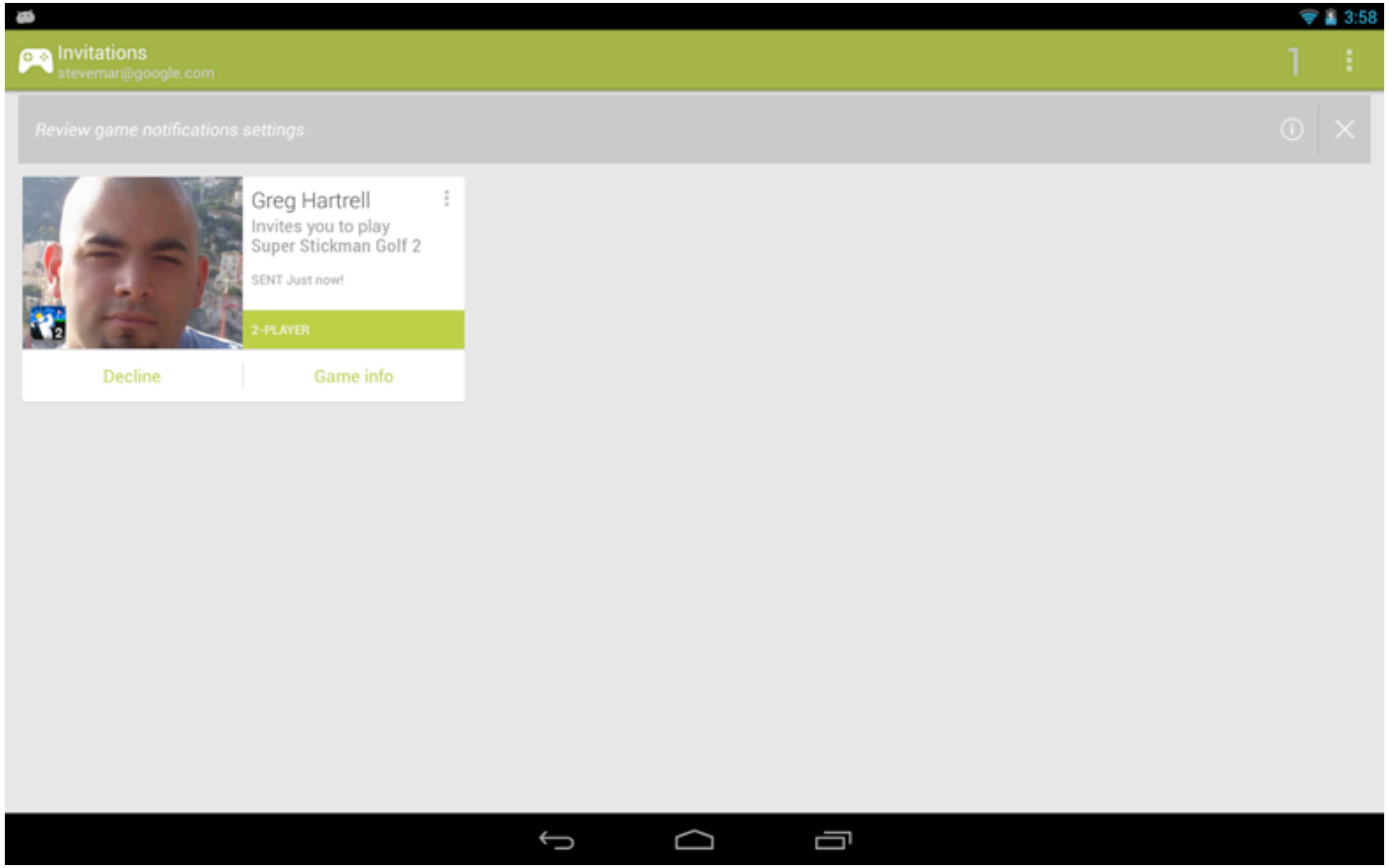


3:10 TUE, MAY 7

New game invitation
stevemar@google.com

3:10 PM
1

Discovering Games via Real-Time Multiplayer



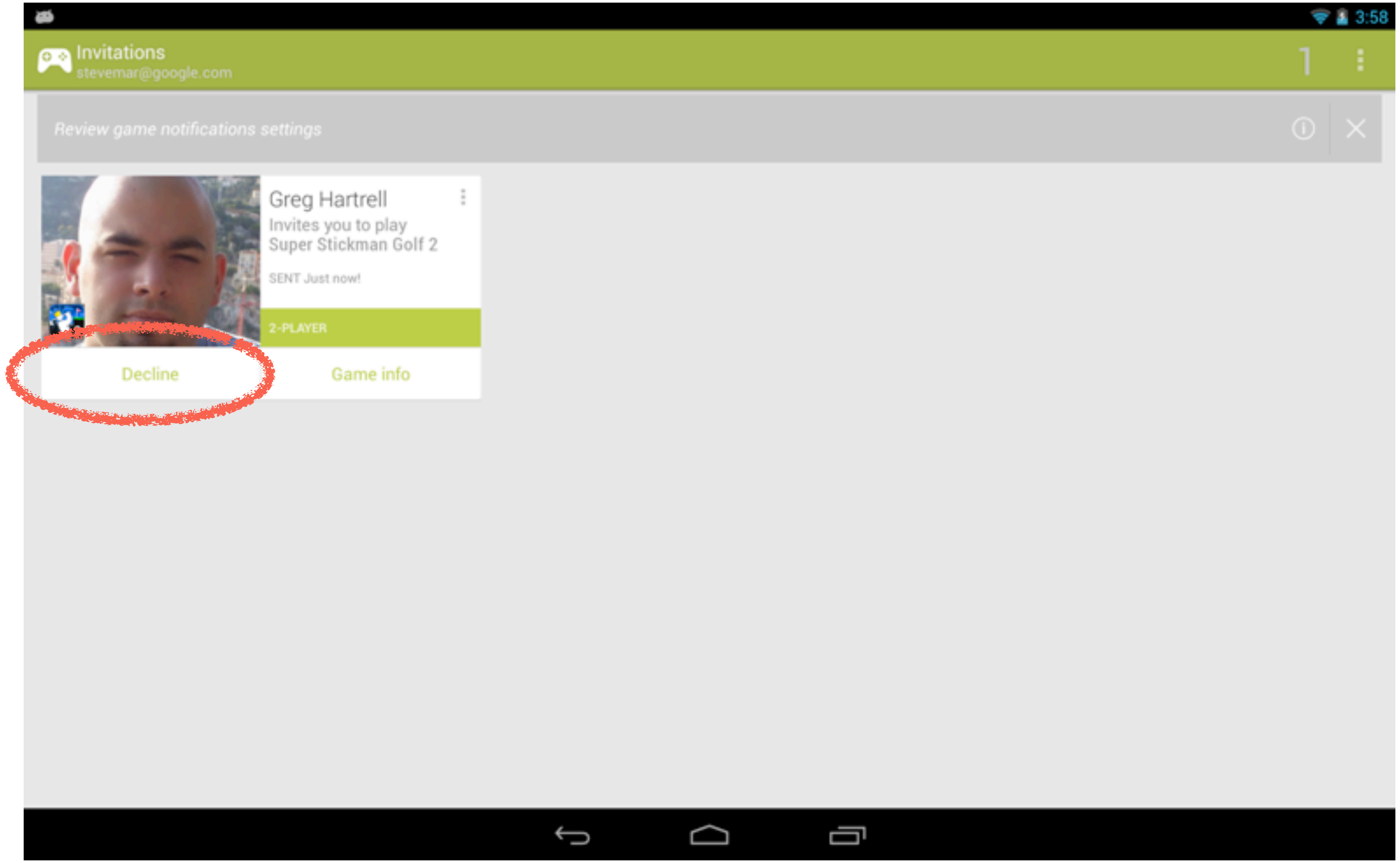
Invitations
stevemar@google.com

Review game notifications settings

Greg Hartrell
Invites you to play
Super Stickman Golf 2

SENT Just now!

Discovering Games via Real-Time Multiplayer



3:58

Invitations
stevemar@google.com

1

Review game notifications settings

Greg Hartrell
Invites you to play
Super Stickman Golf 2

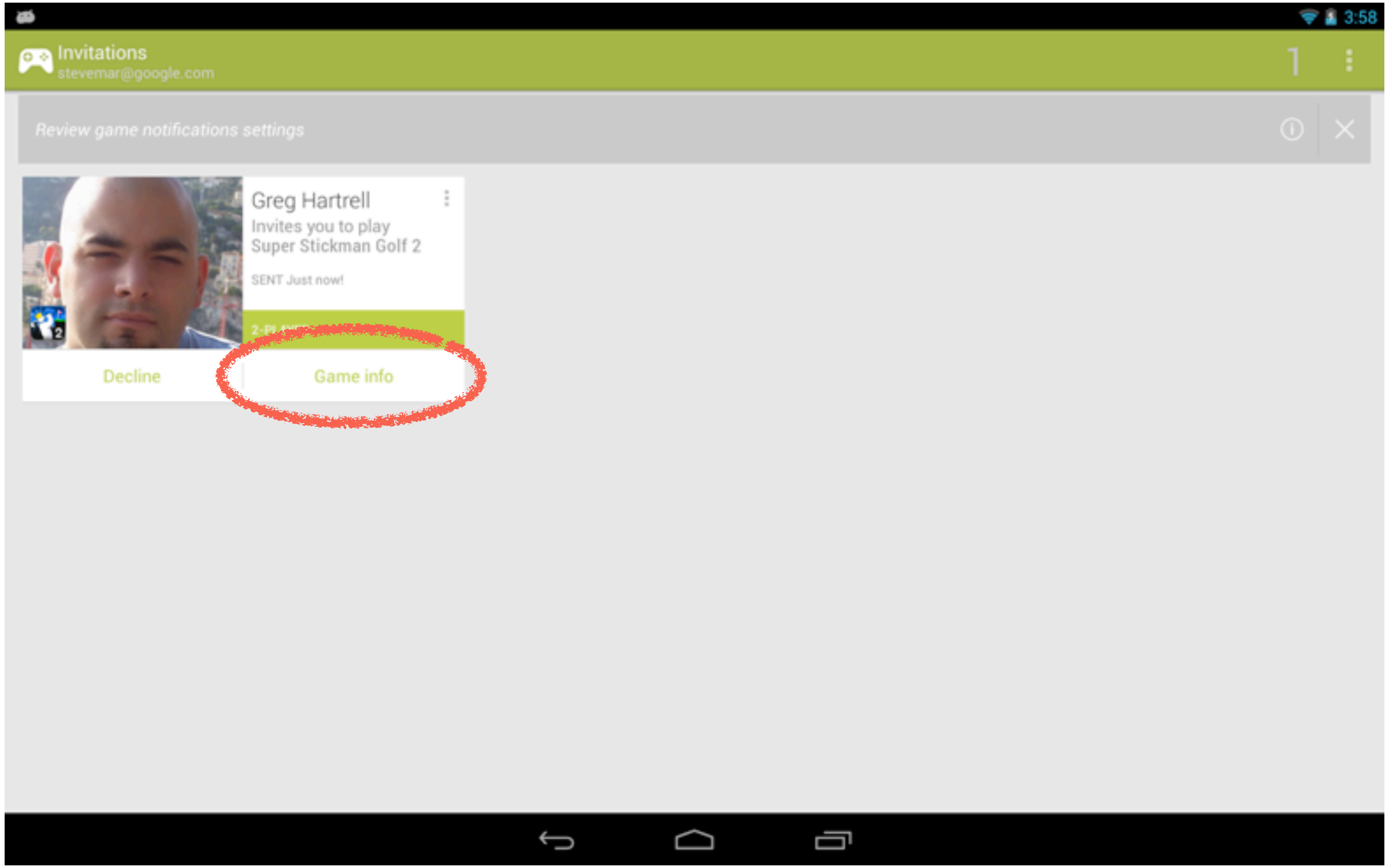
SENT Just now!

2-PLAYER

Decline

Game info

Discovering Games via Real-Time Multiplayer



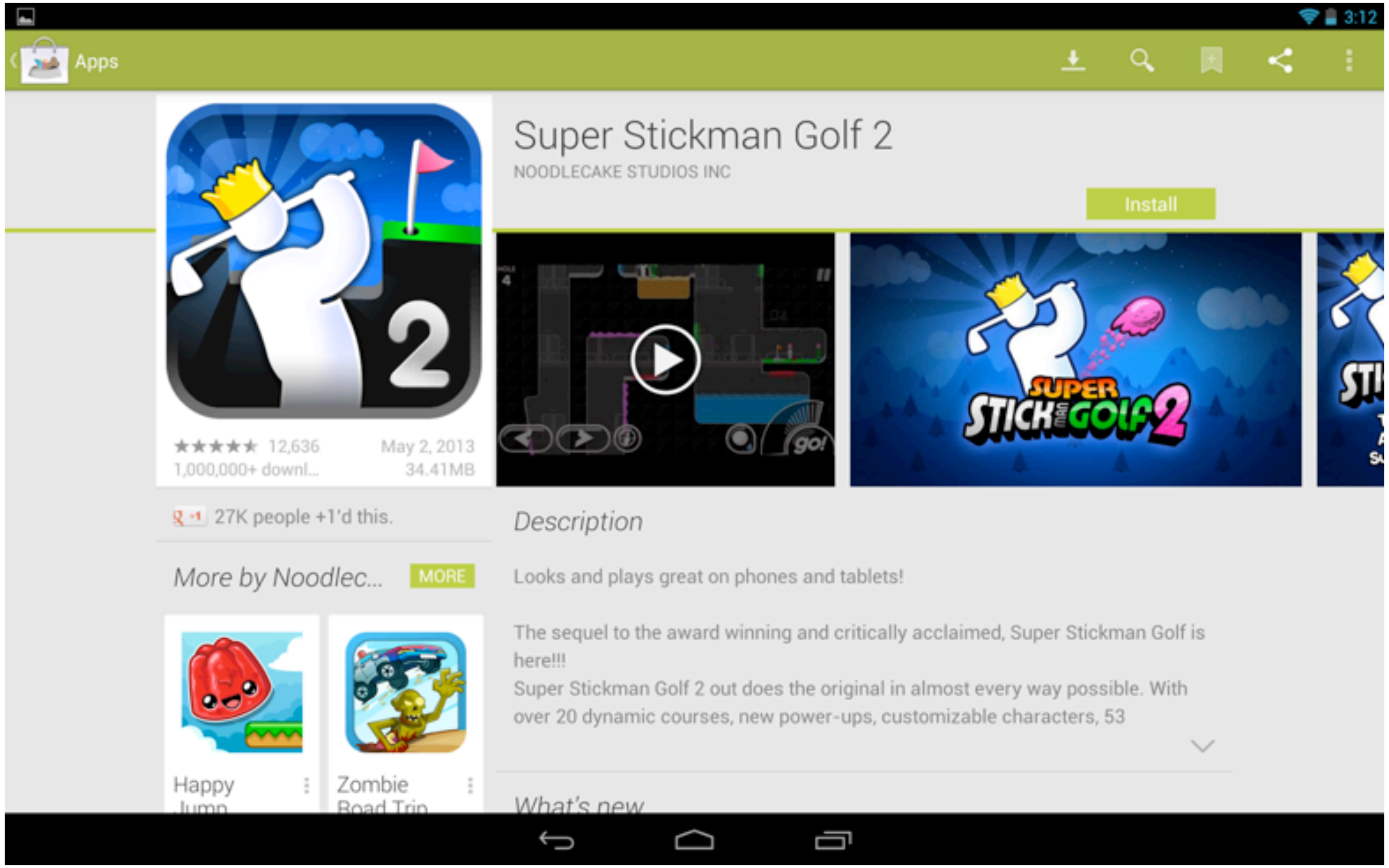
Invitations
stevemar@google.com

Review game notifications settings

Greg Hartrell
Invites you to play
Super Stickman Golf 2

SENT Just now!

Discovering Games via Real-Time Multiplayer



Super Stickman Golf 2

NOODLECAKE STUDIOS INC

★★★★★ 12,636 May 2, 2013
1,000,000+ downl... 34.41MB

27K people +1'd this.

More by Noodlec...

Happy Jump

Zombie Road Trip

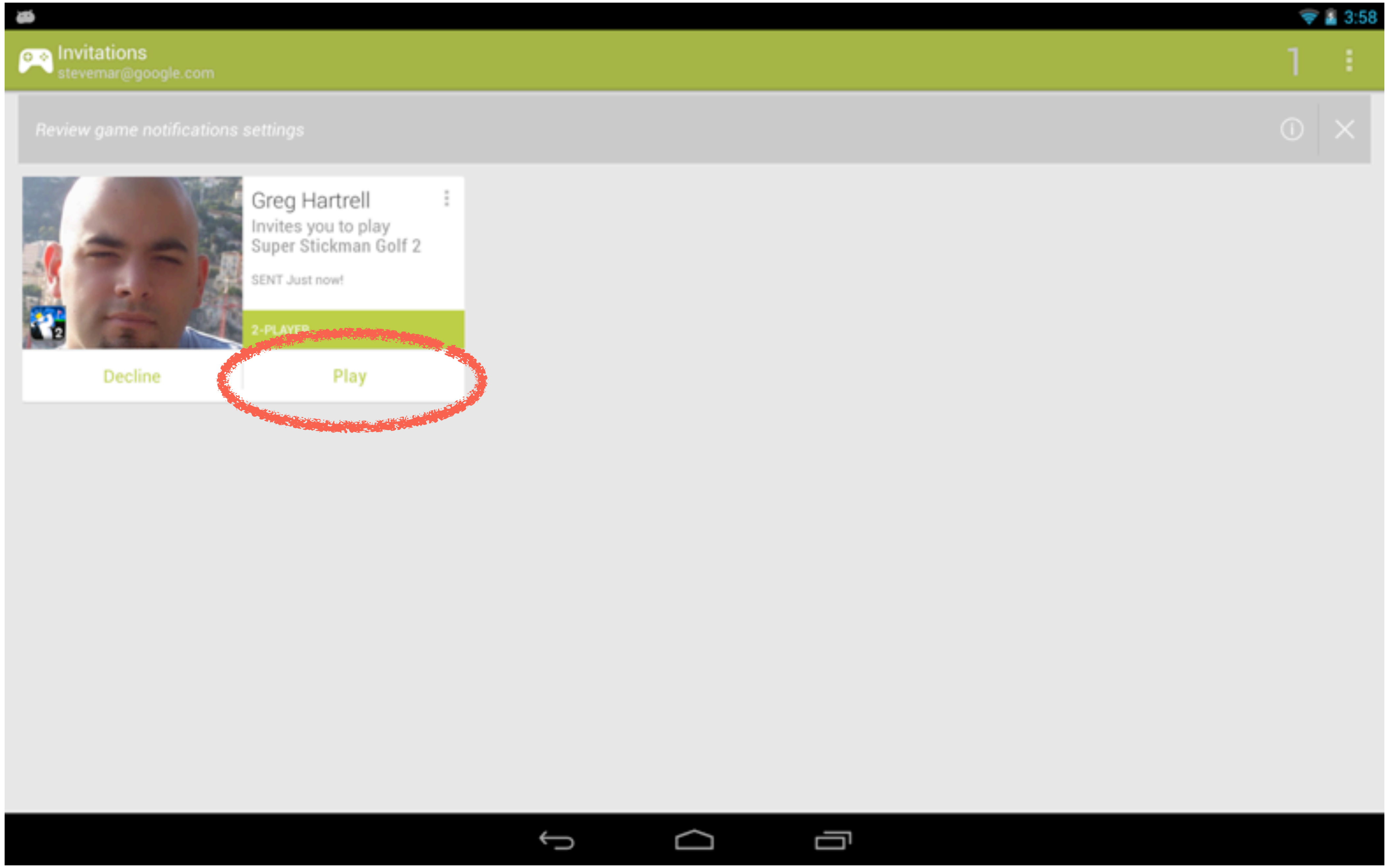
Description

Looks and plays great on phones and tablets!

The sequel to the award winning and critically acclaimed, Super Stickman Golf is here!!!
Super Stickman Golf 2 out does the original in almost every way possible. With over 20 dynamic courses, new power-ups, customizable characters, 53

What's new

Discovering Games via Real-Time Multiplayer



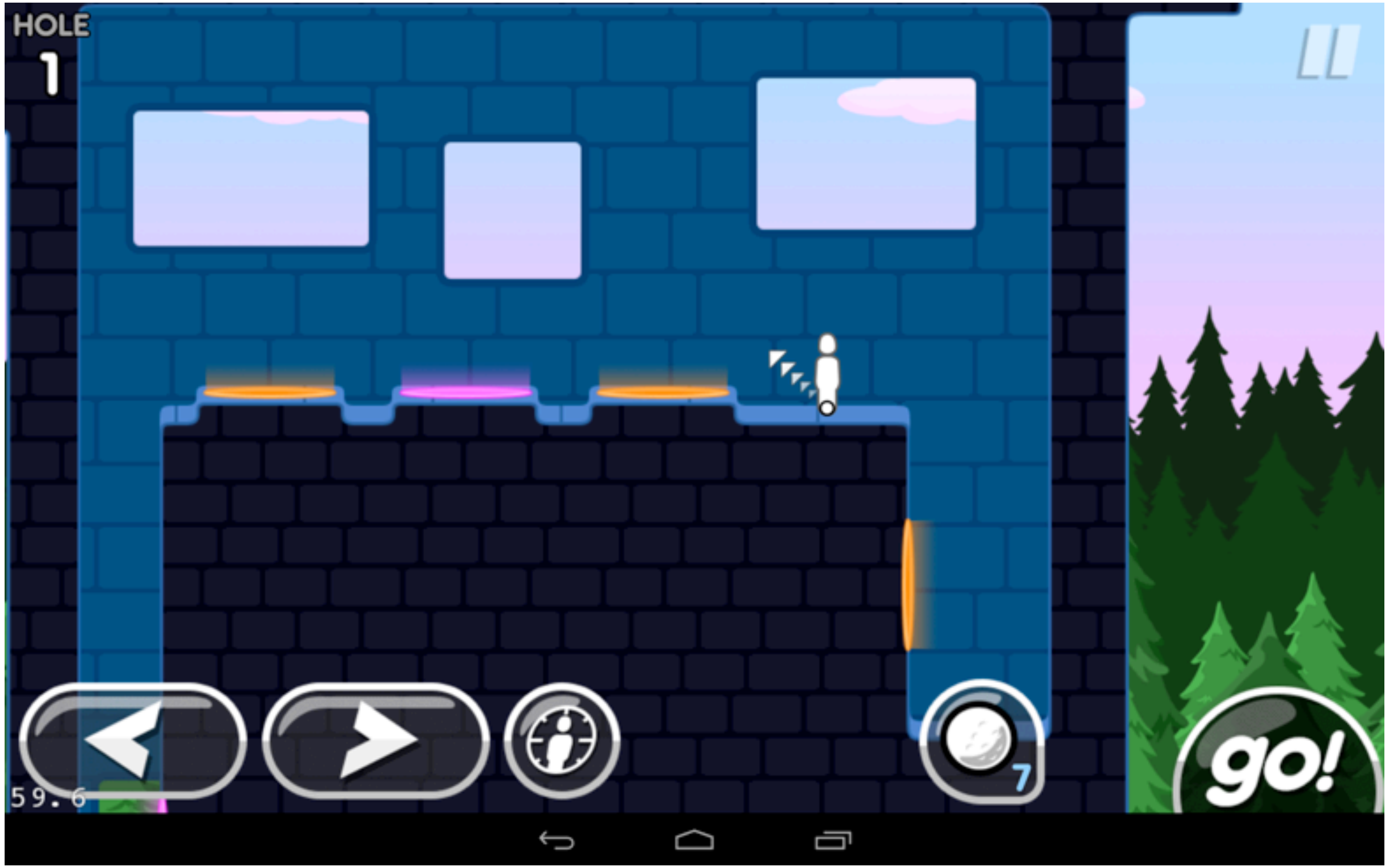
Invitations
stevemar@google.com

Review game notifications settings

Greg Hartrell
Invites you to play
Super Stickman Golf 2
SENT Just now!

2-PLAYER

Discovering Games via Real-Time Multiplayer



Want More Multiplayer?

“Mobile Multiplayer with Google Play game services”

Today at 3:30, Room 5

Self-Aware Summary

- New Services
  - Achievements
  - Leaderboards
  - Cloud Save
  - Real-Time Multiplayer
- Increased Discovery
  - Badges, Invites
- Libraries and Tools
- Brief Overview of iOS/Android Integration
- Self-Aware Summary!

Want to Find Out More?

An Introduction to Google Play game services

Room 12
Today
1:40 pm

Practical Play Games Pointers

Room 5
Today
2:35 pm

Mobile Multiplayer with Google Play game services

Room 5
Today
3:30 pm

Advanced Game Development with Google Play game services

Room 5
Today
4:25 pm

Level Up Your Android Game

Room 12
Today
5:20 pm

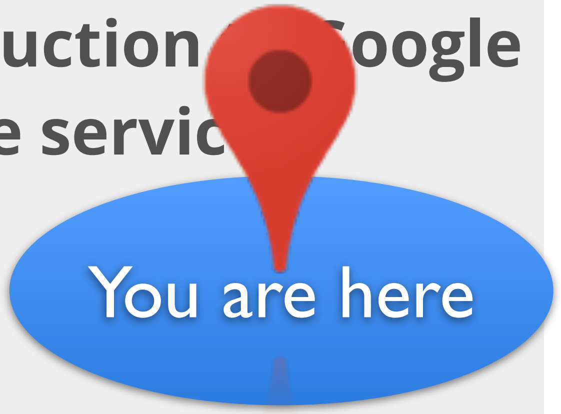
Integrate Google Play game services Codelab

Room 9
Friday
9:00

https://developers.google.com/games/services

Want to Find Out More?

An Introduction oogle Play game servic



Room 12
Today
1:40 pm

Practical Play Games Pointers

Room 5
Today
2:35 pm

Mobile Multiplayer with Google Play game services

Room 5
Today
3:30 pm

Advanced Game Development with Google Play game services

Room 5
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4:25 pm

Level Up Your Android Game

Room 12
Today
5:20 pm

Integrate Google Play game services Codelab

Room 9
Friday
9:00

https://developers.google.com/games/services

Questions?

- Come see us at the Office Hours lounge!

Thank You!

https://plus.google.com/+ToddKerpelman

https://plus.google.com/+SteveLMartin/

http://goo.gl/Upql5 (Dave Santoro)

Want to Find Out More?

An Introduction to Google Play game services

Room 12
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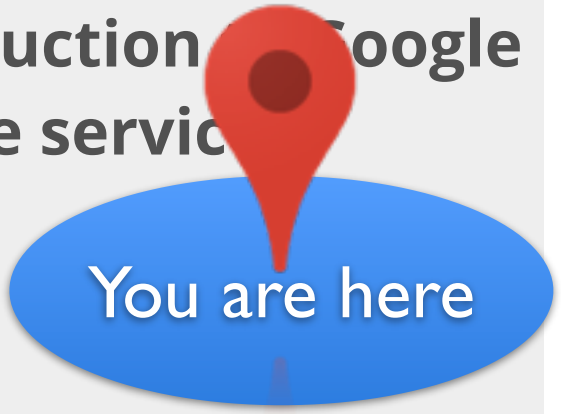
Room 9
Friday
9:00

https://developers.google.com/games/services

Want to Find Out More?

An Introduction [illegible]oogle Play game servic[illegible]

Room 12
Today
1:40 pm



Practical Play Games Pointers

Room 5
Today
2:35 pm

Mobile Multiplayer with Google Play game services

Room 5
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3:30 pm

Advanced Game Development with Google Play game services

Room 5
Today
4:25 pm

Level Up Your Android Game

Room 12
Today
5:20 pm

Integrate Google Play game services Codelab

Room 9
Friday
9:00

https://developers.google.com/games/services

Google Developers