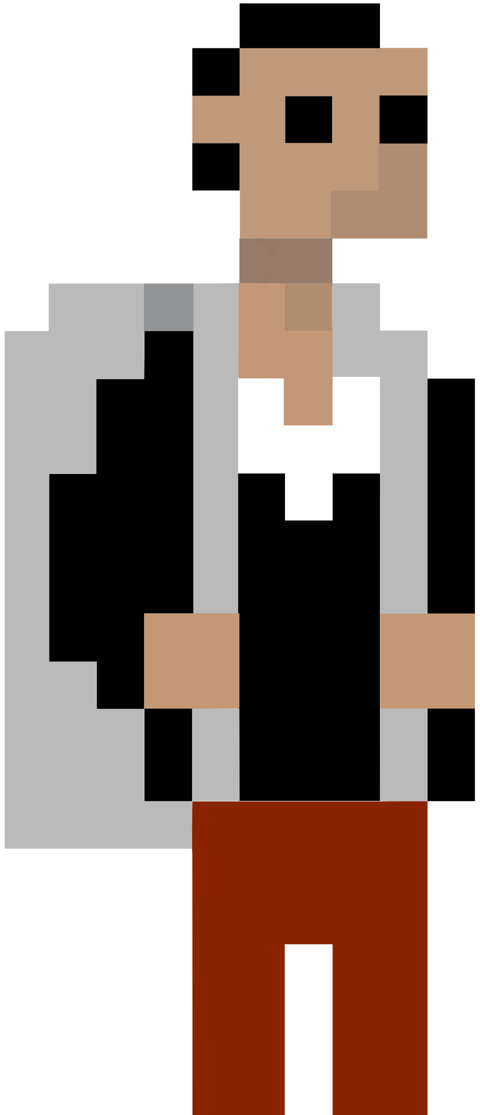
Motz Codes Live

@JamesMontemagno

motzcod.es

Simplifying App Permissions
November 20, 2015

Who is Motz?



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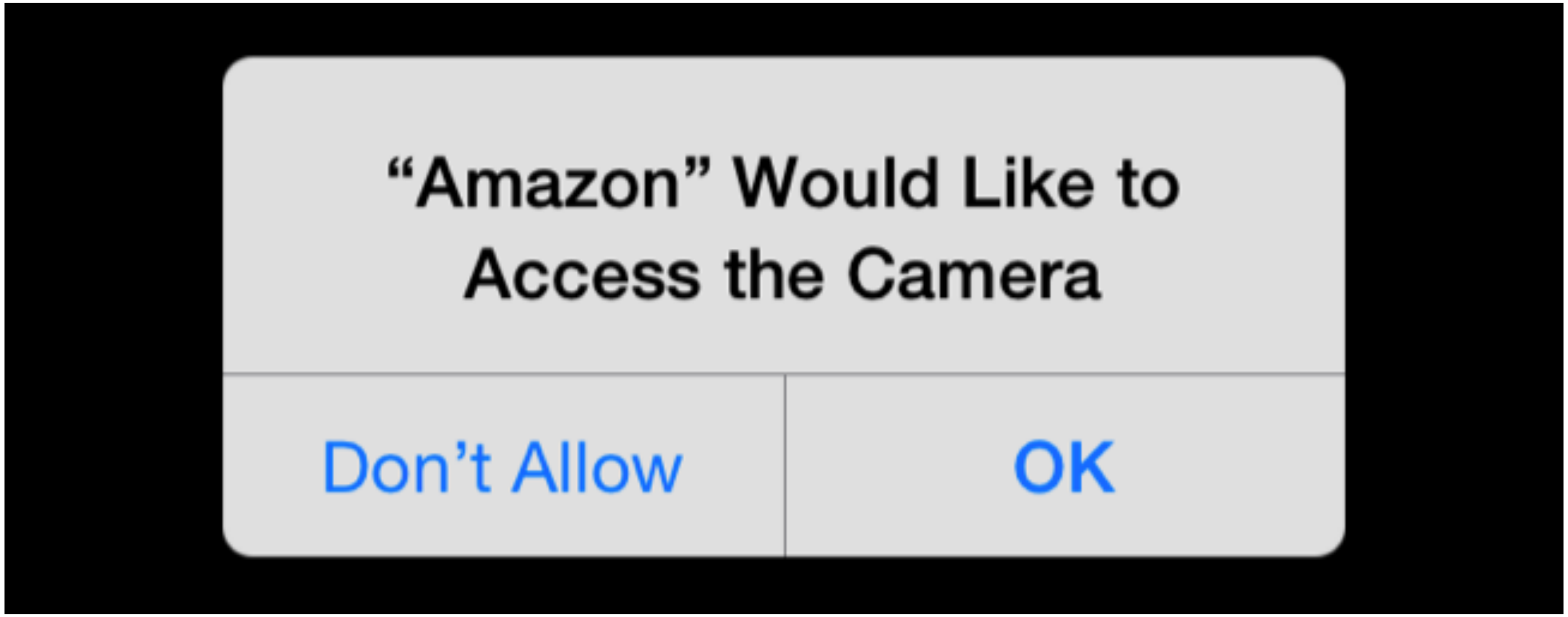
Location Camera Microphone Contacts

App Permissions

Phone SMS Calendar Sensor

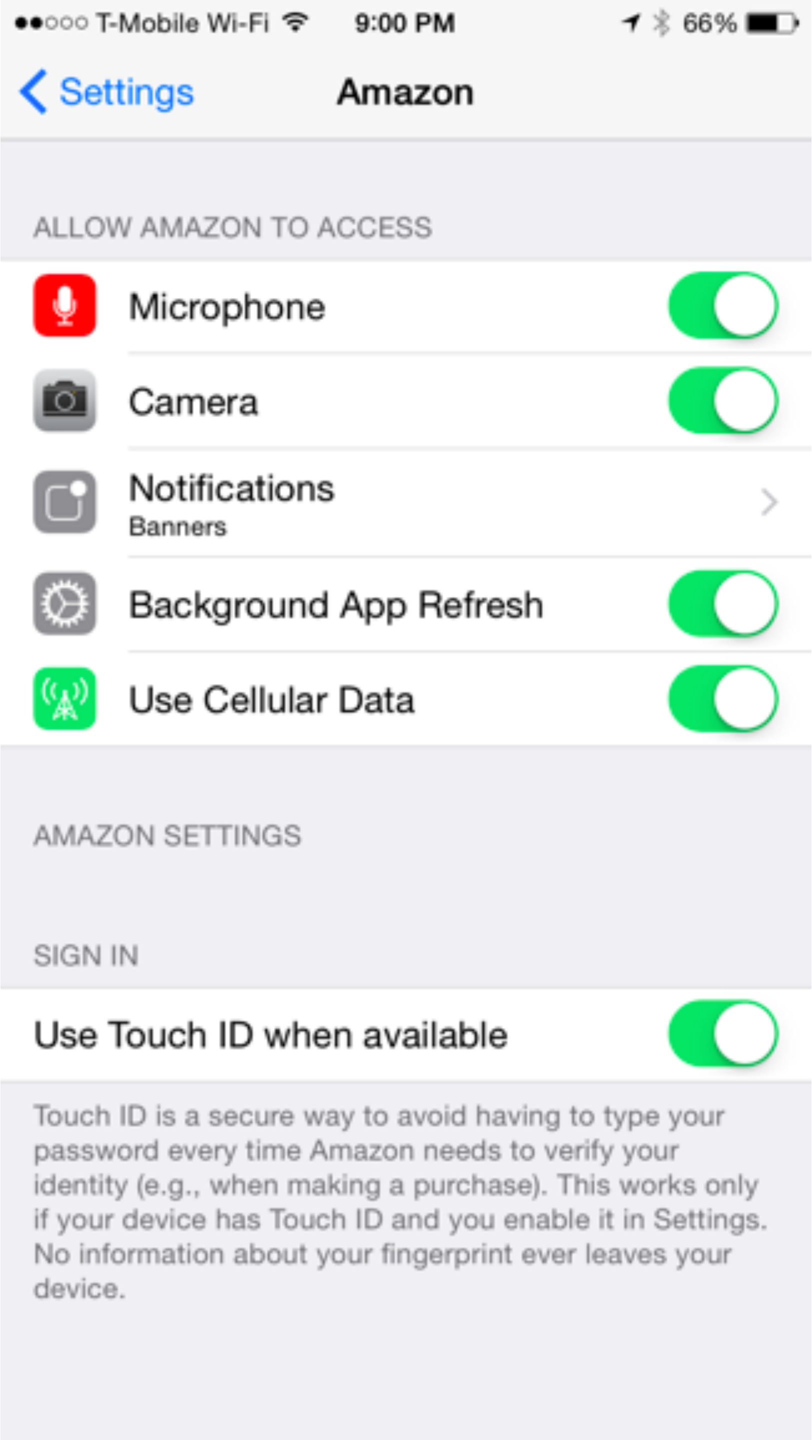
iOS Permissions

- Been there forever



“Amazon” Would Like to Access the Camera

User can turn on and off



ALLOW AMAZON TO ACCESS

Microphone

Camera

Notifications
Banners

Background App Refresh

Use Cellular Data

AMAZON SETTINGS

SIGN IN

Use Touch ID when available

Touch ID is a secure way to avoid having to type your password every time Amazon needs to verify your identity (e.g., when making a purchase). This works only if your device has Touch ID and you enable it in Settings. No information about your fingerprint ever leaves your device.

```
if (locationManager == null)
    locationManager = new CLLocationManager();


  authCallback = (sender, e) =>
      {
          if(e.Status == CLAuthorizationStatus.NotDetermined)
              return;

          locationManager.AuthorizationChanged -= authCallback;
          tcs.SetResult(LocationPermissionStatus);
      };

  locationManager.AuthorizationChanged += authCallback;
```

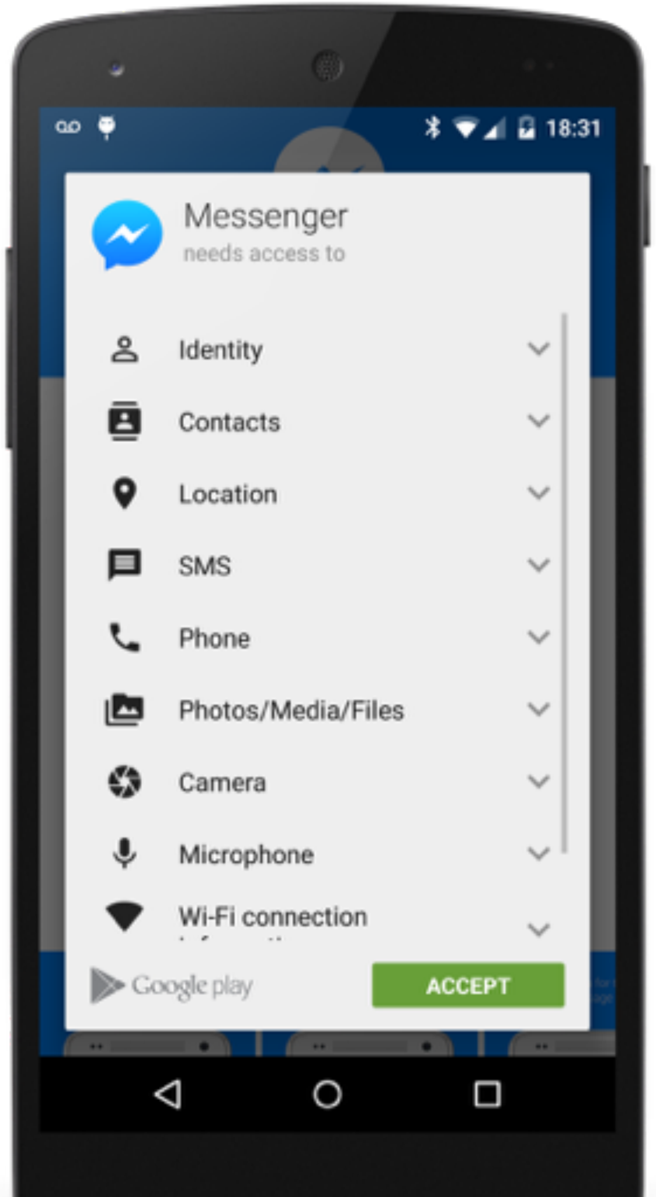
```
var info = NSBundle.MainBundle.InfoDictionary;
if (info.ContainsKey(new NSString("NSLocationWhenInUseUsageDescription")))
    locationManager.RequestWhenInUseAuthorization();
else if (info.ContainsKey(new NSString("NSLocationAlwaysUsageDescription")))
    locationManager.RequestAlwaysAuthorization();
else
    throw new UnauthorizedAccessException("On iOS 8.0 and higher you must set
```

All sorts of status types ☹

- EKAuthorizationStatus (EventStore)
- ABAuthorizationStatus (AddressBook)
- CLAuthorizationStatus (LocationManager)
- PHAuthorizationStatus (PhotoLibrary)
- Some just return true/false
- And More!!

Android Permissions

Old System – During Install

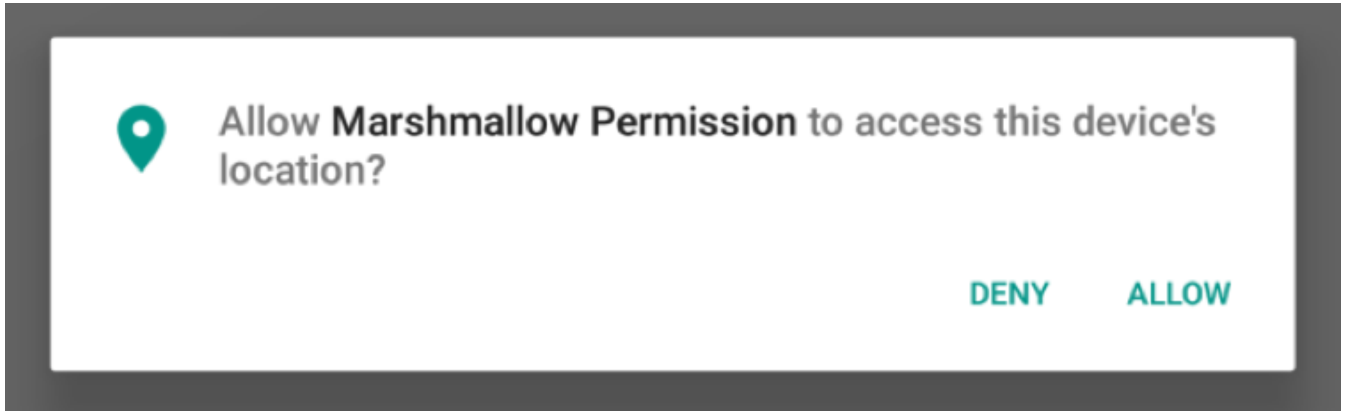


Messenger
needs access to

- Identity
- Contacts
- Location
- SMS
- Phone
- Photos/Media/Files
- Camera
- Microphone
- Wi-Fi connection

- Disadvantages:
  - Prevents auto updates
  - Out-of-context
  - Lower user-engagement
- Advantage
  - Total Developer Freedom!

New System - Runtime



Allow **Marshmallow Permission** to access this device's location?

- Advantages:
  - Contextualized permissions
  - Users in control

- Disadvantages
  - Developer must deal with refusal/revoked permissions

What you must ask for

Calendar

Camera

Contacts

Location

Microphone

Phone

Sensors

SMS

Storage

(API 23+)

What you get

- Bluetooth
- NFC
- Flashlight
- Internet
- Vibrate
- Accounts
- Network State
- Settings
- Alarm

Everything else!

Declared in Application Manifest

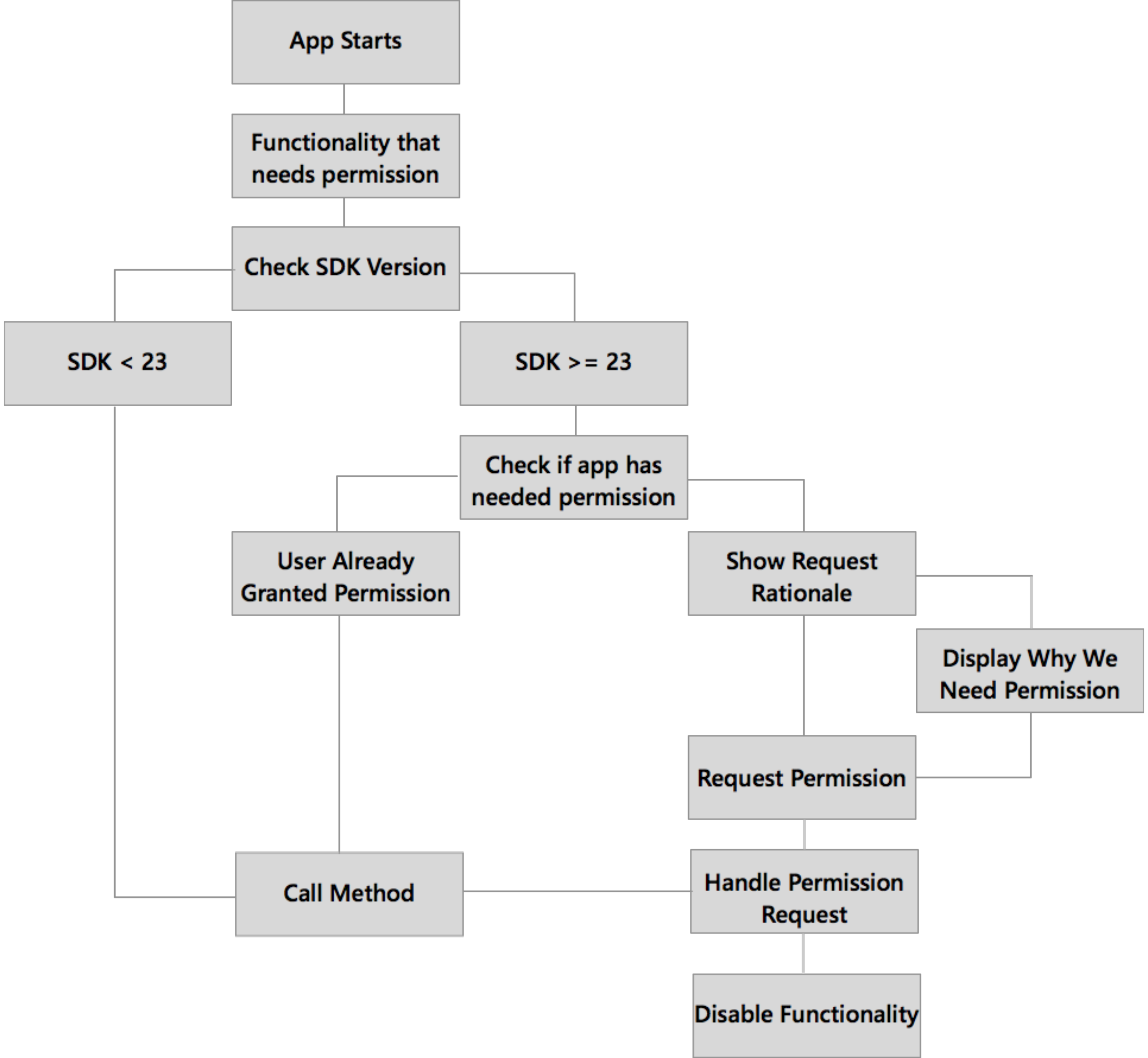
Xamarin

Requesting Permission

```
     readonly string [] PermissionsLocation  =
    {
        Manifest.Permission.AccessCoarseLocation,
        Manifest.Permission.AccessFineLocation
    };

     bool RequestPermission()
{
    const string permission = Manifest.Permission.AccessFineLocation;

    if (CheckSelfPermission(permission)  == (int)Permission.Granted)
        return true;

    if (ShouldShowRequestPermissionRationale(permission))
    {
        //Explain to the user why we need to read the contacts
    }

    RequestPermissions(PermissionsLocation, RequestLocationId);
}
```

Handling Request

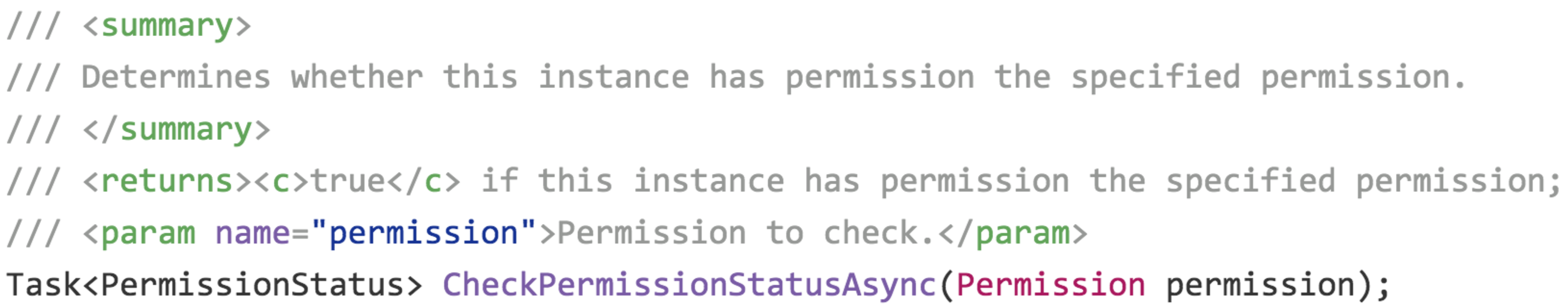
```
public override  void OnRequestPermissionsResult(int  requestCode,
     string[] permissions, int[] grantResults)
{
     switch (requestCode)
     {
         case RequestLocationId:
             {
                 if (grantResults[0]  == (int)Permission.Granted)
                 {
                      Snackbar.Make(layout, "Granted", Snackbar.LengthShort).Show();
                 }
                 else
                 {
                     Snackbar.Make(layout, "Denied.", Snackbar.LengthShort).Show();
                 }
             }
             break;
     }
 }
```


App Starts
Functionality that needs permission
Check SDK Version
SDK < 23
SDK >= 23
Check if app has needed permission
User Already Granted Permission
Show Request Rationale
Display Why We Need Permission
Request Permission
Call Method
Handle Permission Request
Disable Functionality

Fixing iOS & Android

- Permissions Plugin for Xamarin!
- Simple cross-platform async API
- Call from shared code!!

The API – Check Permission Status



```
/// <summary>
/// Determines whether this instance has permission the specified permission.
/// </summary>
/// <returns><c>true</c> if this instance has permission the specified permission;
/// <param name="permission">Permission to check.</param>
Task<PermissionStatus> CheckPermissionStatusAsync(Permission permission);
```

The API – Permission Rationale

```
/// <summary>
/// Request to see if you should show a rationale for requesting permission
/// Only on Android
/// </summary>
/// <returns>True or false to show rationale</returns>
/// <param name="permission">Permission to check.</param>
Task<bool> ShouldShowRequestPermissionRationaleAsync(Permission permission);
```

The API – Request Permission

```
/// <summary>
/// Requests the permissions from the users
/// </summary>
/// <returns>The permissions and their status.</returns>
/// <param name="permissions">Permissions to request.</param>
Task<Dictionary<Permission, PermissionStatus>> RequestPermissionsAsync(IEnumerable<Permission> permissions);
```

Supports

- Calendar
- Camera
- Contacts
- Location
- Microphone
- Phone
- Photos
- Reminders
- Sensors
- Sms
- Storage

Simplifying Android

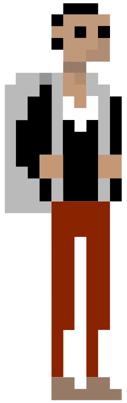
- Support v4
  - Gives access to: ContextCompat and ActivityCompat
  - Query Permission status all the way back to v4!
- Plugin.CurrentActivity
  - What is this???
  - Magic to get the current activity
  - https://www.nuget.org/packages/Plugin.CurrentActivity/

Let’s Permissions

Resources

- Android Permissions
  - https://blog.xamarin.com/requesting-runtime-permissions-in-android-marshmallow/
- Permission NuGet
  - https://www.nuget.org/packages/Plugin.Permissions
- Permission Plugin Repo
  - https://github.com/jamesmontemagno/xamarin.plugins
- Motz Codes Live:
  - https://www.youtube.com/user/jamesmontemagno
  - https://github.com/jamesmontemagno/MotzCodesLive

Thank you. **Questions?**



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