XAM220

Preparing to publish your application

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Microsoft

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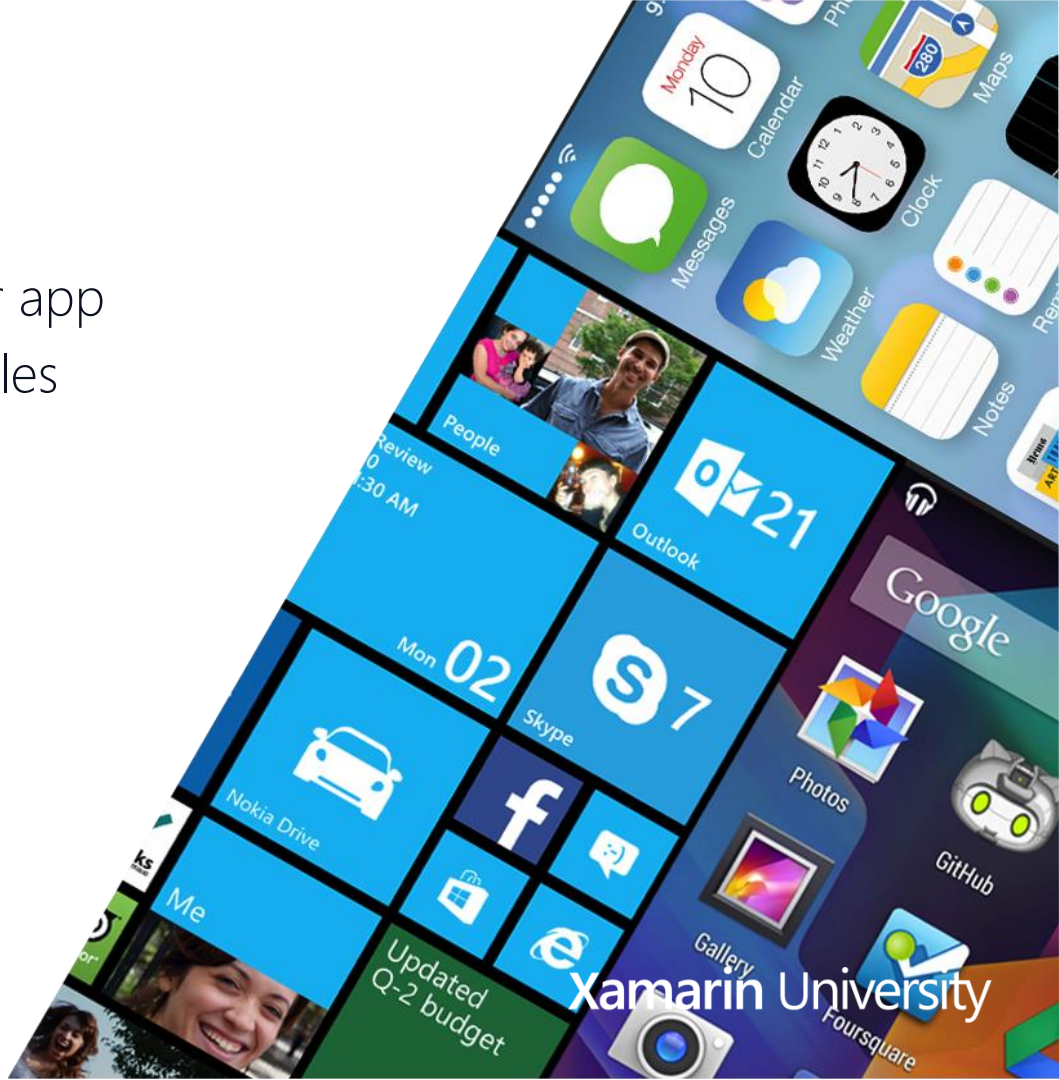
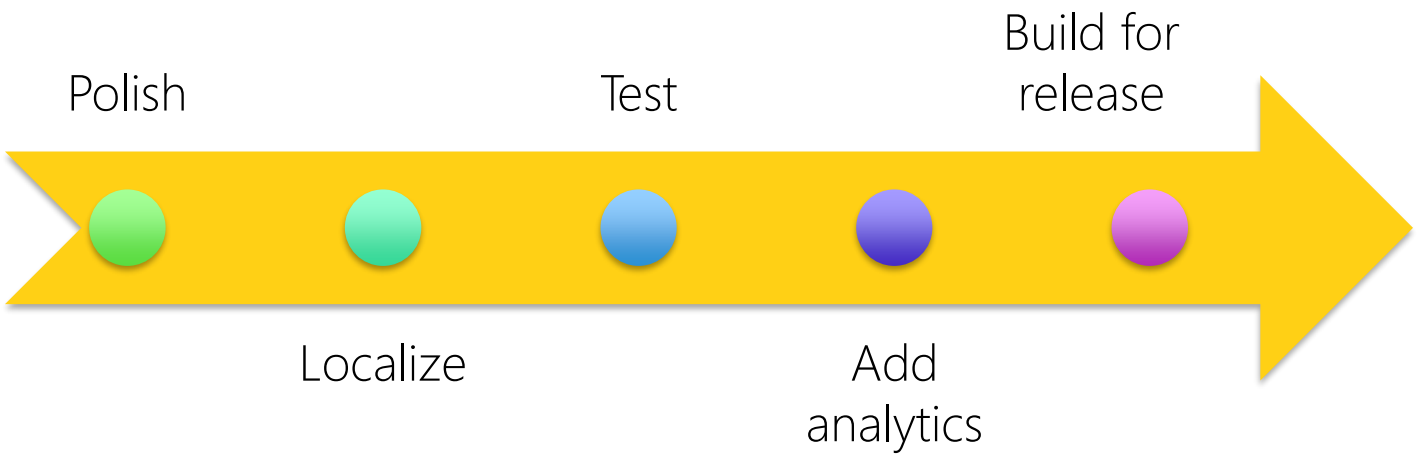
Tasks

1. Getting ready to publish your app
2. Understanding publishing styles
3. Publishing to a store

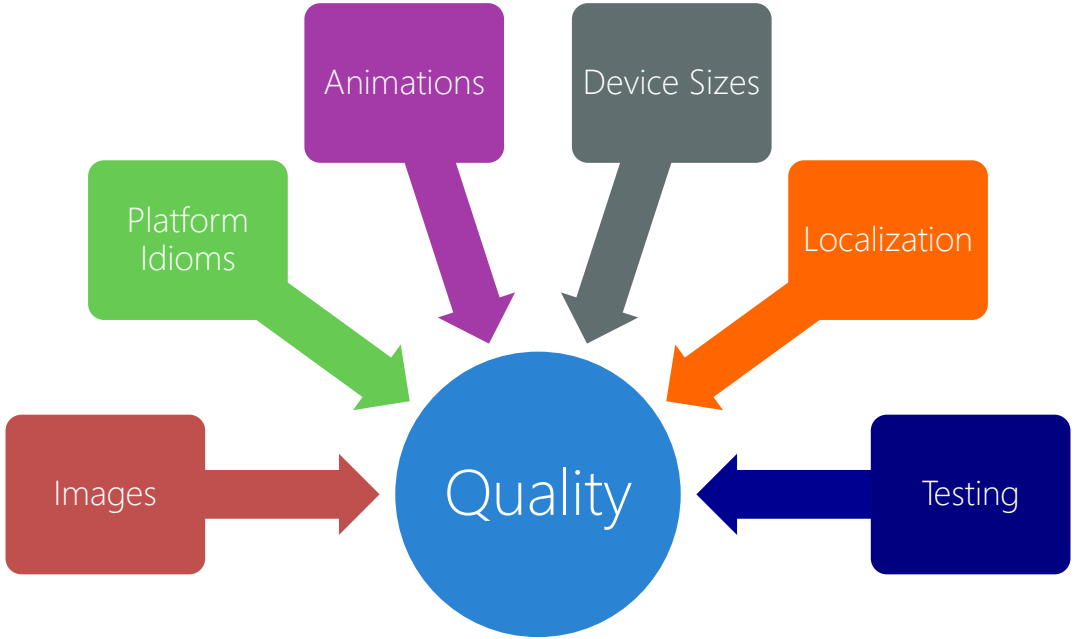


Get ready to publish!



Polish your app

- Pay attention to the details in your application



Localize your app

- Millions of users cannot read the language your app is written in
- **56.2%** of consumers say that the ability to obtain information in their own language is more important than price

Test your app completely

- Your app will be automatically rejected if it crashes or misbehaves

Dropped Network

Older devices

Bad input

Orientation Changes

Automated UI Testing

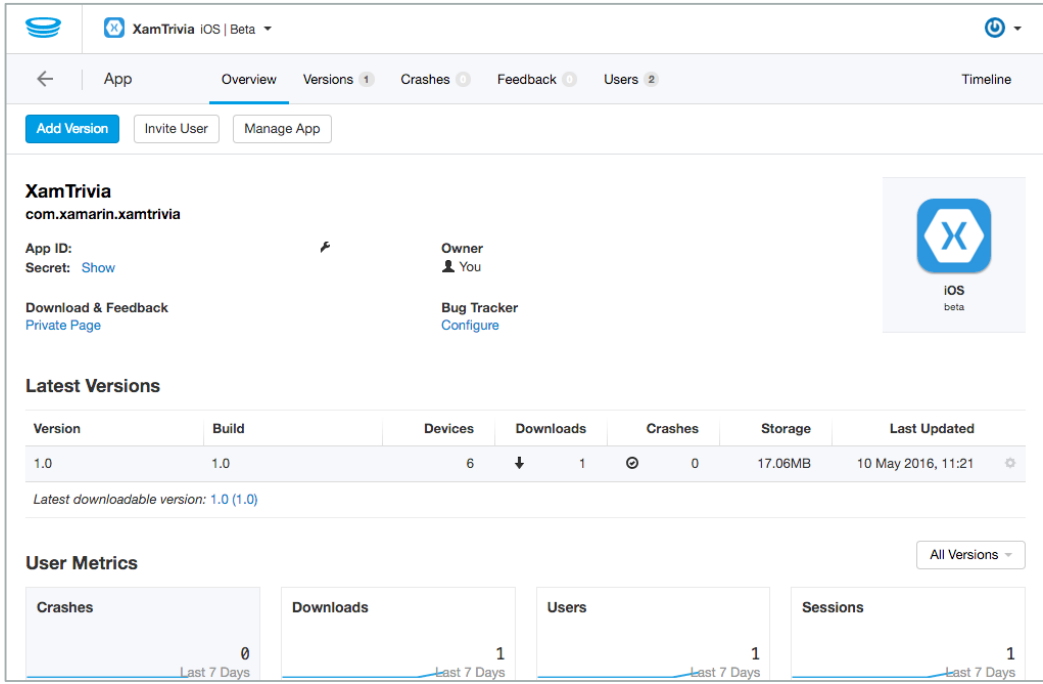
- Xamarin UI Test lets you create automated UI tests that can be run locally or in the cloud

Xamarin Test Cloud

Visual Studio Mobile Center

Consider adding analytics

- Invest in an analytics solution such as HockeyApp or Mobile Center
  - Identify crashes and live issues
  - Invite beta users and push updates to users
  - identify features people are using

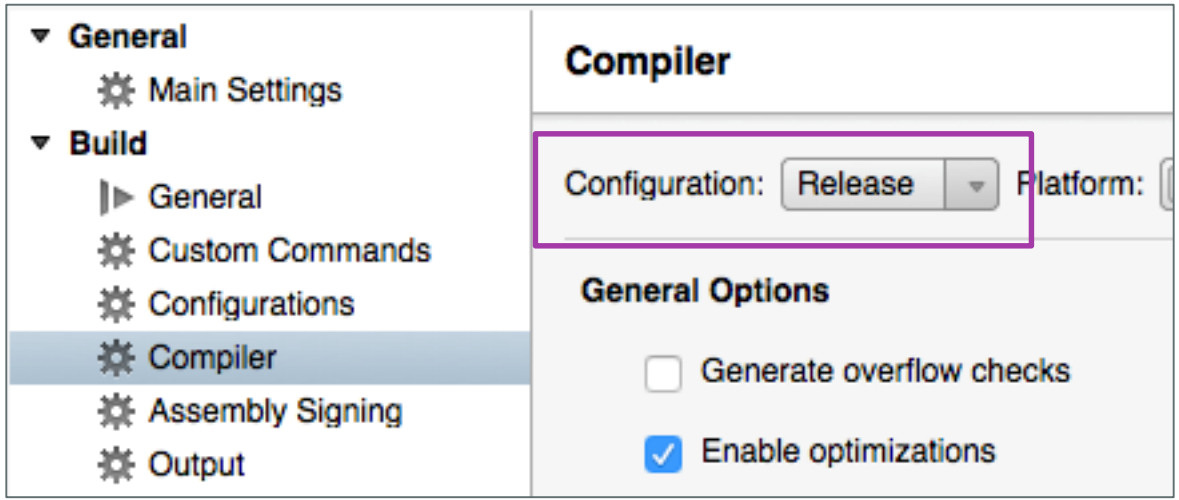


Preparing for release

1. Create a **Release Build**
2. Add icons and splash screen
3. Update version information
4. Configure linker
5. Create distribution package

Create a Release Build

- Always test your final build (what you plan to submit), and always submit release builds



Add icons and splash screens

- Icon represents your app on the launch screen so it should be memorable and look *good!*
  - Follow the vendor guidance for size/shape
  - Supply multiple resolutions
  - Avoid text in the icon

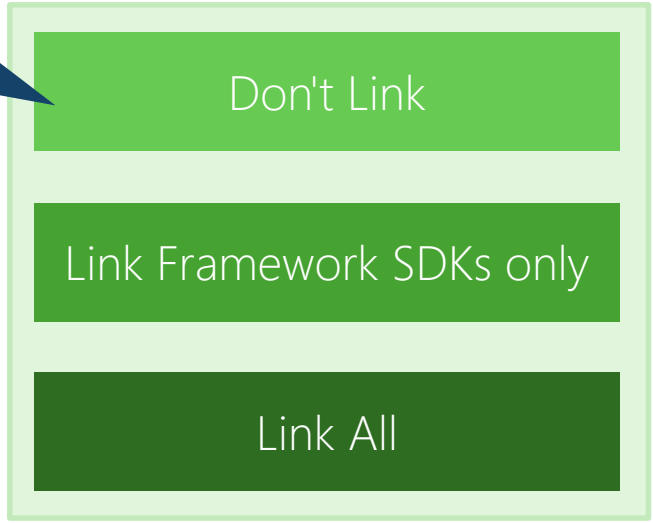
Update version Info

- Versioning is important for maintenance and distribution
  - Increment major version for significant updates
  - Increment minor version for fixes

Linker settings

- Linker settings can dramatically reduce the size of the app package, three options available for iOS and Android:

All code is added to application package – even code that is not referenced



Package size: **75.3Mb**

Linker settings

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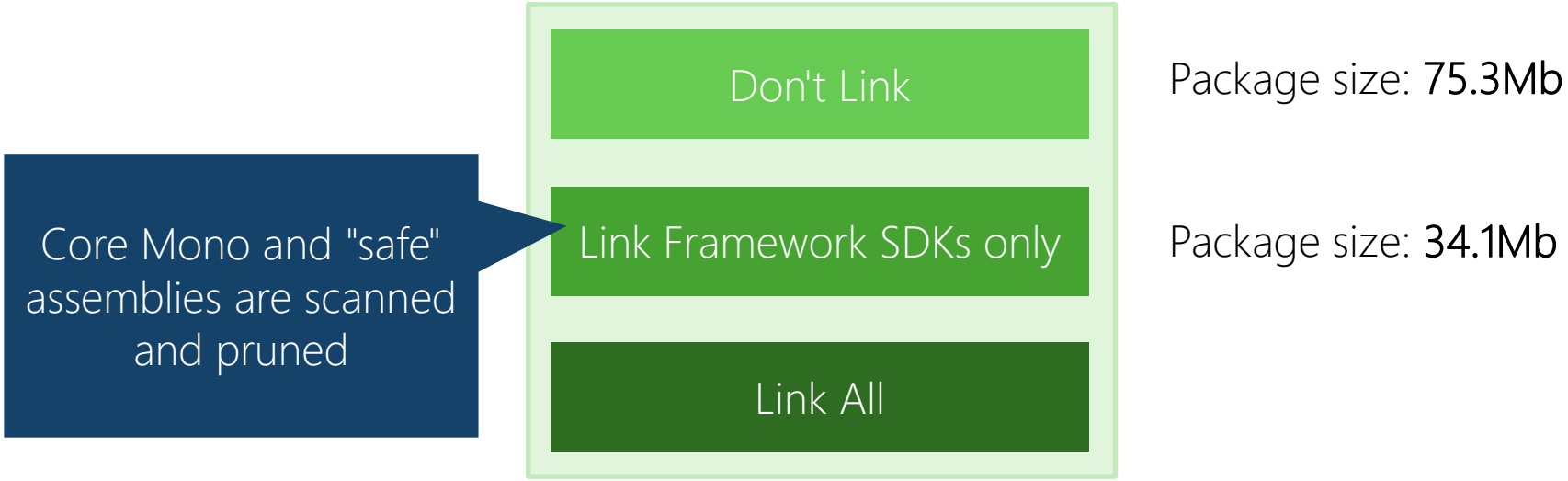

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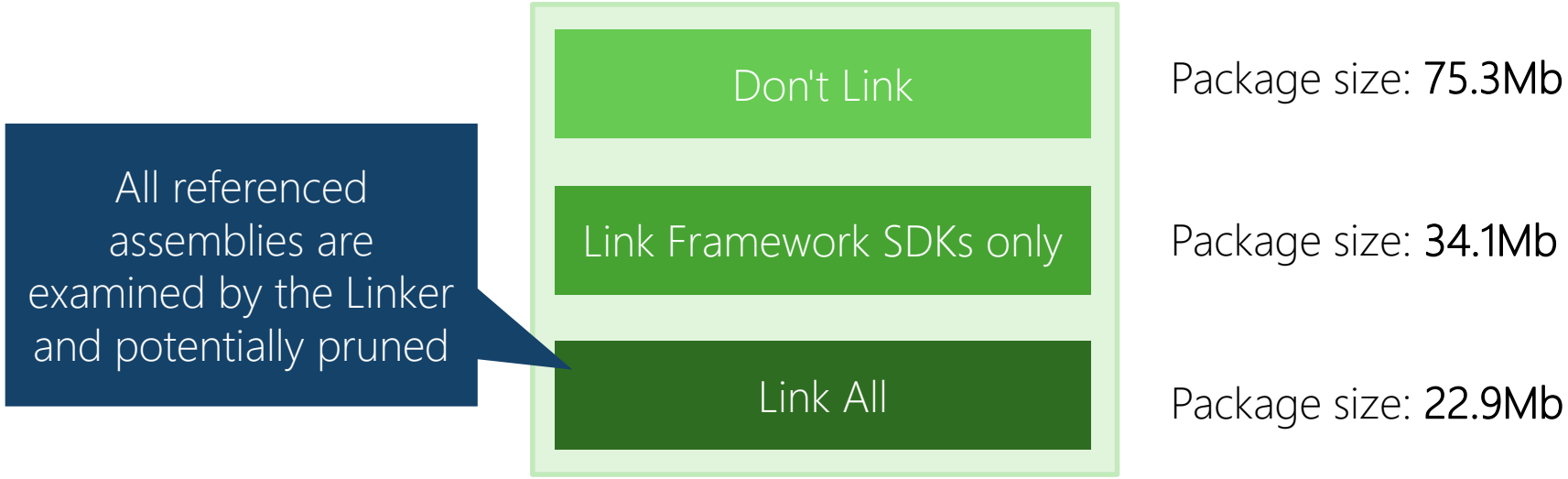

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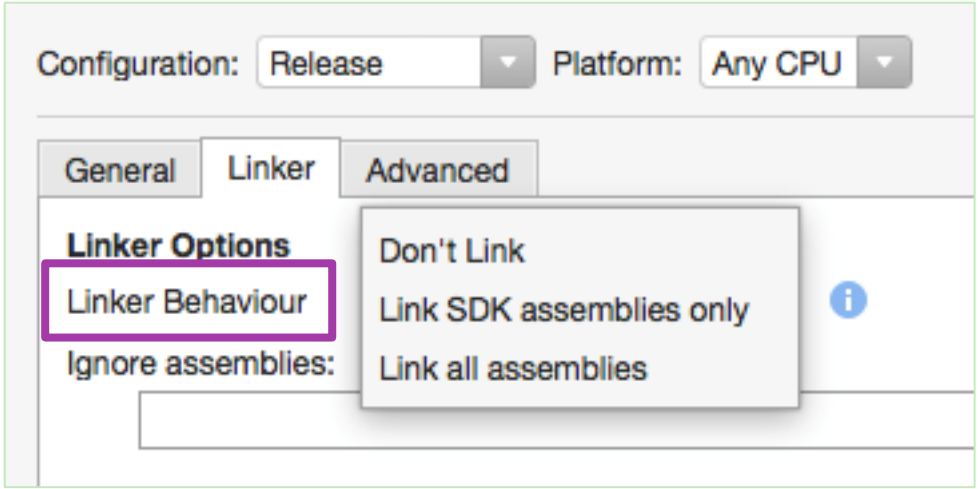
Project Options > [iOS | Android] Build



Safe to Link assemblies

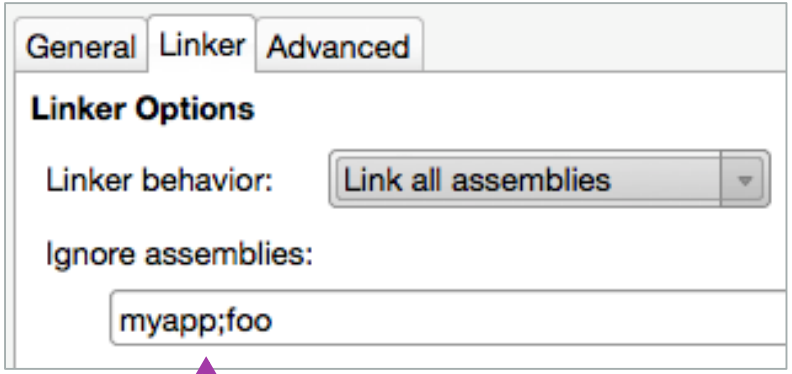
- Can indicate that your custom assemblies are safe to link by adding a custom assembly level attribute:

```
public sealed class LinkerSafeAttribute : Attribute
{ // Can be defined in your PCL code
}
```

```
// Then add in a single source file to tell the
// linker that this assembly should be considered an
// SDK assembly
[assembly: LinkerSafe]
```

Linking all assemblies

- You can link **ALL** assemblies to further reduce the size of your app package
- Will often remove things you actually are using
- Can create a **custom linker XML configuration** to indicate what to preserve (assemblies, types, and operations)



For simple cases, you can tell the linker to exclude specific assemblies from it's pruning process

Linker directives

- Linker can get *very* aggressive and will sometimes remove things your code actually needs – two ways to tell the linker to keep something

Preserving types in library code

- Can ensure entire types are preserved by the Linker through the **[Preserve]** attribute applied to the assembly or type itself

```
[Preserve(AllMembers=true)]
public class TodoTask
{
    [PrimaryKey, AutoIncrement]
    public int ID { get; set; }
    public string Name { get; set; }
}
```

```
[assembly: Preserve]
```

Preserving types in library code

- Can also use **[Preserve]** on fields, properties, delegates and methods which your code doesn't reference directly but are still necessary

```
public class TodoTask
{
    [PrimaryKey, AutoIncrement]
    [Preserve]
    public int ID { get; set; }
    public string Name { get; set; }
    public string Notes { get; set; }
    public bool Done { get; set; }
}
```

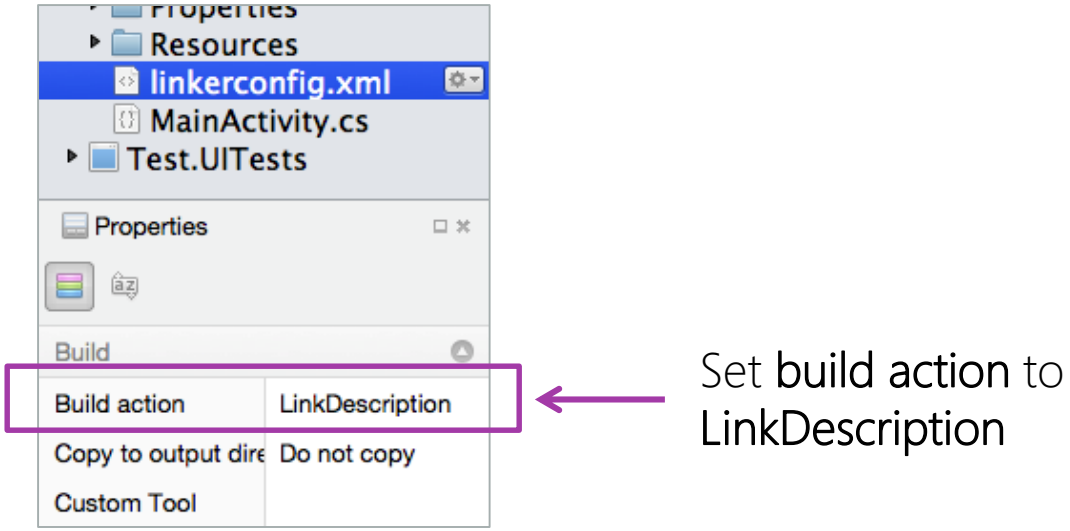
Preserving types in a PCL

- **`PreserveAttribute`** is defined in the core Xamarin assembly and not available in PCLs; however linker just looks for *any* attribute named **`PreserveAttribute`** so you can define one and use it to direct the linker

```
[AttributeUsage(AttributeTargets.All, AllowMultiple=true)]
public sealed class PreserveAttribute : System.Attribute
{
   public bool AllMembers;  // Keep all members
   public bool Conditional; // Keep member ONLY if type
                            // itself is kept
}
```

Advanced Linker settings

- XML linker configuration file must be added to your project



Preserving an entire assembly

- Can direct the linker to preserve an entire assembly – all types, methods will be retained in the final binary even if they are not referenced by your code

Assembly definitions listed here

```
<?xml version="1.0" encoding="UTF-8" ?>
<linker>
  <!-- preserve entire App.Core assembly -->
  <assembly fullname="App.Core">
      <type fullname="*"/>
  </assembly>
</linker>
```

Preserving a specific type

- Can preserve a complete type (all fields and operations) in an assembly

```
<!-- preserve the App.Core.MainPage type
     in the App.Core assembly -->
<assembly fullname="App.Core">
    <type fullname="App.Core.MainPage" preserve="fields" />
</assembly>
```

Can tell linker to preserve all fields

Preserving all types in a namespace

- Can preserve all types in a namespace in the assembly

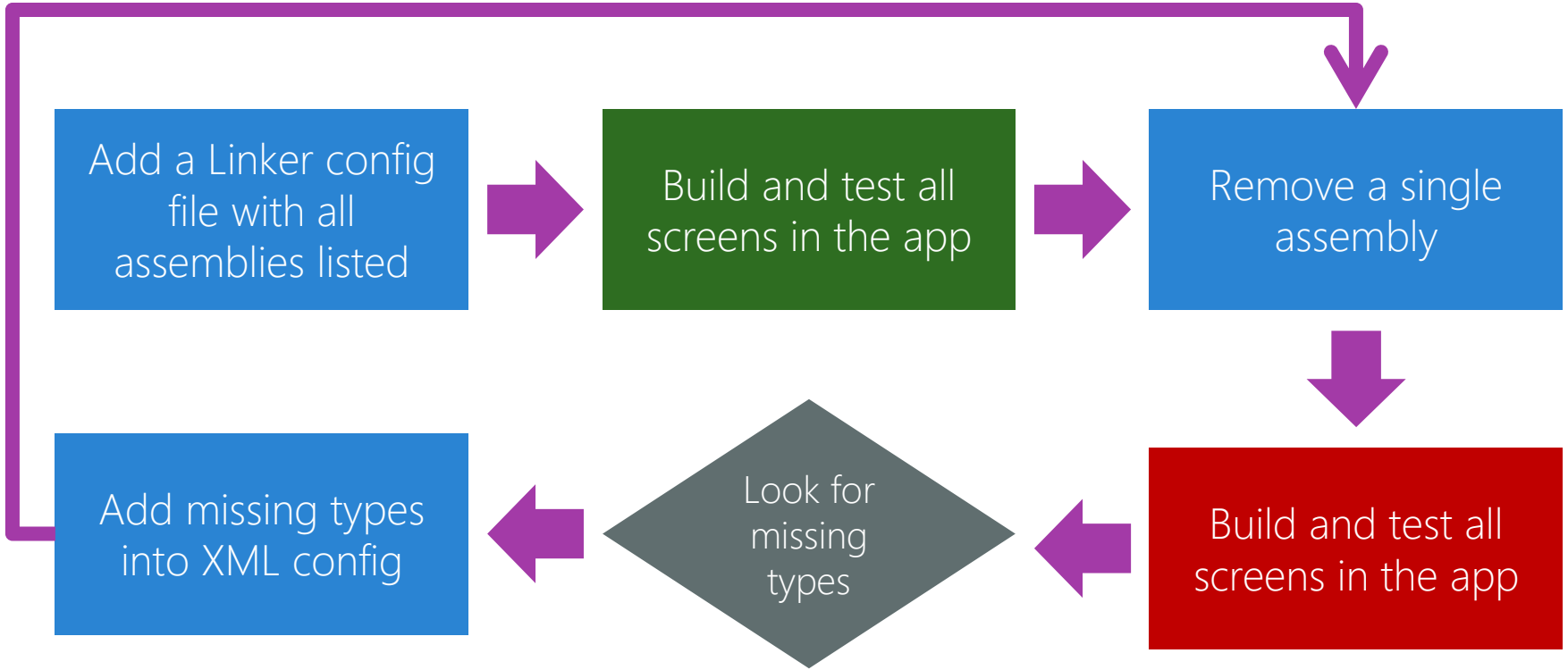
```
<!-- preserve the namespaces in the App.Core assembly -->
<assembly fullname=" App.Core">
    <namespace fullname="App.Core" />
    <namespace fullname="App.Core.Utils" />
    <namespace fullname="App.Core.ViewModels" />
</assembly>
```

Preserving a specific type

- Finally, can preserve specific operations in a type

```
<assembly fullname="App.Core">
    <type fullname="App.Core.MainPage">
        <!-- preserve the ValueChanged event -->
        <method name="add_ValueChanged"/>
        <method name="remove_ValueChanged"/>
        <!-- preserve the Value property -->
        <method name="get_Value"/>
        <method name="set_Value"/>
        <!-- preserve the _value field -->
        <field name="_value"/>
    </type>
</assembly>
```

Steps to link all assemblies



Create a distribution package

- Each platform has a signed, packaged format which you must adhere to when submitting or installing apps onto a device

App Bundle (**.app**)

App Package (**.apk**)

AppX Package (**.appx**)

Flash Quiz

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Flash Quiz

① Which of these components is necessary when preparing an app for release?

a) Disable debugging
b) Specify app icon
c) Set packaging properties
d) None of the above

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Flash Quiz

② Why do you need to disable debugging when you publish an app?

a) To remove the source code from the app

b) To reduce the size of the app package/bundle

c) To ensure your app is optimized

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Flash Quiz

③ Why would you want to set the linker settings when publishing your app?

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b) To discard unused assemblies, types and members

c) To protect your app from outside tampering

d) To target multiple platforms

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Publishing Styles

- Three common ways to distribute your applications

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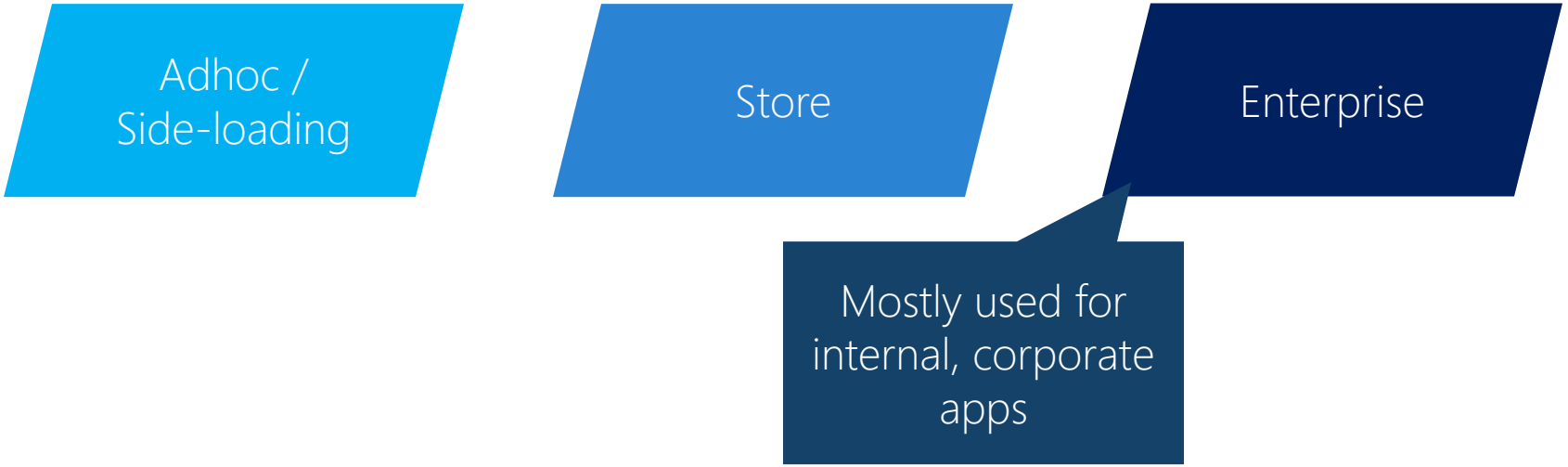
Adhoc / Side-loading

Store

Most common approach and widest distribution model

Publishing Styles

- Three common ways to distribute your applications



Choosing a store / market

- Vendors operate branded stores where they market and distribute your app for a percentage of the sale

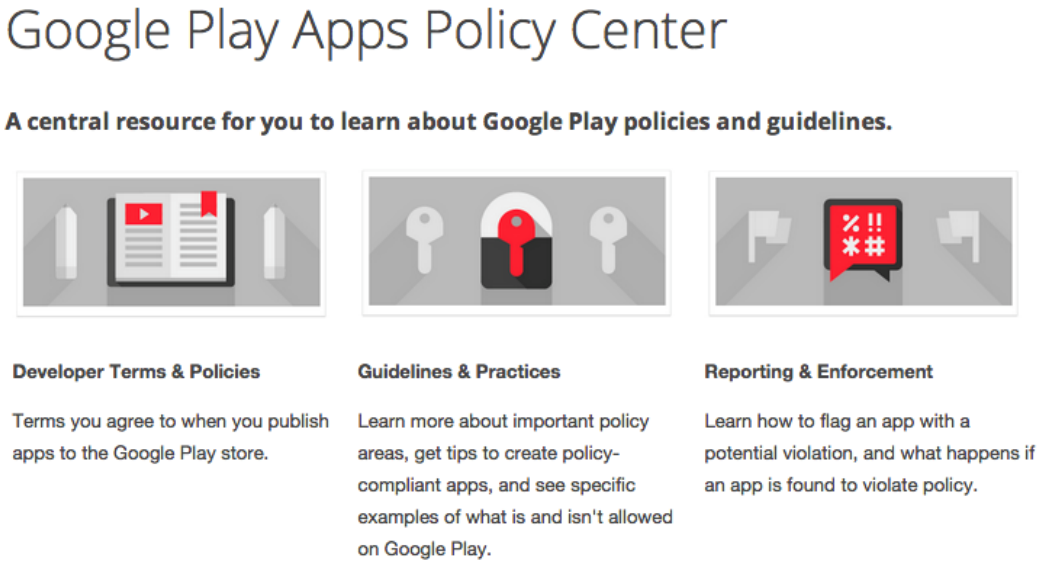
App Store

Google Play

Windows Marketplace

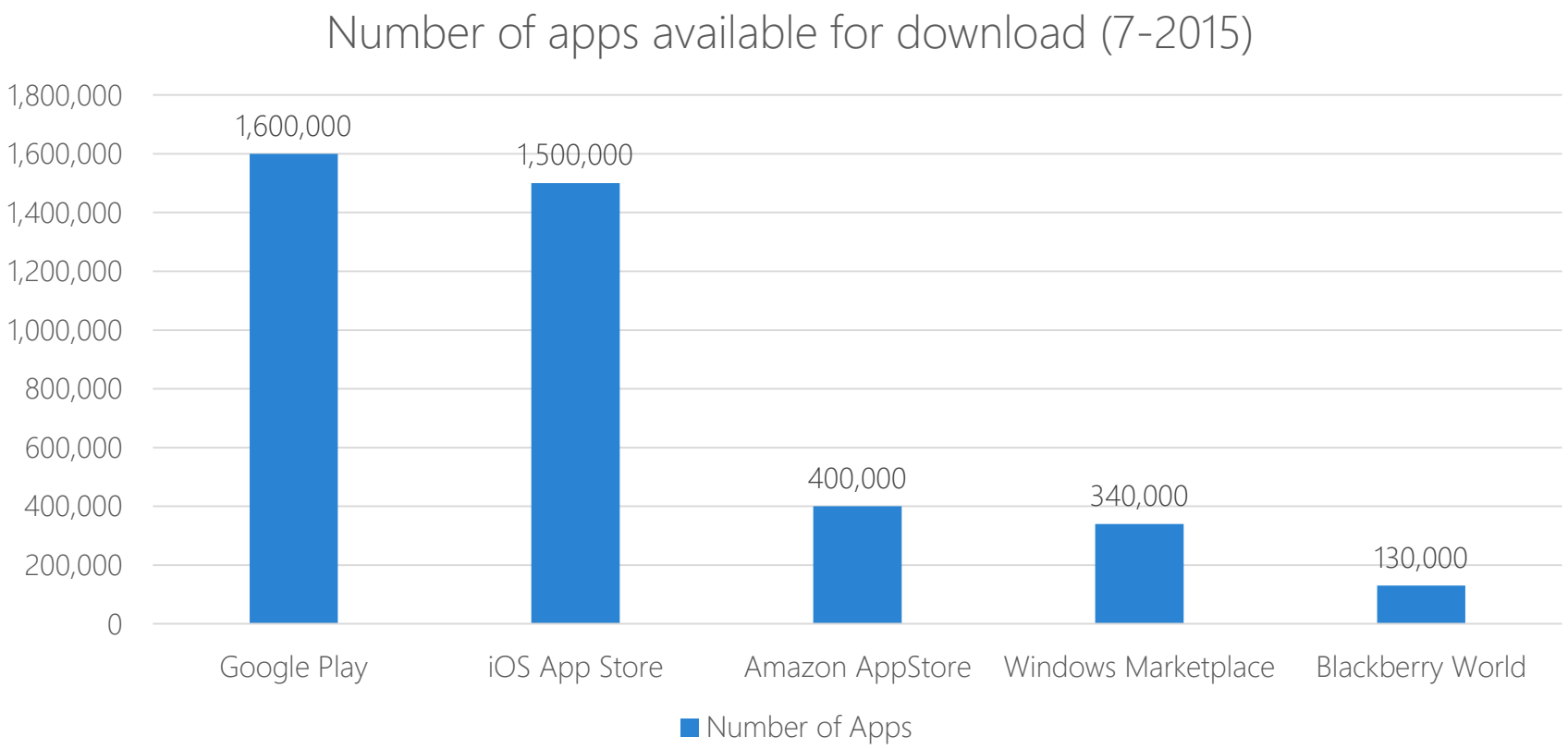
Read the licenses carefully

- Each public store has different rules you must adhere to, read the license carefully before submitting your app to make sure you are a good citizen



Most of them publish nice guidelines – worth checking out

Choosing a store / market



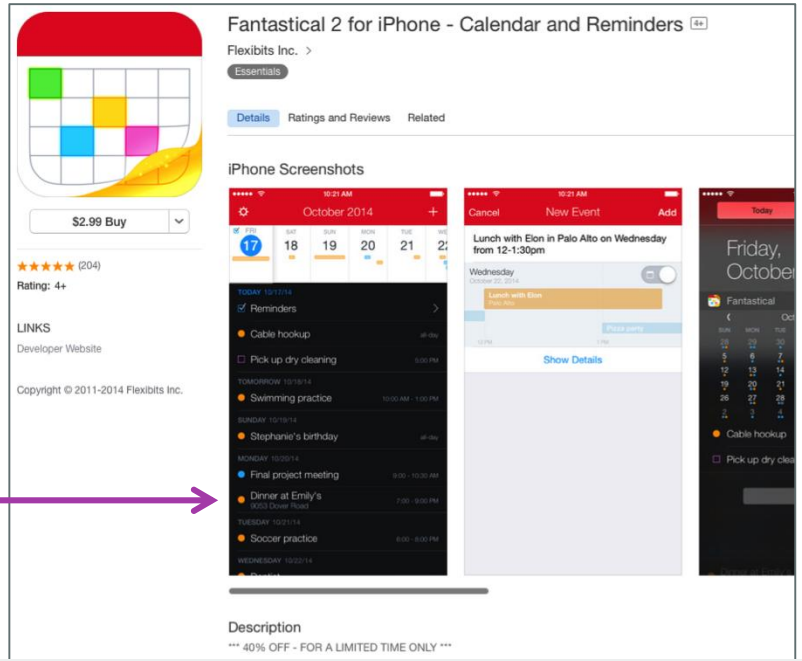
Choosing a store / market

Registration Fee	$99 / $299 annual	$25 one-time	~$19 / $99 one-time
app # limits	none	none	100 free
Market Share	~20%	~75%	~5%
Revenue sharing %	70 / 30	70 / 30	70 / 30 sliding
Reasons to put your app here	Higher daily revenue, more $$$	Best searching, new apps found quickly	Less competition = more opportunity

Creating the marketing information

- All of the app stores allow you to provide screen shots, descriptions, and requirements for your app – use these to your advantage so people notice your app!

use video and flashy screen shots showing the best aspects of the app

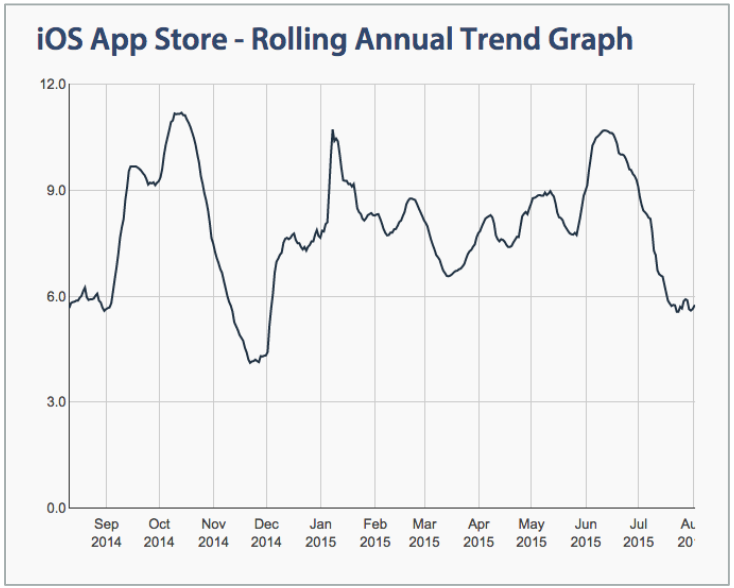


This is one of the *most important* things you will do when publishing your app – keywords, images and descriptions determine how easily users find your

App review process

- Each store will review your application prior to making it available to the public – times vary, but it could take a week or more before it goes online

- Will get an email notification when the app is either accepted or rejected; along with reasons for rejection



Determine a revenue strategy

- Have realistic expectations of how much you will make
- What are similar apps priced?
  - Simple apps often free or $0.99
  - Higher priced apps need to look good and provide high value or you will get bad ratings
- Region influences pricing; U.S. tends to pay more for apps

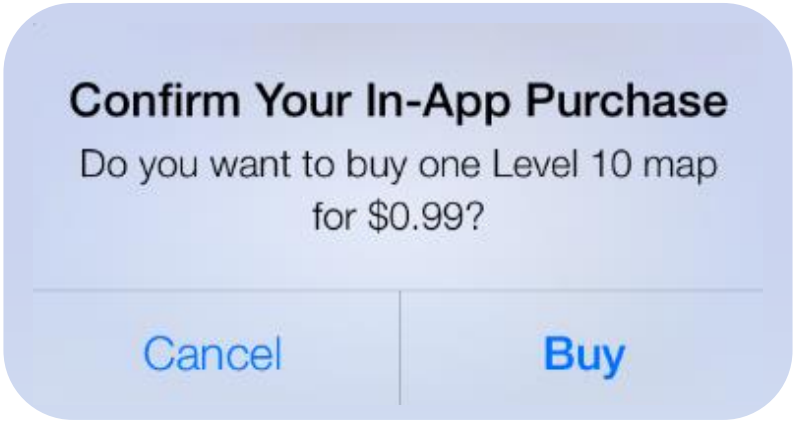
Consider including ads

- In-app advertisements can generate additional revenue – Flappy Bird was reportedly generating $50k per day in ads

Free screen space can be used to host advertisements

Consider in-app purchases

- Use In-App purchases to move from a **free** or **reduced-price** model to a full version of your app, or to add features to the app (but be careful with this!)



What's Next?

- Learn how to package and upload your app to a store
  - iOS App Store
  - Google Play Store (Android)
  - Amazon App Store (Android)
  - Windows Marketplace

- Watch specific video for each platform you want to publish!

Thank You!

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