



Windows® Phone

Windows Phone Application Development

Session 1.4



Topics

- Writing programs for Windows Phone
- The Windows Phone emulator
- Using the Windows Phone features from software
- Silverlight and XNA program development
- Development tools
- Windows Phone Marketplace

Windows Phone Programming

- Writing programs for Windows Phone is the same as writing for any .NET platform
- Edit, compile and debug within Visual Studio
 - But you need to remember you are writing for a platform a bit more constrained than a PC
- You can incorporate .third party NET libraries (assemblies) into your applications

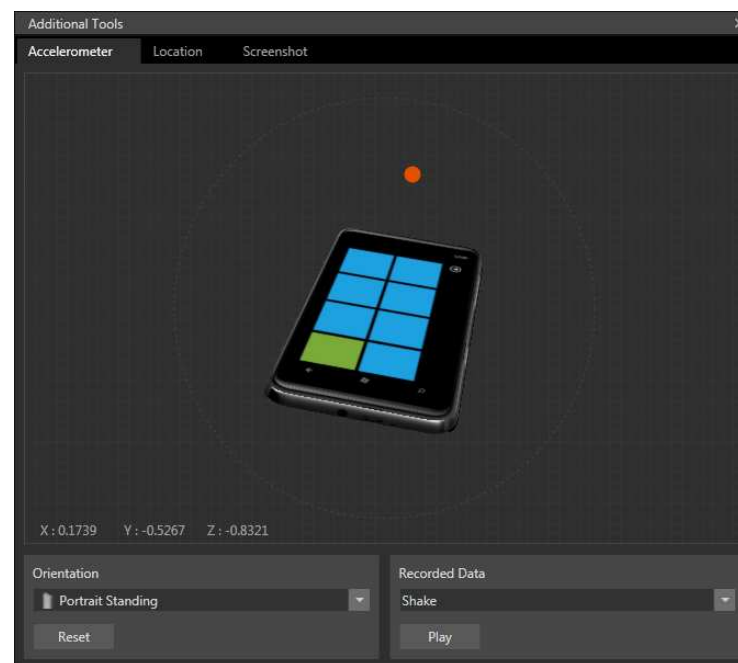
Windows Phone Emulator

- The emulator runs on your PC
- It contains exactly the same code as the real phone, but compiled for the Windows PC
- It lets you see what your programs look like on a device
 - It does not show you what the application performance will be like on a real device



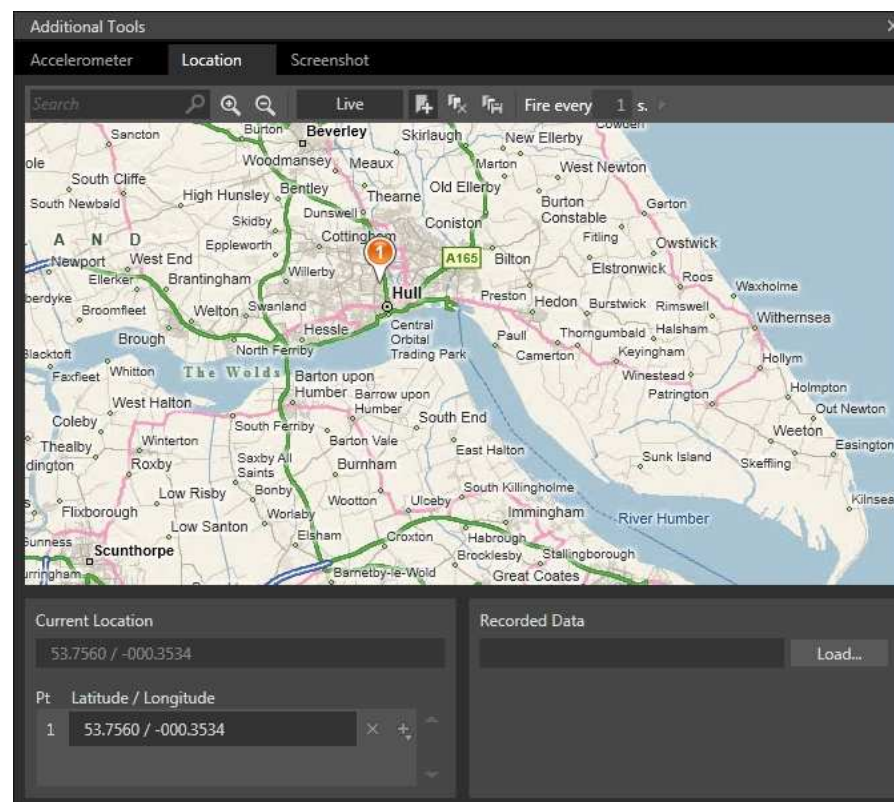
Orientation Emulator

- The emulator allows you to “move” a 3D phone
- The signals sent to the sensors in the emulator match the viewed position
- You can record and replay movements



Location Emulation

- You can select on the map the “location” of the emulator
- You can also record and playback particular routes



Using Windows Phone from software

- Windows Phone provides a library of “Launchers” and “Choosers” that your programs can invoke
 - Launchers start other tasks in the phone
 - Start a phone call
 - Post a status message to a social network
 - Choosers allow the user to select an option and then restart your program so it can use the returned value
 - Select a contact from the Address Book

Network Connectivity

- A Windows Phone will be able to use the 3G phone network and WIFI to connect to the internet
- Your programs will be able to interact with servers, call web services and engage in REST sessions
- In the present version of the operating system there is no support for direct socket connections

Silverlight and XNA applications

- You can build two kinds of applications for a Windows Phone
- Silverlight
 - Business applications and simple casual games
- XNA
 - 2D and 3D games with hardware accelerated graphics
- Combined Silverlight with XNA graphics

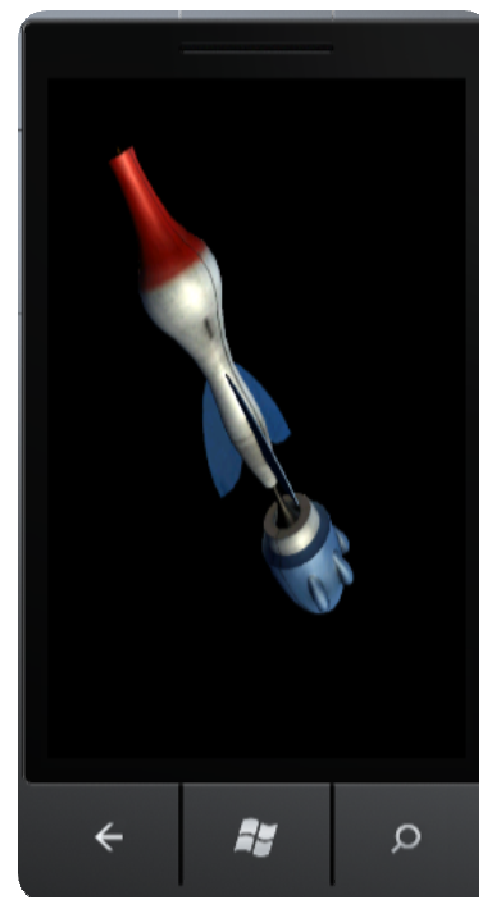
Silverlight Applications

- This is not a very good looking Silverlight application
 - But it does show that you can build displays for user applications using Silverlight
- There are lots of custom display components for the phone that you can use



XNA Applications

- XNA is a game development environment for Windows PC, Xbox and now Windows Phone
- Existing XNA games are very easy to move onto the phone
- The phone provides 3D graphics support for games
 - Built in shaders



Creating an Application

- You select the type of your application (XNA or Silverlight) when you create the new project in Visual Studio
- You can create a Silverlight application that includes an XNA game on one page
- There is no technical reason why you could not create a Silverlight game or an XNA business application

Development Tools

- The Development Tools for the platform are a free download
- They tools provide a version of Visual Studio and the Windows Phone emulator
 - These will also integrate into an existing Visual Studio installation
- You can also obtain free versions of the Expression Blend user interface design tools for Silverlight

Windows Phone Marketplace

- You can develop and test your application on the emulator for free
- To sell your application or deploy it to a real device you must register as a developer
- This costs \$99 per year
- Students can register as developers for free via Microsoft DreamSpark

Marketplace Rules

- In a year of your subscription you can publish any number of applications for sale and up to 100 (!) free ones
 - To distribute more free applications costs \$20 per application
- When you sell an application you get 70% of the price you charge
- You can distribute “demo” and “time trialled” versions of your application

Application Testing

- Before an application can be sold in the marketplace it must pass some acceptance tests
- You can perform these tests from within Visual Studio before you submit your application
- This includes the automated tests and also a walkthrough of the manual tests

Private Beta Tests

- You can submit an application to the Marketplace to be distributed as a “Private Beta Test”
- You can then send up to 100 people individual invites to download the beta software
- They can use the software for 90 days and give you feedback which you can use to improve the application before you release it

Marketplace approval

- A program submitted for sale via marketplace is submitted to an approvals process
- This includes checks for matters of taste and decency, along with proper application behaviour
- If the program fails the process you will be given a report and can re-submit the application

Review

- Windows Phone programs are developed in the same way as any other .NET application
- The Windows Phone emulator does not emulate the speed of the platform
- Programs can make use of phone functions
- Windows Phone programs either Silverlight (business) or XNA (game) based
- The development tools are all free
- You need to join the marketplace to sell apps