#### Embarcadero Conference

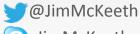




# Mobile Advanced: Notifications, Sensors & Gestures

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### **About Jim McKeeth**

- Lead World Wide Developer Evangelist
- Administrator of the Embarcadero MVP Program
- Host of Podcast at Delphi.org
- Longtime Delphi developer
  - Also Java, JavaScript, C#, Objective-C, etc.
- Invented and patented swipe to unlock in 2000
  - US Patent # 8,352,745, 6,766,456, etc.
- Improvisational performer with ComedySportz Boise

# Agenda

- Notifications
- Gestures
- Interactive Gestures
- Sensors
- Intro to Logging





### **Notifications**

- Announce events outside of App
- Even when App is not running
- Notifications appear in
  - Notification Drawer on Android
  - Notification Center on iOS and OS X
- TNotificationCenter is the component
  - Uses FMX.Platform & FMX.Notification
  - Create, Schedule, Present and set Numbers







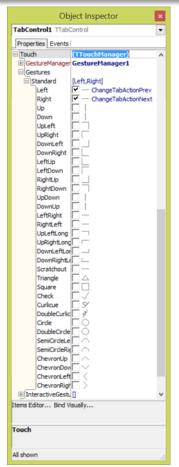
**SendCancelNotifications** 





### **Gestures**

- Can be associated with most any TControl via the Touch property.
- Choose from 34 standard gestures.
- The gesture triggers an OnGesture Event or associated Action when gesture is completed.





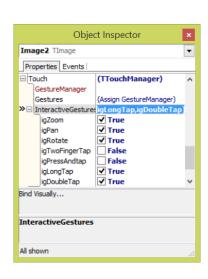
**TabSliding** 





### **Interactive Gestures**

- Also associated via the Touch property
- Choose from 7 common gestures
- OnGesture event continues to fire during the gesture
- Use EventInfo: TGestureEventInfo for interaction information
- Inertia is also provided for limited physics support.





**InteractiveGestures** 



#### **Sensors**

- Sensor information available from the TSensorManager in the System.Senors unit
- Sensor Categories:
  - Location, Environmental, Motion, Orientation, Mechanical,
     Electrical, Biometric, Light, Scanner
- Discover sensors on device and access raw sensor data



### **TSensorManager**

- Category, Name, Model, Manufacturer of the actual hardware or logical (software) sensor
- Properties: Count, Active, Current
- Methods: Activate/Deactivate,
   GetSensorsByCategory, GetSensorsByFilter



SensorInfo



### **Sensing Location**



### **TLocationSensor**

- The <u>Optimize</u> property offers the possibility to turn On or Off the optimization of the location sensor.
- Accuracy: represents the level of precision
- Distance: minimum distance (meters) to trigger relocation
- Requires "Uses Permissions" of
  - AccessCoarseLocation and AccessFineLocation
- Uses GPS as well as WiFi and Tower triangulation



Location



### **Sensing Motion**



#### **TMotionSensor**

- AccelerationX, <u>AccelerationY</u> and <u>AccelerationZ</u> return the acceleration in G's for the X,Y, and Z axis.
- AngleAccelX, AngleAccelY and AngleAccelZ return the angular acceleration in Degrees/Second^2 for the X,Y, and Z axis.
- Speed determines the speed of the device in Meters/ Second.



Accelerometer



### **Sensing Orientation**



### **TOrientationSensor**

- inclinometer x-axis, y-axis, and z-axis angle, expressed in degrees, through the <u>TiltX</u>, <u>TiltY</u>, and <u>TiltZ</u> properties.
- <u>DistanceX</u>, <u>DistanceY</u>, and <u>DistanceZ</u> properties are getters for the distance on the axis, expressed in meters.
- MagHeading, TrueHeading, CompMagHeading, and CompTrueHeading return the compass heading relative to magnetic and true north, uncompensated and compensated.



OrientationSensor



### **Logging on Android**

- All Android devices maintain a debug log accessible via <u>ADB LOGCAT</u> command-line tool
- Also accessible via monitor.bat visual tool.
- Write to log with the Log.d(string message) procedure.
- See dx-library and my CodeRage 8 session Beyond the App for other logging on other platforms.
  - https://code.google.com/p/dx-library/
  - http://www.embarcadero.com/coderage/coderage-8-delphi-sessions



Logging on Android



#### Resources

- Location Sensor http://sn.im/xe5-location
- Notifications <a href="http://sn.im/xe5-notifications">http://sn.im/xe5-notifications</a>
- Gestures <a href="http://sn.im/gesturing\_overview">http://sn.im/gesturing\_overview</a>
- MobileCodeSnippets
  - <a href="http://sn.im/xe5-snippets">http://sn.im/xe5-snippets</a>
  - InteractiveGestures, Orientation, Location, Accelerometer, Gyroscope
- FireMonkeyMobile
  - SensorInfo, LocationDemo, TabSliding
- Mobile Tutorials <a href="http://sn.im/mobile-tutorials">http://sn.im/mobile-tutorials</a>



# THANK YOU AND Q&A

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