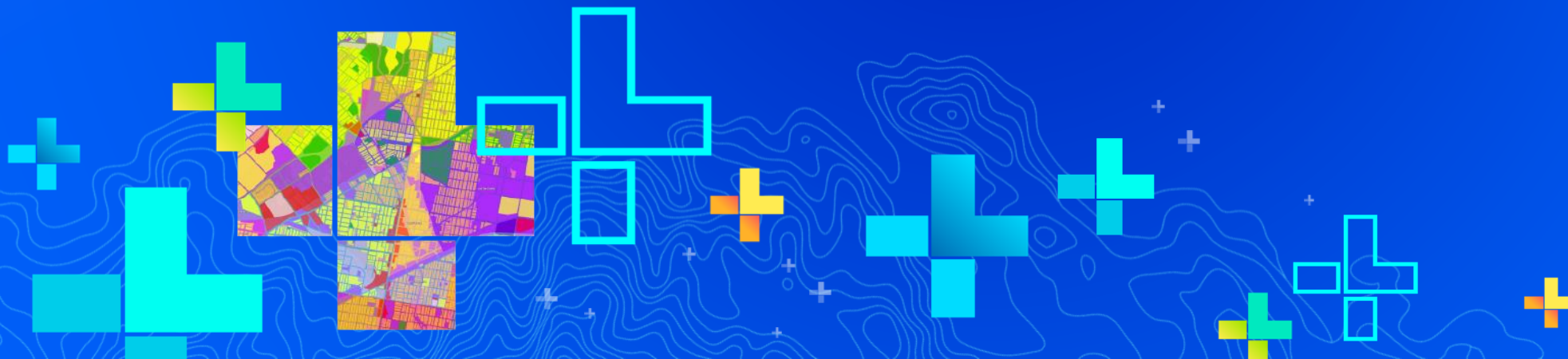# AppStudio for ArcGIS: Advanced Topics

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SEE
WHAT
OTHERS
CAN'T

Adding GNSS Support to your apps

Adding GNSS Support to your apps

- **GNSS – Global Navigation Satellite System (i.e. GPS, GLONASS, …)**
- **Use high precision location sensors with your apps**
- **Access GNSS metadata (DOP, # satellites, …)**
- **Connect via**
  - **USB/Serial**
  - **Bluetooth**
  - **Network**

AppStudio AppFramework components

- `import ArcGIS.AppFramework.Devices 1.0`

- `DeviceDiscoveryAgent`

- `DeviceListModel`

- `PositionSource` **(Enhanced and backwards compatible with Qt's `PositionSource`)**

- `DataSource`

- `NmeaSource`

Getting started

- **Blog and sample code make it easier to get started**
  - **Ready to to use high level components**
  - **User interface for configuration**
  - **Persist settings**
  - **Establish and manage connection**

GNSS Plugin

- **Designed to drop in to a new or existing application**
  - `import "./GNSSPlugin"`

- **Ready to use high level components**
  - **Connection manager - `GNSSManager`**
  - **Discovery and configuration - `GNSSSettingsPages`**
  - **Data display - `GNSSInfoPages`**

GNSSManager

- **Manages connection to a GNSS receiver**

- **Monitors connection status**

- **Presents user alerts based on settings**

- **Adjusts altitude based on settings**

- **Establish connection with `start()` function**

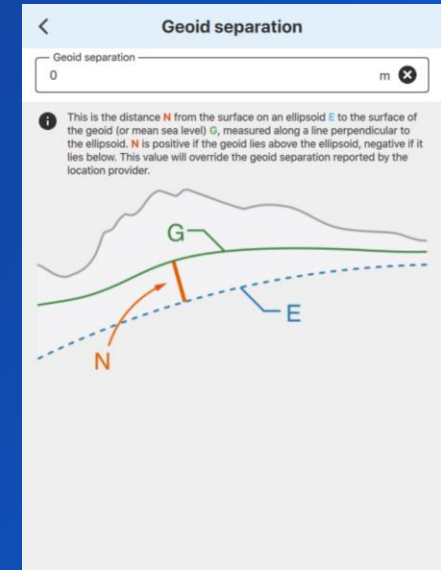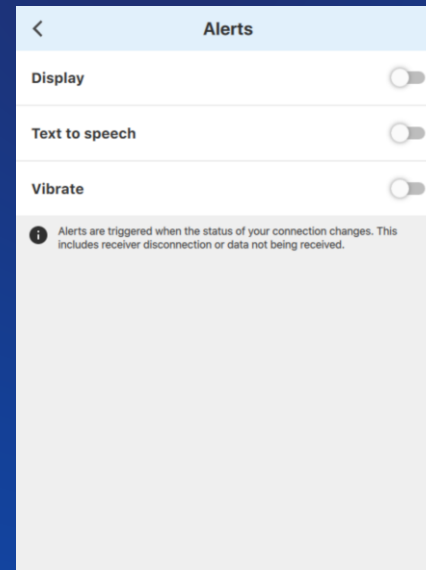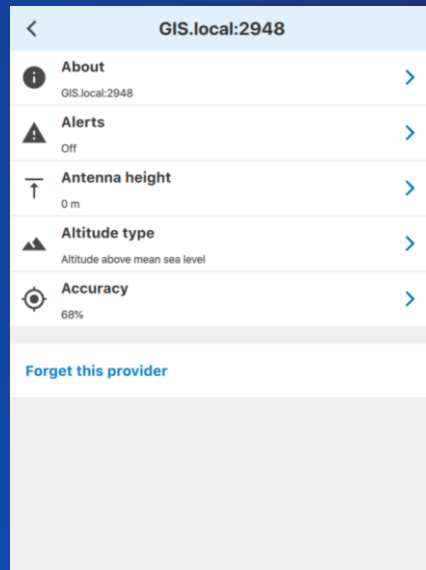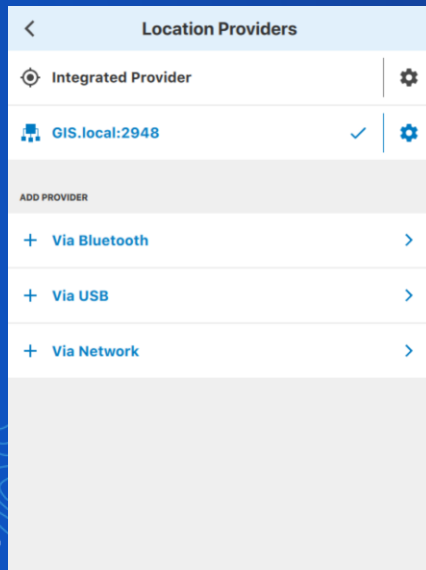- **Close connection with `stop()` function**

```
GNSSManager {
    id: gnssManager
}
```

GNSSSettingsPages

- **User interface components to configure a GNSS receiver**
- **Uses the DeviceDiscoveryManager**
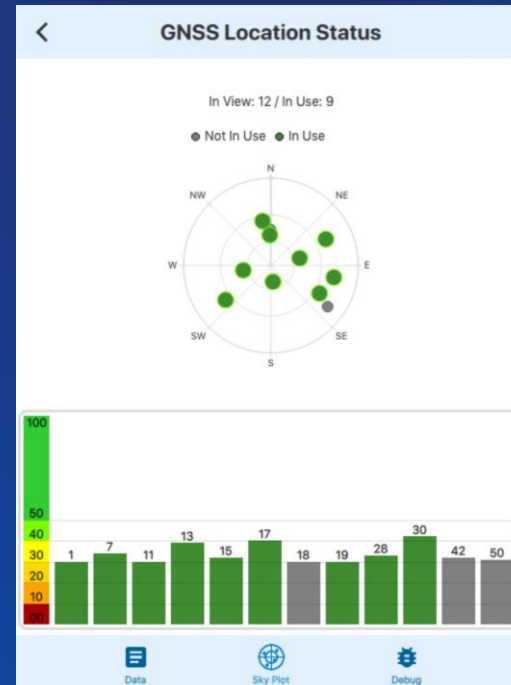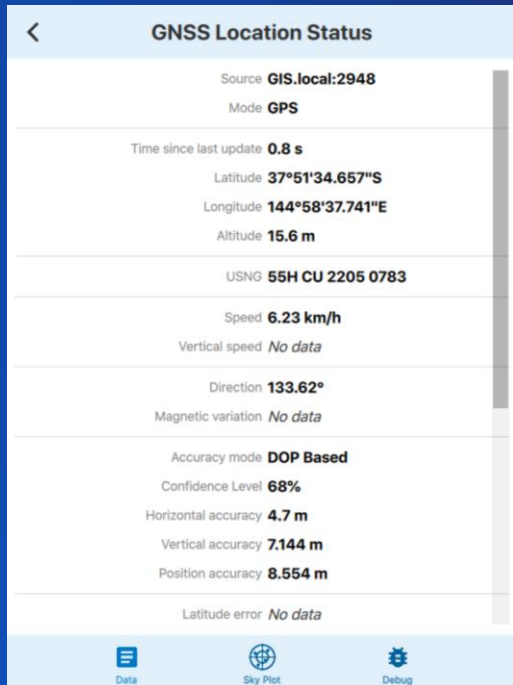- **Persists settings in the app's settings file**

```
GNSSSettingsPages {
    id: gnssSettingsPages
    gnssManager: gnssManager
}
```

GNSSInfoPages

- **GNSS Data**

- **Skyplot**

- **Raw data stream**

```
GNSSInfoPages {
    id: gnssInfoPages
    gnssManager: gnssManager
}
```

Helper Controls - **GNSSSettingsButton**

Launches settings pages

```
GNSSSettingsButton {
           Layout.rightMargin: 10

           width: 30
           height: width
           color: "black"

           gnssSettingsPages: gnssSettingsPages
}
```

Helper Controls - **GNSSInfoButton**

Launches info pages

Animated activity

```
GNSSInfoButton {
            Layout.rightMargin: 10

            width: 30
            height: width
            color: "black"

            gnssInfoPages: gnssInfoPages
}
```

GNSS + ArcGIS Runtime MapView

- **GNSSManager is compatible with the `positionSource` in a `MapView`'s `locationDisplay`**

```
MapView {
    locationDisplay {
        positionSource: gnssManager
    }
}
```

Enable App Capabilities

Special Requirements for iOS

- **Receiver must be part of <u>Apple's MFi Program</u>**
  - **Note: Not required when using a network connection**

- **Receivers must be whitelisted in `appinfo.json` e.g.-**
  - ```
    "externalAccessoryProtocolStrings": [
    ```
  - ```
        "com.bad-elf.gps",
    ```
  - ```
        "com.eos-gnss.positioningsource",
    ```
  - ```
        "com.leica-geosystems.zeno.gnss"
    ```
  - ```
    ]
    ```

- **Receiver vendor must whitelist your app – You will need to contact the vendor**
- **Don't whitelist vendors that have not whitelisted your app**

Please Share Your Feedback in the App

Download the Esri Events app and find your event
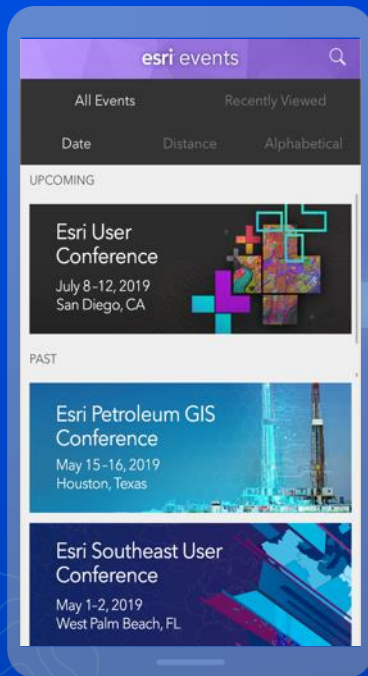
Select the session you attended
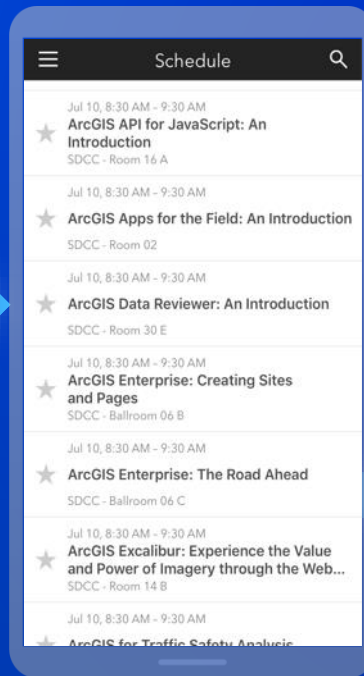
Scroll down to "Survey"
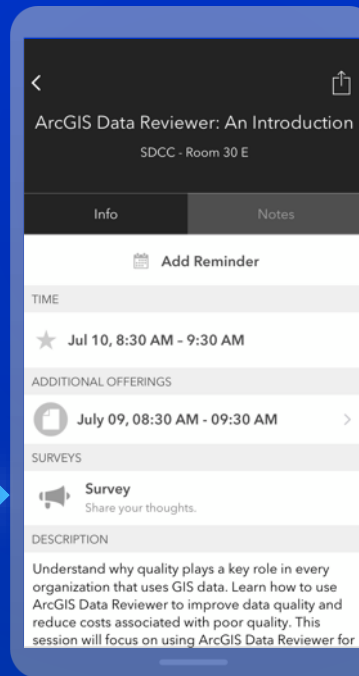
Log in to access the survey
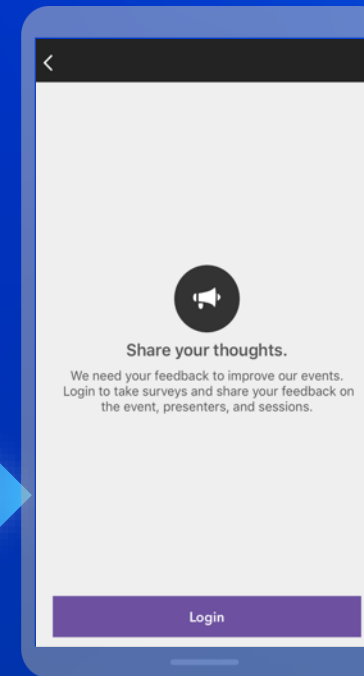
Complete the survey and select "Submit"