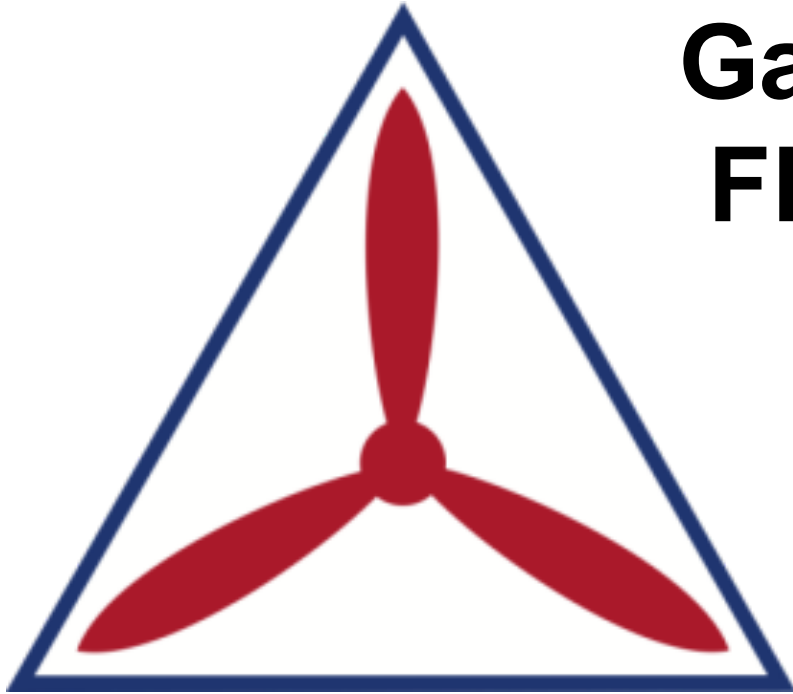


# Civil Air Patrol



## Garmin Virb Camera Kit & FEMA Uploader Training

Lt Col Eric Templeton, CAP

&

Mr. John Desmarais



# **BUILDING CAP'S TEAM**

**... FOR TODAY AND TOMORROW**

## **Post Disaster Photography for Rapid Damage Evaluation**

### **External Mount Camera Nadir Photography**



# Webinar Presenters



John Desmarais  
Director of Operations  
National Headquarters



Lt Col Eric Templeton  
Mission Aircrew School Commandant  
National Emergency Services Academy



# Webinar Rules of Engagement

- ✂ Members in the field will be in listen only mode. We have several hundred members signed up, so having everyone with an open microphone is not supportable.
- ✂ We will try to answer questions throughout the webinar though. Just type your questions, and we will either answer you directly via text or provide a voice answer to your question.
- ✂ The webinar itself, questions, and chat log are being recorded, so please remain respectful.



# Garmin Virb Kit Deployment

- ✂ CAP will be deploying 142 units by the end of November and then another 233 in early January once all of the remaining parts arrive.
- ✂ We will be making an even distribution across the aircraft fleet.
- ✂ The goal is to have these kits deployed to 68% of the fleet by the end of January
- ✂ Prior to shipment, NHQ will coordinate with each Wing Commander to determine where these resources will be assigned.
- ✂ Do not contact NHQ requesting one for your unit. Please work with your command staff.



# Disaster Photography

- ✂ **Project Definition**
- ✂ Project Goals
- ✂ Customer Use of Imagery
- ✂ Equipment – Garmin Virb Kits
- ✂ Application
- ✂ State of Testing / Next Steps



# Project Definition

- ↘ Fast Delivery of Imagery
- ↘ Sufficient Detail for Initial Damage Assessment
- ↘ Simple to use system of Camera's and mounts
- ↘ Ability for use with all Disaster Types



# Disaster Photography

- Project Definition
- Project Goals**
- Customer Use of Imagery
- Equipment – Garmin Virb Kits
- Application
- State of Testing / Next Steps





# Project Goals

- ✂ Stand alone Application for loading imagery
- ✂ Web site for advanced support of imagery loading
- ✂ Support for Geo-Tagged
- ✂ Support for Non Geo-Tagged images with NEMA track log file (Web-Application only)
- ✂ Simple kits including a camera and mounts to be issued to wings



# Disaster Photography

- Project Definition
- Project Goals
- Customer Use of Imagery**
- Equipment – Garmin Virb Kits
- Application
- State of Testing / Next Steps



# Customer Use of Imagery

✂ Fast online evaluation of damage

- Wind, Flood, Fire, Earthquake

✂ Ability to verify damage levels

- Destroyed / Leveled
- Major Damage
- Minor Damage
- No Apparent Damage



# Customer Use of Imagery

- ✂ The imagery will provide a fast evaluation to determine if the homeowner should receive emergency payment for shelter, food and clothing.
- ✂ The imagery is not for the determination of payment on the structure / automobiles etc.
- ✂ Crowd Sourcing (lots of online available people) to review and grade the images

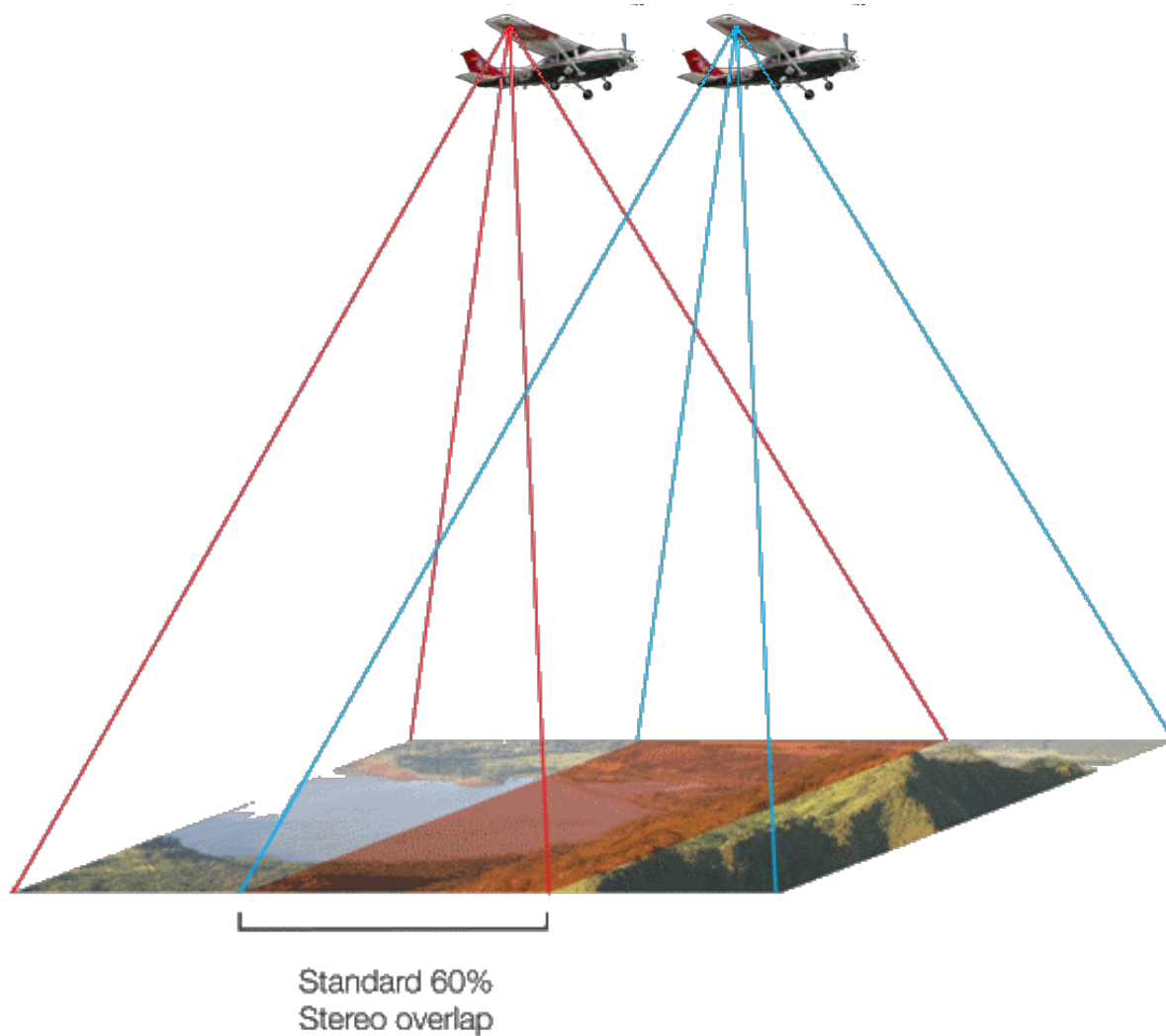


# Flight Profile

- ✂ 2500 AGL
- ✂ 100 KTS Ground Speed (+/- 5 KTS)
- ✂ Suggest 1 notch of flaps for wing level flight
- ✂ Camera at 10 Second intervals
- ✂ 1/2 mile grid or “line to line” spacing
  - As Briefed

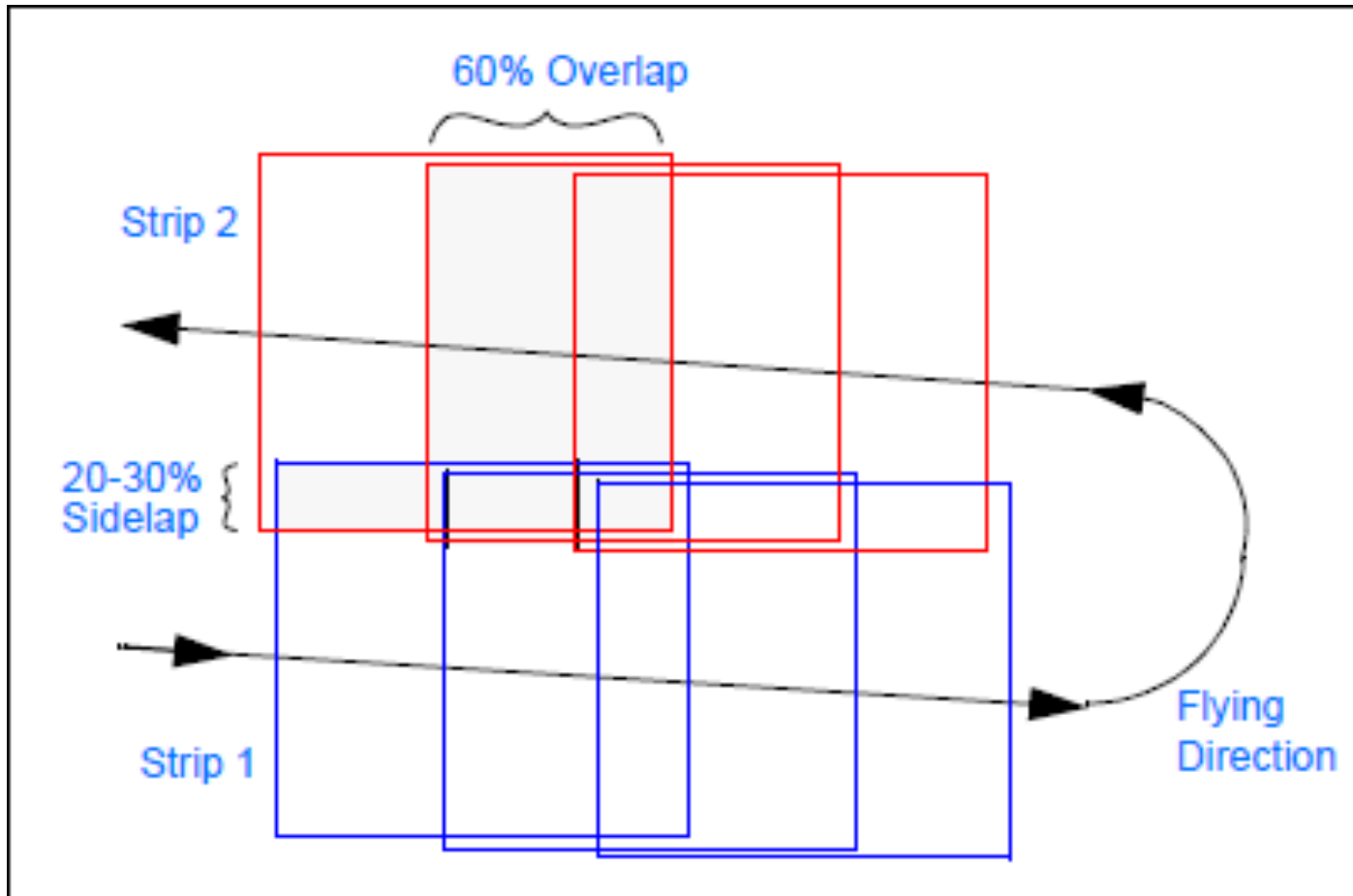


# Flight Profile - Nadir



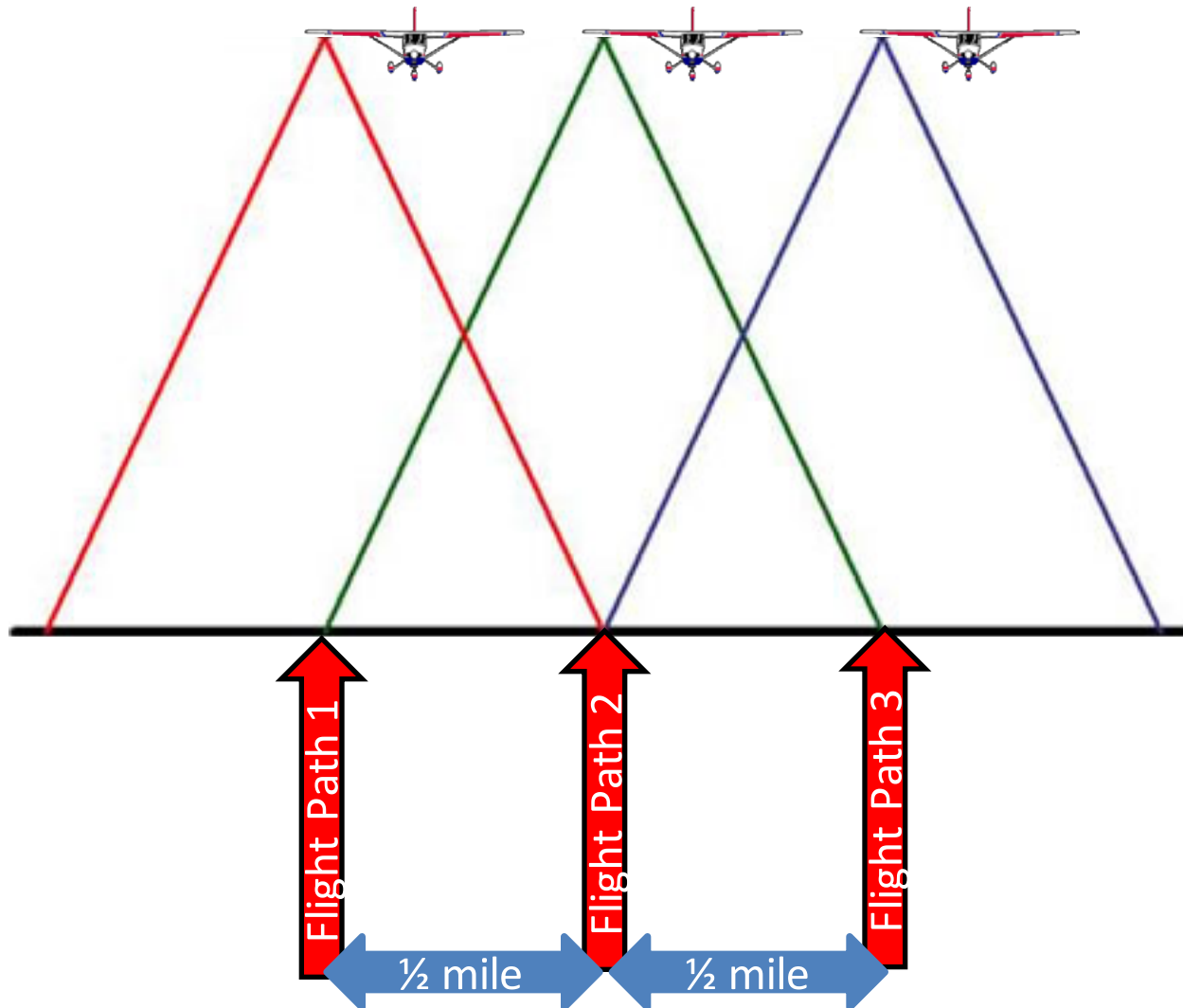


# Flight Profile - Nadir





# Flight Profile - Nadir







# Flight Profile #1

## ✂ Flight Profile

- 2500 AGL, 100 KTS,  $\frac{1}{2}$  mile grid
- Camera at 10 Second intervals

## ✂ Flight Profile Yields

- 2500 AGL, 100 KTS,  $\Rightarrow$  ~57% Endlap
  - Endlap is overlap ALONG the flight path.
- $\frac{1}{2}$  mile grid (line to line)  $\Rightarrow$  ~100% Sidelap
  - Sidelap is overlap flight path to flight path



# Flight Profile #2

## ✂ Flight Profile

- 1500 AGL, 100 KTS,  $\frac{1}{2}$  mile grid
- Camera at 10 Second intervals

## ✂ Flight Profile Yields

- 1500 AGL, 100 KTS,  $\Rightarrow$  ~24% Endlap
  - Endlap is overlap ALONG the flight path.
- $\frac{1}{2}$  mile grid (line to line)  $\Rightarrow$  ~61% Sidelap
  - Sidelap is overlap flight path to flight path



# Disaster Photography

- Project Definition
- Project Goals
- Customer Use of Imagery
- Equipment – Garmin Virb Kits**
- Application
- State of Testing / Next Steps



# Equipment – Garmin Virb Kits

- ┆ Garmin Virb Elite
- ┆ Additional mounting pads & batteries, Memory card (64GB), USB charger, dive case.
- ┆ Samsung Galaxy Tab 4
- ┆ Cover
- ┆ Pelican Case
- ┆ Accessories
- ┆ Manual(s)



# Equipment – Garmin Virb Kit





# Garmin Virb Kit - Accessories



USB Power



Basic Accessories



Extra Mounting Pads

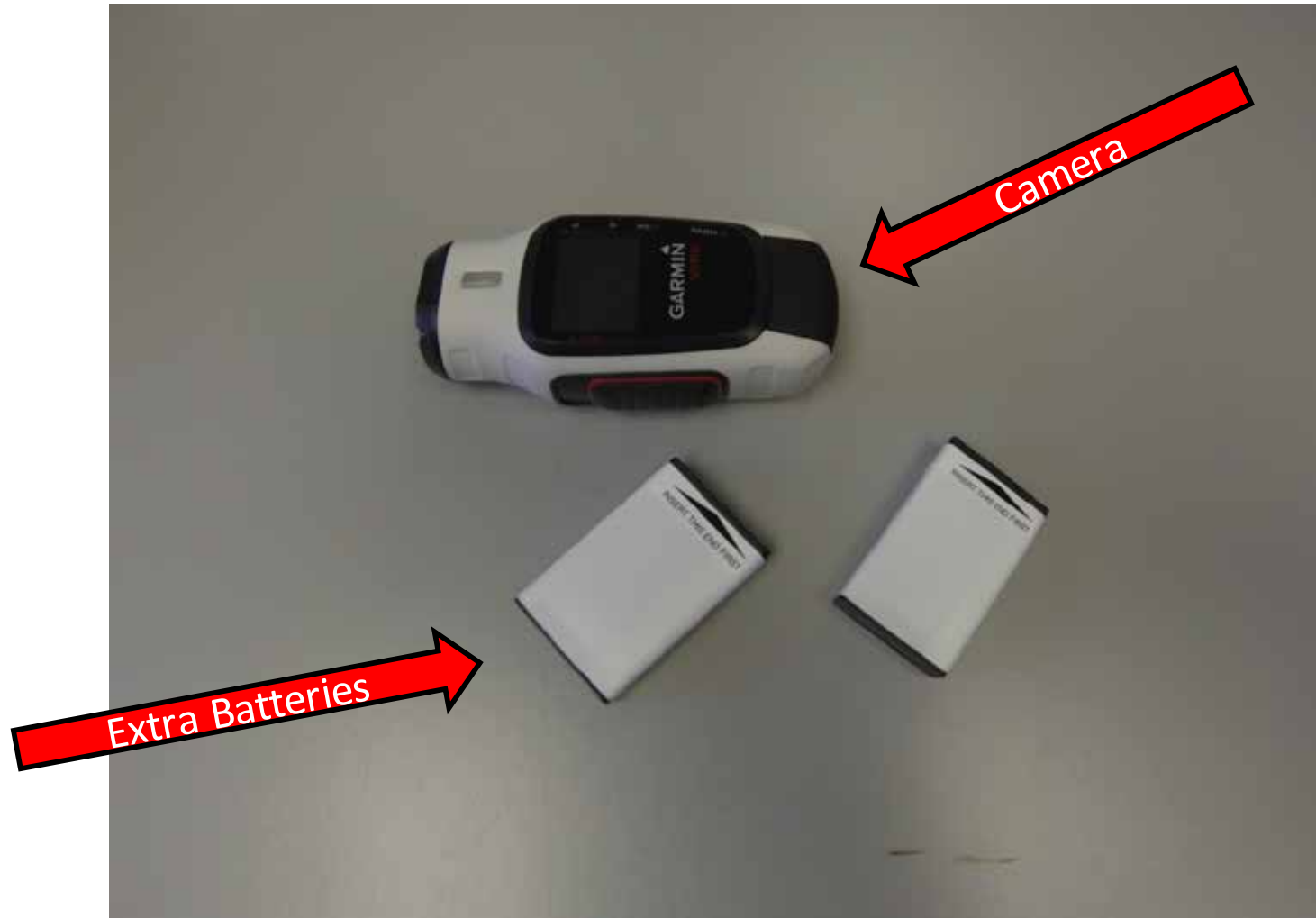


# Garmin Virb Kit - Camera





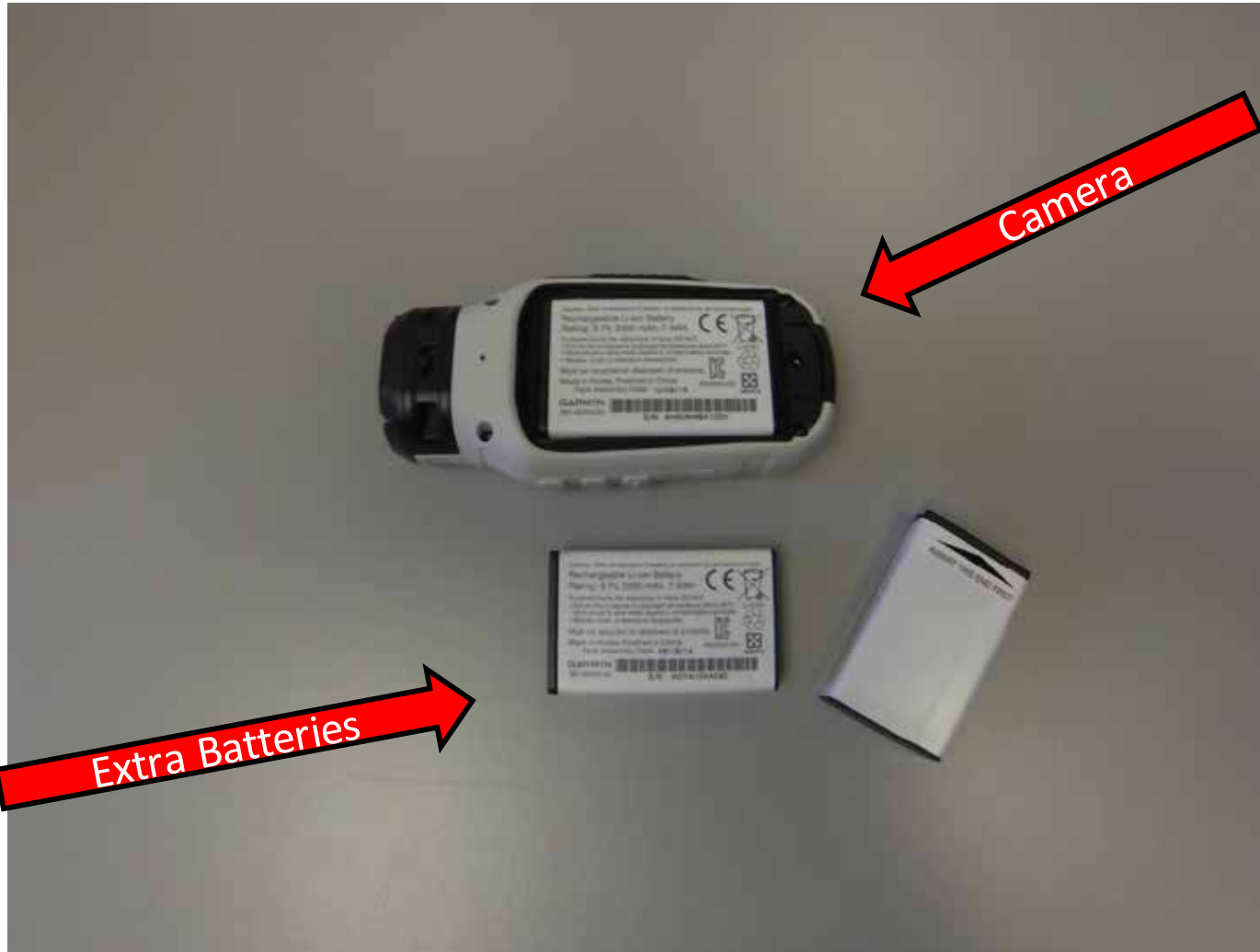
# Garmin Virb Kit - Camera





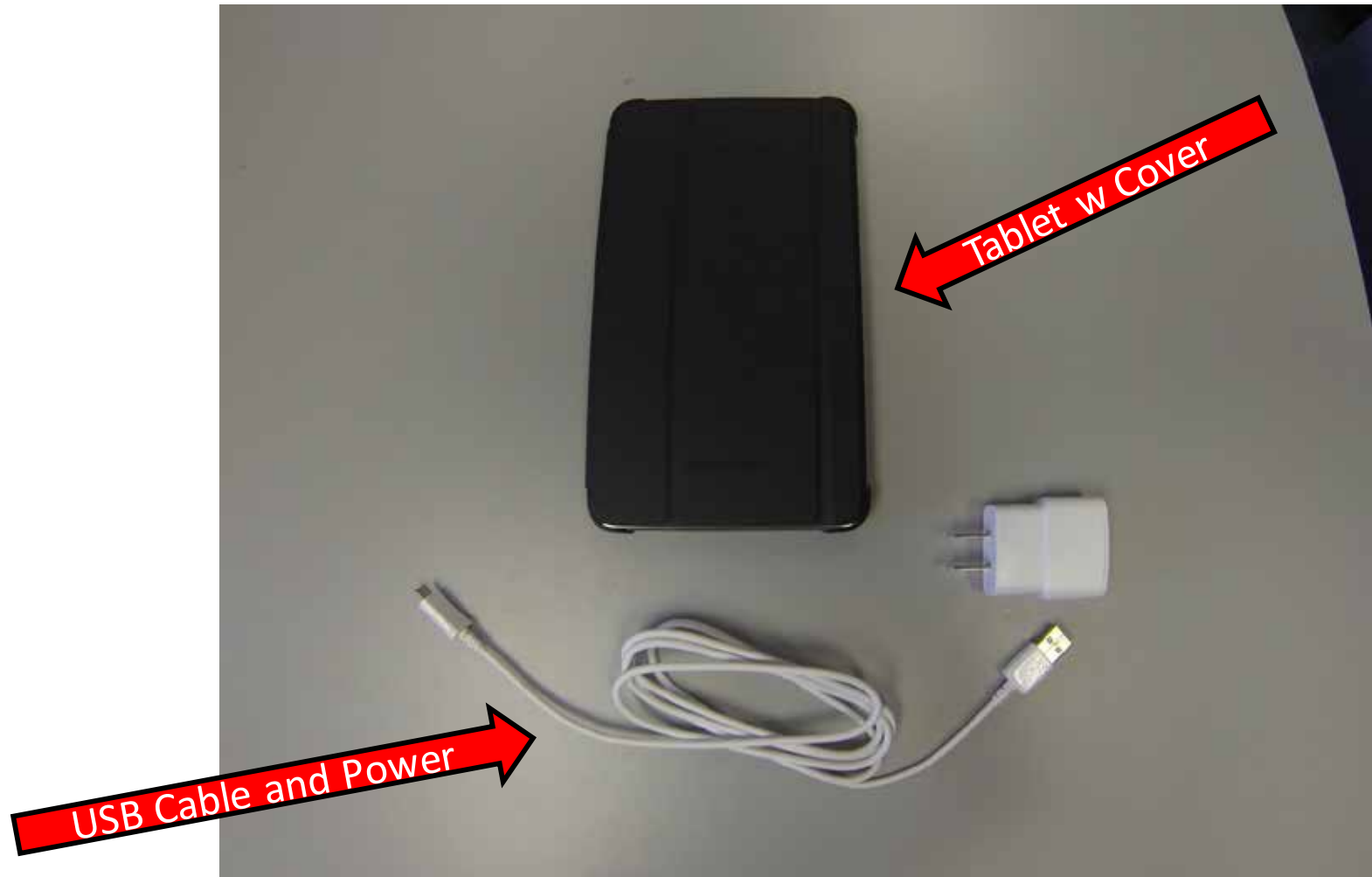


# Garmin Virb Kit - Camera





# Garmin Virb Kit - Tablet





# Disaster Photography

- ↘ Project Definition
- ↘ Project Goals
- ↘ Customer Use of Imagery
- ↘ **Equipment – Garmin Virb Kits**
  - **Samsung Tablet**
- ↘ Application
- ↘ State of Testing / Next Steps



# Garmin Virb Kit - Tablet



Tablet w Cover

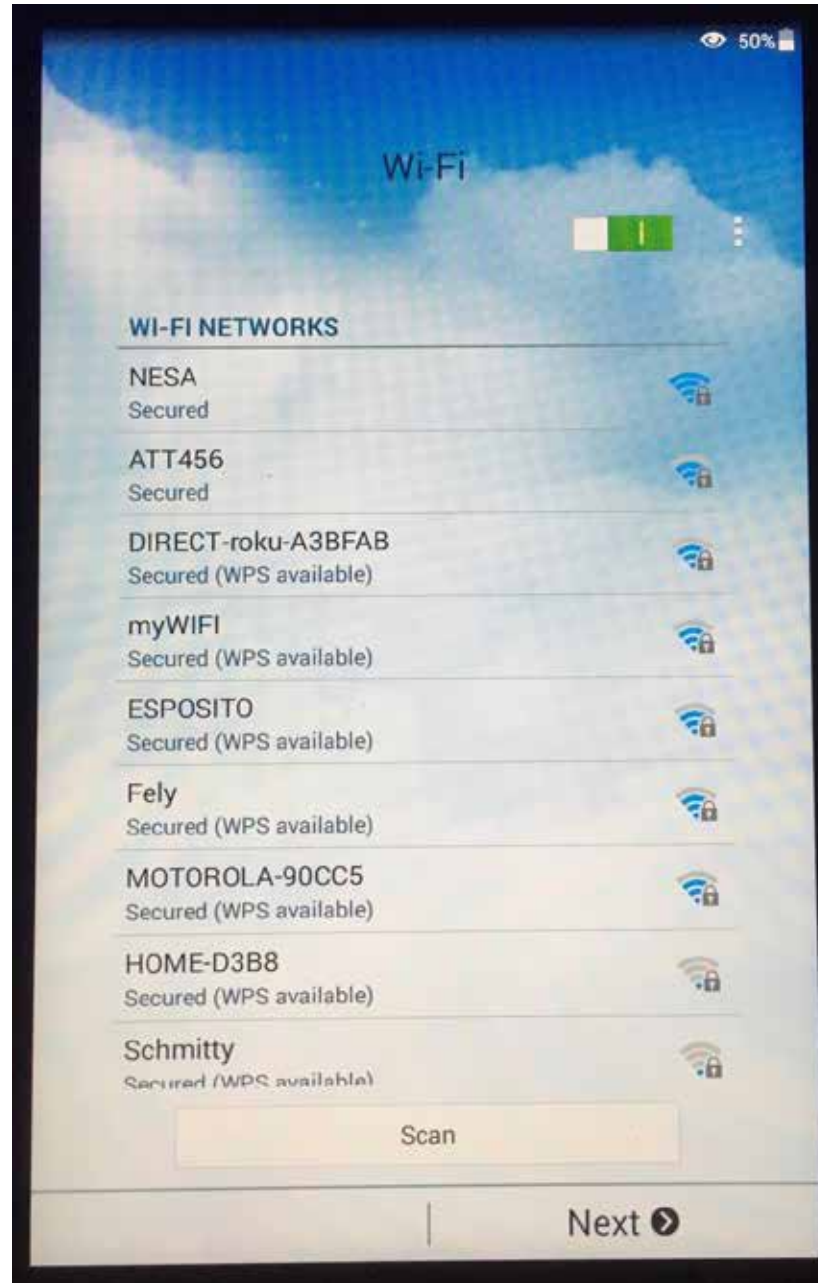


# Garmin Virb Kit - Tablet



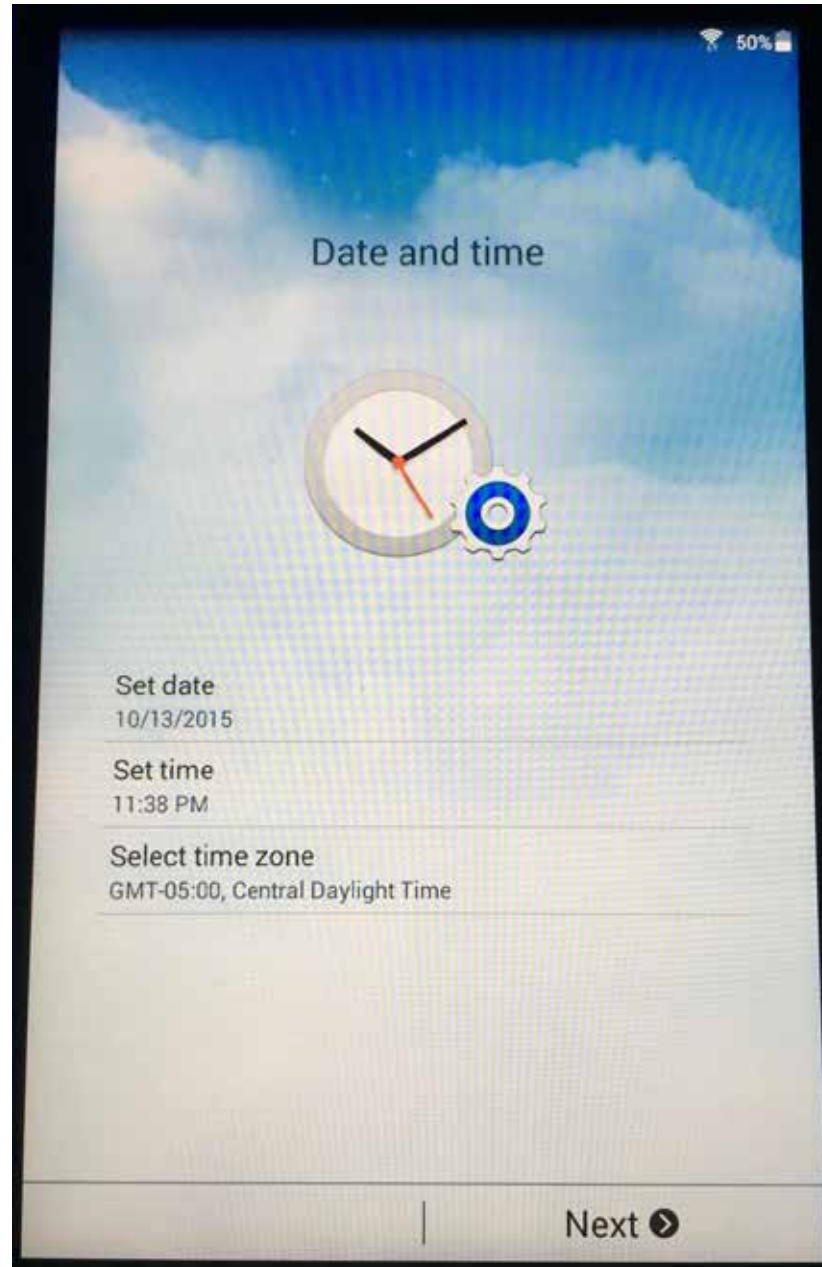


# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet

50%

## EULA & Diagnostic Data

End User License Agreement for Software

IMPORTANT. READ CAREFULLY: This End User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and Samsung Electronics Co., Ltd. ("Samsung") for software, owned by Samsung and its affiliated companies and its third party suppliers and licensors, that accompanies this EULA, which includes computer software and may include associated media, printed materials, "online" or electronic documentation in connection with your use of this device ("Software").

This device requires the use of preloaded software in its normal operation. BY USING THE DEVICE OR ITS PRELOADED SOFTWARE, YOU ACCEPT THE TERMS OF THIS EULA. IF YOU DO NOT ACCEPT THESE TERMS. DO NOT USE THE DEVICE OR THE

I understand and agree to the terms and conditions above.

You agree to provide Samsung the error log data from any Software Update failure your device experiences. This will assist Samsung to improve and enhance Samsung's Software Update process and ultimately help you keep your device properly updated.

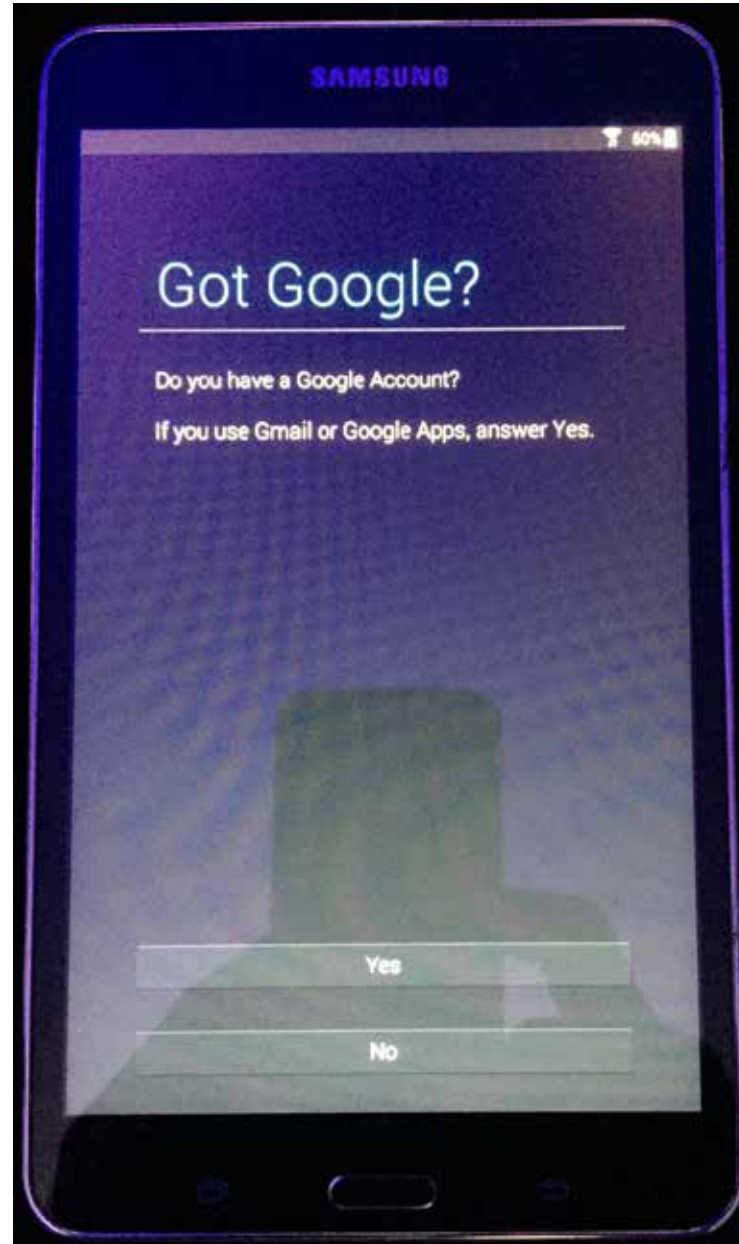
Yes  
 No thanks

Next ➔





# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet



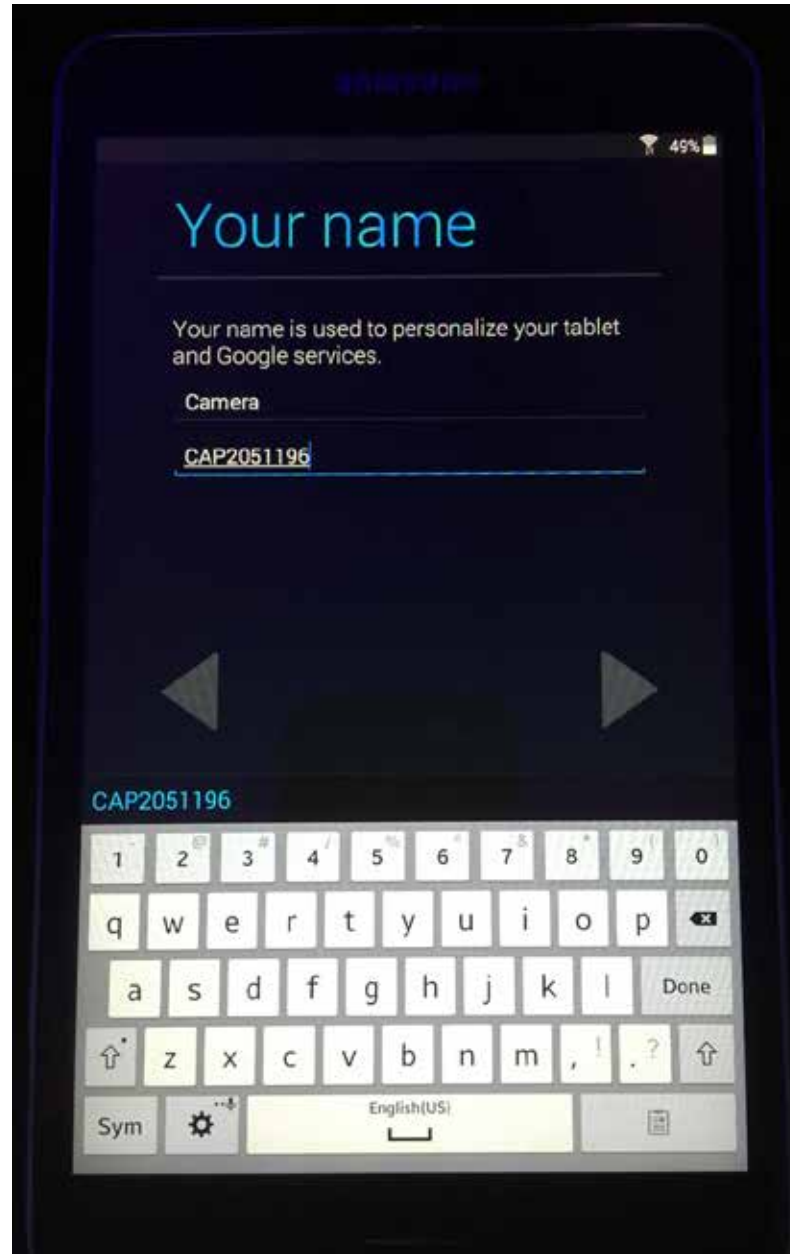


# Garmin Virb Kit - Tablet





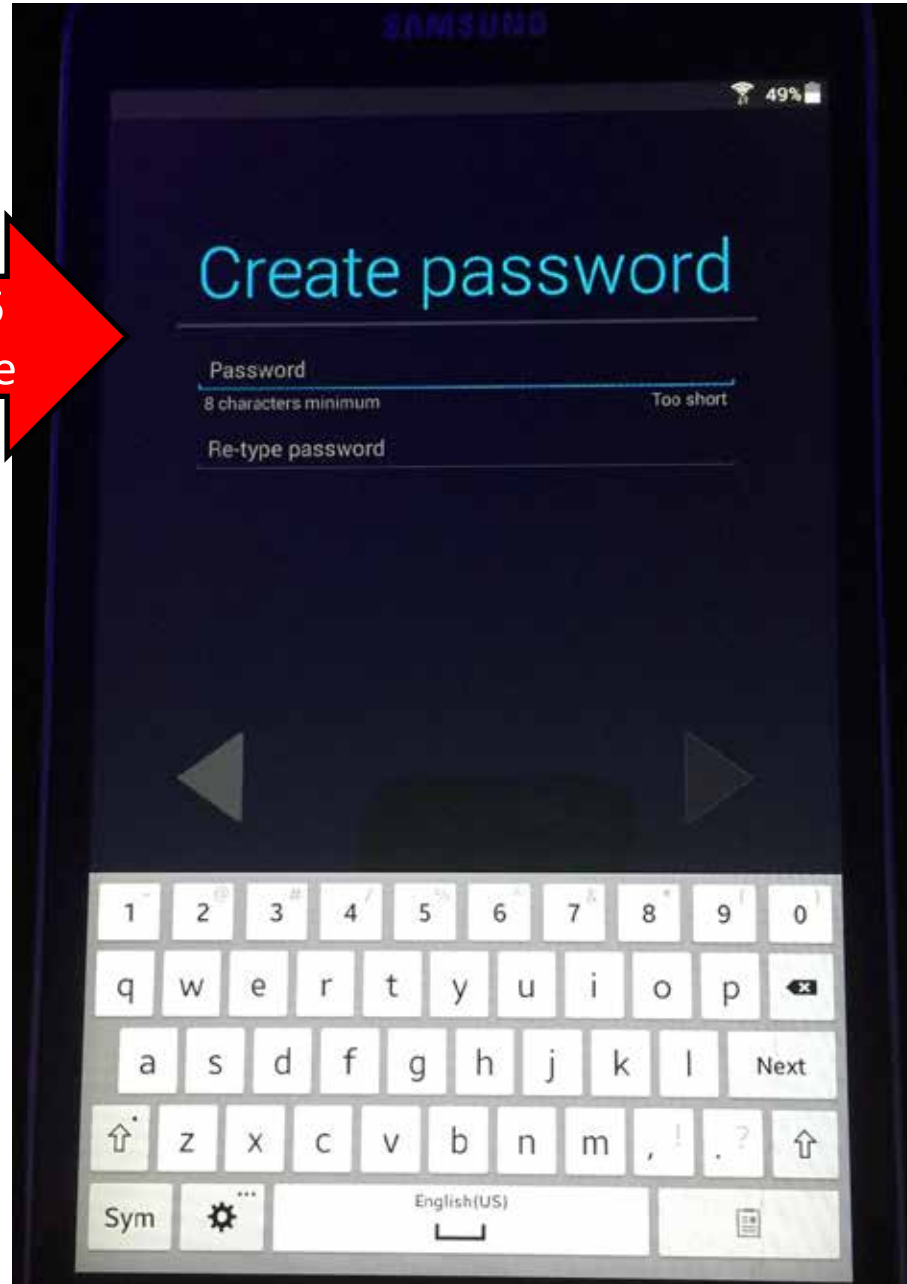
# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet

camera2051196  
use all lower case



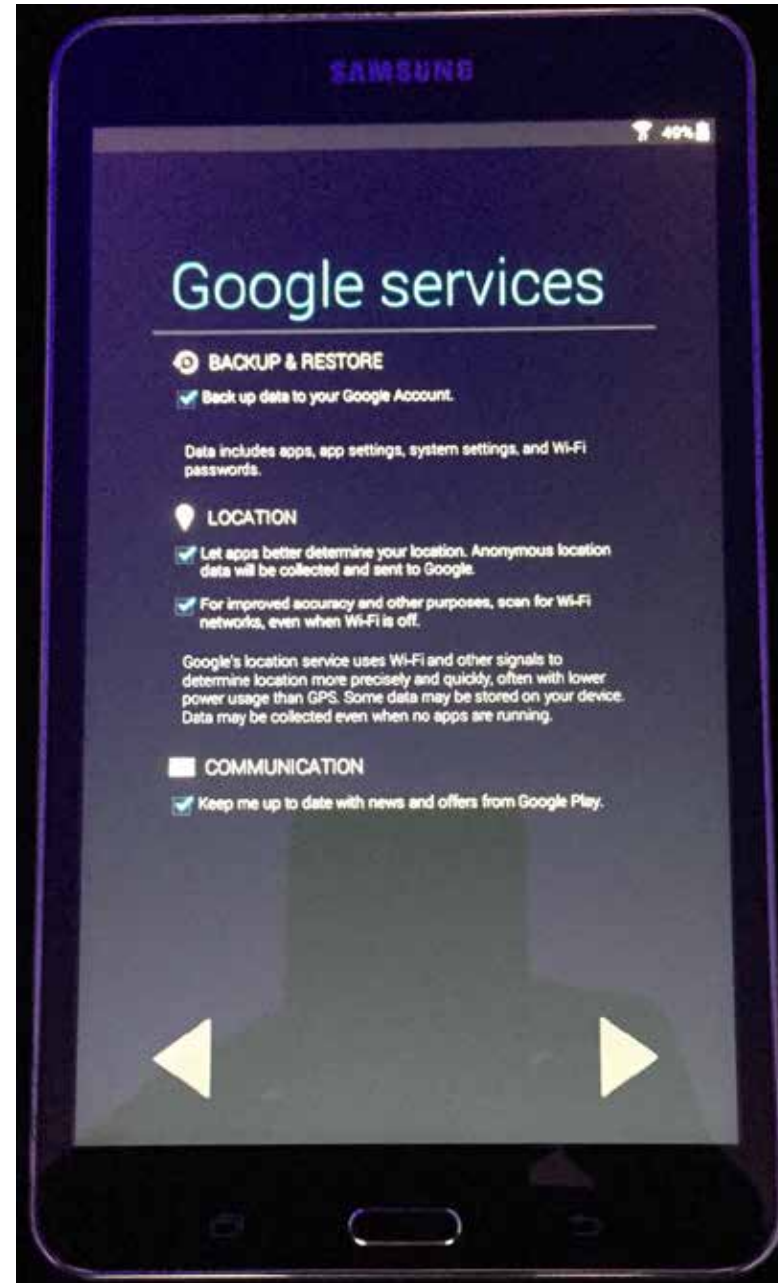


# Garmin Virb Kit - Tablet



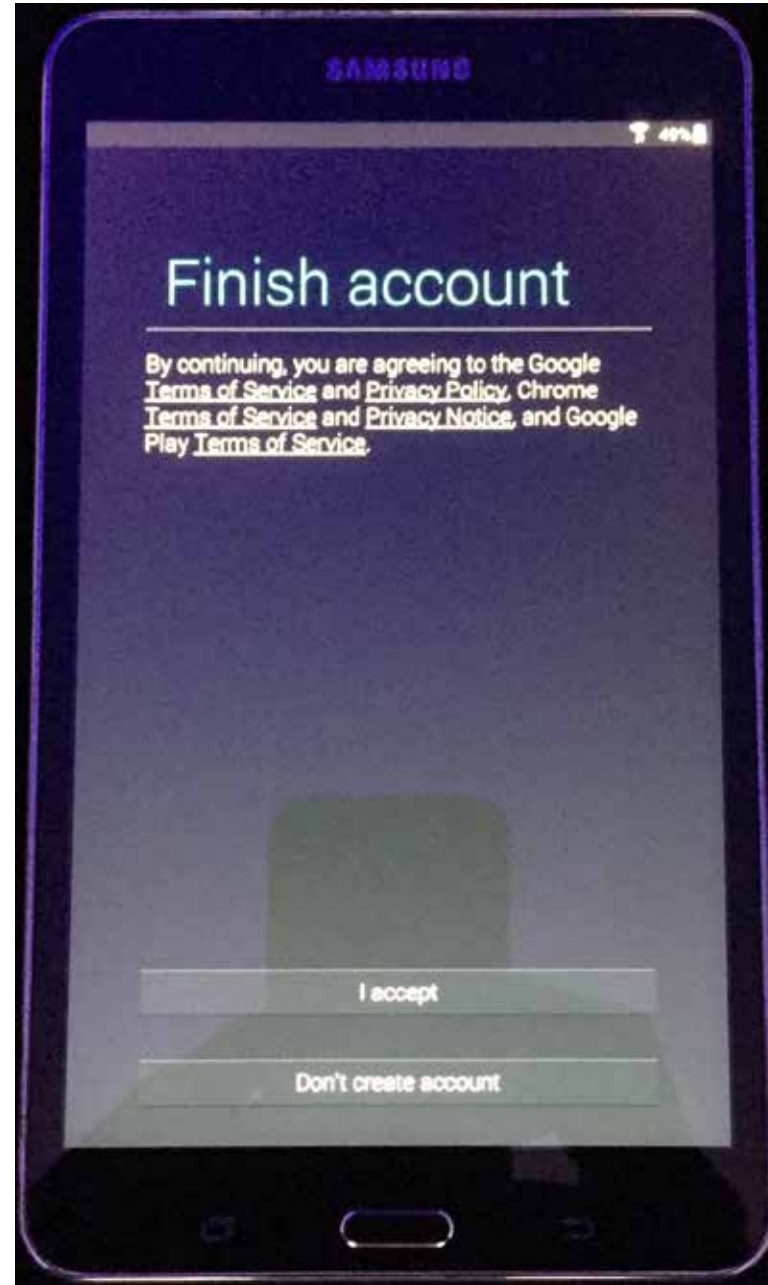


# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet







# Garmin Virb Kit - Tablet



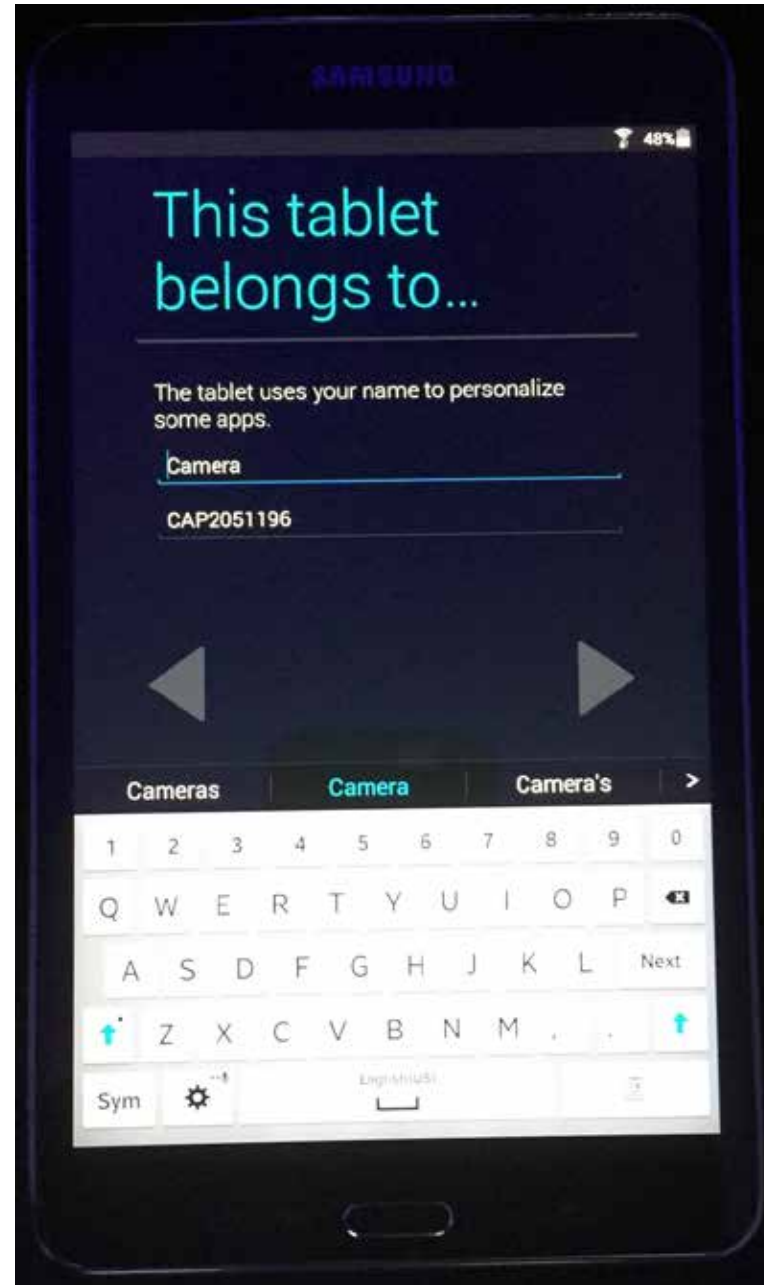


# Garmin Virb Kit - Tablet



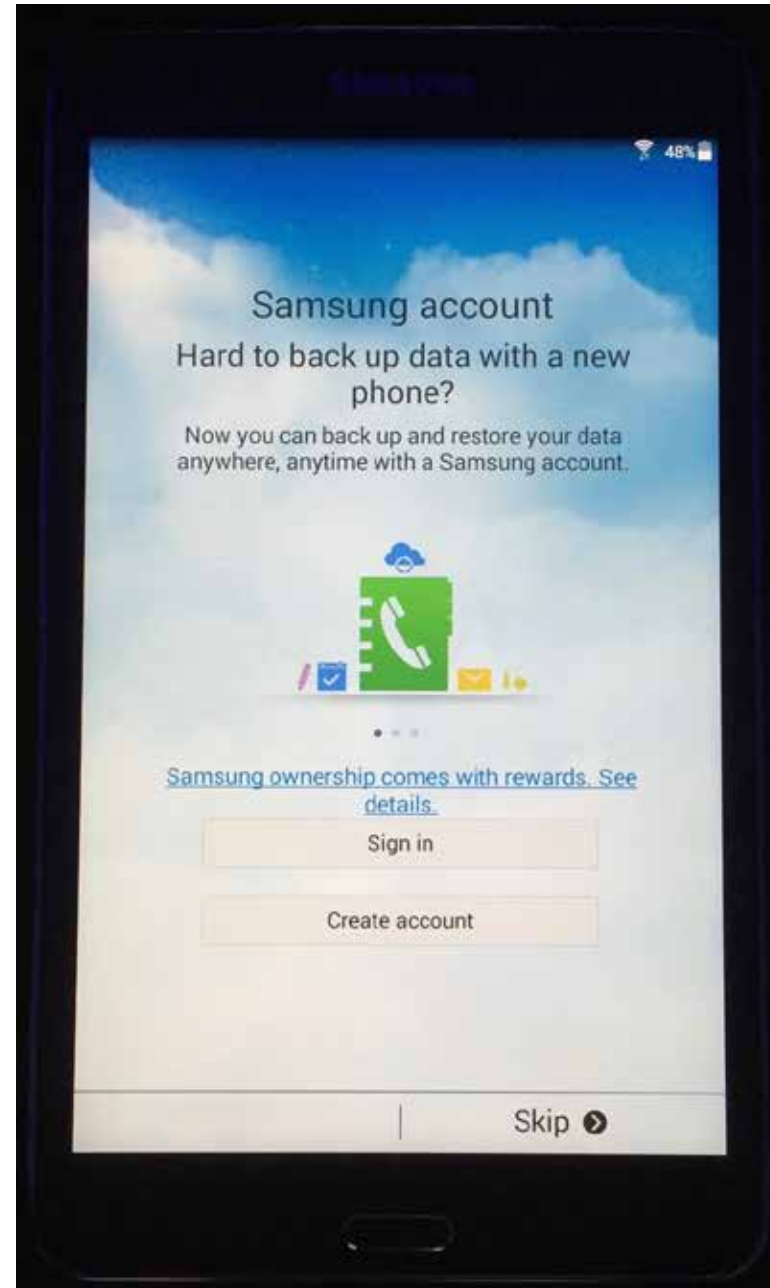


# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet



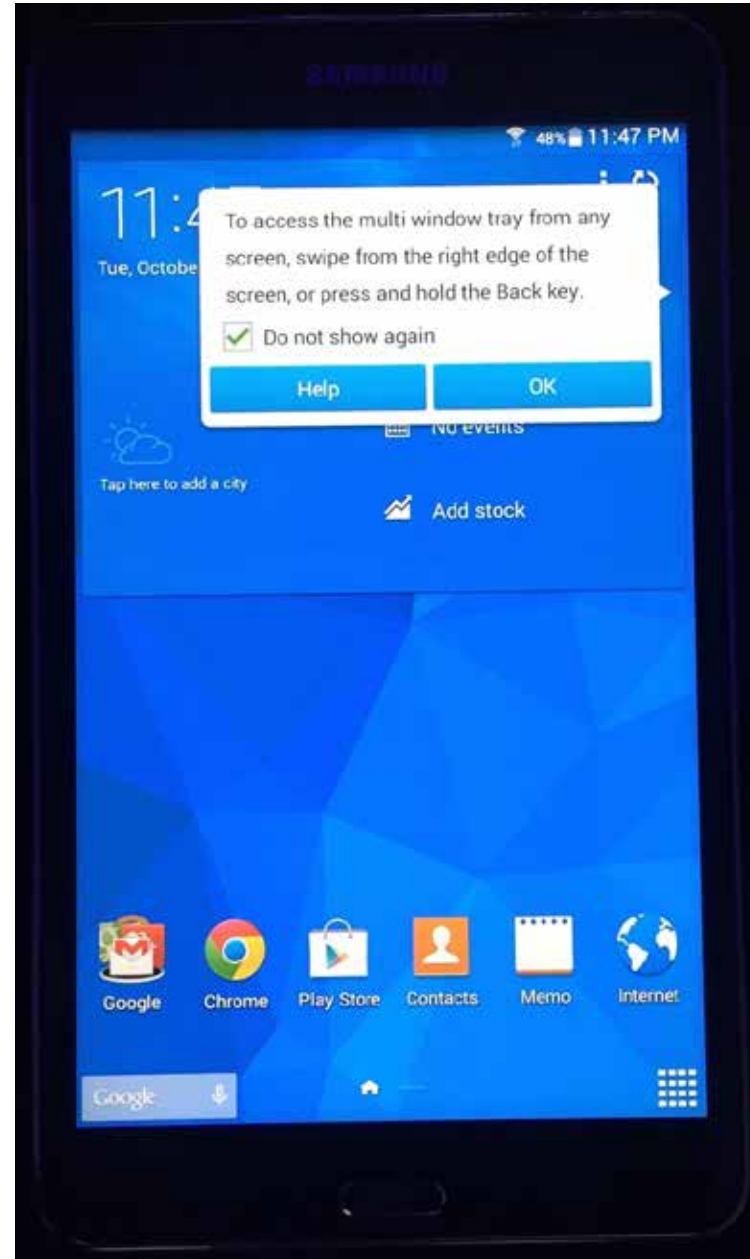


# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet







# Garmin Virb Kit - Tablet



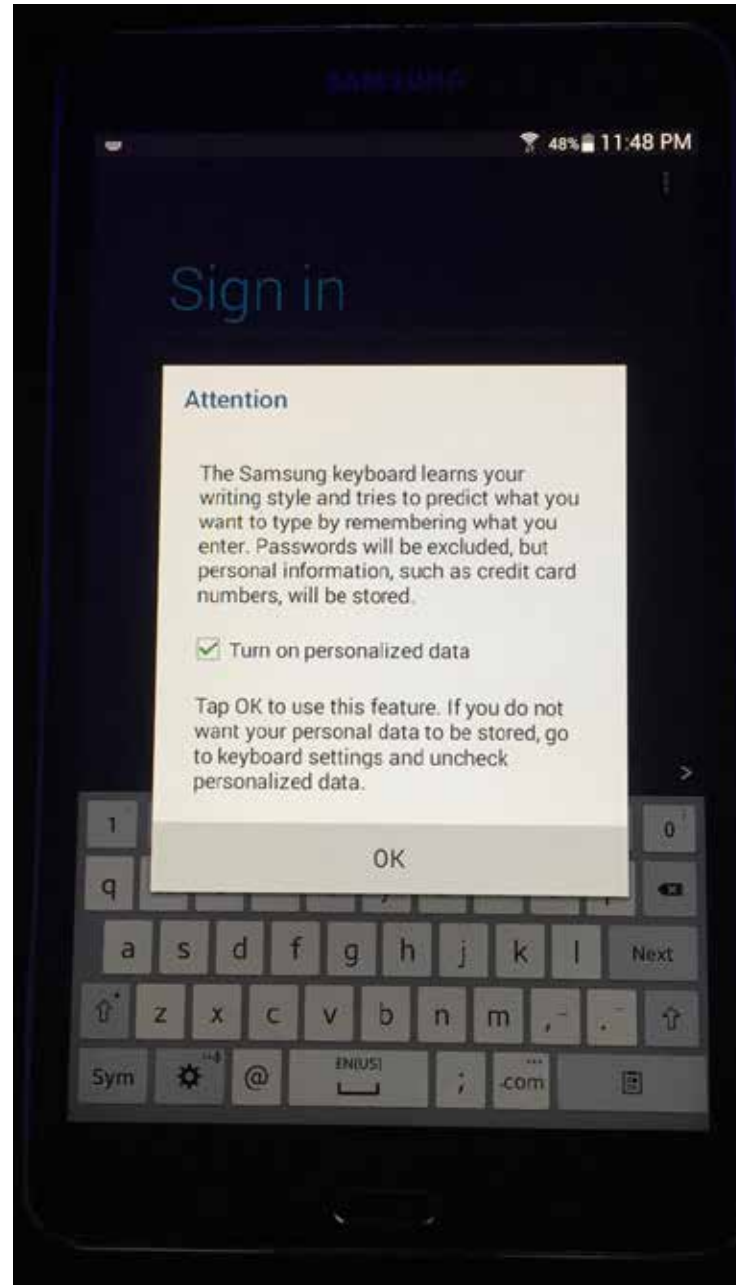


# Garmin Virb Kit - Tablet



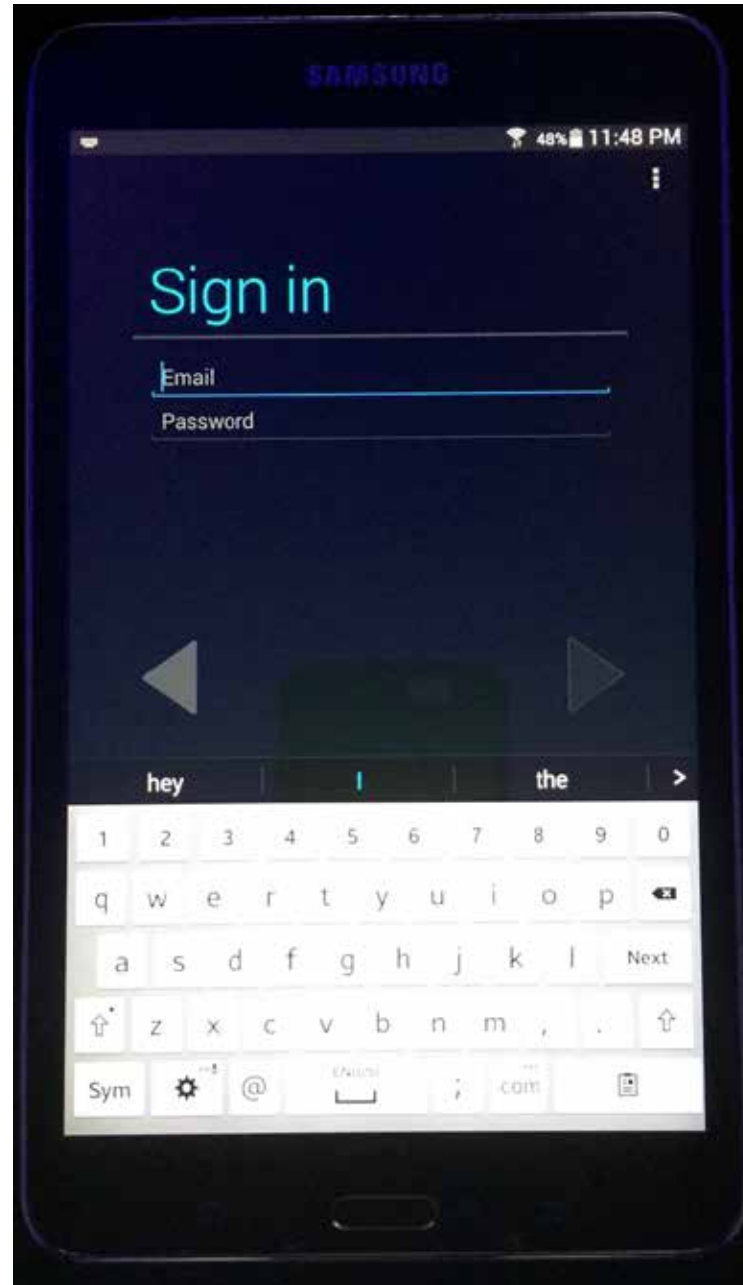


# Garmin Virb Kit - Tablet



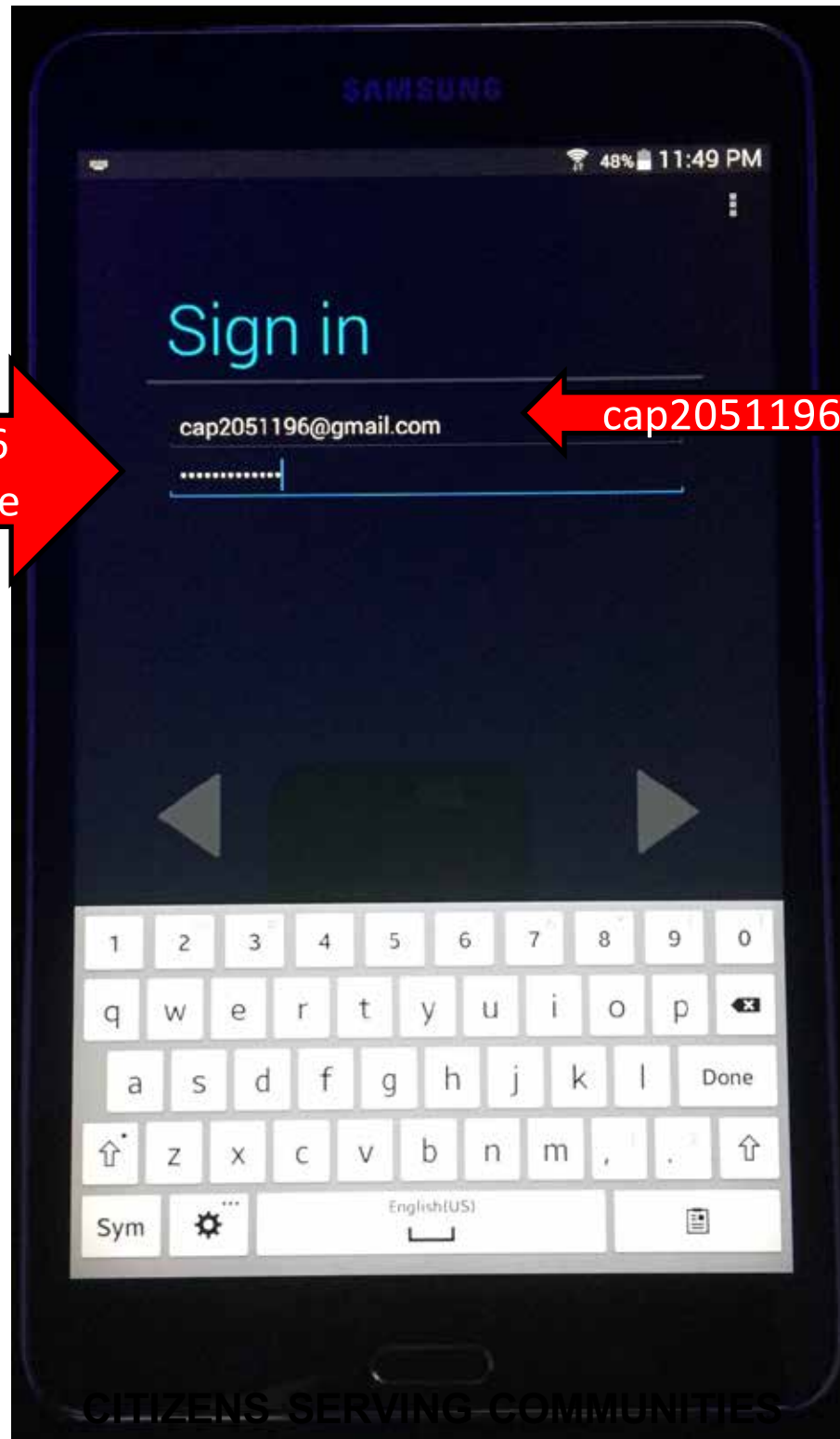


# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet

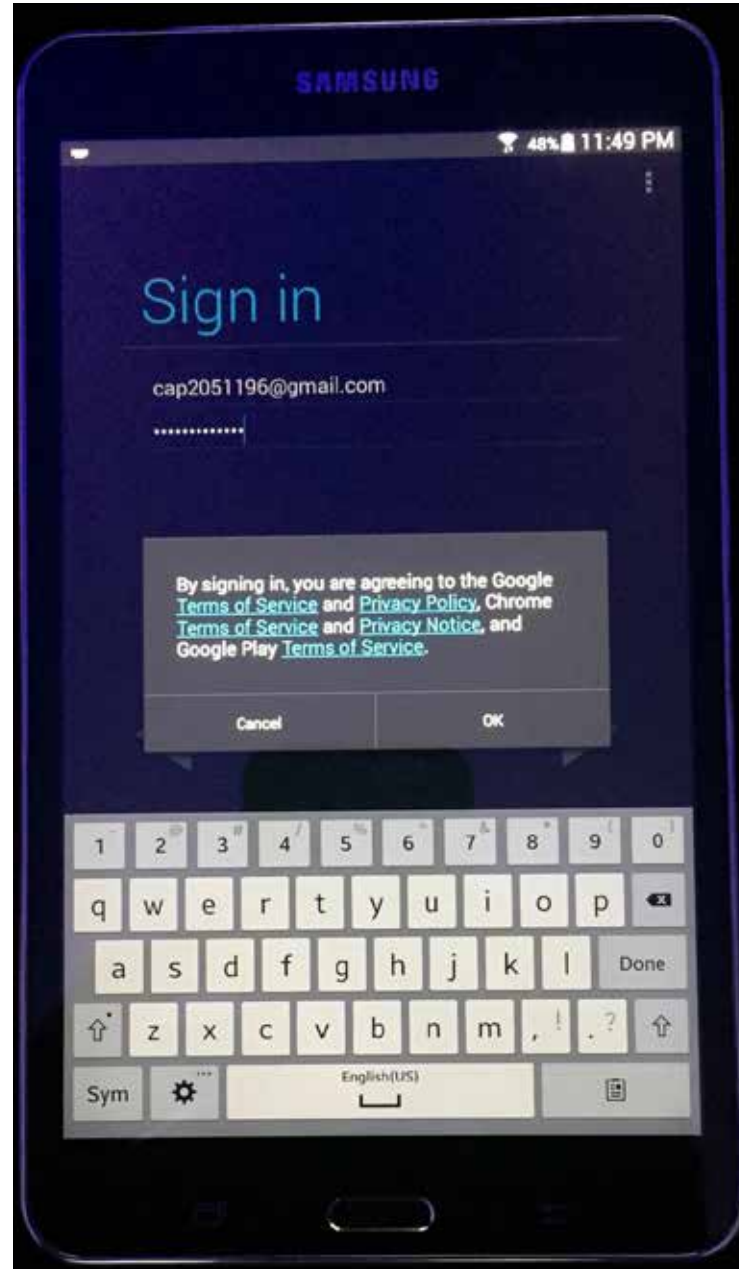


camera2051196  
use all lower case

cap2051196@gmail.com

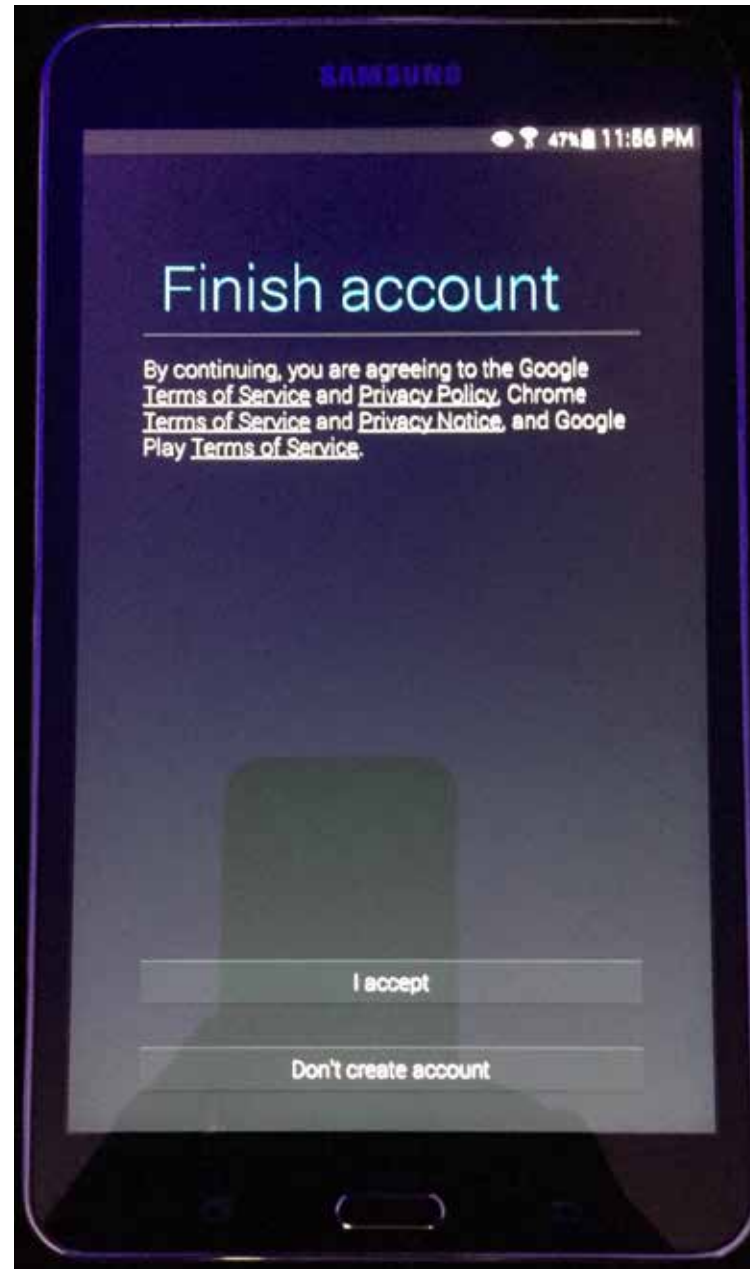


# Garmin Virb Kit - Tablet



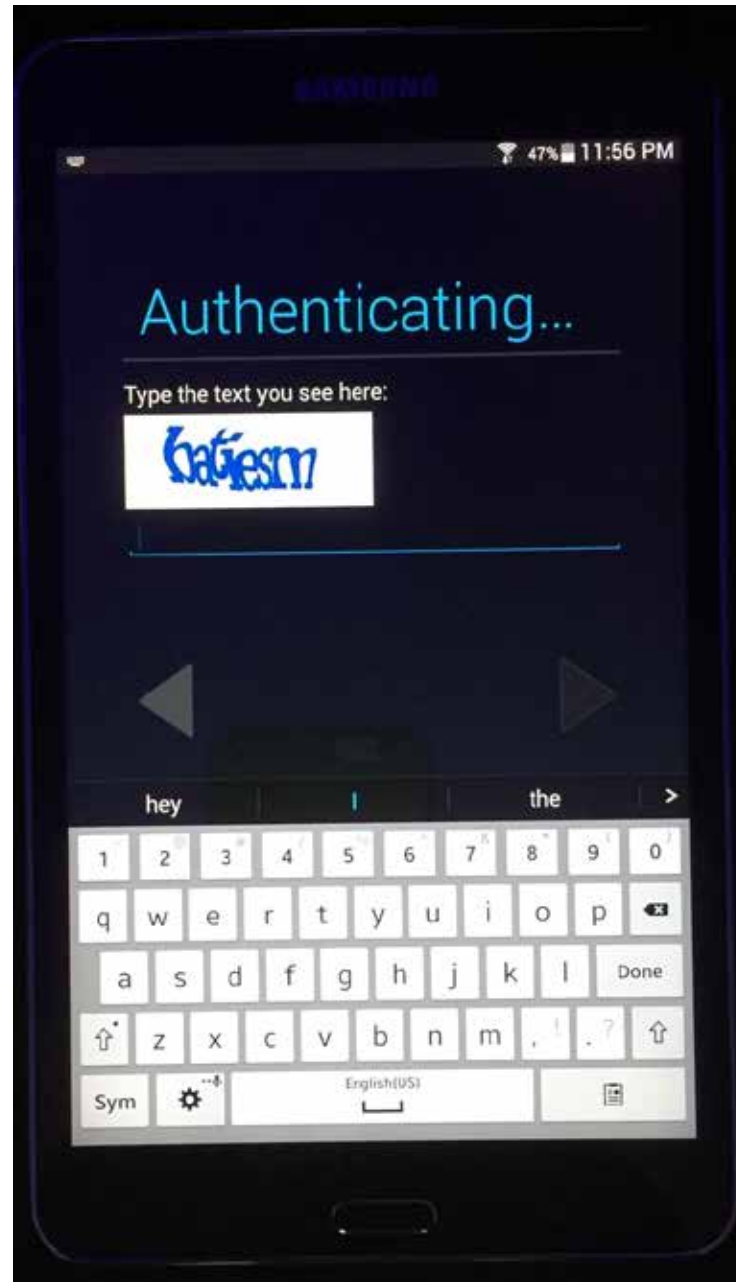


# Garmin Virb Kit - Tablet





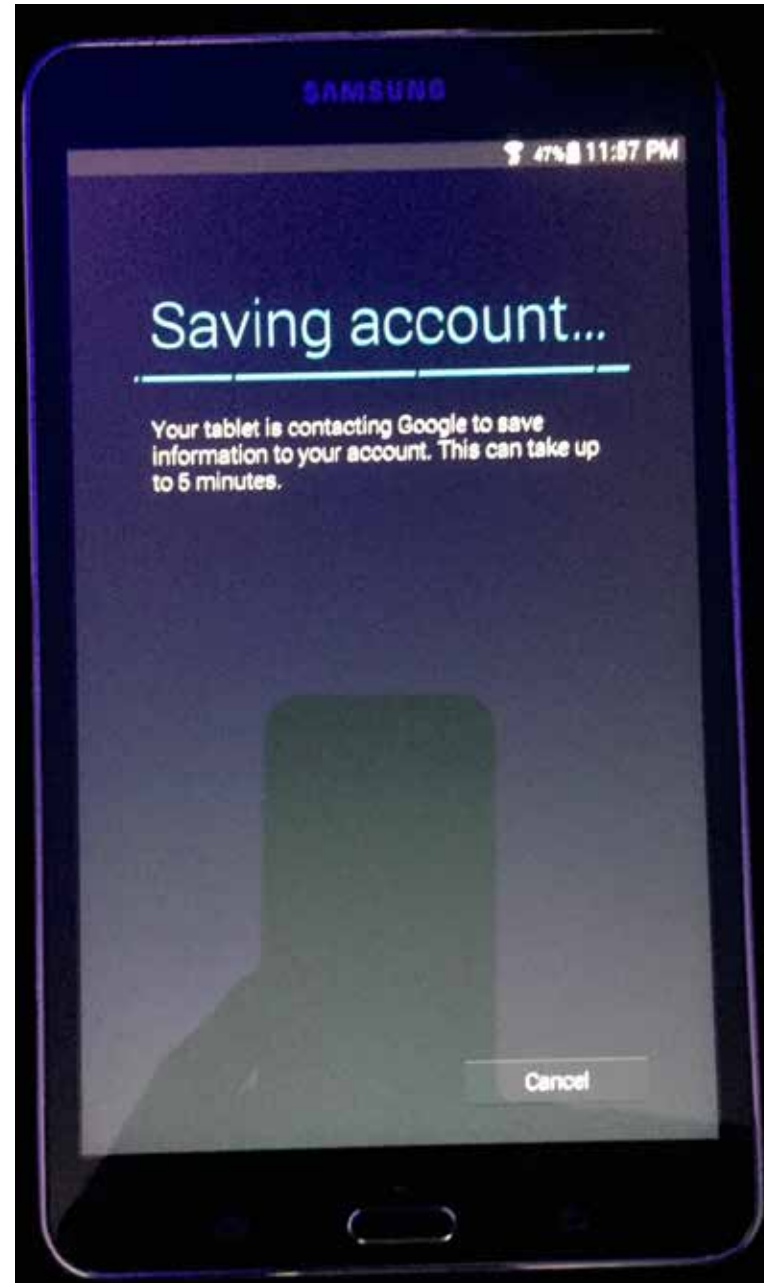
# Garmin Virb Kit - Tablet





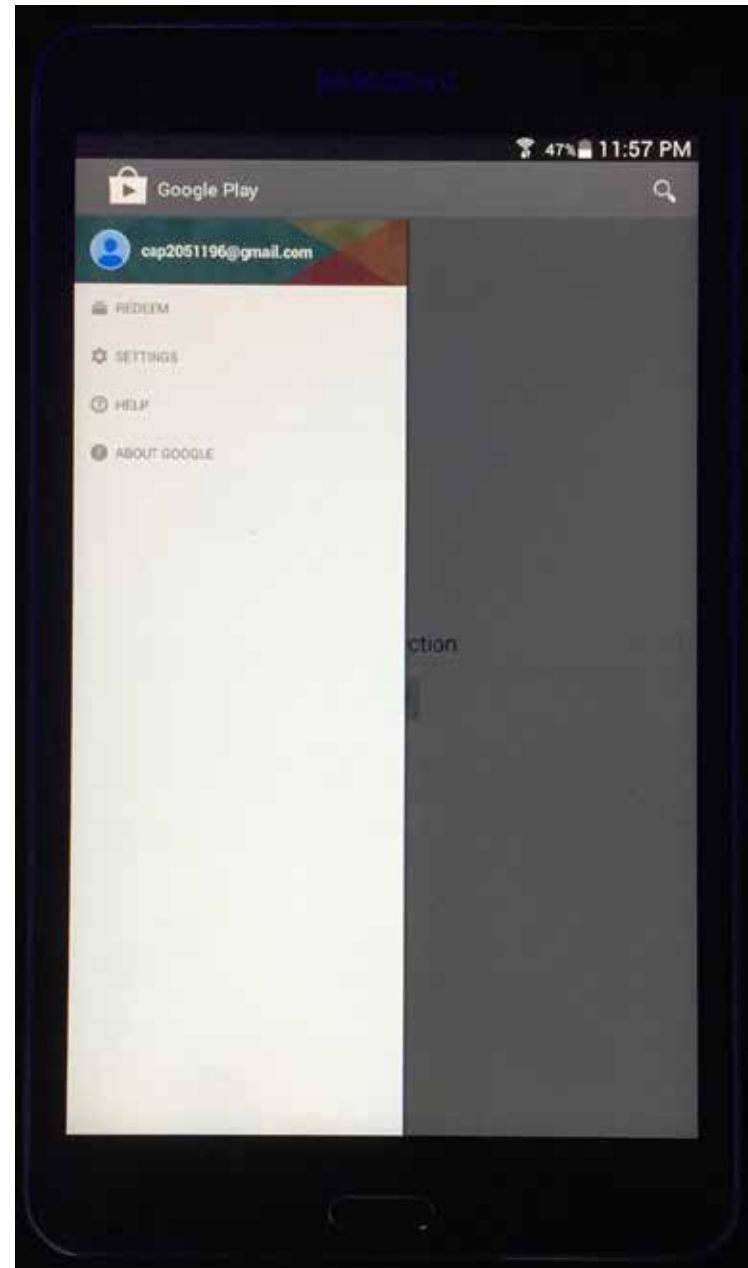


# Garmin Virb Kit - Tablet



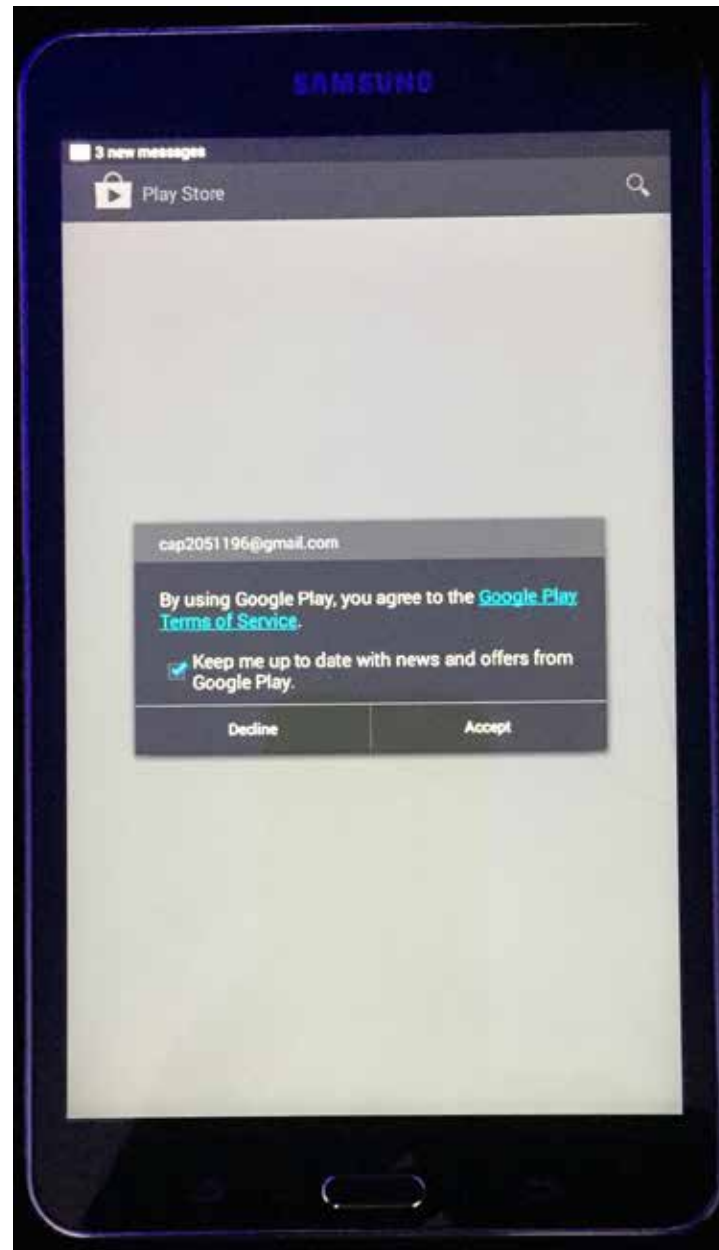


# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet



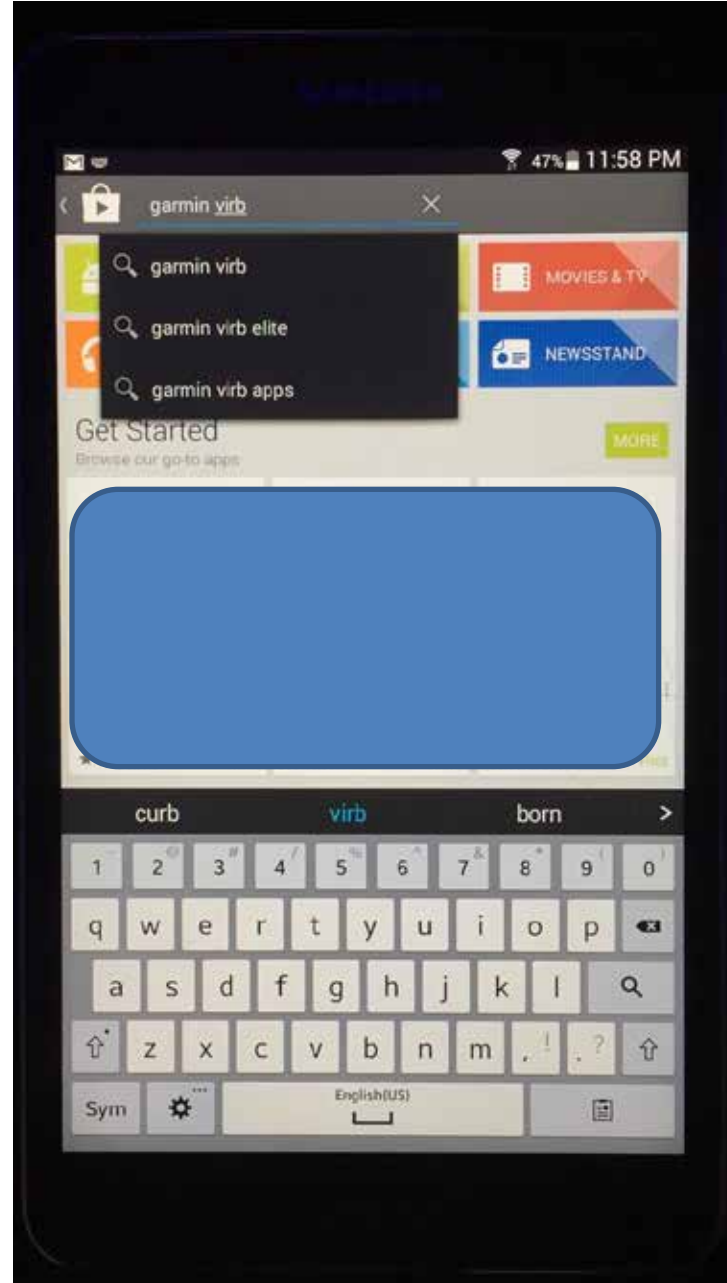


# Disaster Photography

- ↘ Project Definition
- ↘ Project Goals
- ↘ Customer Use of Imagery
- ↘ **Equipment – Garmin Virb Kits**
  - **Garmin Virb - App**
- ↘ Application
- ↘ State of Testing / Next Steps



# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet





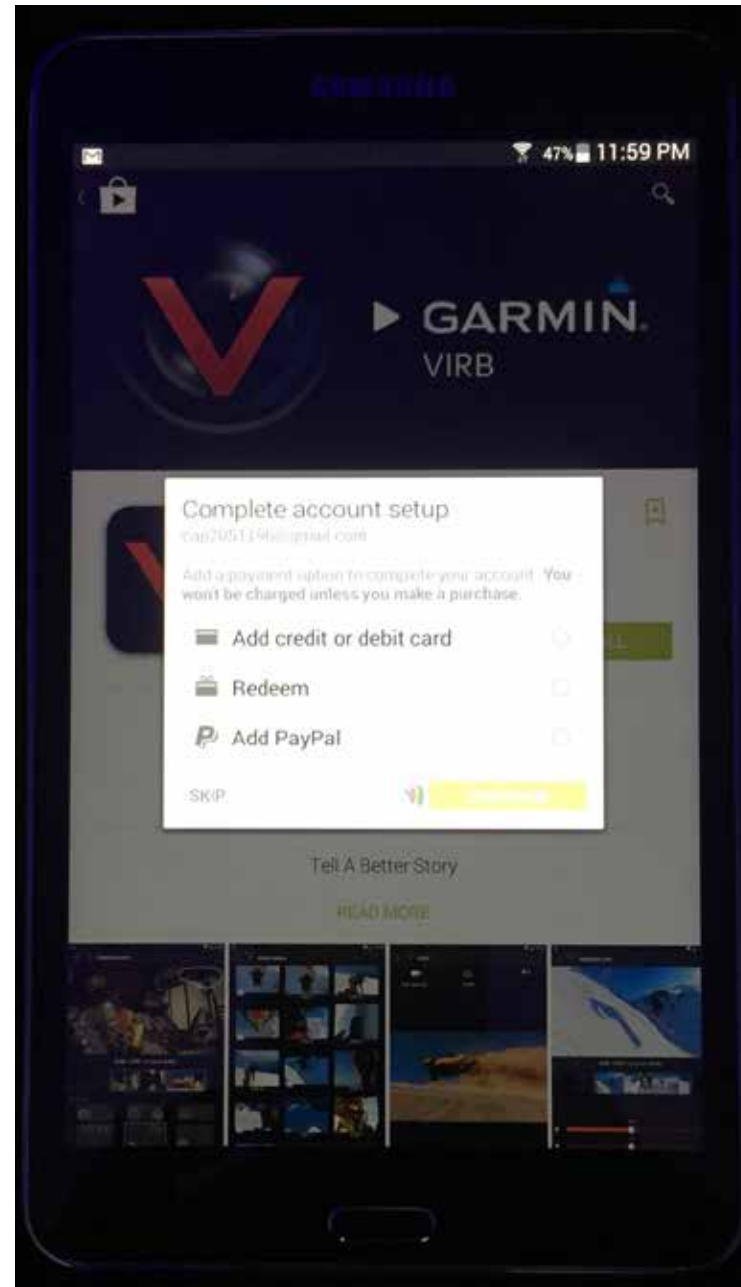
# Garmin Virb Kit - Tablet





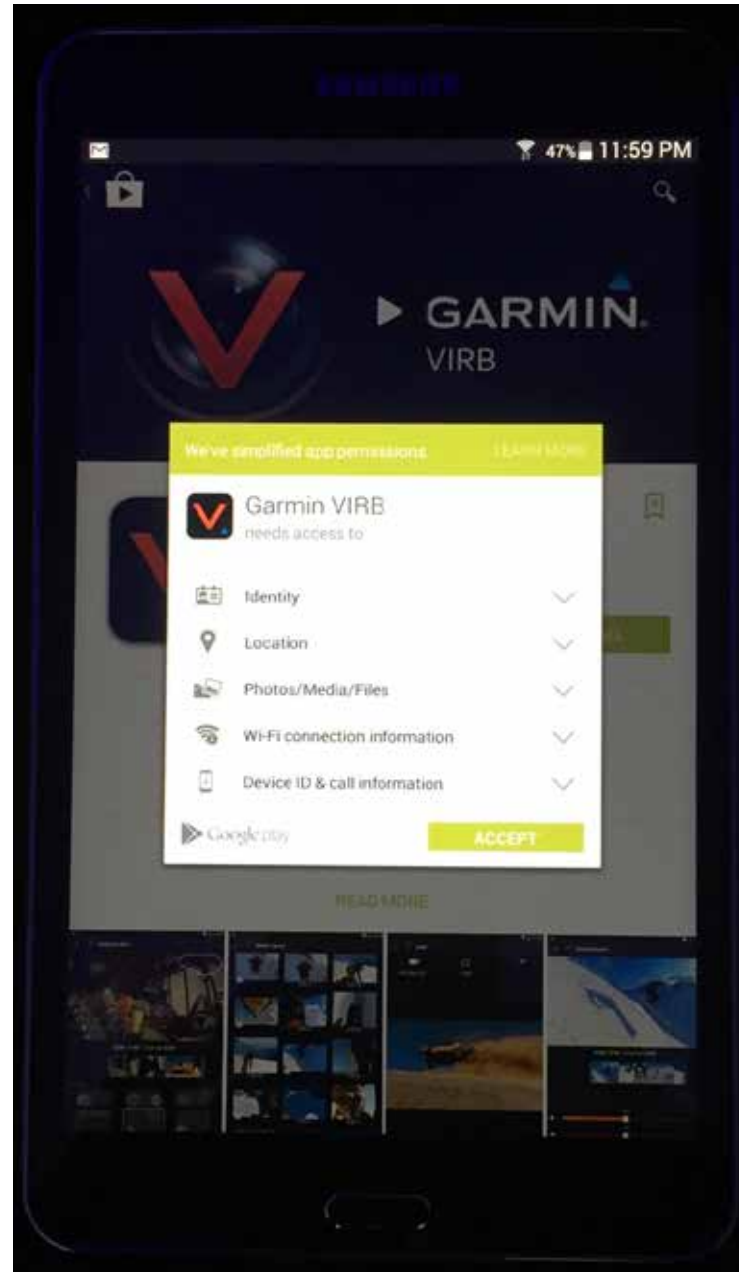


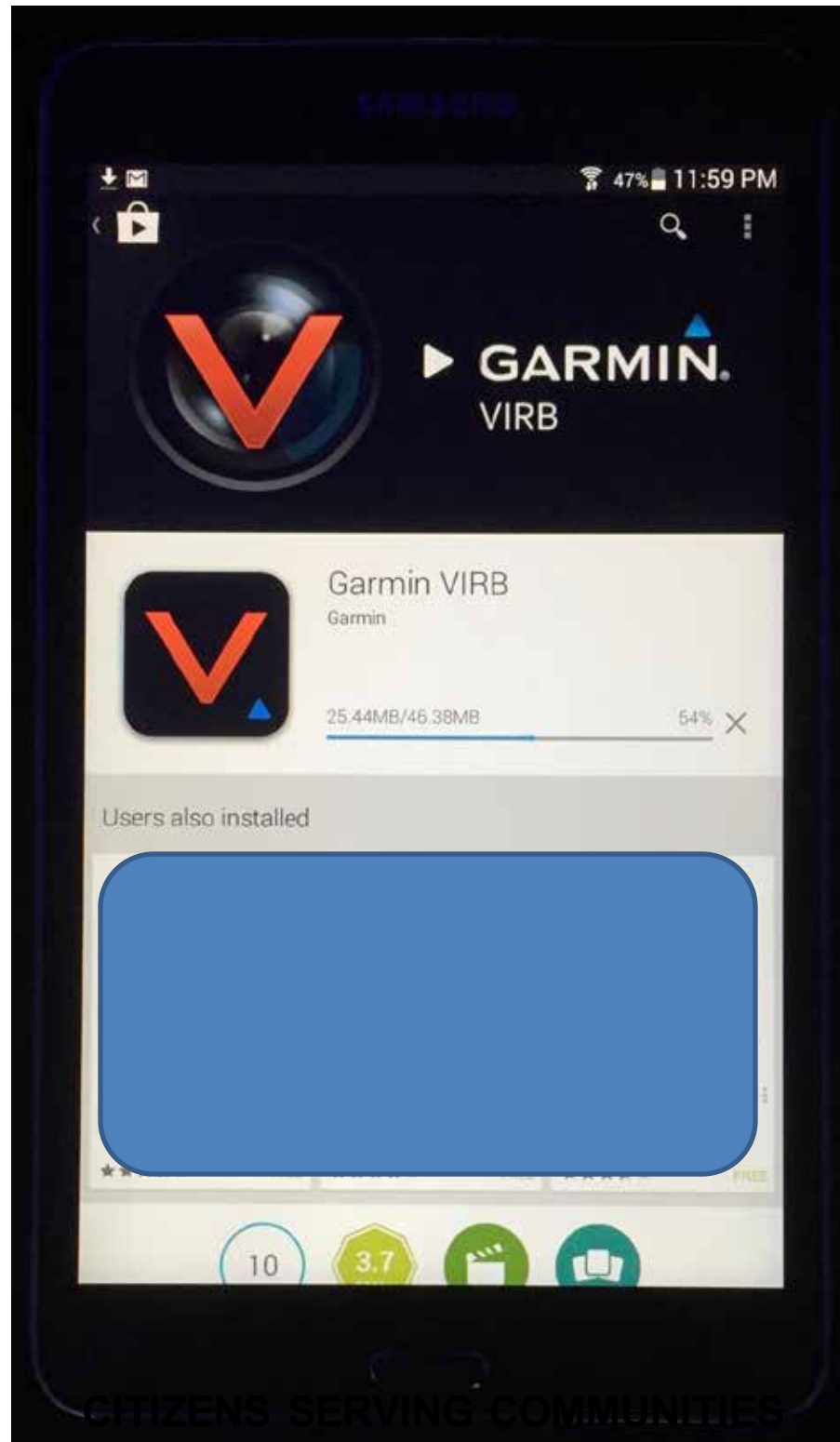
# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet

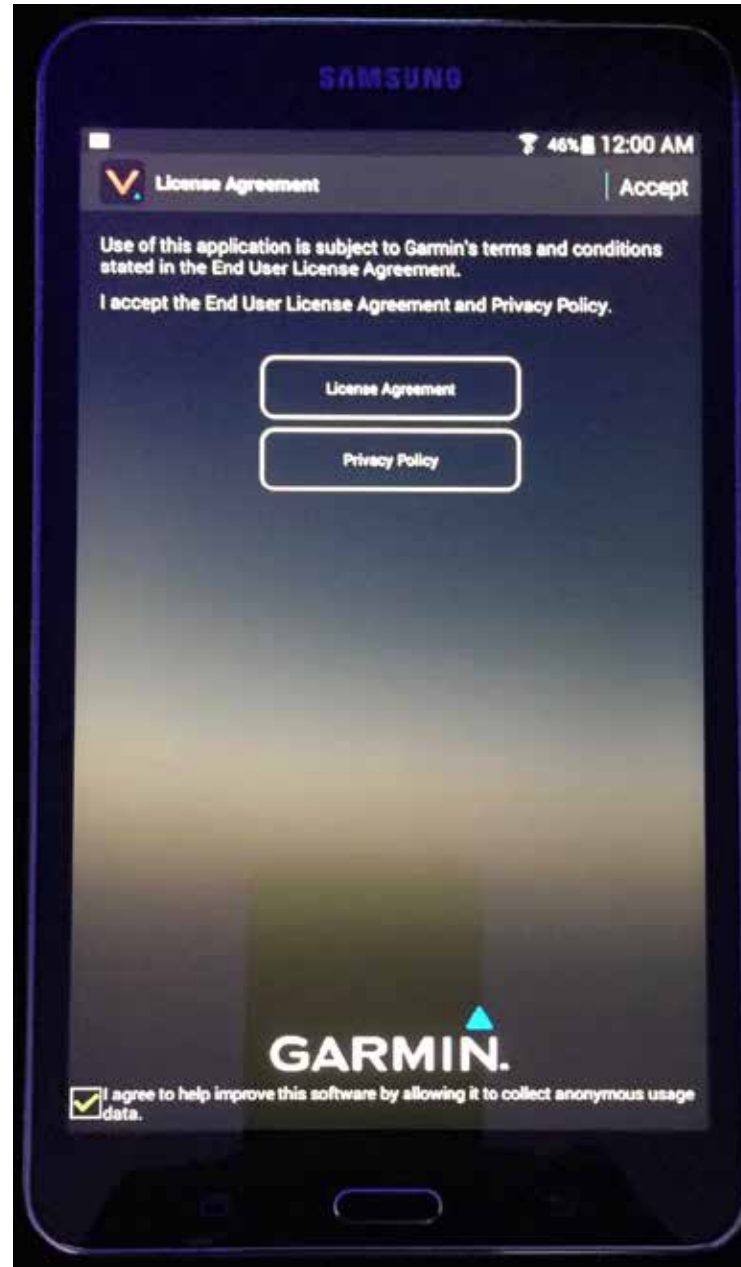








# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet





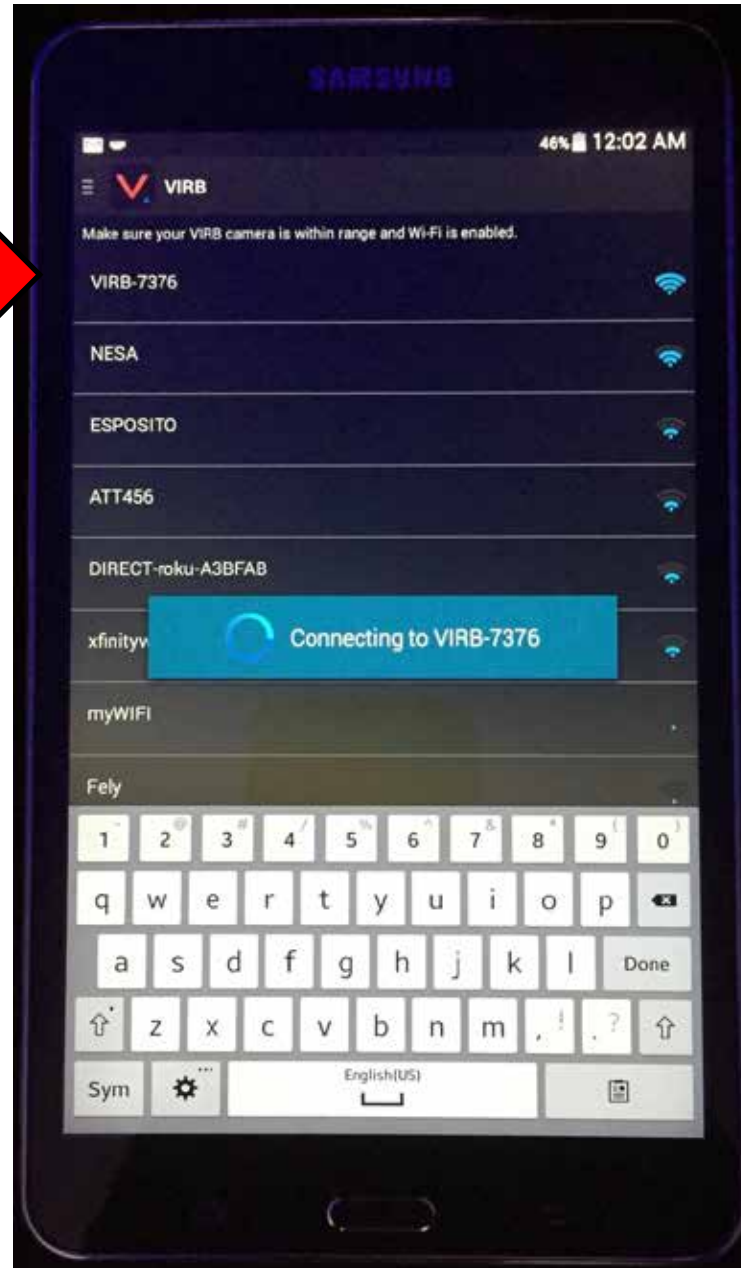
# Garmin Virb Kit - Tablet



# Garmin Virb Kit - Tablet



Password is  
garminvirb  
all lower case







# Garmin Virb Kit - Tablet



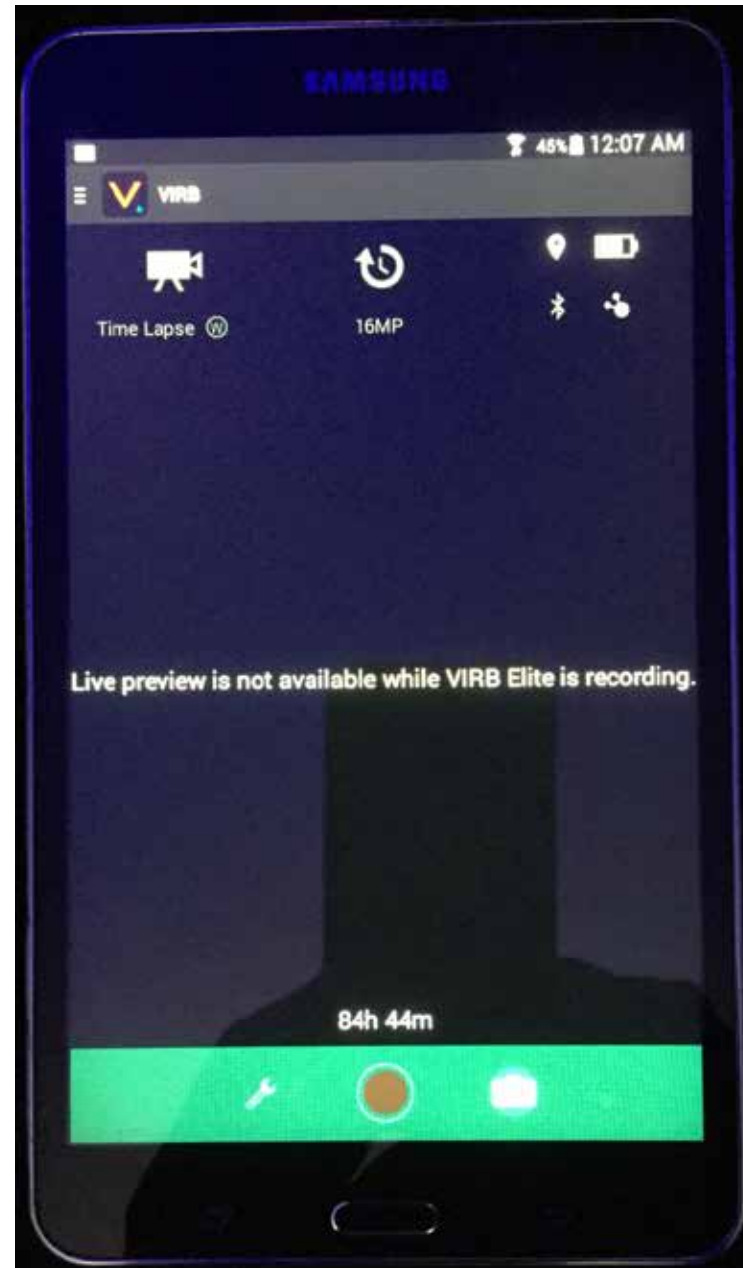


# Garmin Virb Kit - Tablet





# Garmin Virb Kit - Tablet





# Disaster Photography

- ┆ Project Definition
- ┆ Project Goals
- ┆ Customer Use of Imagery
- ┆ **Equipment – Garmin Virb Kits**
  - **Building the mounting base assembly**
- ┆ Application
- ┆ State of Testing / Next Steps



# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount



Camera Cradle



Base Adapter

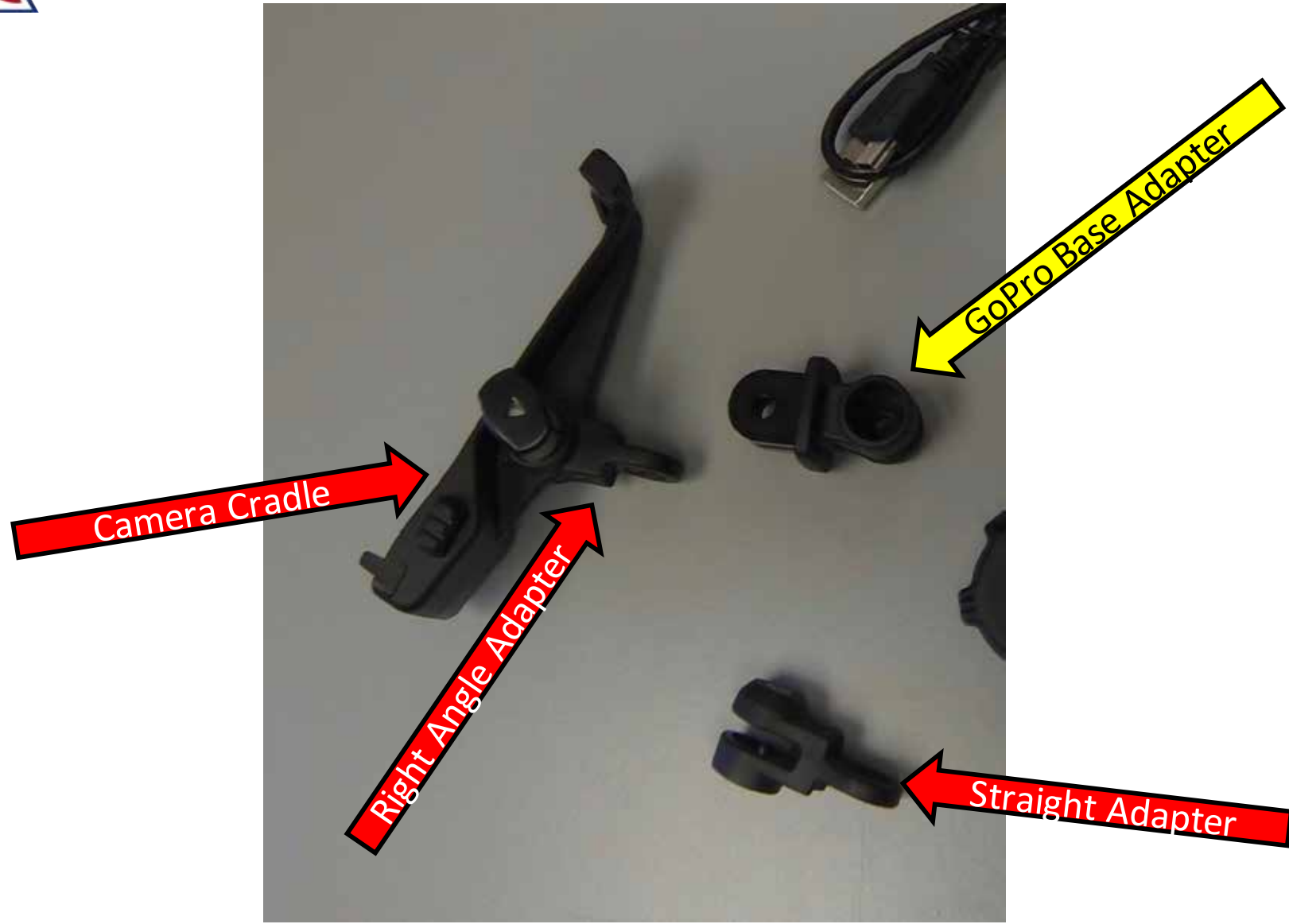
Right Angle Adapter

Straight Adapter

Adjustment Screws

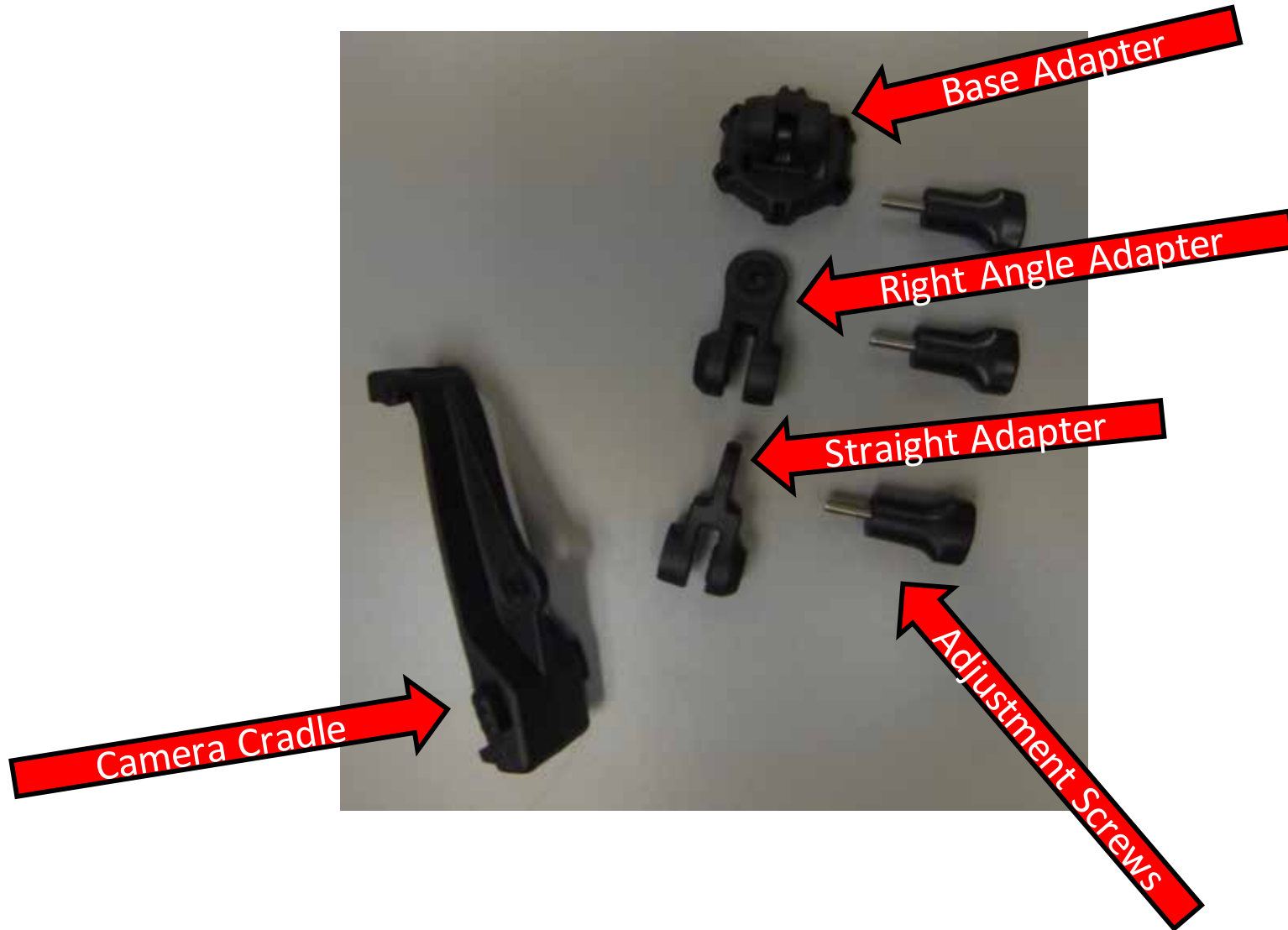


# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount







# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount



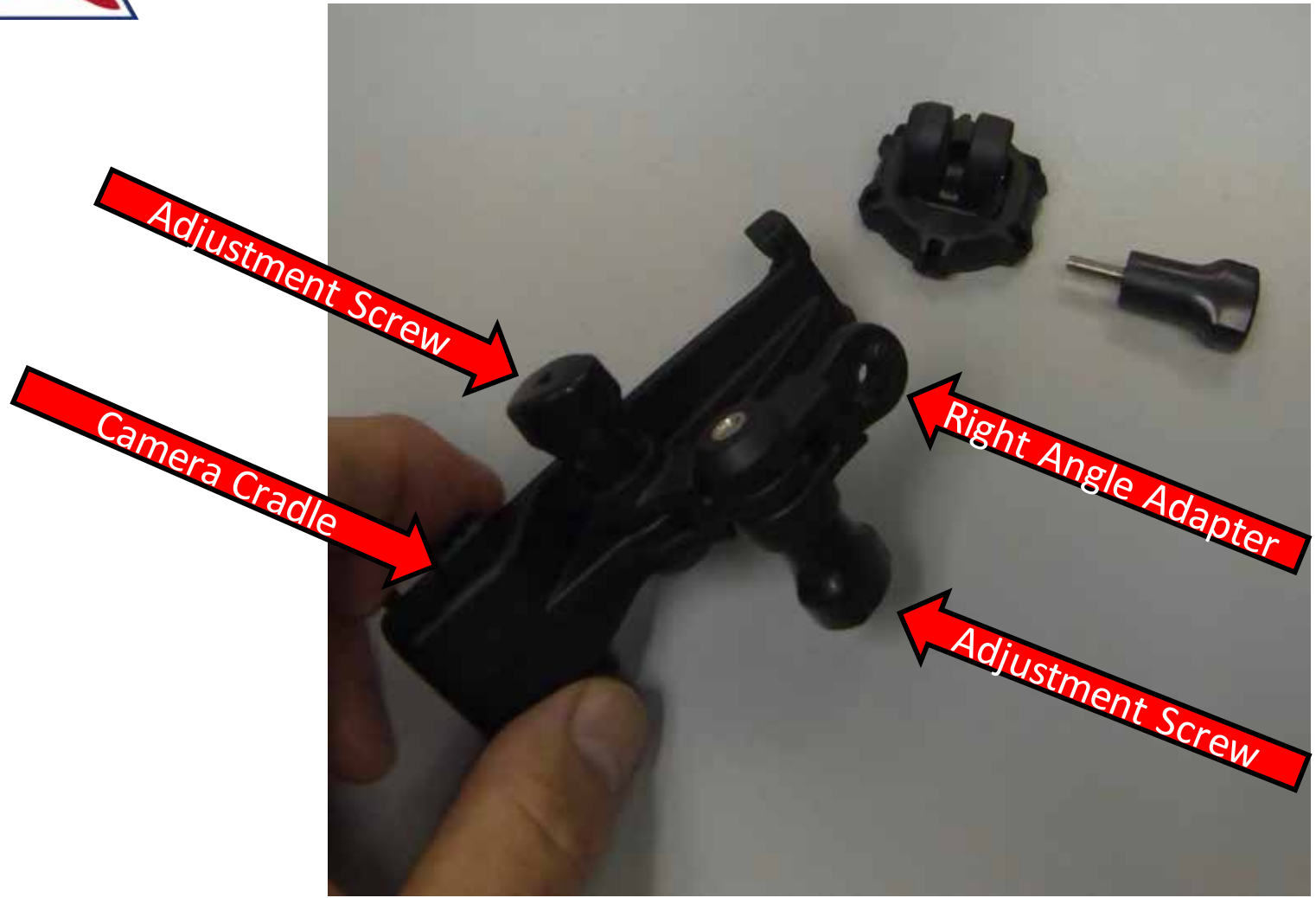


# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount







# Garmin Virb Kit – Assembling the Mount





# Garmin Virb Kit – Assembling the Mount





# Disaster Photography

- ┆ Project Definition
- ┆ Project Goals
- ┆ Customer Use of Imagery
- ┆ **Equipment – Garmin Virb Kits**
  - **Adhering to the aircraft wing**
- ┆ Application
- ┆ State of Testing / Next Steps



# Garmin Virb Kit – Adhering to the wing





# Garmin Virb Kit – Adhering to the wing





# Garmin Virb Kit – Adhering to the wing



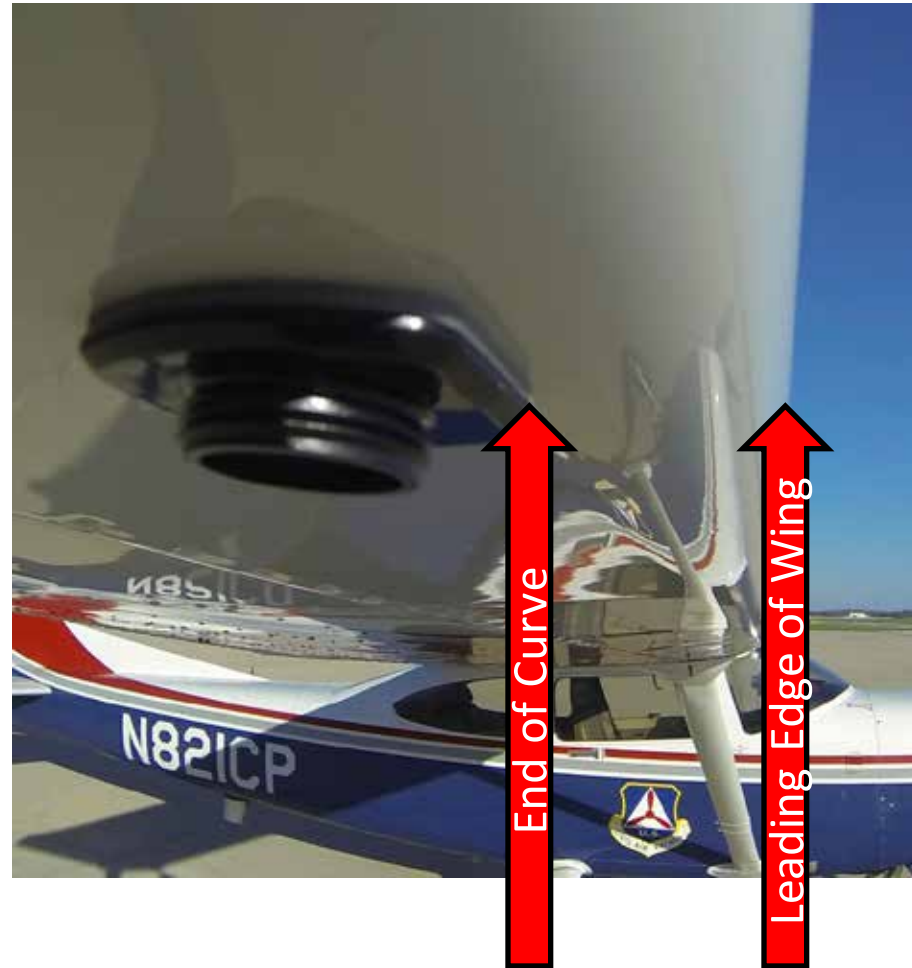


# Garmin Virb Kit – Adhering to the wing





# Garmin Virb Kit – Adhering to the wing







# Garmin Virb Kit – Adhering to the wing



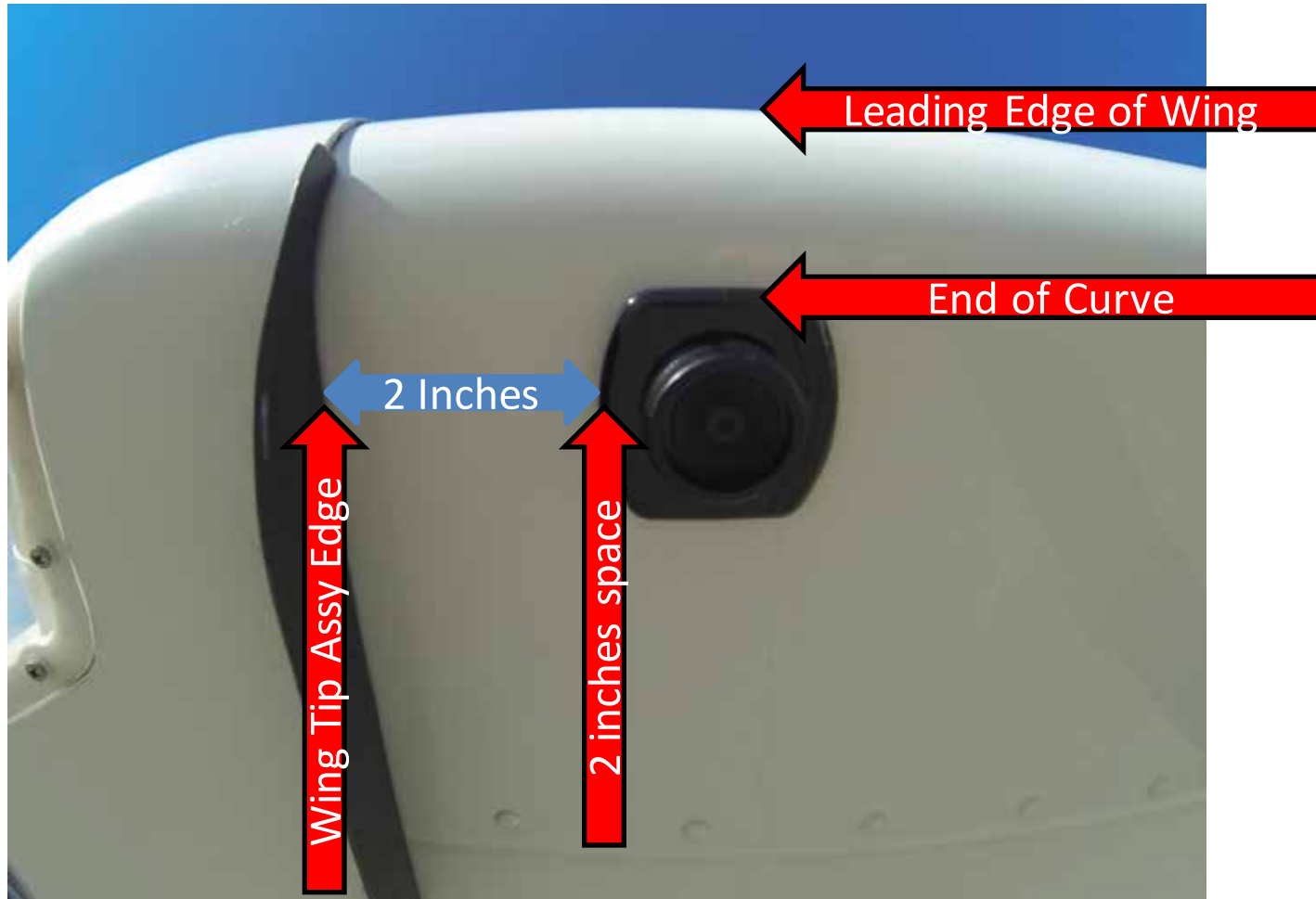


# Garmin Virb Kit – Adhering to the wing





# Garmin Virb Kit – Adhering to the wing





# Garmin Virb Kit – Adhering to the wing

## External Camera Mounts

- Clean area of all bugs, wax, oxidation etc.
- Clean with soap and water, dry completely
- Clean with alcohol, dry completely
- Adhere pad, applying pressure to center of pad and around all sides.
- Allow to cure overnight.



# Garmin Virb Kit – Adhering to the wing

## External Camera Mounts - Temperatures

- Mount Install: 70 – 100 F (21 – 38 C)
- Camera Operating: 5 – 140 F (-15 – 60 C)
- Charging: 32 – 113 F (0 – 40 C)
- Do Not Use Base below: 5 F (-15 C)



# Garmin Virb Kit – Adhering to the wing

## External Camera Mounts

- FAA Memo(s) on External Camera
  - o Not considered Major Alteration
- Logbook entry similar to: “Installation of Garmin Virb mounting pad to right wing, 2 inches inboard from the right wing tip assembly. The mounting pad and when attached the Garmin Virb camera cause no change to flight characteristics of the aircraft. <Name of installer, date>”



# Garmin Virb Kit – Assembling the Mount

- ✂ NO Suction Cup mounts
- ✂ No “safety wire”
- ✂ Replacement of mounts with annual inspection
- ✂ Replace mounts if they indicate wear / seperation
- ✂ Mounts can't be removed and re-used



# Disaster Photography

- ✂ Project Definition
- ✂ Project Goals
- ✂ Customer Use of Imagery
- ✂ Equipment – Garmin Virb Kits
- ✂ **Application**
- ✂ State of Testing / Next Steps





# Image Uploader App

- ✂ The FEMA ImageUploader is IEUploader082.zip (v0.82)
- ✂ It requires Adobe AIR to run, you may have to download the Adobe Air application at <http://get.adobe.com/air/> (Mac and PC)
- ✂ After installing the App, go to the “Settings” tab and change the URL to <https://apps.femadata.com/ImageEventsService/API.svc>
- ✂ Your token is: <assigned to your wing by the NOC>
  - Make sure there are no spaces at the end of the token or URL when you add them.
- ✂ After adding the URL and Token, click “Save Settings” and close the App.
- ✂ Close and Re-open the application and you should see events listed in the “Event” drop down list.



# Image Uploader App

Image Uploader

Upload Settings

Step 1 - Enter mission details...

1 Event: CAP Training  
Team: 15-T-10373 +New Team  
Mission: A0024 +New Mission

Step 2 - Choose the NMEA file to upload...

2 Browse... Location Count:  
Process Time:  
LOADING 0%

Step 3 - Upload files...

3 Browse... Total Images: 0  
Uploading: 0  
Complete: 0  
Start Uploading Clear Remove Complete Retry Errors  
LOADING 0%  Auto Refresh Map  Show Thumbnail  
Concurrent Uploads: 2

50 km  
30 mi  
POWERED BY esri  
Earthstar Geographics



# Image Uploader App

Upload

Step 1 - Enter mission details...

①

Event: CAP Training

Team: 15-T-10841 +New Team

Mission: A0006 +New Mission

Mission Number

Sortie Number

## UPLOADING IMAGES

### 1) Step 1 for using ImageUploader:

- a. For **Event**:
  - i. For Training missions, use **Event** *CAP Training*. (Unless otherwise instructed.)
  - ii. For Actual mission use the supplied **Event** from the NOC.
- b. For **Team**, use the *MISSION NUMBER*.
- c. For **Mission**, use your *SORTIE NUMBER*.



# Image Uploader App

Image Uploader

Upload Settings

Step 1 - Enter mission details...

1 Event: CAP Training  
Team: 15-T-10373 +New Team  
Mission: A0024 +New Mission

Step 2 - Choose the NMEA file to upload...

2 Browse... Location Count:  
Process Time:  
LOADING 0%

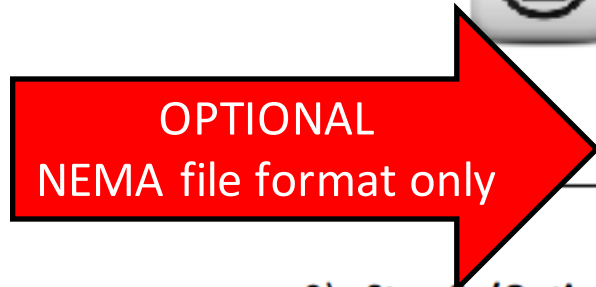
Step 3 - Upload files...

3 Browse... Total Images: 0  
Uploading: 0  
Complete: 0  
Start Uploading Clear Remove Complete Retry Errors  
LOADING 0%  Auto Refresh Map  Show Thumbnail  
Concurrent Uploads: 2

50 km  
30 mi  
Earthstar Geographics  
POWERED BY  
esri





# Image Uploader App



---

Step 2 - Choose the NMEA file to upload...

  Location Count:  
Process Time:

  
**LOADING 0%**

---

2) **Step 2: (Optional)**

Browse to the folder on your computer that contains your NEMA GPS files is used.  
Select and upload.



# Image Uploader App

Image Uploader

Upload Settings

Step 1 - Enter mission details...

① Event: CAP Training  
Team: 15-T-10373 +New Team  
Mission: A0024 +New Mission

Step 2 - Choose the NMEA file to upload...

② Browse... Location Count:  
Process Time:  
LOADING 0%

Step 3 - Upload files...

③ Browse... Total Images: 0  
Uploading: 0  
Complete: 0  
Start Uploading Clear Remove Complete Retry Errors  
LOADING 0%  Auto Refresh Map  Show Thumbnail  
Concurrent Uploads: 2

50 km  
30 mi  
Earthstar Geographics  
POWERED BY  
esri



# Image Uploader App

---

Step 3 - Upload files...

**3**

Total Images: 0  
Uploading: 0  
Complete: 0

Auto Refresh Map  Show Thumbnail

**LOADING 0%** Concurrent Uploads: 2

3) **Step 3:**

Browse to the folder on your computer that contains all of your photos.  
Select and upload.



# Image Uploader App

Image Uploader

Upload Settings

Step 1 - Enter mission details...

① Event: CAP Training  
Team: 15-T-10373 +New Team  
Mission: A0024 +New Mission

Step 2 - Choose the NMEA file to upload...

② Browse... Location Count:  
Process Time:  
LOADING 0%

Step 3 - Upload files...

③ Browse... Total Images: 0  
Uploading: 0  
Complete: 0  
Start Uploading Clear Remove Complete Retry Errors  
LOADING 0%  Auto Refresh Map  Show Thumbnail  
Concurrent Uploads: 2

50 km  
30 mi  
Earthstar Geographics  
POWERED BY  
esri





# Online Access to Images

↗ Quick look Public Viewing Website for IMAGES

- Public Site:

<http://apps.femadata.com/ImageEventsPublic>

↗ FEMA GeoPlatform used to view the map and control layers, use this URL

<http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=990b93d2522441a48bf2aaf536518419>



# Online Access to Images

The screenshot displays a web application interface for online access to images. The interface features a dark header with the following elements:

- Two dropdown menus: "CAP - SC Flooding" and "Basemap".
- A search input field labeled "Find Address".
- A circular icon with a magnifying glass.
- Navigation links: "Home", "Image Ranking", and "FEMA GeoPlatform".

The main content area shows a satellite map of a coastal region. A red boundary outlines a specific area, and numerous green markers are scattered across the land area. The map is overlaid on a dark blue background representing the ocean. In the bottom right corner of the map area, there is a logo that reads "POWERED BY esri".



# Online Access to Images

HOME - Civil Air Patrol Photos

Modify Map Sign In

Details Basemap Share Print Measure

About Content Legend

Contents

- 2012 USA Population Density (Mature Support)
- ImageEvents
  - Aerial Oblique
    - Aerial Oblique Photo Points
    - Aerial Oblique Target Points
    - Aerial Oblique Heading Line
  - Aerial Nadir
- Ground
  - Ground Photo Points
  - Ground Target Points
  - Ground Heading Line
- NMEA Points

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Earthstar Geographics | Esri, HERE, DeLorme, NGA, USGS



# Online Access to Images

Image Ranking

CAP - SC Flooding ▾

Low

Moderate

High

Unusable

Skip Image

?





# Disaster Photography

- ✂ Project Definition
- ✂ Project Goals
- ✂ Customer Use of Imagery
- ✂ Equipment Testing
- ✂ Website
- ✂ Application
- ✂ **State of Testing / Next Steps**



## Q and A

✂ Battery Full Charged

✂ ~3 hours, approx 1080 photos at 10 sec

✂ Clear Memory on Camera after downloading.

✂ Adds to Photo Capability, not replacing existing

✂ Personal Equipment – same rules as any AF mission



# Thank You!

- ✂ CAWG Team Testing
- ✂ GLR (IN / OH / IL) Team Testing
- ✂ NESAs Team Testing
  
- ✂ Coordinated with FEMA / NWS / NOAA / NGA Team members
- ✂ Ongoing testing with expanded teams and technical support specialists.



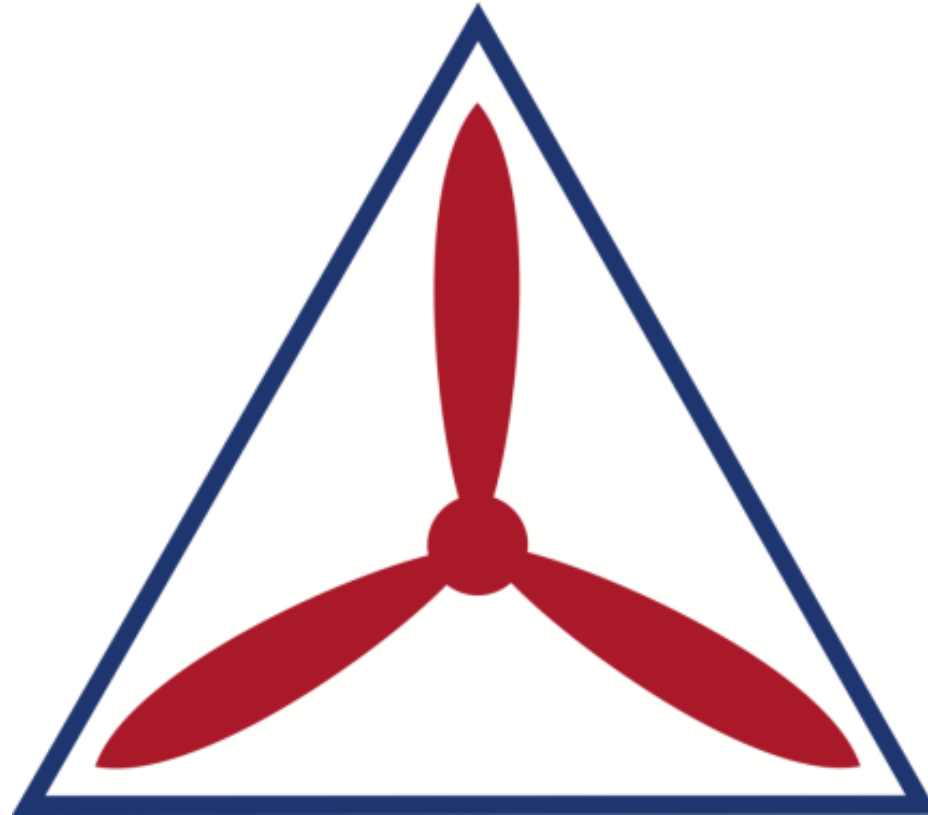
# Questions? Feedback?

## Project Officer

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# Civil Air Patrol



**...Citizens Serving Communities!**