

Guidance - Installation And Use Of An MVUM Travel Aid For Android Devices

Carl Beyerhelm – Resource Information Specialist – Coconino National Forest – Rev 15 Apr 2013

Recommendation for best use of this guidance - This guidance is best applied when read from a desktop or laptop computer, or from a printed page, with your Android device in hand. Reading and applying this guidance from the small screen of an Android device may be difficult.

Background - The published Motor Vehicle Use Map (MVUM) is the legal document-of-record that designates roads, trails, and areas open to motorized use on Coconino National Forest.

The published MVUM contains important information about road, trail, and area designations that motorists should always have close at hand. However, the MVUM's large size could make it difficult to handle, or refer to, while travelling, and some motorists have found that the MVUM's small map scale and spare cartographic design make it difficult to locate themselves with confidence along the roads and trails, and within the areas, that it portrays.

In response to these concerns, Coconino National Forest developed a "Travel Aid" for Android smartphones and tablets (illustrated at right) that is designed to help motorists locate their position:

- Along designated roads or trails,
- Within areas open to motorized cross-country travel, and
- Relative to motorized dispersed camping corridors.

This Travel Aid is a supplement to, not a substitute for, the published hardcopy MVUM.

Assumptions – This guidance assumes that readers have basic familiarity with these computer and Android device skills.

- Install and use apps.
- Copy and paste files.
- Connect an Android device to a computer with a USB cable.
- Download internet files to a computer, or to an Android device.

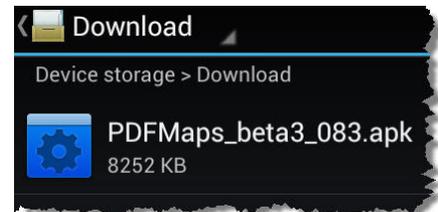


Travel Aid requirements – These items will facilitate installation and use of the Travel Aid.

- **Smartphone or tablet** running **Android 4.0, or greater**
- **Avenza PDF Maps app** (free) beta release download
- Optional **QR Code scanning app** (free) from the Google Play Store
- **Travel Aid map content** (free) from Coconino National Forest

Install the Avenza PDF Maps app (beta) – Follow these steps to install the Avenza PDF Maps app (beta).

1. Use an Android device to scan the QR code at right, or else direct the Android's browser to <https://www.dropbox.com/sh/u6g3ii8i1arhrwu/uaITPb10kx>. Touch the **.apk** file that is found there (about 8 MB), and download it to the Android's **Download** folder.
2. Go to **Settings > Security > Unknown Sources** on the Android device, and ensure that the option is checked (enabled).
3. Browse to the **Download** folder using the Android's file explorer utility, and touch the **.apk** file (right) to install the Avenza PDF Maps app.
4. Allow permission to install and open PDF Maps.
5. Return to **Settings > Security > Unknown Sources**, and un-check (disable) the option.



Install a QR Code scanning app (optional) – If desired, touch **Play Store** on the device, sign in to a free Play account, search for, and install an app for scanning QR codes. The **QR Droid** app is illustrated here for demonstration, but many other free QR code scanner apps are available.

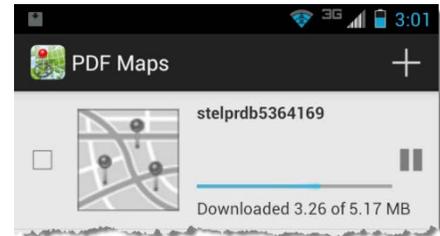


Install the Travel Aid's map content – There are three options for downloading and installing the Travel Aid's map content. All produce the same result, so select one that fits your situation.

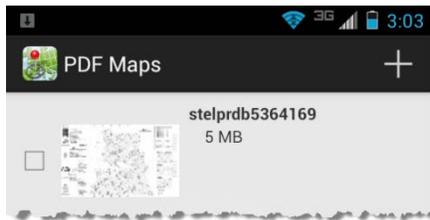
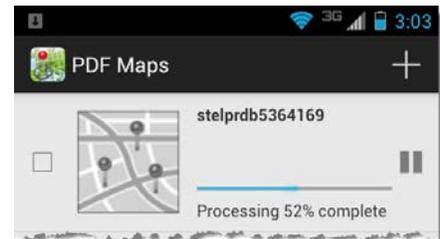
1. The two **Wireless options** require that your device has internet access over a WiFi or 3G/4G connection, and Option 1 requires a QR code scanner app. Although the Travel Aid's map content is free, 3G/4G wireless carriers may assess a charge for data service.
2. The one **Connected option** requires that your device be connected by its USB cable to a computer with internet access.



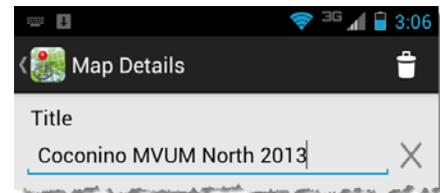
Option 1, Wireless install from a QR code – Scan the QR code at left to obtain the North Half map (about 3 MB), and then touch the scanned URL (the Web Address illustrated below left) to automatically open the PDF Maps app, and begin the download process as shown below right. Be patient.



When download is complete, PDF Maps will automatically begin processing the map's content for display, as at right. Be patient while processing is in progress.



The map's name will be rather cryptic (left), so touch the map's entry on the PDF Maps page to open it, and then touch



DETAILS. Use the **Map Details** page to give the map a more meaningful name, as shown at right.

Scan the remaining QR code above right, and repeat the process to obtain the South Half map (also about 3 MB).

Option 2, Wireless install from a web link – Use an Android device to browse to the Coconino National Forest's MVUM web page at <http://go.usa.gov/PEa>. Move to near the bottom of the page, and touch the link titled **North Half Coconino National Forest MVUM for mobile devices**. As in Option 1, the PDF Maps app will open automatically, and begin to download and process the map's content. When processing is complete, rename the North Half map as described in Option 1.

Repeat the process using the **South Half Coconino National Forest MVUM for mobile devices** link to obtain the South Half map.

Option 3, Connected install from a computer – Use a computer to browse to the Coconino National Forest’s MVUM web page at <http://go.usa.gov/PEa>, and move to near the bottom of the page. Download and save the North Half map to a folder on the computer by clicking the link titled **North Half Coconino National Forest MVUM for computers**, and then use the computer’s file explorer utility to rename the file as **Coconino_MVUM_North_2013.pdf**.

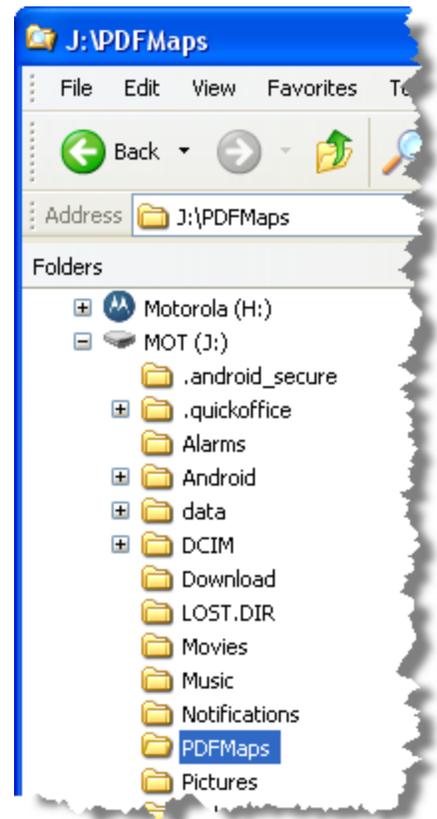
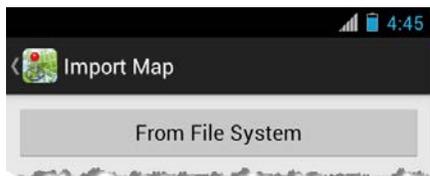
Repeat the process for the South Half map by clicking the link titled **South Half Coconino National Forest MVUM for computers**, and then use the computer’s file explorer utility to rename the file as **Coconino_MVUM_South_2013.pdf**.

Connect an Android device to the computer by its USB cable, and use the computer’s file explorer utility to copy and paste the renamed North Half and South Half map files from the computer to the Android’s **PDFMaps** folder, as illustrated at right. Then, disconnect the Android device from the computer.



Start PDF Maps on the Android device by touching its icon, and then import a map by touching the “+” sign in the upper right corner of the **PDF Maps** page.

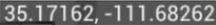
Touch **From File System** on the **Import Map** page (below), browse to the Android’s **PDFMaps** folder, and touch each map file in sequence (bottom) to initiate processing of their content.



Use the Travel Aid - Touch a map's entry on the **PDF Maps** page to open it. WiFi or 3G/4G coverage is not required to use the map, as all map content has been cached on the device. Users may pan, zoom out, or zoom in using standard multi-touch gestures.

GPS positioning is active when the device displays this symbol  in its status bar, and this blue dot  is visible on-screen.

 These buttons toggle alternate functionality on and off. When the button at left is active (recommended), the map view automatically remains centered on the current GPS position. The button at right becomes active when a user manually zooms or pans the map's cross-hairs away from the GPS position. GPS positioning remains in effect when the button at right is active, but the map view will not automatically remain centered on the current GPS position as a user moves. Press the button to toggle back and forth between functionalities. 

 This button displays the map's cross-hair coordinates. Touch it to change the display format of coordinate values.

 **DETAILS** Touch this button to delete a map, edit its name, or view map information.

 This button returns a user to the list of maps on the **PDF Maps** page.

Limitations of the Travel Aid – The Travel Aid has several shortcomings, as described below.

- WiFi-only tablets can provide some limited non-GPS positioning service, but only where WiFi coverage exists. Devices with 3G/4G capability, on the other hand, are able to provide true GPS positioning, even in the absence of 3G/4G coverage.
- The map's orientation is always "north up" when GPS positioning is active. In other words, a motorist's map view will always be north-up, even when driving south.
- Use of an approved vehicle power adapter is recommended to prolong battery life.
- Road and trail labels are static and, in some situations, could be off-screen.
- Travel Aid functionality could be compromised if steeply rising terrain, dense vegetation, or other overhead obstructions significantly degrade GPS reception.

Uninstall 2012's Mobile MFD app and Travel Aid map files – The Mobile MFD app and map files used for the 2012 Android MVUM Travel Aid are obsolete. Un-install the Mobile MFD app, and delete the MobileMFD folder and its **.tif** and **.mmf** files from your Android device.