

Using the Motorola Droid X Overseas

A summary of my experience using an Android phone without a GSM radio in Taiwan.

1. Introduction

In November 2010 I went on a trip to Taiwan. Unfortunately I was mere days early for a release of a Verizon Android World Phone (Droid 2 WE or Droid Pro). To make matters worse, my laptop died on the trip to the airport. I did have a Blackberry Tour with Verizon's global data plan, but I was curious how well the Droid X would fare with only access to open wifi networks.

Not to provide a spoiler, but I hardly used my Blackberry for more than corporate email and didn't miss my laptop much at all. The Droid X performed like a champ and by the end of the trip I was very pleased with how it was performing. In the beginning I had my doubts, but if I had read this article before I left rather than written it after I returned I'd be in much better shape. Too bad my neighbor's DeLorean is missing a flux capacitor...

2. Verizon Plans and Pricing

Thank you Google for letting me know which searches bring people to my site. Apparently a lot of you are looking for any Verizon charges for going overseas, so I've added this section to clarify some things for you.

2.1. Wifi Charges

If you're planning on going wifi only you're in luck, wifi access is 100% free from a Verizon perspective. Obviously if you use a wifi network that charges you this isn't something that Verizon will reimburse, but there are no additional charges. I went wifi-only and ended up with zero extra on my bill after many hundreds of MB of transfers.

2.2. Phone and SMS

I used neither, but some countries do allow for CDMA global roaming. You can check to see if the location you're traveling to supports CDMA roaming here (<http://b2b.vzw.com/international/Roaming/>). You'll want to call 611 or visit a VZW store to make sure that you're unlocked to be able to use global roaming. You'll also want to pay close attention to the price of roaming - at \$2 a minute you're getting pretty close to sat phone rental prices (<http://www.outfittersatellite.com/rentals.htm>) which can be a lot more fun depending on where you're headed.

If you've got a Verizon World Phone (Droid 2 Global, Droid Pro, many of their Blackberries, etc.) you can use their Global Phone (http://b2b.vzw.com/international/Global_Phone/) plan. For an extra \$5 a month you can get a slightly cheaper rate in some countries.

Text messaging is also pricey, current rate is 25c to send and 20c to receive messages. You can read more at their International Text Messaging (http://b2b.vzw.com/international/Text_Messaging/index.html) page, but really this is a great chance to convince your friends SMS is outdated and they need to use an IM program like Google Talk.

2.3. 3G Data

Verizon's Global Email (http://b2b.vzw.com/international/Global_Email/index.html) package is a little-advertised steal. It takes your standard \$30 a month data plan and replaces it with a \$65/month plan (an extra \$35 a month) and gives you unlimited international data coverage. This is a phenomenal deal compared to the 2c/KB (that's \$20,000/GB!!!) you'll get charged otherwise. If you've got a world phone definitely sign up for this, compared to the price of the airplane ticket the cost is nothing for the benefit of using Google Maps wherever you are.

2.3.1. Tethering

With Verizon tethering is always more, one of the things I don't like about Verizon's plans (please move towards a tiered pricing model where unlimited is the same price as a plan with tethering!). Currently the International Global Access Connect (http://b2b.vzw.com/international/GlobalAccess_Connect/index.html) seems to be available only for Blackberries which tether to a single computer via Bluetooth or USB. Feel free to keep asking Verizon to have a version for the Droid Wifi Hotspot services. Even still, this plan is pretty pricey at \$65/month for 100MB of international data and \$155/month for 200MB - it's easy to go over either of these limits if your OS decides to pull down an update so it's hard to recommend these plans at this point.

For those of you who steal tethering on rooted devices, remember that charge of \$20,000 per GB of data? How much is it worth to you if you want to figure out whether Verizon can detect that you're tethering and would actually care about International data charges? As a hint, the detection is easy, but I wouldn't hazard a guess as to whether you'd get a hefty bill.

2.4. Prorated Charges

We've figured out that Verizon's got an incredible International Data plan, a decent International calling plan, and, well, an available International tethering plan (if you don't have anything nice to say...). The best part is that it's all able to be prorated. You can make a limited number of changes to your account every month, this number allows quite easily for you to turn on Global Email for two weeks while you're away and to turn it back off again. Turning tethering on and off 8 times a month as needed is less viable. This does mean that for a two week trip (we'll say it's February) you'll pay for 2 weeks at \$65 and 2 weeks at \$30 for a total monthly data bill of about \$47.50. Not bad at all compared to \$20,000/GB but still \$17.50 more than trying to go it alone with wifi.

3. Inventory

A trip like this is all about preparation. There are a bunch of things you may wish to invest in or simply gather before your trip. It also helps to play with them before you need them just to figure out how they work.

3.1. Hardware

The hardware listed here isn't really specific to the Droid X, and that's why I like it!

3.1.1. Phone

You'll need a decent Android phone, of course. I'm assuming you've got one already and that it's not able to connect to GSM networks (or you're too cheap to pay for the global data plan). My Droid X is a fantastic phone and some of the information here may not apply to other models, but the equipment and software should be fairly platform-independent.

3.1.2. Batteries

You can never have too much power. The trip to Taiwan is a long one, and walking around with the camera open, GPS on, and constantly using translation apps can really suck down those electrons. Many phones have available extended batteries, but I don't like these since I carry two phones, my wife has a phone and a Kindle, and there are numerous other devices that come into and out of my life that can use a USB power source.

I initially bought a neat solar panel with a smallish battery, but I quickly learned that cheap is not always a good idea. The output of the USB ports wasn't able to keep my X charged, the solar portion was mostly for show, and the total battery life wasn't much better than just having a spare battery handy.

I then upgraded to a New Trent IMP50D (<http://www.newtrent.com/IMP50D-dual-USB-5000mAh-iphone-battery-p/imp50d.htm>). A decent battery pack and it lasted me the trip from EWR to TPE with moderate use, but the 2A output is split between two USB ports. This means that with a high draw phone like a Droid X it can cycle between charging and over-current shutoff unless I start turning off radios. The worst is the screen, when the X is connected to a power source the huge screen pops on and draws a lot of current which shuts off the battery until the screen blanks and then the cycle repeats. When the X is mostly charged this isn't a problem, but when it gets below a certain percentage (~30-40% IIRC) it becomes unbearable.

My recommendation is the APC UPB10 (http://www.apc.com/resource/include/techspec_index.cfm?base_sku=upb10), a whopping 10,000mAH battery with a 1.6A maximum output. While discontinued you can still find them online, I have two and never used more than one in a day.

3.1.3. Headphones

It pays to have a decent set of noise canceling headphones. While not overly useful on the trip, they make the plane much more bearable. If you go with a good Bose headset, don't forget some ear buds in case you want to listen without lugging them around. I have a set of Sony in-ear headphones that are adequate, but not perfect.

3.1.4. Accessories

I'm assuming you're bringing your charger along. I like the ones with a USB port instead of a cable, that way I can use a mini- or micro-USB cable depending on what I'm charging.

A small power strip is useful, being able to charge your phone and a battery while having other devices plugged in is a nice luxury.

Taiwan uses US-style power outlets so I shouldn't need any adapters, right? Wrong! Nearly all of the outlets are two-prong and I had several three-prong cords. Bring an adapter, if you have a power strip you should need only one.

I also wish I had remembered my microfiber lens cloth (https://www.ppsna.com/product_info.php/products_id/380). I lost a lot of early pictures that I had blamed on a microscopic sensor with too many pixels but in reality were simply caused by a dirty lens.

If you plan on writing Chinese characters (see below for a mention of HanWriting), you can also look into a stylus able to work with a capacitive touch screen. I've ordered one and I'll update this document once it's arrived and I've had a chance to play with it.

While unprotected wifi networks abound in Asia, having a wifi access point is useful since many hotels only offer wired Internet. I have a nice D-Link DWL-G730AP (<http://www.dlink.com/products/?pid=DWL-G730AP>) which is very portable, can run off a USB port, and can be an access point, router, or adapter. I'm sure newer models exist today, but sadly this stayed home. It now has a permanent spot in my laptop bag.

3.2. Software

All of the software I've used is free, but I ended up buying the full version of most of them. Remember, developers need to eat, too!

3.2.1. Chinese Learning Apps

There are a few applications that I've downloaded that have a reasonable number of Chinese phrases, most of them with speech. Of the free ones, Daily Chinese (<http://www.appbrain.com/app/daily-chinese/com.jin.language.dailychinese>) is probably the best but it still sits in limbo as it doesn't provide a foundation to be a "learn Chinese" app nor the depth to be a fully functional dictionary. Some of the common phrases are a bit too specific to be useful (how many times do people touring China need to say "I've booked a plane ticket to Rome"?) but there is a variety to choose from, it has a speech function, and shows the written Chinese as well as a pinyin pronunciation guide. Of course, it also works without a network connection.

I learned well into the trip about Hanping Chinese Dictionary (<http://www.appbrain.com/app/daily-chinese/com.jin.language.dailychinese>) which I found much more useful. While it doesn't have a phrasebook it does have a very detailed dictionary and a decent search function. Even better, you can use the HanWriting IME ([http://www.appbrain.com/app/hanwriting-ime-\(beta\)-%E6%BC%A2%E6%9B%B8/com.KwanLye.android.HanWriting](http://www.appbrain.com/app/hanwriting-ime-(beta)-%E6%BC%A2%E6%9B%B8/com.KwanLye.android.HanWriting)) to enter Chinese characters for translation. Look into Hanping Chinese Dictionary Pro (<http://www.appbrain.com/app/hanping-chinese-dictionary-pro/com.embermitre.hanping.app.pro>), while expensive at ~US\$8 it's about the same price as a paper dictionary and gives you native speaker audio as well as the ability to copy and paste the characters.

Note that HanWriting does have a learning curve, you need to learn a bit how to draw Chinese characters before you can use it to write effectively. It's not enough to draw something that looks like a character, you need to draw it in the proper order (generally starting from the upper left and moving to the lower right). Note that Taiwan uses traditional Chinese characters, most of mainland China uses simplified. HanWriting is also now a part of MultiLing, I've created a small guide for MultiLing here ([../android-chinese-characters](http://android-chinese-characters)).

Taiwan is also Mandarin-speaking, Hong Kong is the primary Cantonese speaking area. For translator apps this is important.

3.2.2. Mapping Software

Google Maps is fantastic, but it requires an Internet connection to actually work. Since I didn't have any intention of actually driving anywhere myself, I didn't need any turn-by-turn directions but I did want a map and GPS locator.

I started with Maps (-) ([http://www.appbrain.com/app/maps-\(-\)/coderminus.maps](http://www.appbrain.com/app/maps-(-)/coderminus.maps)) which was functional and has the benefit of allowing me to cache the entire island fairly easily (although I couldn't fit the lowest zoom levels on my 16G SD card). However it just seemed...lacking.

I then found Maverick (<http://www.appbrain.com/app/maverick/com.codesector.maverick.lite>) and the associated Maverick Pro (<http://www.appbrain.com/app/maverick-pro/com.codesector.maverick.full>). A slightly better UI, but more importantly it has a built in "field of view" indicator (a blue triangle showing which way you're looking) and support for waypoints. The Pro version increases the number of waypoints as well as breadcrumb trails, I could have lived without them but figured to feed the developer a bit. Waypoints are useful for marking cities you've visited, the hotel you're staying at, or local unprotected wifi networks.

3.2.3. Miscellaneous

I've got a Linux server at home and I wanted to move my pictures onto it. One of the few ways I allow this to happen is via scp, using ssh to copy the files over securely. You can get this working for free via the command line if you've rooted your phone by following these instructions (<http://www.linux.com/community/blogs/getting-scp-working-on-android.html>), but I don't really like the CLI on a phone since keyboards try to autocorrect things, punctuation is hard to access, etc.

I decided on DroidSCP (<http://www.appbrain.com/app/droidscp/com.perdeas.droidscp>). Don't let the "Free" fool you, to use it for large numbers of files you'll need to shell out \$1.50 to get bulk downloads. I like it better than AndFTPPro (<http://www.appbrain.com/app/andftppro/lysesoft.andftppro>) because of the price, I despise FTP, and it has better handling of duplicate files (I'd rather skip the duplicates than overwrite them like AndFTPPro does). All-in-all DroidSCP is a great way for me to transfer files back and forth between my phone and my server when I'm away from home.

4. Phone Functionality

There are some things you'll want to learn about your phone to get optimal usage out of it. Some limitations below you may not worry about, others may mean you'll want an adjunct device.

4.1. Wifi Only Living

This went better than I had expected. Without getting into the legal issues of connecting to open wifi networks without the owner's permission, you'll need to worry about security when doing this. Understand that pretty much anyone can see everything you do. Also be respectful of someone else's IP address, connecting to Google Maps is one thing but downloading porn or doing anything that is malicious or even just questionable is another.

Most of the time I was able to find an open network or had explicit permission to use the hotel's network. When on the go it was more hit or miss. I wasn't something I could count on when I needed it but it was a frequent enough occurrence that I didn't feel the need to try to use Bluetooth tethering to my Blackberry to get always-on data. I'm still going to have a world-enabled Android the next time I leave the US, but I didn't miss the feature nearly as much as I had expected.

Of course there are three mitigating factors that may have contributed to the rosy outlook. The first is that I rarely use my phone for calls, having Google Voice pick everything up for me was a nice feature. Second, SMS is for wimps. Why use text messages when you've got a myriad of better communication mechanisms like Google Talk available to you? Anyone without a smartphone isn't interesting enough for me to talk to when they're out and about. Finally, everyone was asleep for most of my way - with a 13 hour time difference I only had a few hours in the morning and evening to talk with people at home anyway.

4.2. GPS Functionality

At first I was a little disappointed. I could get a location in my pictures when I was connected to Wifi, but the GPS wasn't working at all. It turns out there's a quirk with Motorola's Airplane Mode implementation (and this may extend to other manufacturers as well). Airplane mode disables the GPS, but the toggle widget implies that the GPS is enabled. To use the GPS you'll need to disable Airplane Mode. However, when you turn on the radio you get an interesting text message from Chungwa Telecom (the primary mobile carrier in Taiwan) saying you'll be charged for usage. Now, I'm fairly certain that I wouldn't actually be able to generate any data, but I decided to play it safe.

From the home screen click the Menu button and select Settings --> Wireless and Networks --> Mobile Networks --> System Select --> Home Only. This will mean that the phone won't connect to the network at all unless you're in the Verizon network. Generally this isn't a bad option to have on, it's a good way to ensure you don't accidentally get hit with roaming charges.

Once I discovered this little tidbit things got much happier. Both Maverick and my beloved Tricorder (<http://www.appbrain.com/app/tricorder/org.hermit.tricorder>) app will show the satellites as they're discovered so you can see how close you are to locking into a location. When you first land or whenever you reboot the phone it will need to start from scratch and it may take a bit longer to sync. I've also found that rebooting the phone or at least toggling the GPS every day or two helps, sometimes it got stuck and I've had similar issues with Bluetooth pairing with my PC for BlueProximity

(<http://blueproximity.sourceforge.net/>). Once it's got a decent nearby position it takes <30 seconds to lock on most times but can take a few minutes. If you want to geotag your photos it still couldn't hurt to keep your camera on so it doesn't need to relocate itself - especially when indoors.

It also can help to keep one of your USB batteries in your pocket, keep your phone topped off and you'll be sure not to run out of juice. I've found I can keep the phone connected to the battery as I'm using it as a GPS if I need to.

4.3. Camera

I like photography. I shoot with a Nikon D200 and have spent way too much on some of the best equipment out there. But it's bulky and a liability when I travel. Not to mention good old-fashioned white guilt about carrying around a local's yearly salary as one of my hobbies. I decided to try Taiwan traveling light with only my X as a camera. I have to say I'm pretty impressed with the results. My Nikon would have been useful for a few shots, but I don't think it would have been worth bringing for the handful of holiday snaps that would have showed significant improvements.

I used the stock camera app. I had Camera 360 installed but, aside from a ghost filter that would have been fun to use to freak out my mother, I don't think there was anything that I liked better than stock except for the ability to mute the shutter sound (I understand why Motorola don't allow a mute, it's a liability for them and someone who's the victim of an upskirt shot or corporate espionage is happy to sue them). It helps to get to know the application and practice shooting around your house. Learn when you need the Macro mode, find the exposure adjustments (I didn't find them in the camera settings until it was too late), and try out as many features as possible. Hands down the most common feature I used was the panorama assist mode - a fantastic replacement for a real wide-angle lens.

I was initially disappointed in the camera quality. First the geolocation only seemed to work when I was connected to a network, but then I figured out the Airplane Mode GPS issue described above. More critically, pictures with high contrast showed a level of banding that I thought was a simple matter of sensor bloom (essentially over-saturated photosites spill over into adjacent sites, creating a "smearing" effect when there are bright spots in the picture). I then noticed some irregularities in them and realized that when I cleaned the lens with certain materials it left near-invisible smears. Polishing the lens in a circular motion helped, but a microfiber lens cloth instead of my shirt would have been a better choice. Too bad, a lot of shots were ruined that way.

The public's incessant whining about megapixels drives manufacturers to do stupid things. A typical screen at 1280x1024 is a mere 1.3MP, 1080P is 2MP. Printing at a respectable 150dpi would fill an 8.5"x11" sheet of paper at these resolutions. Yet the public claims to need 8MP or even higher without understanding why. Sure, digital cropping is nice, but the sensor size is pretty much fixed (if anything, shrinking) and more pixels mean smaller photosites. Smaller photosites mean more noise which means awful night shots. Please stop the insanity and try to get manufacturers to use more realistic 3MP cameras with better quality pixels instead of just more!

Why the rant? Because the two places where the X legitimately falls down are night shots (too noisy) and high contrast shots (black mountains against an overblown sky aren't good). Both can be fixed with bigger photosites, but the latter could have an interesting HDR software fix. Essentially if the camera could take, for example, three shots it could merge them together in post with about the same amount of effort as the panorama assist. First take a normal picture, then take a picture that's underexposed to provide detail in the bright spots, then take a picture that's overexposed to get detail in the shadows. Finally merge them based on pixel intensity and viola! Instant real HDR instead of some crappy filter that just makes pictures look ugly.

The following image shows a lens quickly wiped against my shirt to clean it. Note the smeared look to the highlights.

Figure 1. Unclean Lens



After a more careful cleaning the smears are gone, but the poor night quality remains. These images are approximately 0.3 of the 8MP Droid X's sensor, that's a lot of wasted pixels because the untrained insist on focusing on a meaningless number.

Figure 2. Clean Lens



A. Discussion

Questions, comments, problems or complaints? Discuss this document on our forum here (<https://www.ebower.com/forum/viewtopic.php?f=3&t=13>).

B. About Me

My name is Jeff Bower, I'm a technology professional (<http://www.linkedin.com/in/jdbower>) with more years of experience in the telecommunications industry than I'd care to admit. I tend to post with the

username jdbower on various forums, including Komodo Kamado (<http://komodokamado.com/forum/>), Android Central (<http://forum.androidcentral.com/>), VirtualBox (<http://forums.virtualbox.org/>), and MakeMKV (<http://www.makemkv.com/forum2/>). Writing these documents is a hobby of mine, I hope you find them useful and feel free to browse more at <https://www.ebower.com/docs>.

I also enjoy cooking, especially outdoors with my Komodo Kamado (<http://www.komodokamado.com>) and using my Stoker (<https://www.rocksbarbque.com>). Take a look at my recipes stored at <https://www.ebower.com/recipes>.

If you've got any questions or feedback please feel free to email me at docs@ebower.com (<mailto:docs@ebower.com>) or follow me on Google+ (<https://profiles.google.com/100268310848930740059>) or Twitter (<http://twitter.com/jdbower>).