



Nightshade Framework Device Setup Instructions for Motorola MC65

Melissa Tondi

Brian Kitchener

Roland Burrows

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Table of Contents

Page	Section [Click link to navigate to section]
3	Nightshade Framework Overview
4	Device Setup – Motorola MC65 [Windows Mobile 6.5]
8	General Setup – Connecting to Eggplant
9	Troubleshooting Device Errors
10	About ProtoTest

Nightshade Framework Overview

Framework Summary

Nightshade is a C# Eggplant Test Runner, built in Visual Studio 2012 with .Net 4.0. Specifically, it's built on top of Gallio and MbUnit. MbUnit is a unit testing framework similar to NUnit, but with more advanced features for UI automation. Gallio is a unit test runner that contains advanced reporting along with both GUI and Command line execution. In addition, tests can be executed from Visual Studio using the TestDriven.net plugin.

The problem that the Framework solves

Motorola desired the ability to run a 100 hour long multi-device stability test against a number of different mobile devices and operating systems using Testplant's Eggplant automation tool. However, the Eggplant GUI and scripting language SenseTalk is limited in its ability to execute these types of tests for the reasons outlined below:

- Memory Issues - Eggplant Runs out of memory around 40 hours in.
- Multi Device Support - The Eggplant GUI offers only basic multi device testing and didn't support the scope, complexity, and robustness required by Motorola.
- SenseTalk scripting limitations. Have to learn a new scripting language, and are required to work around its limitations was time consuming. Resulting code was difficult to reuse.
- Code reusability - Reusable code is hard to create and maintain in SenseTalk, but it's much easier in a strongly typed language like C# using the Page Object design pattern.
- Controlling test execution from outside of Eggplant allows us to customize and stabilize Eggplant to Motorola's needs.

Framework Execution

Nightshade requires .Net 4.0, Gallio version 3.14, Visual Studio 2012 or later, and Eggplant installed on the local machine with a valid license. Nightshade launches Eggplant Drive as a java jar, and communicates to it via an XmlRpc service. The Nightshade runner connects to the devices using an IP address, so the devices must be reachable via the IP addresses supplied in the config file. All test settings are configurable either in the App.config file or by setting the properties in the Config class.

Nightshade is built using multiple layers of abstraction. This is to organize and categorize where information lives to help maximize code reuse. Fundamentally, all code comes down to a series of conditions. We want to avoid having a giant series of nested if statements, as debugging and maintaining that code isn't realistic.

Device Setup – Motorola MC65 (Windows Mobile 6.5)

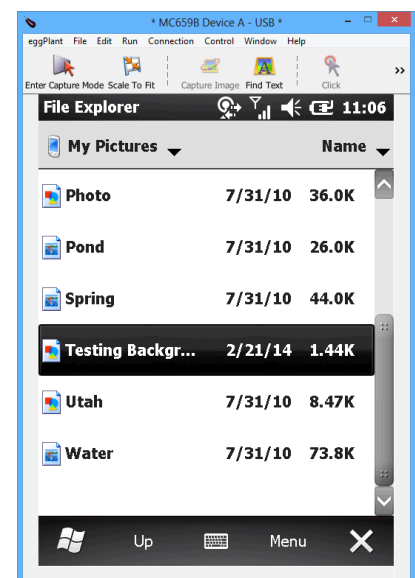
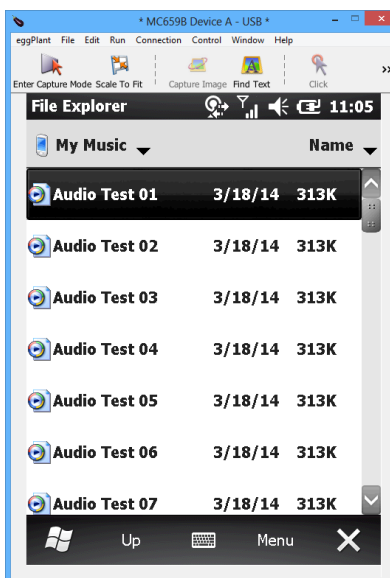
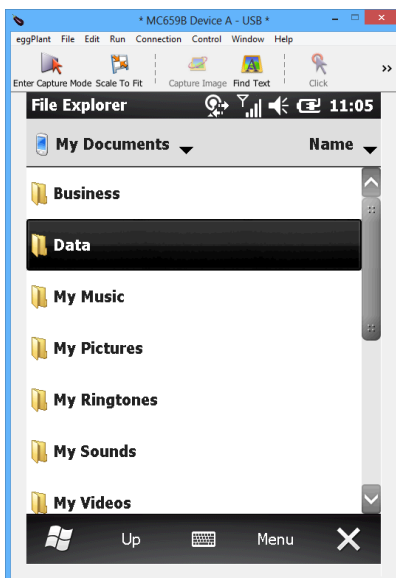
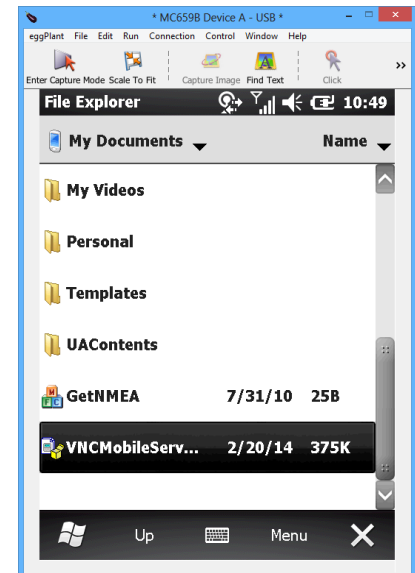
Set Up Device From Factory-Default State

Pre-requisites:

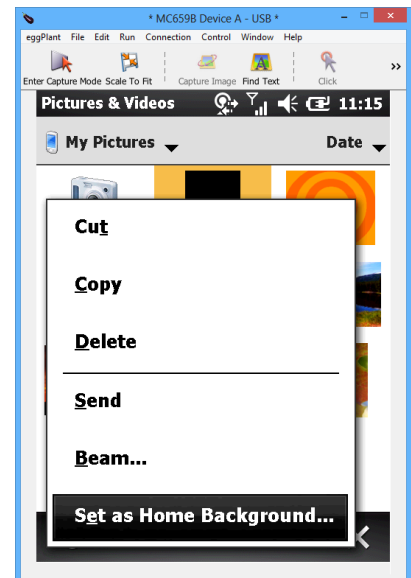
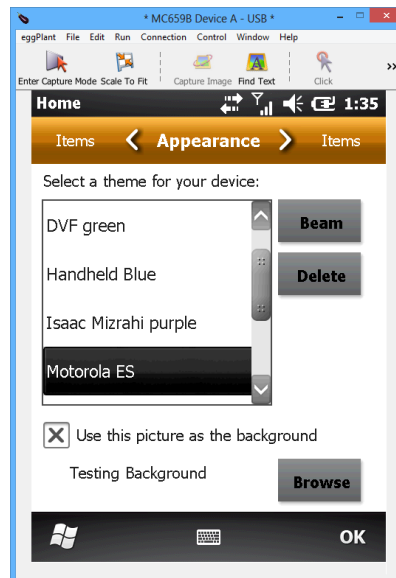
1. MC65 device newly flashed with software under test.
2. Eggplant VNC App [e.g. VNCMobileServer.WMPRO_ARM Cab file].
3. Setup files [included in Nightshade framework within “Setup Files” folder].
 - a. “Data” folder containing 3 files for MMS and Email [audio, image, video]
 - b. 50 Audio Test files for music app
 - c. Testing Background [100% black image] within Device-specific OS folders [Windows\MC65, in this case].
 - d. Hotmail Test Account [take appropriate account from TestAccounts.txt or from equivalent management system].
4. Eggplant installed on an available testing computer.

Device Setup:

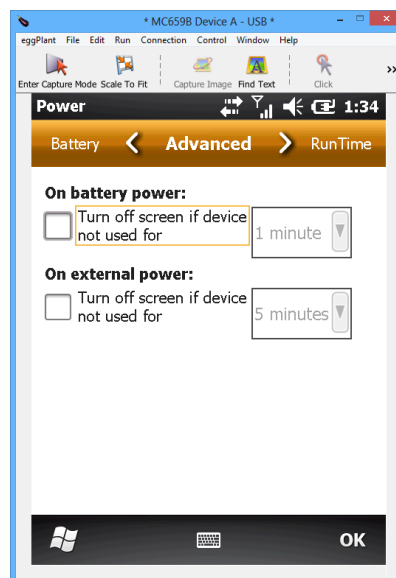
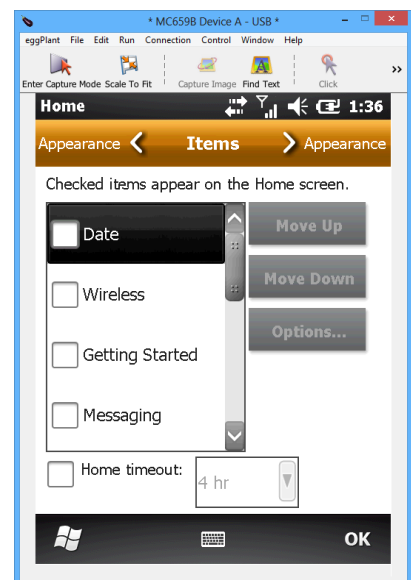
1. Connect MC65 via USB to computer that has the Nightshade Framework [or Setup Files] available, and contains the Eggplant VNC app.
 - a. Allow the computer to install software and drivers, if necessary.
2. Transfer the VNC app to a folder on the device.
 - a. Install VNC app.
3. Transfer the Audio Test files to the My Music folder.
4. Transfer the “Data” folder [containing the 3 Messaging files] into My Documents.
5. Transfer the Testing Background image to the My Pictures folder.



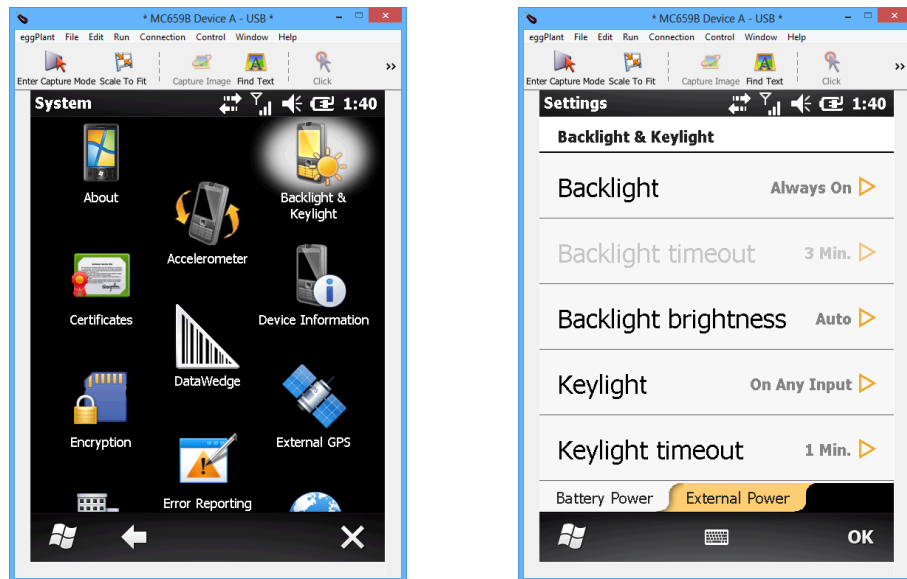
6. Enter Pictures and Videos App, and set uploaded “Testing Background” image to Home Background.
7. Enter Settings App - Home sub-menu. Ensure that the device is configured for the default Appearance [Motorola ES], using the Testing Background image.



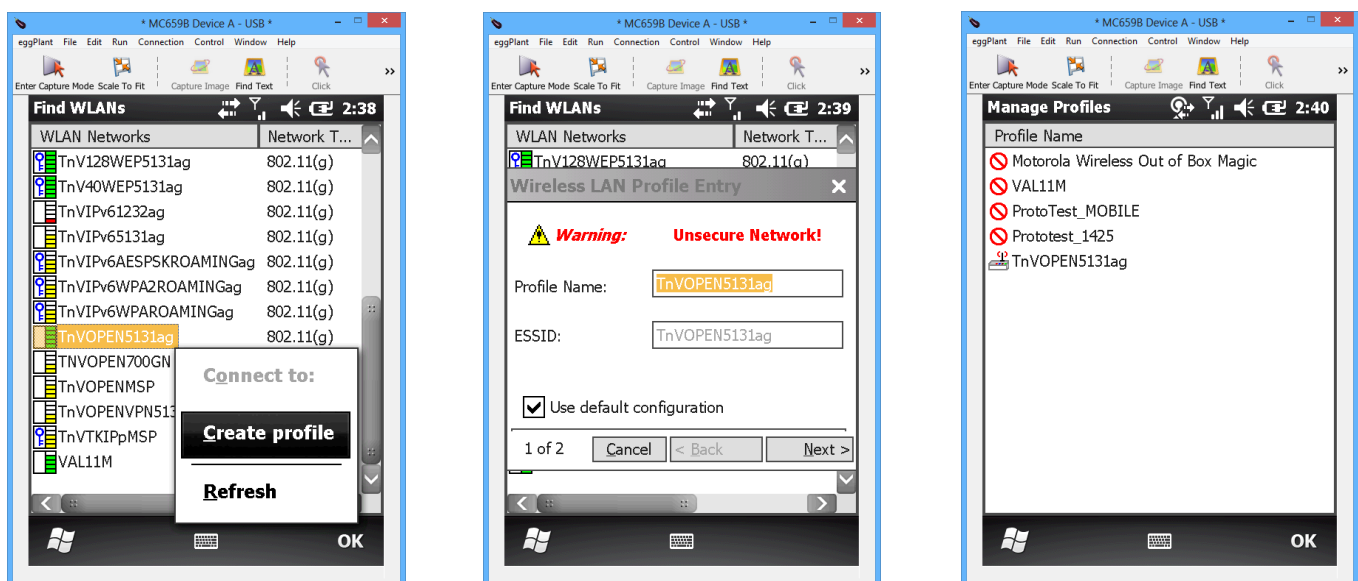
8. Within the Settings > Home, select the “Items” option. Remove all items that would appear on the home screen and disable the “Home timeout”.
9. Enter Settings App - Power sub-menu. Within “Advanced” option, disable any “Turn off screen” options.



10. Enter Settings App – System sub-menu. Enter “Backlight & Keylight” sub-menu. Select Backlight > “Always On” for both Battery-Power and External-Power tabs.



11. Enter Fusion wireless management app. Select Wifi network to be used as the default for testing and create a profile for it. Disable all other profiles.

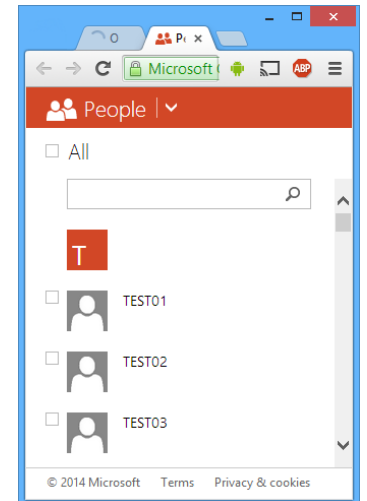
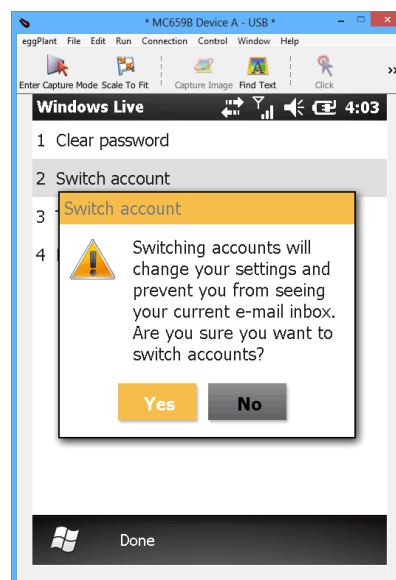
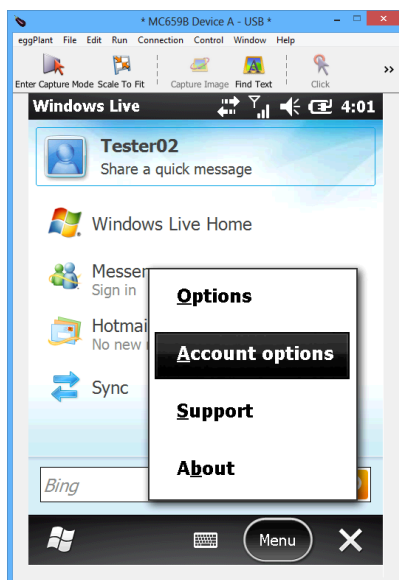


12. Enter Browser app and create a bookmark for Google
 - a. Name: Google
 - b. Address: www.google.com
13. Finally, rather than adding the Contacts to the phone manually, follow the next steps to add an Email Account that can automatically sync the contacts.

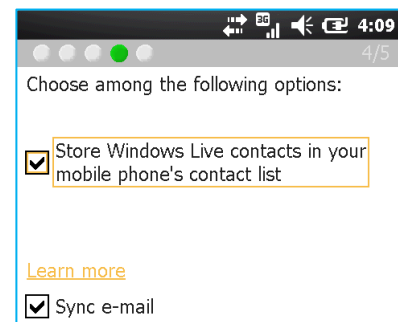
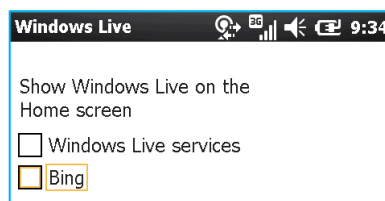
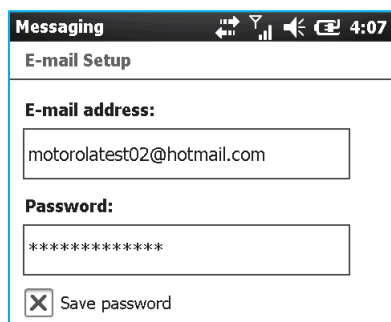
14. Coordinate with other engineers to select an available Email Account from the AT&T 15595 test accounts. These accounts contain 50 Contacts for use with during the Telephony and Messaging tests. Format is as follows:

- a. Email: motorolatest{#}{#}@hotmail.com
 - i. Example: motorolatest02@hotmail.com
- b. Password: MotoProtoAuto
- c. Complete list of accounts can be found in TestingAccounts.txt within Setup Files folder.

15. Once an available account has been selected, enter the Email app and setup a new account, or enter Windows Live app and switch accounts.



16. Be sure to **uncheck** the two options for the Home screen. They will disrupt home screen rendering and will cause test failures.



17. Allow device to synchronize.

General Setup – Connecting to Eggplant

Since one of the ATT&T 15595 tests calls for disconnecting the Wifi radio and then reconnecting to a wireless network (in addition to multiple other tests that will require the device to not be connected via wifi), the mobile device under test must be connected to Eggplant via USB:

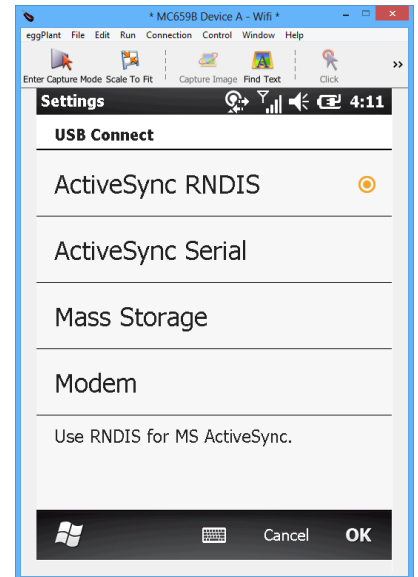
- When first connecting the device via USB, select “ActiveSync RNDIS” from the popup (which will appear similar to the screen on the right).
- VNC app settings
 - Listening Port: 5900 + Disable "encrypt connection" + Authentication "none"
- VNC app
 - Stop all connections until "Ready" state is achieved.
 - With device plugged into the computer via USB, select Menu -> Listen.
 - Device should now be connectable to Eggplant through USB. If you specify Wifi or USB connections, the connection will reset upon test completion with the Nightshade framework (because of the way we're powering up and down Eggdrive).
 - Setting it to general "Listen" mode resolves this issue.
- In Eggplant, set the connection using IP 169.254.2.1 Port 5900.
- If your local IP for the USB connection is different, we can provide instructions on how to find it.
- Device should now be able to connect to Eggplant.

NOTE: The above steps were from a combination of our own troubleshooting and diagnosis with Testplant directly. If these steps do not allow your device to connect to Eggplant via USB, please contact Testplant support.

Partnered Control Device

- VNC app settings same as above
- VNC app
 - Stop all connections until "Ready" state is achieved.
 - With device connected to Wifi only (not USB), select Menu -> Listen.
 - Device should now be connectable to Eggplant through Wifi.
- In Eggplant, set the connection using the IP address and port of the device.
- Device should now be able to connect to Eggplant.

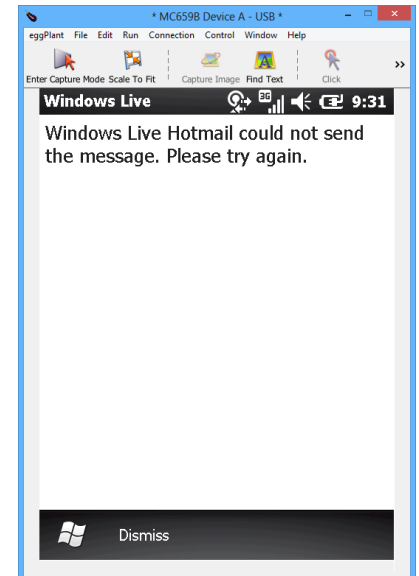
NOTE: If the device cannot connect to Eggplant directly, the Nightshade framework will not be able to run tests against the device. Please contact [Testplant support](#) for assistance.



Troubleshooting Device Errors

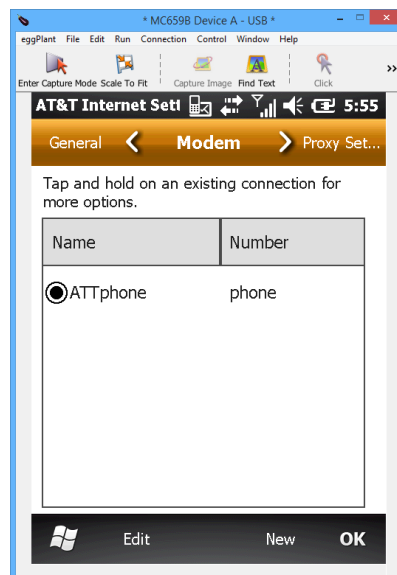
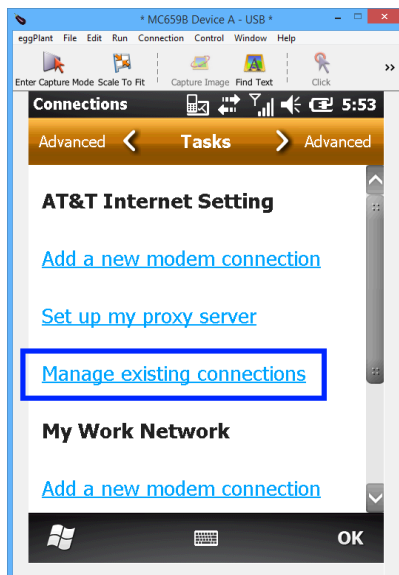
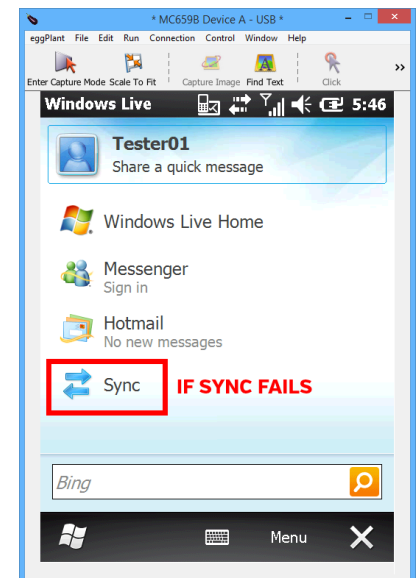
Hotmail could not send the email

- If an email could not be sent, the most likely issue is that Microsoft detected “unusual activity” on the email account. Log into the Hotmail test account and fix the security settings (if you attempt to send another email from the web client, it will trigger the warning).



Windows Live Sync Failed / SIM card does not allow data

- This issue occurs only with AT&T SIM cards. Contact Juan Cornejo [Motorola – Holtsville, NY] for further information.
- Within the Windows Live App, if the Sync function fails OR the SIM card within the device acts like a data plan is not active, the Access Point Name may be out of date.
- Navigate to the Settings app -> Connections menu.
- Select “Connections” option within Connections menu.
- Click on “Manage Existing Connections”. Delete active profile and replace with the steps seen below.



ATTphone

Enter a name for the connection:

Select a modem:

ATTphone

Access point name:

ATTphone

User name:

Password:

Domain:*

* If provided by ISP or network administrator.

Advanced...

About ProtoTest

Since 1998, ProtoTest has helped clients test software to ensure a positive user experience. Our Denver mobile app test lab is equipped with a collection of virtual and physical smartphones and tablets, including popular models from Apple, Samsung, HTC, LG, Motorola, Amazon, and more. The ProtoTest lab is staffed with experts skilled in functional and performance test automation with leading commercial and open source tools. Our staffing practice draws from a diverse talent community to fill contract, contract-to-hire, and direct-hire openings for testing professionals and other roles in the software lifecycle. ProtoTest's clients include industry leaders such as DigitalGlobe, Pearson, Covidien, and MyForce. For more information, please visit ProtoTest.com.