

**Engineering Report**

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| **Report Title:** | ***Sierra Wireless Linux QMI SDK AirVantage Agent’s Guide*** |
| **Project Name:** | ***SLQS*** |
| **Document #:** | ***TBD*** |
| **Legacy #:** | ***N/A*** |
| **Revision:** | ***1.00*** |
| **Customer Name:** |  |
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| **Location:** | ***TBD*** |
| **Date:** | ***January 25, 2013*** |

**Revision History**

| **Doc Rev** | **CR#** | **Date** | **Name** | **Comment** |
| --- | --- | --- | --- | --- |
| 1.00 |  | Jan. 25/13 | Calvin Fong | Initial Release |

**Table of Contents**

[1 AirVantage Agent DevTree implementation 4](#_Toc346857955)

[1.1 Overview 4](#_Toc346857956)

[2 Before Compilation 5](#_Toc346857957)

[3 Compilation 6](#_Toc346857958)

[4 SDK 7](#_Toc346857959)

[5 Execution 8](#_Toc346857960)

[6 Adding More Device Tree Variables 9](#_Toc346857961)

[7 Supported Device Tree Variables 10](#_Toc346857962)

[7.1 Description of variables 10](#_Toc346857963)

[7.2 SLQS API association 10](#_Toc346857964)

# AirVantage Agent DevTree implementation

## Overview

This document provides information about the "Air Vantage Dev Tree v2 application".

This is not actually an application on its own. Rather, it is a library that

acts as an adapter between the an Air Vantage communication agent (such as the

Sierra Wireless "AirVantage Agent") and the Sierra Linux QMI SDK, effectively making

a connected Qualcomm QMI-based modem device available for management via the

Sierra Wireless Air Vantage web services platform.

# Before Compilation

* Obtain a copy of the Device Management Tree Specification, Version 2 header file (devtree\_v2.h). A copy of this file is included in the source tree but it's possible that it is out of date. Please check that you have the latest version.
* Open the "makefile" in a text editor and set the following variables:  
   - AIRVANTAGE\_AGENT\_DIR --> path to the root of the AirVantage Agent source tree.  
   - DEVTREE\_V2\_PATH --> path to the directory containing the devtree\_v2.h file.  
  NOTE: Obviously, the makefile's "install" rules will have to be tailored further if this adapter library is to be used with a different Air Vantage communications agent other than the AirVantage Agent
* Save the makefile

# Compilation

Just run "make" to build the adapter library and install it into the AirVantage Agent

(or other Air Vantage communications agent).

* By default, the application is compiled for i86 platform.
* The application can be compiled for different platform using the CPU option:  
   "make CPU=<platform>"  
   where <platform> = arm9 in case 0f ARM and  
   ppc in case of Power PC.
* For arm9 and powerpc, platform specific toolchains are required. These must be installed to the $(HOME) directory once, and can be used for all SDK workspaces.  
   If they do not exist,   
   "make CPU=arm9" and  
   "make CPU=ppc" will simply fail.

# SDK

The SDK executable path must be specified in the makefile before compiling.You shouldn't need to change this, but if you do, it is specified using the SLQSSDK\_PATH variable.

# Execution

The library is loaded automatically and used as needed by the Air Vantage communications agent (e.g., AirVantage Agent)

# Adding More Device Tree Variables

To add support for more device tree variables, implement more of the functions defined in the Device Management Tree Specification header file (devtree\_v2.h).

This can generally be done by:

1. Copying function prototypes from devtree\_v2.h into a .c file under SampleApps/Air\_Vantage\_Dev\_Tree\_v2/src
2. Implementing the body of those functions (using SLQS API functions to access the modem).

The files under SampleApps/Air\_Vantage\_Dev\_Tree\_v2/src are named according to the section of the Device Management Tree Specification that they implement. For example, variables found under the "system.cellular" branch of the tree are implemented in the file "cellular.c".

If you need to add a new .c file for a new section of the specification,

1. Create the .c file under SampleApps/Air\_Vantage\_Dev\_Tree\_v2/src.
2. Add the name of the .c file to the "SOURCES" list in SampleApps/Air\_Vantage\_Dev\_Tree\_v2/makefile.

In addition to the Dev Tree v2 accessor function implementation modules, there is the module "main.c". This file implements the adapter library's start-up code (library constructor). This is the part of the adapter that starts-up the SLQSDK and attaches to the SLQSDK Daemon process. This module also

* exports a function to other modules that allows them to fetch the current device mode, and
* implements the special function dt2\_GetDeviceId() that fetches the identifier used to identify the device to the Air Vantage platform.

# Supported Device Tree Variables

## Description of variables

|  |  |
| --- | --- |
| Attributes | Description |
| system.mdm.global\_id | Retrieve Device id from modem, currently returns IMEI |
| system.cellular.apn.apn | Set or Get the APN in use |
| system.cellular.apn.current | Get the APN in use |
| system.cellular.hw\_info.imei | Retrieve IMEI from modem |
| system.cellular.link.rssi | Get the signal quality from modem |

## SLQS API association

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| DevTree attirbutes via Lua ( treemgr agent.dfevman.extvars.devtree2 ) | DevTree2 Adapter Field Name | C Wrapper API | SLQS API |
|  |  |  |  |
| system.mdm.global\_id | DeviceId | dt2\_GetDeviceId | GetSerialNumbers |
|  |  |  |  |
| system.cellular.apn.apn | ApnOverride | dt2\_GetApnOverride / dt2\_SetApnOverride | GetDefaultProfile / SetDefaultProfile |
| system.cellular.apn.current | Apn | dt2\_GetApn | GetDefaultProfile |
| system.cellular.hw\_info.imei | Imei | dt2\_GetImei | GetSerialNumbers |
| system.cellular.link.rssi | Rssi | dt2\_GetRssi | SLQSNasGetSigInfo |