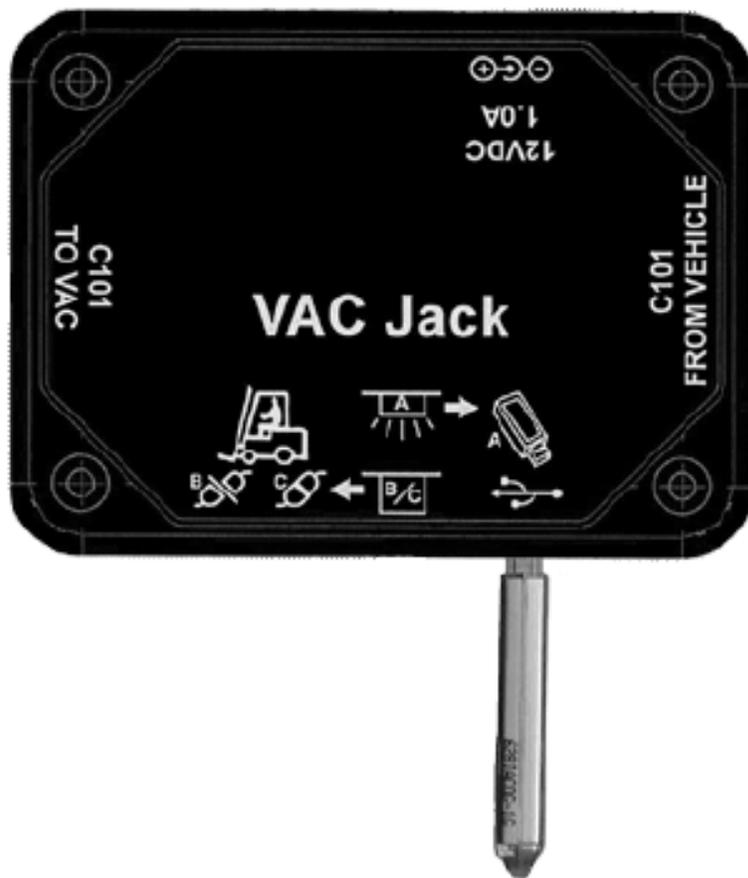




## VAC Jack Guide

An operating and troubleshooting guide for the Forklift Gateway VAC Jack



**About this Guide**

This Guide provides detailed information on the proper use and maintenance of the Enterprise Material Handling Telematics Solution's VAC Jack.

**Safety**

The Powerfleet Enterprise Material Handling Telematics Solution is not intended for use as a primary safety device. Installation must NOT adversely affect any vehicle safety system or safety device. The installation, configuration and operational procedures provided in this Guide are intended for use ONLY by personnel certified on Powerfleet Enterprise Material Handling Telematics Solution installation. It is the user's responsibility to ensure that the procedures in this Guide are completed by certified personnel ONLY, using the proper tools and following the proper safety protocols. The procedures and recommendations in this Guide do not supersede any Federal, State or Local regulations.

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# Contents

- Overview .....3
- VAC Firmware Upgrade .....3
  - Exporting firmware files from the Vision Pro software.....3
  - Using the VAC Jack to upgrade VAC Firmware .....4
- VAC Programming - Wi-Fi Credentials.....5
  - Exporting Wi-Fi credentials from the Vision Pro software.....5
  - Using the VAC Jack to load Wi-Fi credentials .....6
- Vehicle Troubleshooting.....7
- Appendix A .....8
  - Wi-Fi Credential USB Criteria when using unique credentials per VAC .....8



## Overview

The VAC Jack allows VAC updates using an external USB drive and can also be used for troubleshooting VAC-related vehicle issues without removing vehicle panels and disconnecting wiring.

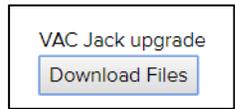
The VAC Jack hardware permits an 'in-line' install to the 10-pin (C101) port, located on the rear side of the VAC4 assembly for troubleshooting only. It must be powered via the supplied 12VDC power adapter for firmware upgrades and data synchronization.

## VAC Firmware Upgrade

For firmware updates, Powerfleet periodically releases new firmware files for telematics devices. As those releases are made available, customers are notified by email, verbally by the Powerfleet's account team, or via prompt from the Vision Pro software interface.

### Exporting firmware files from the Vision Pro software

1. Log into the Vision Pro software.
2. Navigate to System Settings page and click the "Edit" button at the bottom of the page.
3. In the Vehicles section, click the "Download Files" button under the "VAC Jack Upgrade" heading.
4. Click on the "Browse Files" button.
5. Check the boxes next to the VAC versions you need files for.
6. Click on the "Download Files" button.



Vac Jac File Download

Available Firmware  
080203D7 [Release Notes](#)

Import Status

PRODUCT	NAME	SIZE	LAST MODIFIED
<input type="checkbox"/> VAC04	<ul style="list-style-type: none"> <li>• OU10301A.Ids</li> <li>• HU70303E.IRF</li> </ul>	2273268	03-17-2017 06:37:00 PM
<input type="checkbox"/> VAC03	<ul style="list-style-type: none"> <li>• JU60311C.IRF</li> </ul>	1673994	03-17-2017 06:37:00 PM
<input type="checkbox"/> VAC4S	<ul style="list-style-type: none"> <li>• MU30004D.IRF</li> <li>• SU10301A.Ids</li> <li>• OU80101E.IRF</li> </ul>	2059443	03-17-2017 06:37:00 PM

7. A zip file is created with the selected files in specific folders and subfolders.
  - a. P26 folder with sub-folders 1, 2, and 3 for VAC4S
  - b. P17 with sub-folders 1 and 2 for VAC4
  - c. P19 folder with sub-folder 1 VAC03
8. Extract the folders to a location on your computer.



## Using the VAC Jack to upgrade VAC Firmware

- STEP 1. Determine if your VAC is VAC03, VAC4 or VAC4S  
VAC03 = grey keypad with 2-line green screen.  
VAC4 = black keypad with black screen and firmware version (About screen) HU...  
VAC4S = black keypad with black screen and firmware version (About screen) QU...
- STEP 2. For VAC4S, check the vehicle starting firmware version of the VAC.
- STEP 3. Create USB(s) with files to upgrade the VAC.
- STEP 3a. For VAC4S with starting firmware QU80300 or greater, create a single USB with the contents from folder 26, sub-folder 1.
- STEP 3b. For VAC4S with starting firmware QU80299 or less, create three USBs: One with the contents from folder 26, sub-folder 1; a second with the contents from folder 26, sub-folder 2; and a third with the contents from folder 26, sub-folder 3.
- STEP 3c. For VAC4, create two USBs: one with the contents from folder 17, sub-folder 1; a second with the contents from folder 17, sub-folder 2.
- STEP 3d. For VAC03, create a single USB with the contents from folder 19, sub-folder 1.
- STEP 4. Insert the USB into the VAC Jack. *For VACs where multiple USBs were created, start with the USB with sub-folder 1 contents, then move to sub-folder 2, then sub-folder 3.*
- STEP 5. Push the button on the VAC Jack so it is in position "A".
- STEP 6. Plug the 12VDC power adapter into the VAC Jack (and plug the adapter into a power outlet) **Do not power down the VAC Jack with the vehicle cable for VAC programming.**
- STEP 7. Plug the VAC Jack into the VAC's C101 port.
- STEP 8. The VAC Jack button LED will illuminate while reading data from the USB and programming the VAC. During this time, the VAC will indicate programming status via LEDs and on-screen progress messages.
- STEP 9. When VAC programming is complete the VAC Jack LED will go off and VAC screen will return to a normal state (takes 30 seconds to 3 minutes for the Step 3a. and Step 3b. USBs; takes 30 seconds to 20 minutes for the Step 3c. and Step 3d. USBs).
- STEP 10. Unplug the VAC Jack from the VAC's C101 port.
- STEP 11. Unplug the 12VDC power adapter from the VAC Jack.





- STEP 12. Plug the vehicle cable back into the VAC's C101 port.
- STEP 13. The VAC will power up and display the main login screen.
- STEP 14. Select "About".
- STEP 15. At the "About" menu screen, verify that the displayed firmware versions reflect the newly installed firmware.

Note: If two different firmware versions are displayed side-by-side, this indicates that the firmware was downloaded but not installed.

## VAC Programming - Wi-Fi Credentials

Wi-Fi Credentials and system configurations can be changed at any time using the Vision Pro software System Settings page. For VAC4S with firmware QU80503 or greater, the credentials can be added to the VAC using a USB and VAC Jack.

### Exporting Wi-Fi credentials from the Vision Pro software

1. Log into the Vision Pro software.
2. Navigate to System Settings page and click the "Edit" button at the bottom of the page.
3. In the WiFi section, select the profile rules you intend to use:
  - a. Same profile all VACs – for all devices to use the same credentials
  - b. Unique profile per VAC – for using a different credential for each VAC (unique usernames or passkeys).
4. Enter Wi-Fi credentials in Vision Pro
  - a. Same profile all VACs – select 'Add Security Profile' if the one you want to use is not already present and complete the required details.
  - b. Unique profile per VAC –
    - i. If the profiles were already added, select 'Download USB file' and skip to Step 5.
    - ii. If profiles were not previously added
      1. Select 'Download csv Template' and enter the required credentials into the csv file. For criteria completing the csv file, see Appendix A.
      2. Select 'Import Security Profiles'
      3. Choose the file you entered the credentials in and select 'Import'
      4. Select 'Download USB file'
5. A zip file is created with two files: a .irf file and a .txt file.
6. Extract the folders to a location on your computer but DO NOT CHANGE the file names



### Using the VAC Jack to load Wi-Fi credentials

- STEP 1. Load the 2 files on a single USB.
- STEP 2. Insert the USB into the VAC Jack.
- STEP 3. Push the button on the VAC Jack so it is in position "A".
- STEP 4. Plug the 12VDC power adapter into the VAC Jack (and plug the adapter into a power outlet). Do not power the VAC Jack with the vehicle cable for VAC programming.
- STEP 5. Plug the VAC Jack into the VAC's C101 port.
- STEP 6. The VAC Jack button LED will illuminate while reading data from the USB and programming the VAC. During this time, the VAC will indicate programming status via LEDs and on-screen progress messages.
- STEP 7. When VAC programming is complete the VAC Jack LED will go off and VAC screen will return to a normal state (takes a few seconds).
- STEP 8. Unplug the VAC Jack from the VAC's C101 port.
- STEP 9. Unplug the 12VDC power adapter from the VAC Jack.
- STEP 10. Plug the vehicle cable back into the VAC's C101 port.
- STEP 11. The VAC will power up and display the main login screen.
- STEP 12. Log into the VAC as a Maintenance operator.
- STEP 13. Navigate to the Wi-Fi > Networks > VAC Entered screen
- STEP 14. Validate that the visible network information matches that of the information of the .csv file.



## Vehicle Troubleshooting

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Prior to troubleshooting with the VAC Jack, verify that the vehicle cable and its connection to the VAC are not affecting vehicle performance. If it is determined that the vehicle may be experiencing performance issues related to the VAC (such as a valid operator being prevented from accessing vehicles, or blown fuses on the VAC's vehicle cable), perform the troubleshooting steps below.

- STEP 1. Push the button on the VAC Jack so it is in position "B/C" (the "out" position).
- STEP 2. Move the VAC Jack switch to position "C" (VAC connected to vehicle).
- STEP 3. Unplug the vehicle cable from the VAC's C101 port.
- STEP 4. Plug the vehicle cable into the VAC Jack.
- STEP 5. Plug the VAC Jack into the VAC's C101 port. The VAC Jack's LED should not illuminate.
- STEP 6. Attempt to recreate the issue.
- STEP 7. Move the VAC Jack switch to position "B".
- STEP 8. Attempt to resolve the issue.
- STEP 9. Try to recreate the issue again.
  - a. If the issue is recreated successfully, the VAC can be eliminated as the cause of the issue.
  - b. If the issue does not happen in this mode, it is possible the VAC is causing the issue.
- STEP 10. Unplug the VAC Jack from the VAC's C101 port.
- STEP 11. Unplug the vehicle cable from the VAC Jack.
- STEP 12. Plug the vehicle cable back into the VAC's C101 port.



## Appendix A

### Wi-Fi Credential USB Criteria when using unique credentials per VAC

The .csv template contains some sample data. When completing the form, each row in the form represents a single device. Once the USB is created, it can be re-used for all devices identified in the rows of the file.

Column #	Title	Purpose	Criteria
1	MAC_Address*	MAC address of the device	<ul style="list-style-type: none"> <li>• Must be MAC address format of xx-xx-xx-xx-xx-xx</li> <li>• Each row must have a unique MAC</li> </ul>
2	VAC_ID*	ID programmed in the VAC	<ul style="list-style-type: none"> <li>• Must be between 00001 and 65534</li> <li>• Must match the VAC ID for the MAC address from column 1</li> <li>• Each row must have a unique VAC_ID</li> </ul>
3	Facility_ID*	Facility ID assigned to the site	<ul style="list-style-type: none"> <li>• Must match site facility ID found in the System Settings page, Server section</li> </ul>
4	Data_Encryption_Type*	Data in transit encryption as defined by the site license	<ul style="list-style-type: none"> <li>• Must match license</li> <li>• Acceptable entries are: <i>Proprietary</i>, <i>TLS</i>, or <i>Prop + TLS1.2</i></li> </ul>
5	Server_DNS	DNS name of destination server	<ul style="list-style-type: none"> <li>• <a href="http://www.wifivacs.powerfleet.com">www.wifivacs.powerfleet.com</a></li> <li>• Enter this <b>OR</b> Server IP, not both</li> <li>• Max. 50 characters</li> </ul>
6	Server_IP	IP address of the destination server	<ul style="list-style-type: none"> <li>• 216.250.138.155</li> <li>• Enter this <b>OR</b> Server DNS, not both</li> </ul>
7	Server_Port*	Port used for the site	<ul style="list-style-type: none"> <li>• Must match site facility ID found in the System Settings page, Wi-Fi section</li> <li>• For TLS encryption should be 4xxxx, for Proprietary should be 5xxxx</li> </ul>
8	Security_Type*	Wi-Fi network security used	<ul style="list-style-type: none"> <li>• Acceptable entries are: None, WEP64, WEP128, WPA, WPA2, WPA (Cert), WPA2 (Cert), WPA ENT (no cert), WPA2 ENT (no cert)</li> </ul>
9	SSID*	Network name the devices will connect to	<ul style="list-style-type: none"> <li>• Max. 32 characters</li> </ul>
10	Key_Index	Not required	
11	Security_Key_Entry	Not required	
12	Security_Key	Passkey used to connect to the network (non-enterprise)	<ul style="list-style-type: none"> <li>• Required for WEP64, WEP128, WPA, and WPA2</li> <li>• Cannot be entered for None, WPA (Cert), WPA2 (Cert), WPA ENT (no cert), WPA2 ENT (no cert)</li> <li>• Max. 63 characters</li> </ul>



Column #	Title	Purpose	Criteria
13	Domain_Username	Domain and username used to connect to the network	<ul style="list-style-type: none"> <li>• Entered as domain and username separated by “\”</li> <li>• Required for WPA (Cert), WPA2 (Cert), WPA ENT (no cert), WPA2 ENT (no cert)</li> <li>• Cannot be entered for None, WEP64, WEP128, WPA, and WPA2</li> <li>• Max. 63 characters</li> </ul>
14	Password	Enterprise password used to connect to the network	<ul style="list-style-type: none"> <li>• Entered as domain and username separated by “\”</li> <li>• Required for WPA (Cert), WPA2 (Cert), WPA ENT (no cert), WPA2 ENT (no cert)</li> <li>• Cannot be entered for None, WEP64, WEP128, WPA, and WPA2</li> <li>• Max. 63 characters</li> </ul>
15	Root_CA	Certificate for network authentication	<ul style="list-style-type: none"> <li>• Max. 1500 bytes</li> </ul>

\*Required for all VACs