ISSUE DATE:	08/08/2023
SERVICE BULLETIN SUBJECT:	800v RR Prodrive Spring Software Release
VINs or MODELS AFFECTED:	Service Specified Buses
COMPLETE BY:	Next Service Opportunity
SERVICE BULLETIN #:	SC-23-121
Labor Operation Code:	PD50Z

NOTICE! It is expected that this process may require up to .5 hour per bus. Please schedule appropriately to minimize vehicle downtime.

800v RR Prodrive Spring Software Release

Description

This procedure describes the process for updating the Vehicle and Body Controller software to the latest version.

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Summary of Software Changes:

1. HV Faulted Shutdown improvement to prevent Fuse Clearing
    - Increased VIC HV sensing and robustness to prevent closing contactor under load on startup after faulted shutdown.
2. Overhead Charging Robustness Improvements
    - Added time outs and state resets to avoid getting stuck waiting in certain overhead charge process states.
    - Added robustness to no WIFI connection.
3. Compressor Diagnostic Robustness improvements
    - SPN 1351 FMI 7 false failure fix
4. Power steering Diagnostic Robustness improvements
    - Power steering compressor RPM target and diagnostic maturity time change to prevent false failure during normal operation.
5. Compressor Faulted Audible Alert Improvement.
    - Change to make air compressor faulted Dash display constantly drive buzzer to prevent being ignored.
6. Dash saturating and showing “0” at high value.
    - Update to only send highest value the dash is capable of displaying.
7. Radiator Fan Fault Robustness improvement
    - Fix to remove false failure diagnostic setting tied to reverse speed on startup.
8. Push Button Door Button lights with door closed while moving.
    - Issue noticed in final validation mileage testing.
    - Verified that push button doors no longer light when not able to open and operate appropriately.

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Tools/Programs Required

Tools Required:

- Laptop Computer
- Nexiq USB-Link 2

Programs Required:

- Proterra Diagnostics Tool

Software Files Required / Preparation

IMPORTANT! NEVER access the software from the USB memory device, ALWAYS copy the software files to your computer hard drive and access the software from this location. Secure the bus with the Vehicle Master Disconnect in the rear ON.

Component	Part Number	Version
Vehicle Controller	064390	4.9.3
Body Controller	064579	6.14.0

It is recommended that you copy the files from ServiceMax campaign page to your local machine in order to more effectively keep track of the software versions you are deploying:

064390 SW Link -
https://proterra.my.salesforce.com/sfc/p/50000000BNPQ/a/8W000000eznk/FcwPrG1sV6roNaa8Fn7Jn2NCRP1hve7lh36u_aTaQis

064579 SW Link -
https://proterra.my.salesforce.com/sfc/p/50000000BNPQ/a/8W000000eznu/7.EgWl4N7TZTzPjej24KRqCd0lEe.JQY5tsKJrANAuA

VEHICLE SOFTWARE UPDATE PROCEDURE

Description

This section contains the necessary information to update the Proterra Vehicle Integration Controller. This controller provides the electrical integration of ancillary systems on 800V models. It owns the vehicle operational state control, startup and shutdown, steering, pneumatics, thermal management, and brake interlock controls.

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Preparing the Vehicle to be Programmed

When programming a vehicle, it is critical that the low-voltage batteries remain connected throughout the process. Ensure that the LV batteries are fully charged before starting the process. If they are low, use the vehicle to recharge them buy turning on high-voltage or place the bus on a low-voltage charger for the duration of the process.

Connecting to the Vehicle

1. Power up and login to the Proterra-Supplied laptop or a comparable PC that has the Proterra Diagnostics Tool software installed with a valid license.

2. Turn ON the 12/24V rear Vehicle Master Disconnect located at the curbside rear charge port access panel.

Vehicle Master Disconnect

3. Connect the Nexiq USB Link2 device to the laptop and to the OBDII Diagnostic Port located in the streetside wheel well box.

4. Press and hold the streetside wheel well WORK LIGHT switch until the work lights turn on.

5. On the laptop, double-click on the Proterra Diagnostics Tool software icon to start the software.

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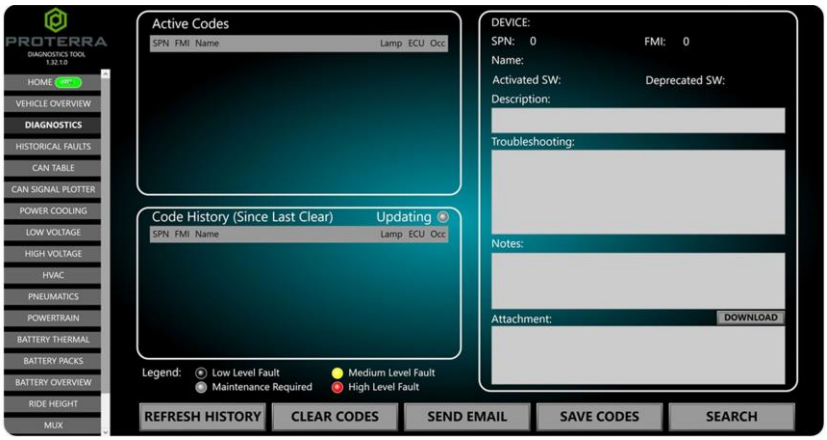
6. When the program opens, read and click “OK” for the high-voltage safety prompt.

7. On the Home tab, select the appropriate device from the drop down and click “Connect”.

8. Once the diagnostic tool has connected to the vehicle, a VIN number and connection status will be displayed on the Home screen, and tabs available to navigate. If you do not see the Home Screen, check that the low-voltage batteries are connected and that the Nexiq tool is plugged in.
   NOTE: 800V Proterra vehicles are equipped with an automatic battery disconnect that will protect the low-voltage batteries from a deep discharge.

9. Before beginning the programming process, check the bus for existing faults by clicking on the “Diagnostics” button below and make a note of any found.



Update Using the Proterra Diagnostic Tool

1. Click on the “Overhead Charging” button on the left side of the screen.
   NOTE: If the bus that you are working on is not capable of overhead charging, skip to step 3 below.

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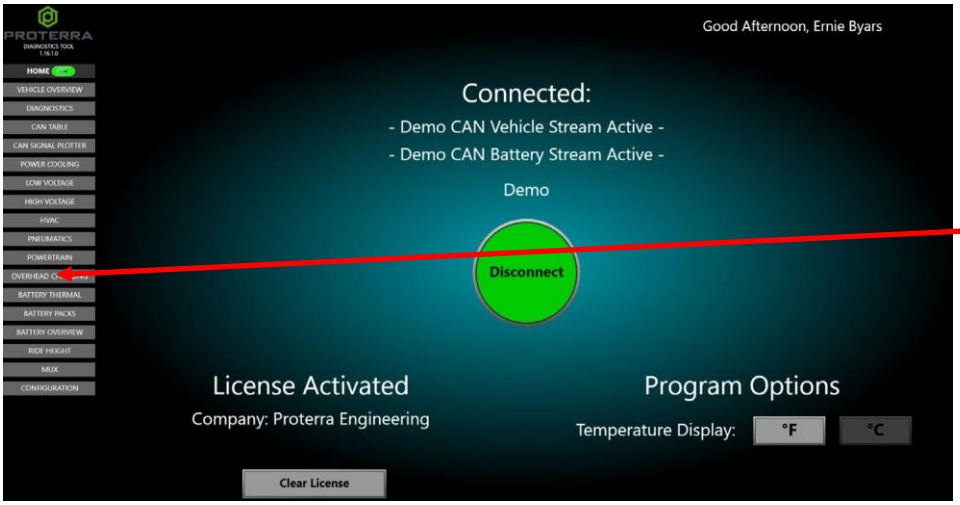
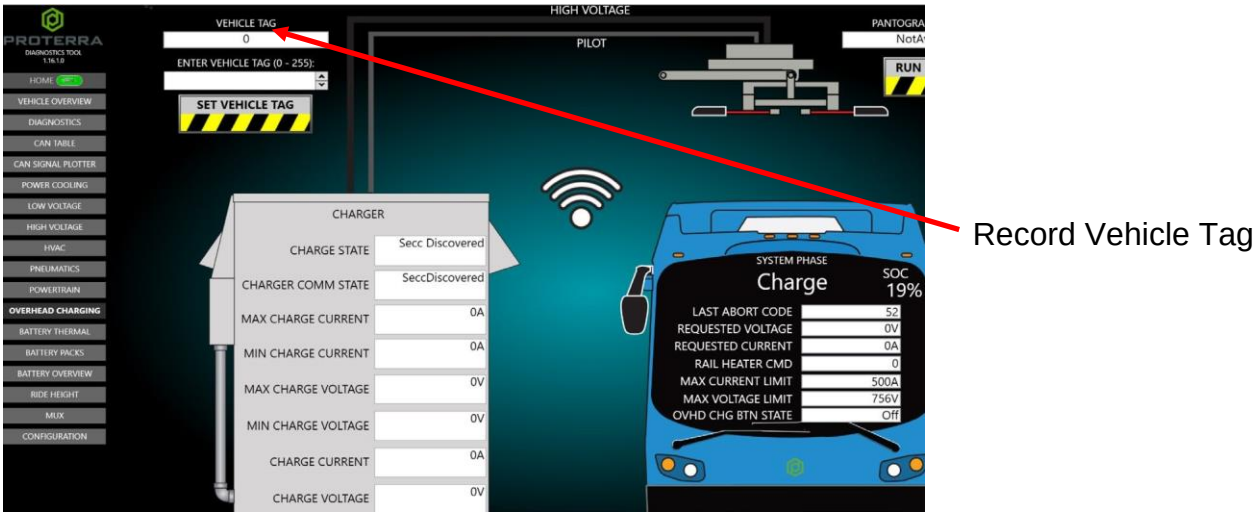


2. Record the value displayed in the “Vehicle Tag” data field. This will be re-entered into the controller after the software update.



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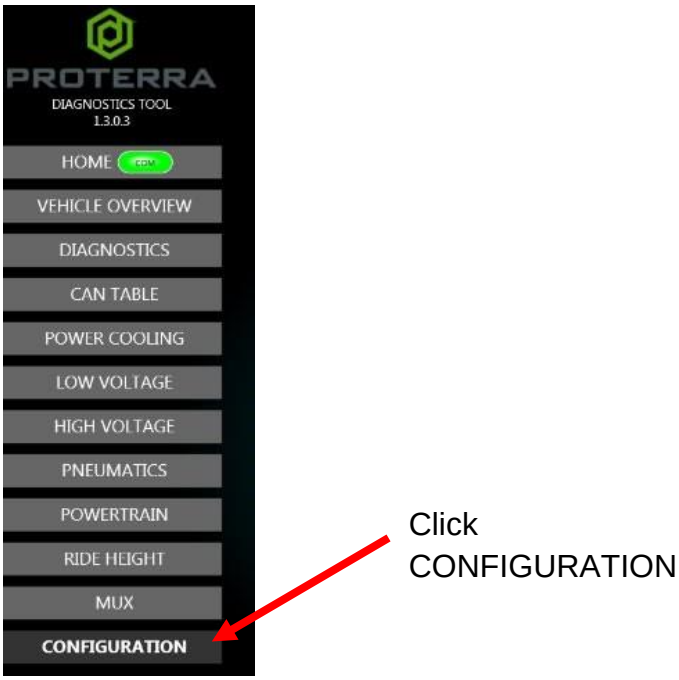
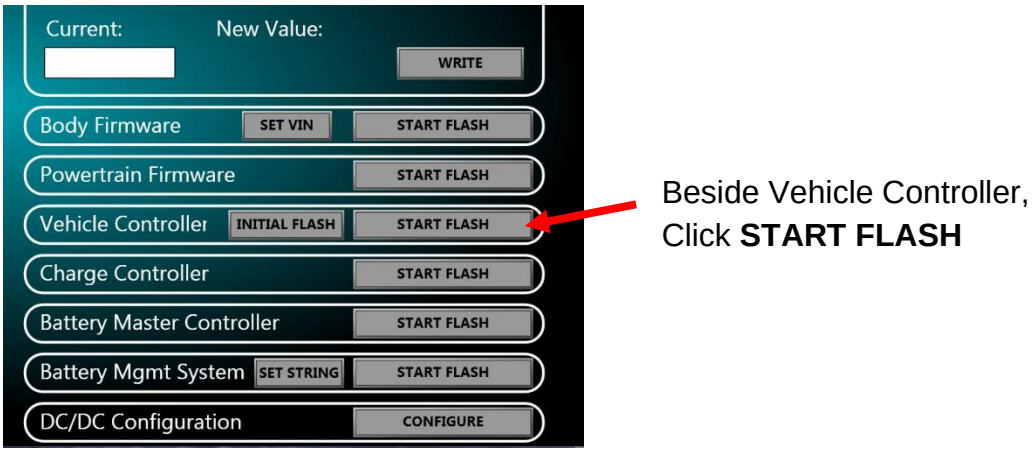
3. Navigate to the CONFIGURATION tab in the left menu.



4. Select the option for Vehicle Controller “START FLASH”.
   NOTICE: The “INITIAL FLASH” button is only for offline programing of the Vehicle Controller with an Offline Programming Kit.



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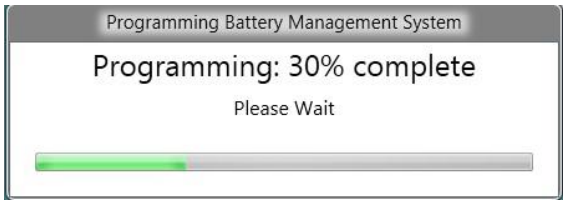
5. In the pop-up window, select the software flash file to load the controller. The correct file is named SW_VIC_4.9.3.

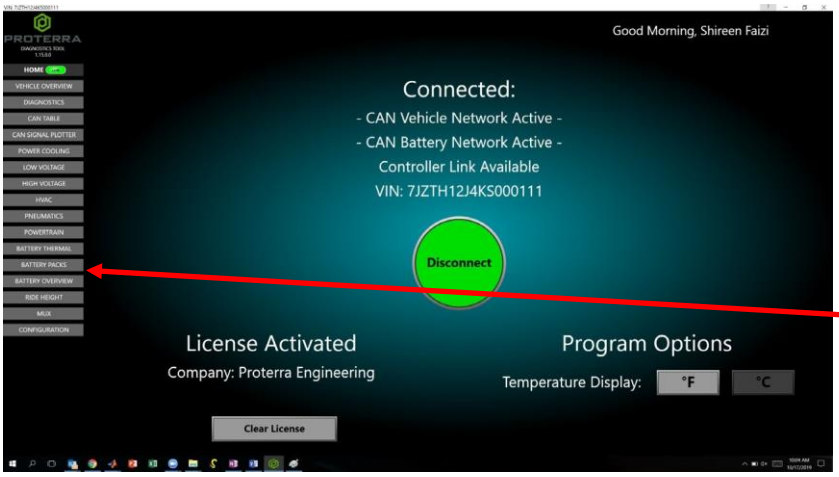
Select the file and Click Open

6. The Programming window will come up and may take a few minutes to complete.



7. After completing the software update, turn OFF the Work Light switch inside the streetside wheel well box.

8. Click on the “Overhead Charging” button on the left side of the screen.
NOTE: If the bus that you are working on is not capable of overhead charging, skip to step 10 below.



Click “Overhead Charging”

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9. The following screen will appear. Enter the “Vehicle Tag” that you recorded previously into the field circled in red below. Click the button under the field. This will populate the “Vehicle Tag” into the field above and into the controller.

Click “Button”

10. Turn OFF the 12/24V rear Vehicle Master Disconnect located behind the vehicle curbside rear charge port access panel, wait ten seconds, and then turn back to ON.

Vehicle Master Disconnect

11. Verify that the vehicle turns on with no faults and that it is capable of charging.

12. Shut down the PDT software program. This allows the cache to clear from the system.

13. Return the vehicle to service.

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BODY SOFTWARE UPDATE PROCEDURE

Preparing the Vehicle to be Programmed

When programming a vehicle, it is critical that the low-voltage batteries remain connected throughout the process. Ensure that the LV batteries are fully charged before starting the process. If they are low you can use the vehicle to recharge them buy turning on high-voltage, or you can place the bus on a low-voltage charger for the duration of the process.

Connecting to the Vehicle

This process will guide the user to connect to the vehicle with the Proterra Diagnostics Tool.

1. Power on and login to the Proterra-Supplied laptop or a comparable PC that has the Proterra Diagnostics Tool software installed with a valid license.

2. Turn on the 12/24V rear Vehicle Master Disconnect located at the curbside rear charge port access panel.

Vehicle Master Disconnect

3. Connect the Nexiq USB Link2 device to the laptop and to the OBDII Diagnostic Port located in the streetside wheel well box.

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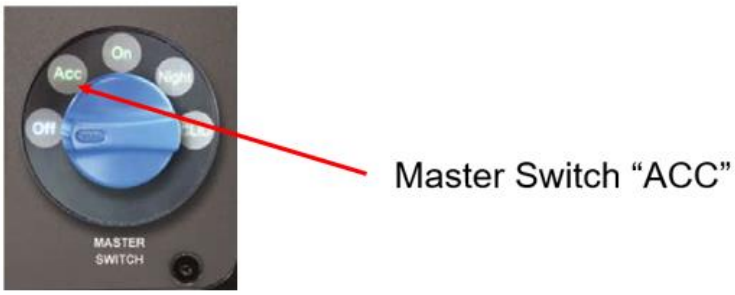
4. Turn the Driver's Master Switch to the "ACC" position.



5. On the laptop, double-click on the Proterra Diagnostics Tool software icon to start the software.

6. When the program opens, read and click "OK" for the high-voltage safety prompt.

7. On the Home tab, select the appropriate device from the drop-down menu and click "Connect".

8. Once the Proterra Diagnostics Tool has connected to the vehicle, you will have a VIN number and connection status displayed on the Home screen, and tabs available to navigate. If you do not, double check that the low-voltage batteries are connected and that the Nexiq tool is plugged in.

Download and Store Existing Parameters

Sometimes you might want to download and store the customer specific parameters from the vehicle. This can be useful when comparing two vehicles that are behaving differently, or if you are replacing the ZR32A controller on a vehicle.

1. After the first vehicle has been completed and verified, disconnect the Proterra Diagnostics Tool and then reconnect.

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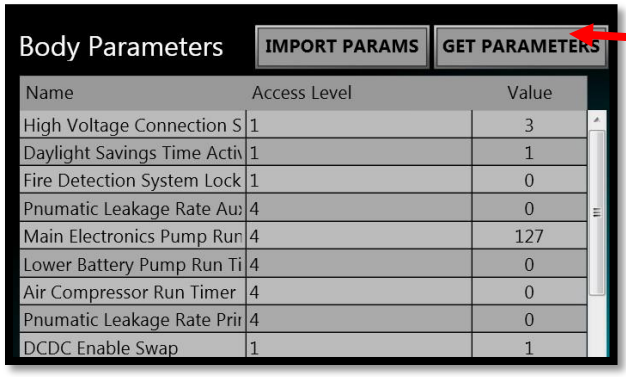
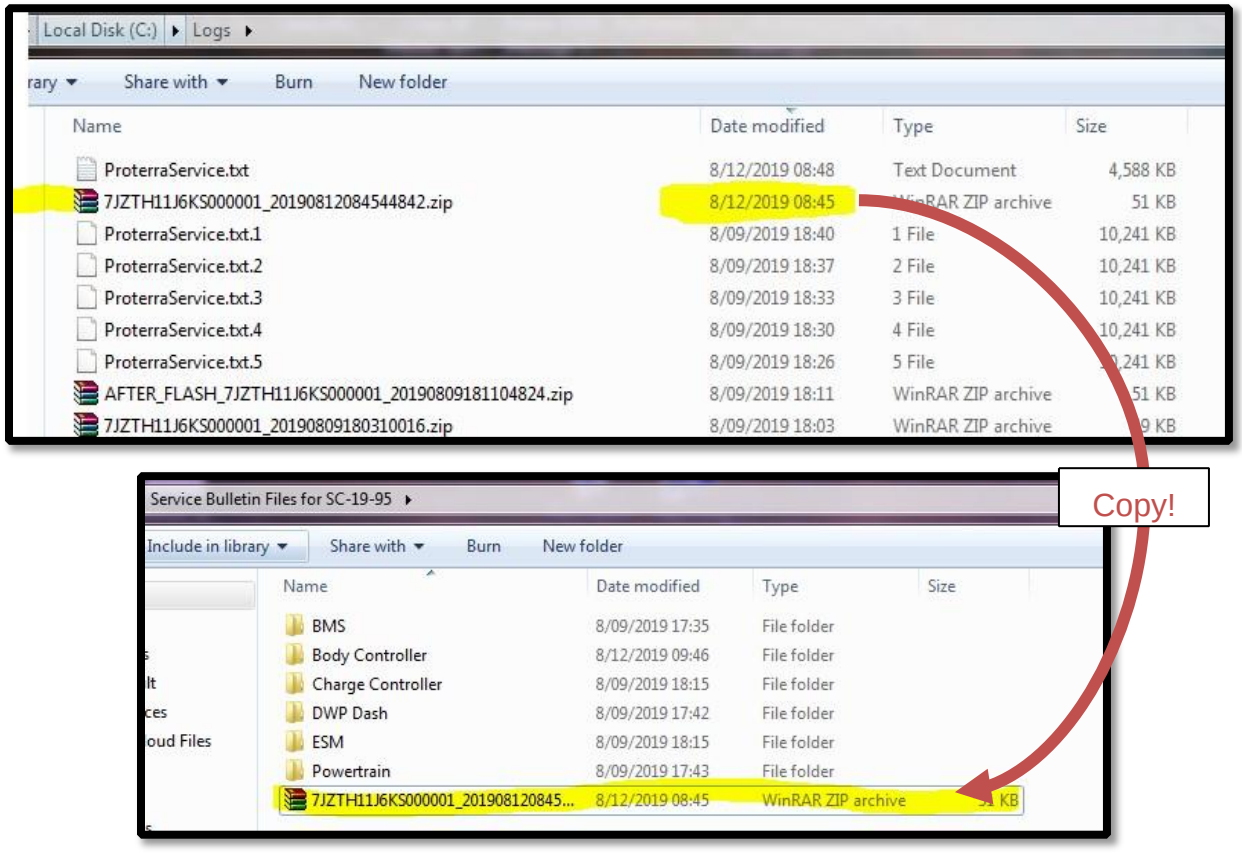
2. Navigate to the Configuration tab and click the “Get Parameters” button. This will download the latest parameter set to the “C:\Logs” folder on your machine.



Get Parameters Button

3. In windows file explorer, navigate to the “C:\Logs” folder. Copy the latest downloaded *.zip file to a folder for the specific customer and vehicle.



4. Do not rename the file as the tool will follow the naming convention when reloading the file.

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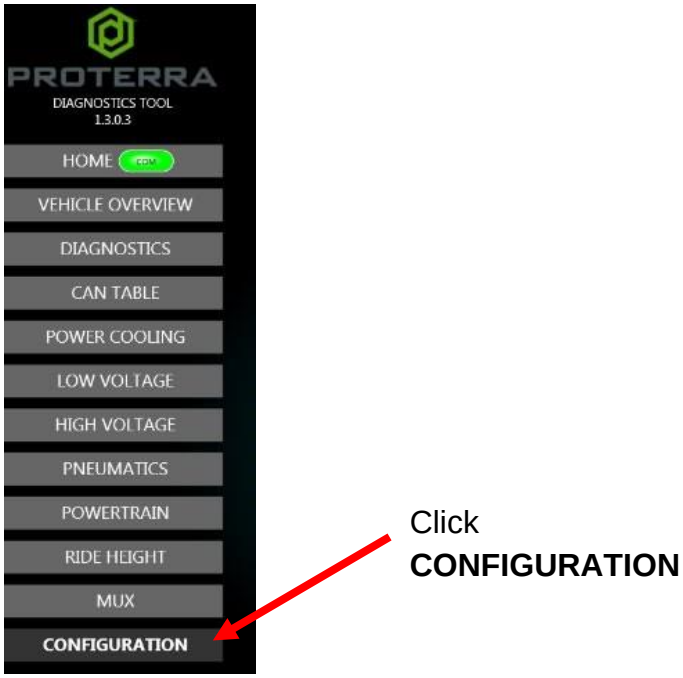
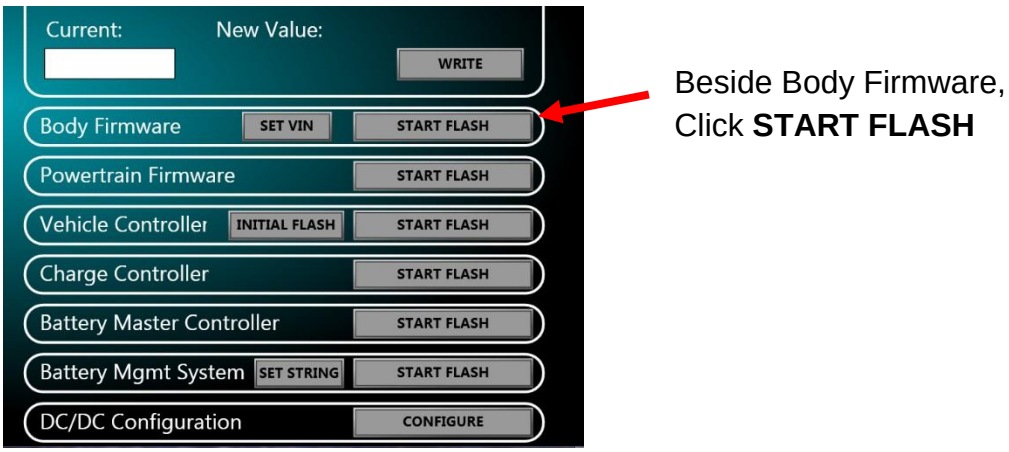
Update Using the Proterra Diagnostic Tool

1. Navigate to the CONFIGURATION tab in the left menu.



2. If this is a replacement controller, select the “SET VIN” and program the controller to match the vehicle VIN, then proceed to step 3. If not a replacement controller, proceed to step 3.

3. Select the option for Body Firmware “START FLASH”.



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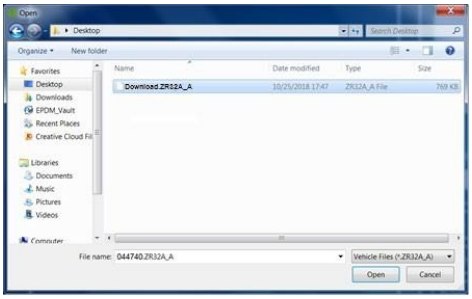
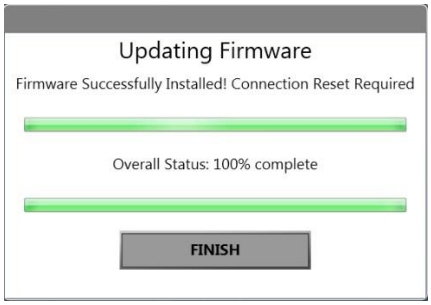
4. In the pop-up window, select the software flash file to load to the controller. The correct file is named “Body_6_14_0_064579”



5. The Programming window will come up and will take a few minutes to complete. The process will flash five different files to the controller.

6. After the controller is updated the tool will automatically try to copy the original configuration to the new software. Since there is a possibility that configuration options change it is important to check the configuration after restarting the vehicle.



7. Once the process has finished, cycle power to the bus by moving the Driver’s Master Switch back to the “OFF” position before continuing.

8. Shut down the PDT software program. This allows the cache to clear from the system.

9. Return the bus to service.

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