CTC WA100 SERIES TROUBLESHOOTING GUIDE

This trouble shooting guide assumes that all of the prerequisites to running the CTC software have been installed on a computer with compatible Bluetooth hardware, running on the appropriate updated version of Windows 10.

Keeping the software up-to-date

Make sure the computer is running the latest version of the software. (This section is not applicable for a first-time installation on a new computer.)

1. On the CTC Distributor Portal, select Product Software Downloads from Orders, then Download Wireless Software.

2. The following window will appear while running the installer, which will identify the version (highlighted in green). Record this number for reference, and close the installer.

3. Open the software, click the Help menu, and click the About option. The resulting dialog box will display the version number.
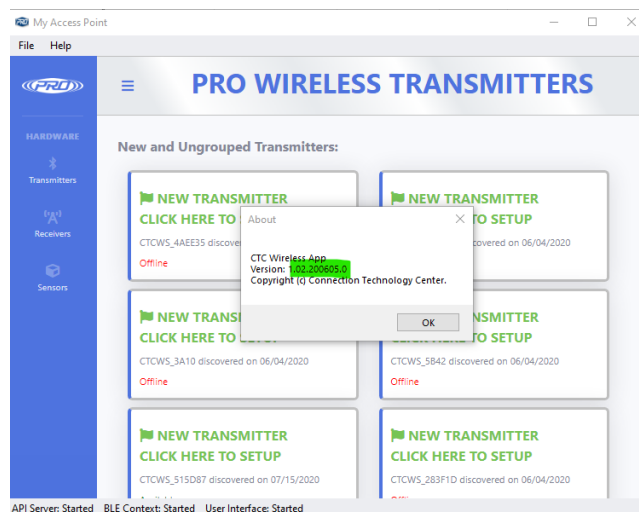
4. If the Help menu and About option are absent, the current software platform is a prerelease version. Uninstall the software and proceeded to the "SQL Server Schema Updates" section, as the database must be deleted to perform the reinstall.

5. Re-install the software.

6. Review the release notes under Help -> Change Log. if the words "schema change" appear between the version that was previously installed and the newer version, the version migration SQL scripts must be run. The location of these scripts will be noted in the change log. Proceed to the "SQL Server Schema Updates" section to complete the installation of the change scripts.

Please Note: Updates must be intalled sequentially from the currently installed version to the next newest, until the software is up to date.

SQL Server Schema Updates.

1. Using the following address, download, and install Microsoft SQL Management Studio to update the database: *https://docs.microsoft.com/en-us/sql/ssms/ download-sql-server-management-studio-ssms?view=sql-server-ver15*.

2. When opening Microsoft SQL Management Studio for the first time, the defaults should allow the user to log directly into the local database.
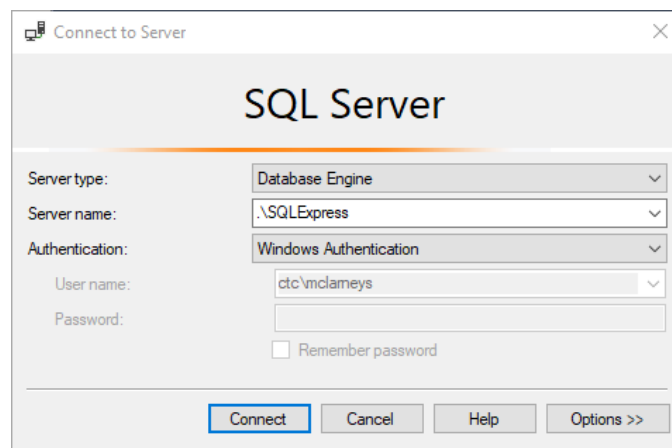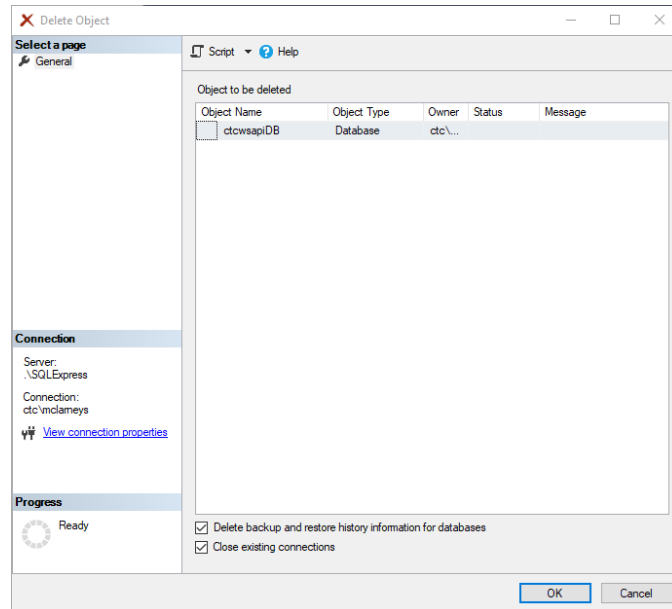

3. Expand Databases and find the "ctcwsapidb" database.

4. If deleting the database from a prerelease version of the CTC software:
   a. Right click the database and choose "Delete".

b. Check the box titled "Close existing connections" in the window that pops up, and press OK.

c. Once this completes successfully, reopen the latest version of the CTC software. This will automatically connect and rebuild the database to the latest version.

5. When installing version migration scripts:

a. Make sure "ctcwsapidb" is selected, and choose File > Open and navigate to the file noted in the change logs.
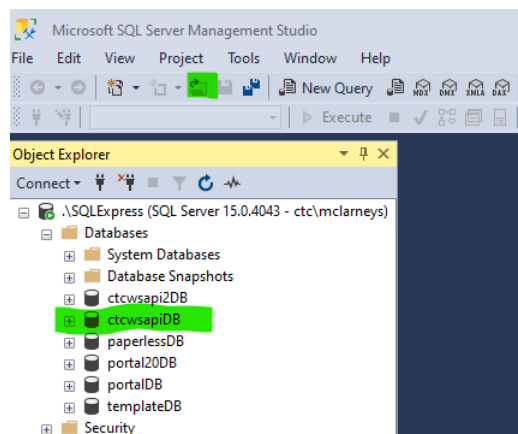
b. Click the "Execute" button.

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Bluetooth Driver

If the driver for your Bluetooth hardware is out of date, follow these steps to update.
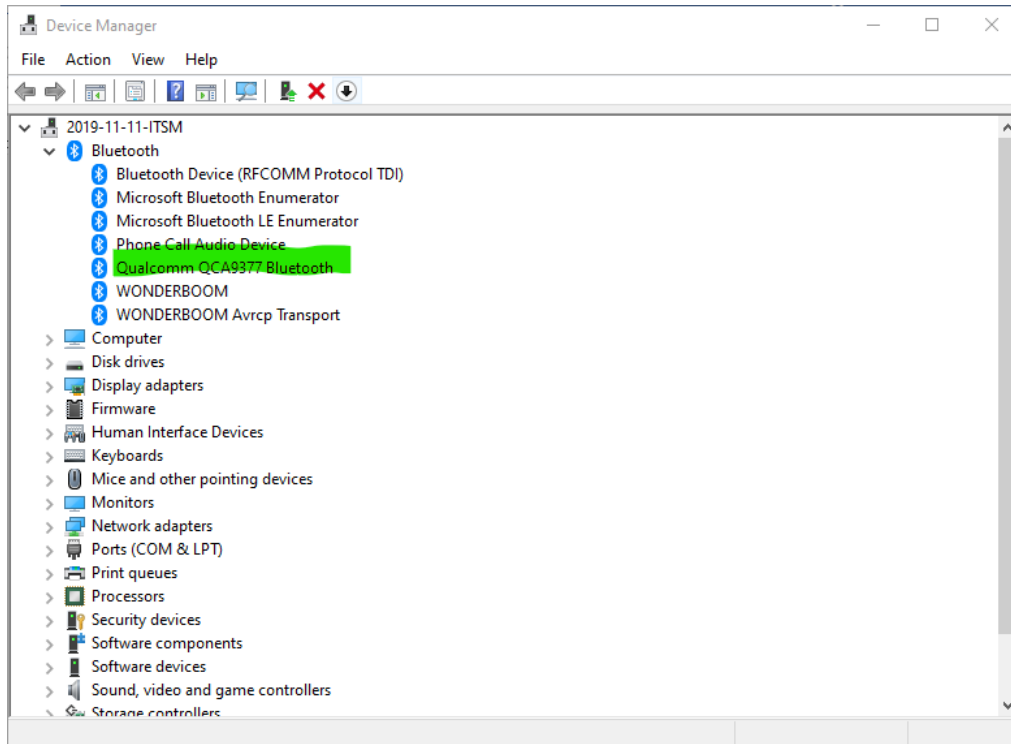
1. Right click the windows start button in the lower left of the screen and choose "Device Manager" from the menu that pops up.
2. Find the Folder called "Bluetooth" and expand it.
3. Look for a Bluetooth device with a vendor name next to it.

4. Right click that device and choose update driver.
5. If this does not work, Google the name of the device along with the word "driver".
   a. In the image above, it would be "Qualcomm QCA9377 Bluetooth Driver".
   b. Download and reinstall the driver from the manufacturer's website.

Diagnosing Connection Issues

1. The CTC Wireless Software has the ability to decouple the execution of the reader software from the graphical software.
2. In the software click the File then Settings.

3. Uncheck the "Run BLE AP" checkbox and/or the "Run BLE AP as separate process" if that is checked.
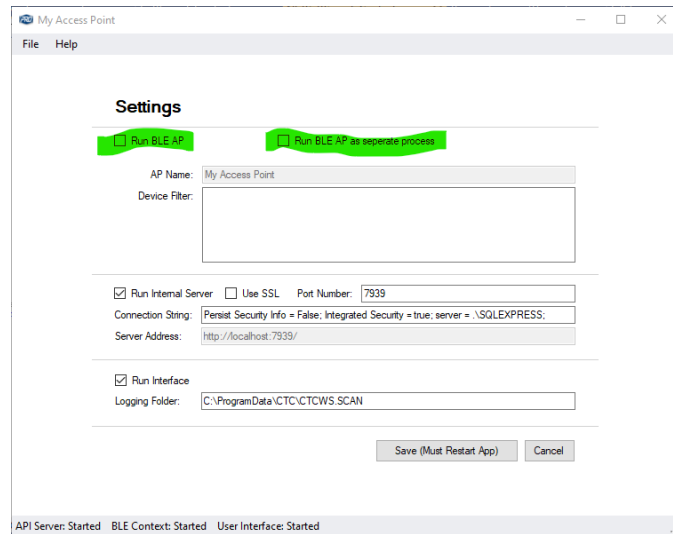
4. Click Save, and then

5. (Re)start the application.

6. Using Windows Explorer, navigate to the installation directory for the application, and then to the "cmd" directory that sits within, and open it.

7. Run the usecase2.bat file. This will start the Reader application inside a command prompt. Double click and run usecase2.bat if you haven't already.

8. Both applications running. If not, close the command prompt and go back to step 5.

9. In the Wireless Application on the right, find a sensor, and go through the setup process if not previously done. (I.E. Setup as new sensor -> Give it a name -> Click Save).

10. Open the sensor by clicking on it and, click the Request check box on that sensor.

11. A successful reading should look like the previous screens. There may not be as many lines if there are only 1 or 2 sensors, but if the reading is successful and a timewave form and FFT open on the screen, the output of those lines will represent a reading from beginning to end.

12. If the application is having difficulty connecting, the computer may be too far away from the sensor or there is too much interference. This can be identified by looking at the numbers in parenthesis –

    a. 08:06:50 - CTCWS_4AEE35(-77)1 - 1011 - 1010 - Requesting-DeviceStatus

    b. Difficulties may begin to occur when this number is -82 or lower.

13. If no sensors are shown and do not show up after 15-30 seconds, go to the next section "Bluetooth LE Explorer".

Bluetooth LE Explorer

This is an application from Microsoft that we have found useful in ruling out hardware related issues for the variety of makes and models of computers that run our software.

1. On a Windows 10 computer, open the Microsoft store.

2. Click the search button and type "Bluetooth LE Explorer".

3. Install the application.

4. Once the application is installed, run it from the start menu.

5. Click the "Continuous Enumeration" checkbox, type "CTCWS" in the Filter, then click the "Start" button.

6. The application will begin to scan for CTC Bluetooth sensors.

7. When one appears, click in the blue area of the found sensor. ***Do not click the pair button.***

8. This will initiate a connection and enumerate all the properties of the sensor, the same was as the CTC software. If you see a new window that looks like this, it means that your computer was able to successfully enumerate the device, and everything should be ready to go for the CTC application to take readings.

9. If any error messages appear, the sensor may be out of range, or be incompatible the Bluetooth hardware in use.

   a. Keep in mind that occasional connectivity errors may occur, due to line of sight, range, or other environmental interference. The CTC software deals with this by implementing a retry mechanism, however in some cases, the application will continue to retry for over 15 minutes and never be able to take a reading. While the software typically takes a reading in 20-45 seconds. It is possible that in scenarios of high interference it could take up to 2-3 minutes to take a successful reading.

   b. First, take the sensor in to an area largely devoid of radio interference, and place the computer as close as possible to the sensor as (I.E. < 10 ft.) and attempt to connect as described above.

1. Upon connection, open the CTC software and attempt to take a reading.

2. If a reading is successfully taken, take several more to determine that connectivity is not due to a hardware issue.

3. Reinstall the sensor and take additional readings.

4. If readings can reliably be taken in the test above but not in the desired installation setting, it is likely there is an environmental factor preventing the CTC wireless sensor from communicating successfully.

5. In the CTC Wireless Software, click file then settings.In the filter field, enter one or more wireless sensors (comma seperated). Type the id of the sensor, usually "CTCWS_" followed the 6 character serial code. Click Save and restart the app.Repeat the steps 1-4.
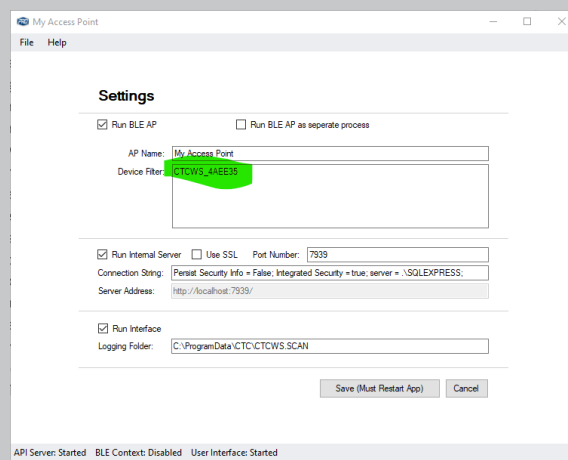
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c. If this does not solve the issue, reboot the computer and try again

d. If you continue to see errors, go back to the section of this troubleshooting document that explains how to reinstall your Bluetooth driver, and make sure you have the latest driver for your Bluetooth hardware.

e. If all else fails, and/or you see the application partially working, but not consistently, you may not have Bluetooth hardware that is compatible with our wireless sensors. We recommend that you head out to your local computer supply store and purchase and install a new Bluetooth 5.0 USB dongle, or head over to the CTC website and purchase the tablet that we recommend for taking readings from the CTC Wireless Sensor.