

TIER 1 - Troubleshooting Steps	Step 1	Step 2	Step 3 (Applicable to agreed upon support deal with reseller.)	Support Tool Feature (Not all features available to every level or partner.)
Raven Product Support Information: https://klashwerks.zendesk.com/hc/en-us				
Service Plan/ Billing Enquiry/ Data Overage Charges	Authenticate customer credentials via method established by reseller. If data overage charge was issue, disputes are handled case by case. For example, hotspot overage charge.	Resolve issue applicable to enquiry. (Invoice, data overage charges, LTE plan questions, modify account, etc.). If Gestures are enabled (they should be off by default for Fleet customers, inform customer to check for hidden display film, turn off gestures. If Hotspot is enabled, turn off hotspot if applicable and request photo of Raven set up.	Email support@ravenconnected.com if hardware/ software malfunction is creating a continued live stream data session. For example live streaming never terminated so overage charge was in error.	Data Overage Charge: View Recurly
Sales/ Product Enquiries	Answer questions on which plan or model to choose. SD card purchases and accessory questions such as adaptors, mounts or adhesives.	Escalate to sales team if required.	Email Raven Business Development for large quantity orders or inventory replenishment.	
No connectivity or GPS inaccurate	Check if there is cellular activity, last known connection, reception quality, check events for unit status, as it may actually be shutdown and powered off. Have customer turn off WiFi on their phone if app connectivity is the issue. If Raven displays a no cellular icon on the top left corner then it may have entered an area where cellular coverage is an issue or someone may have removed or unseated the SIM card. Ask for any relevant icons that might indicate the SIM card is not in the unit properly.	Advise customer to perform a manual reboot of Raven. Remote reboot Raven (require cellular connectivity) if possible. Check account billing and unit status. Account could be in arrears or unit may have been decommissioned.	Escalate to support@ravenconnected, if connectivity or GPS issue persists after restart and factory reset.	Determine Last seen: Raven->Side Panel->Last Update Determine Reception Quality: Raven->Side Panel->Sensors (first icon) select Cell RSSI and time range
Micro SD Card	If customer complains about live streaming, zero byte files or no videos there is a good chance the SD card is the cause. Have them remove the SD card and verify it meets the minimum requirements. https://klashwerks.zendesk.com/hc/en-us/articles/360003517594-What-type-of-micro-SD-card-does-Raven-recommend- (Undetected SD card could mean a corrupt card or slot. Advise customer to reinsert or use a known working SD card.)	If the customer claims the SD card is fine after testing on a computer and testing for corruption, request the make/ model and specifications by a picture or written. For example, the minimum requirement certifications are A1/ V30/ U3 and also send link from support site for educational purposes. https://klashwerks.zendesk.com/hc/en-us/articles/360003517594-What-type-of-micro-SD-card-does-Raven-recommend- (RMA SD card if within warranty.)	Escalate to support@ravenconnected, if further SD card/ Raven diagnosis is required. For example, remote SD card formatting or validating Raven detecting the card.	Determine Raven Temperature: Raven->Side Panel->Sensors (first icon) select Raven Temperature and time range Determine SD Card Type: Raven->Side Panel->Raven->SD Card
Provisioning (OTA Registration)	Customer experiences issue with auto-provisioning and Raven is not available on their account.	Ensure they are in cellular area and not in a garage or underground. Customer most likely did not input billing details or may require manual network reset. Instructions for that process are not published but can be supplied to Tier 1 support. Also validate that the serial number and account are paired to register automatically otherwise they will need to manually provision if allowed.	Email support@ravenconnected.com if hardware cellular module appears to be the issue. Check own software for account management. When a device is not properly associate to an account it will not provision or if the unit was factory reset, the device needs to be re-added to the account.	Determine Billing Details: See Recurly

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Product Feedback/ Feature Requests	Customer sends feedback and feature requests.	Steer customer to feature that may already exist by pointing to the Fleet Manager's Guide or Raven Connected support site.	Email support@ravenconnected.com with summary of trends/ common feature requests/ feedback.	
Proactive Support	Tier 1 can reach out to customers when automated notices inform them that there is an issue with provisioning or cellular outages, as examples.	Contact customer advising them of the steps to perform to limit customer dissatisfaction. For example, missing billing data, if applicable to a new account.	Email support@ravenconnected.com if there is something our development team can implement to improve Tier 1 support options.	Update firmware if outdated. Left panel check: Build OS Version:
Video Retrieval	Advise customer to use Remote Cloud Video or Historic Streaming to obtain events with play button to upload available videos. If customer with or without SD card cannot view or obtain videos from Raven itself or applicable SD card. Verify type of SD card and where they purchased it. Ensure they are using a micro-USB cable with data/ power capabilities connecting to Windows based computer.	If the internal storage or SD card overwrote the data then remote video retrieval is unavailable and opaque play icon appears. Send instructions from support site for how to retrieve video after an accident or how to get continuous videos from physical hardware. https://klashwerks.zendesk.com/hc/en-us/articles/360003416134-How-do-I-get-my-continuous-full-video-recordings https://klashwerks.zendesk.com/hc/en-us/articles/360019470894-HOW-TO-RETRIEVE-RAW-VIDEOS-AFTER-AN-ACCIDENT	Escalate to support@ravenconnected.com if further SD card examination is required or AWS account may be issue. Raven log file examination may be required if media write fails occurred.	Determine SD Card Type: Raven->Side Panel->SD Card
Non Canbus/ Vehicle Compatibility	Customer complains Raven displays stay off or goes into Parking Mode until moving forward/ backward while driving with engine ON.	Verify they are non-canbus from support tool or confirm what they are driving and request model/ make/ year. All light duty vehicles older than 2008 did not have standard CANBUS protocol over OBDII. Ask if the vehicle is EV/ Hybrid or heavy duty vehicle (Ford E-Series Heavy Duty may cause similar issues). J1939 vehicles like semi-trucks require disabling CANBUS protocol along with an OBD to J1939 adaptor. All above scenarios can make Raven turn its displays off while in drive/ engine ON and the displays turn off after 5 minutes of idling. Forward/ backward motion will activate out of parking mode.	Escalate to support@ravenconnected.com if custom settings are required for compatibility.	Determine Vehicle Type (CANBus?): Raven->Side Panel->Show Details->Vehicle->CANBus Type
Parked Security Features and Enquiries	Enquiries of what Raven can do while parked. Currently, if there is an event while parked they can remotely request the video to see if the video clip captured anything. Video will be retrievable dependant on the following: Cellular connectivity, the video has not been overwritten, Raven is still plugged into a vehicle with enough battery power and there is no damage to Raven itself.	Inform customer Raven currently sends an image of movement or vehicle bumped while parked. Video recording while parked is available on storage device. Advise to live stream and take action to notify authorities if applicable.	Send link to how to retrieve old images if required. https://klashwerks.zendesk.com/hc/en-us/articles/360009350333-How-do-I-see-past-images-of-events-from-my-Raven-app	

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Car battery draining after Raven installed.	Raven's MCU monitors battery level and Raven will enter low power / shutdown modes if battery level is low. Raven won't drain a battery. Inform customer issue most likely caused by very limited driving time causing battery to deplete too low. Raven detects and shutdowns at 11.9 volts of car battery value.	Battery condition and age may play a factor for this issue. Check battery condition visually at the car battery terminals. Use Support Tool to identify battery low events.	Contact support@ravenconnected, if further investigation required.	Determine Low Battery Events: Raven->Side Panel->Events (middle icon)-> Search for 'LOW' Determine Vehicle Battery Level: Raven->Side Panel->Sensors (first icon)->Vehicle Battery Voltage and select time range
Mount/ Adhesive	Customer reports mount is falling off or very loose and easily falls off. Possibly a cracked or expanded swivel. Request a photo to determine ambiguous description. If an adhesive issue and they are in a very hot region, RMA department will decide whether to send new mount or just send adhesive.	Request confirmation of mailing address and RMA hardware if applicable.	Report any trends regarding mount/ adhesive to: support@ravenconnected.com.	
Device will not startup	Have customer hold the black square reset button for at least 60 seconds, upon release the unit should power on if there is no issue with Raven's battery, cable or other internal components. Ravens that have been unplugged for a long time will require recharge of its internal battery.	Green or blue LED light can be seen to verify if the unit is receiving power to the device. Request pictures of the cable and check for damage to OBD cable. Bent pins or cracks on either end, crimps, snags or cuts will void warranty on the cable and require customer purchase another one. If cable looks in good working order have them test cable and unit in another vehicle. If it works in another vehicle, then OBD port fuse may need to be replaced in the vehicle or the OBD port itself has issues.	Request picture of road side camera housing and check for any bulge on the road side camera side housing that looks rectangular. An expanded battery will protrude from housing and look rectangular. Unit will no longer work properly and should be RMA'ed if under warranty. Escalate to support@ravenconnected.com if none of these conditions exist.	Determine if log from EVENTS indicates odd behaviour before stoppage. Review EVENTS.
OBDII Cable (Too short or defective)	Defective cables can be caused by the internal cable fuse to blow. If no LED lights are emitting from Raven and the customer was able use it prior to failure, then there is a possibility the cable is the issue. Request they check for bent pins or visible damage on the cable or either ends also.	Request a picture to help diagnose. If they require a longer or new cable, send link from our webstore to purchase a new 6 or 8 foot cable.	RMA cable if under warranty due to manufacturing defect but not user damage.	
WiFi Video Downloads via mobile app	Samsung Phones and some Pixel 3 Phones have network autoswitching that causes the WiFi to disconnect during downloads. Send them instructions to disable the feature from the support site or from a Google search link. https://klashwerks.zendesk.com/hc/en-us/articles/360025045753-Switch-Between-Wi-Fi-Mobile-Data-Networks . Occasionally, Raven requires a manual restart to restore the SSID WiFi broadcast. https://klashwerks.zendesk.com/hc/en-us/articles/360003542133-How-to-Restart-Raven . Some instances where customer the SSID requires removal and re-authentication through the app.	May require firmware update if issue persists. Check Support Tool for version and update if applicable. Have customer forget all SSID WiFi connections on phone. Verify they are in the vehicle with the engine ON. Start connection via mobile app as per support site instructions. Advise a manual reboot or factory reset if problem persists.	RMA the unit if the WiFi hardware has been determined to be the issue and cannot be fixed remotely.	Determine if at latest firmware: Raven->Side Panel->OTA Build (newer firmware will be listed)

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Abnormal fan noise	Raven's fan does emit audible noise that is more pronounced in vehicles with soundproof cabins. It is not a defect. If applicable, request video or request link to video online to assess noise. Evaluate noise: Growling, grinding or airplane engine noise is not good.	RMA unit under warranty if video evidence sounds like defective fan.	Email support@ravenconnected.com if trend identified of failed fan units.	Determine Fan Goodness: Raven->Side Panel->Sensors (first icon) select Fan Goodness and time range
Gestures (Automatically triggering 30 second short videos.)	Hidden third film, loose mount or adhesive cause invalid gestures. Send link on how to test for either. https://klashwerks.zendesk.com/hc/en-us/articles/360010943754-My-Raven-is-automatically-gesturing-too-often	Request a photo of the setup if issue persists. Picture can usually identify film or setup issue like an object causing the issue.	Contact support@ravenconnected.com if Raven hardware may be issue after previous troubleshooting.	Determine Gesture Events: Raven->Side Panel->Events (middle icon). Determine if EVENT_INVALID_GESTURE event is prevalent under EVENTS.
Webapp/ Password Reset	Customer reports white screen or no access to account. Verify they are using the correct email address, no caps lock or have them reset their password if neither the mobile or computer webview works.	Customer informs they are inputting correct values but still cannot get in. Have them close all browser sessions open then try again. Request screenshots of errors, if possible. If the customer can access their webview from their phone that eliminates the account being an issue and most likely issue with the computer. Send link to use free version of Malwarebytes or CCleaner or advise having an IT professional inspect their computer for issues if allowed by Tier 1 supervisor. Add-ins also cause issues so they may need to remove bad browser plug-ins. Check junk mail folder to confirmation code.	Escalate to support@ravenconnected.com web app service is down or password reset not working. If reseller is operating own environment, contact their cloud administrator.	
Privacy Concerns	If customers want the microphone disabled due to privacy they can either inform the staff or clients affected.	If they request disabling audio recording, request for units they wish to be disabled.	Send request information to support@ravenconnected.com to disable microphones on requested devices.	
Speed and address incorrect	Customer complains the speed or addresses are incorrect. Inform them they can report to Open Street Maps directly by clicking on the icon in the app.	Customer should be advised under passes and freeways lose GPS location due to overlap which can cause errors.	Email support@ravenconnected.com for trends/ complaints regarding the accuracy of the database.	Determine if customer GPS is working correctly. VEHICLE GPS Accuracy: Heading: Last GPS Update:
Carrier Outages or SIM card Issue	Inform customer of maintenance or service outages. Validate SIM card installed correctly.	Email all affected customers or by as-needed basis for outages. Issue new SIM card if determined SIM card is faulty.	Email support@ravenconnected.com if SIM slot is determined to be the cause of connectivity error.	