Comm Failure Troubleshooting
AlarmNet GSM Devices

Reasons a Device may Comm Fail

Ultimately, a device will go into Communication Failure if it is unable to send a check-in report during its pre-programmed supervision time; for example, daily or monthly. The check-in report can be delivered via Internet or GPRS (General Packet Radio Service). If a device is reporting via SMS (Short Message Service) only, it will go into Communication Failure. All devices that report via SMS need troubleshooting attention. Below are things that can influence a device to Comm Fail.

♦ The location of a device will have a direct impact on the ability of the device to communicate on the network.
  ➢ What type of construction? These things can affect signal quality:
    • Commercial, Residential, Roof material
    • Exterior surface, Interior surface/studs
    • Drywall, Concrete, Steel
♦ There could have been changes made to the installation environment since the date of install that are now affecting the device.
  ➢ For example, the empty utility closet the device was originally placed may now be a packed storage closet.
  ➢ The device may have been installed in the winter; now, with leaves on trees; their borderline RSSI may be too low.
  ➢ Construction in the area (new buildings).
  ➢ New construction on the home
  ➢ Added equipment to the home (wireless receiver, antenna or dish)
  ➢ New tower put up in the area (maybe some other transmitting device)
♦ A temporary outage of the local GSM network due to routine maintenance and/or general problems with the network.
♦ Defective device.

Section I Troubleshooting: Recently Installed & Comm Fail

1. Check RSSI from QOS Reports.
   A. Review original and recent QOS reports using Device Status-QOS.
      • Lookup the device via AlarmNet Direct – Show Programmed Device.
      • Select “Device Status” under Actions and click GO.
      • Click the QOS tab.
        - Acceptable Signal Strength = -94dBm to -20dBm
        - Unacceptable Signal Strength = -120dBm to -95dBm
   B. Attempt to ping a QOS report from the device, from the Device Status page.
      Refresh your screen by clicking search again, after about three minutes.
2. **Check GSM Supervision Rollover.** *(only applies to 7845i-GSM type devices)* If “GSM Supervision Rollover” is not enabled in the device, the device will not send supervision check-in reports over GSM if/when the Ethernet is not connected or lost.

3. **Check Coverage by Street Address.**
   A. Coverage is considered from an *outdoors* perspective, not indoors.
   B. Coverage is shown from our service providers sales and marketing point of view. We recommend using the following definitions for installation and troubleshooting?
      - *Best = Good*
      - *Good = Moderate*
      - *Moderate = Poor*

4. **Consider the environmental surroundings.**
   A. What type of room is the device located in?
   B. How deep inside the structure is the room?
   C. What type of construction?
      - Commercial, Residential, Roof material
      - Exterior surface, Interior surface/studs
   D. What type of surface/wall is it mounted on?
      - Drywall, Concrete, Steel
   E. What types of devices are around the unit?
      - Wireless receiver
      - Metal panel box
      - Phone system server
      - AC Breaker box
      - High voltage AC wires – 220V or greater.

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**Section II Troubleshooting: Installed Weeks/Months & Comm Fail**

1. **Check Comm Fail history.**
   A. Check the 30 Day Device Status history under Alarms.
      - Lookup the device via AlarmNet Direct – Show Programmed Device.
      - Select “Device Status” under Actions and click GO.
      - Click the Alarms tab.

2. **Check 90 Day QOS History.**
   A. Minimum required dB for registration is -90dBm.
      - Lookup the device via AlarmNet Direct – Show Programmed Device.
      - Select “Device Status” under Actions and click GO.
      - Click the QOS tab and then click 90 Day History.
        - *Acceptable Signal Strength = -94dBm to -20dBm*
        - *Unacceptable Signal Strength = -120dBm to -95dBm*
   B. If RSSI reports are borderline acceptable, -95dBm or worse, suggest relocating or installing an antenna.
3. Check Coverage by Street Address; click “Coverage Maps” on AlarmNet Direct.
   A. Coverage is considered from outdoors, not indoors.
   B. Coverage is shown from a marketing point of view. We recommend using the following definitions for troubleshooting.
      - Best = Good
      - Good = Moderate
      - Moderate = Poor

4. Ping a TEST report from the device, using Actions in AlarmNet Direct.
   A. If the Test Report is not received, observe the Status LEDs.
      - Does the Yellow LED go from a normal blink to solid? 
        - This indicates the SMS Ping was delivered and the device is attempting to respond to it.
        - While the yellow LED is solid, does the Red LED light up for a short period of time, then go back out; still not sending the report? If so, continue to step 5.

5. Generate an alarm from the panel, without removing the cover. If not reported after two minutes, observe the Status LEDs.
   A. While the yellow LED is solid, does the red LED light up for a short period of time, then go back out; still not sending the report?
      - Remove cover and see if report sends.
        - If the Red LED lights while trying to send, but does go through, press and release the tamper switch once. This report should send without the Red LED lighting.
      - If neither report sent without the Red LED lighting, skip to step 6.
   B. If the report is still not delivered, power cycle device.
      - The device should send a reset report after initializing.
      - If the report is not delivered, continue to step 6.

6. Remove the device from its mounting location and take device outside the building.
   A. Send a test report from the device with a single-click of the tamper switch.
      - If the report was delivered, was it delivered with out the Red LED lighting?
        - Consider adding an external antenna or relocating the device, since it works outside.
        - Return the device to its mounting location and re-attempt test report, and skip to Step 9.
      - If the report was not delivered without the Red LED lighting, reattempt the report with a single-click of the tamper switch. Make sure the Yellow LED goes solid.
      - If the report is still not delivered, or not delivered without the Red LED lighting, contact AlarmNet Technical Support.

7. Return the device inside the building, to its mounting location and generate another test report with a single-click of the tamper switch.
   A. If the report was delivered via GPRS, did the Red LED light during delivery?
      - If it did not light, the device should be ok, if this was an isolated incident; possibly related to mobile network maintenance in the area.
Step-by-Step

- If the report was not delivered via GPRS or if the Red LED did light during delivery, relocate the device or install an outdoor antenna.
- If the report was not delivered continue to step 8?

8. Consider Environmental Causes
A. What has changed indoors with the environment?
   - What is the mounting surface constructed of?
   - Was the device installed while the building was unoccupied?
   - Has the building been remodeled, or partitions added?
   - Was anything moved out of the way for you get to the device for this service call today?
B. What has changed outdoors since the device was installed?
   - Was the device installed during winter months when trees were without vegetation?
   - Has there been any close neighboring construction that could possibly block the cell signal?
   - Has the outer surfaces of the building changed? Such as, but not limited to the following:
     - New Roof
     - Building Siding Changed
     - New Awnings

Summary

This Comm Fail troubleshooting Step-by-Step is intended to guide you through troubleshooting. Additional consideration must be given to every troubleshooting circumstance, which each one is impossible to document.

AlarmNet Technical Support is available to assist you at any point of your troubleshooting. Please feel free to call us with any question at 800-222-6525.