



## Tesla System Troubleshooting Guide

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## Troubleshoot Data Log

### Why does it taking longer than normal to retrieve Data Log packets?

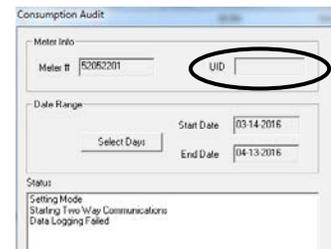
- ✓ RF interference can slow packet retrieval. Move closer or farther away from the meter. 5 feet either way can make all the difference.

### When I try to Data Log, I don't get anything

- ✓ Be sure that the com port is setup correctly. On the menu bar choose Actions>Setup Ports>Start. Once the com port has been discovered, try data logging again.

### I get an error message stating "Data Logging Failed"?

- ✓ Check to be sure that there is a UID in the UID field. You can manually enter the UID if needed.



### The status says Data Logging Complete, but I don't get a chart?

- ✓ In the Consumption Audit screen, click the button at the bottom to View other charts. Select the meter to view and click the View button. The consumption report should appear.

### I performed a Data Log on a meter but had no data?

- ✓ If there is no data to display for the meter, change the Date Range.

### I clicked on the View other charts button, but I do not have a listing of meters to choose?

- ✓ Be sure that a time period is selected to reflect the time in which the Data Log was performed. The four options are Today, This Week, This Month, and All.

## Troubleshoot Encoder Comms Alarm

Encoder Comm alarms indicate that the Tesla endpoint is not receiving communications from the encoder register. Check the wire and cable connections to make sure the wire sheathing is not nicked, cut or smashed. If connector is present, check to see the connection is secured properly and that no water has penetrated the seal. Look for corrosion or damage to the pins.

## Troubleshoot a Tesla Endpoint

1. Right click on the account in List Mode and click Read.
2. If the Tesla endpoint does not read, ensure the Endpoint ID (UID) is populated in the account & matches the ID of the Tesla in the meter pit.
  - ✓ If the ID's **DO NOT** match, make sure you are at the right account. If the account is correct, the correct ID must be put into billing.
  - ✓ If the ID's **DO** match, right click the account and choose Troubleshoot Tesla
  - ✓ If the Tesla endpoint does not log in and show parameters, swipe the magnet sensor to manually place the Tesla into a receive mode. If it does not login and show parameters, replace the endpoint.
  - ✓ If you get information, the Tesla endpoint is working.

## Troubleshoot Tomahawk Encoder Register

### 1. Connected to an RG3 Tesla endpoint.

Using the Troubleshoot Tesla function (described above), verify that the Tesla endpoint is pulling parameters from the encoder. If it does not, check the wire and / or connection for damage.

If the Tesla endpoint and the Tomahawk encoder register have the same reading, but you still believe it is incorrect, attach the programming cable to the Tomahawk register. In the Actions menu, choose Troubleshoot Tomahawk. Check to see if the K factor is correct for the Meter Type. If you are unsure, record the K factor and call RG3 tech support to have them verify the K factor you have programmed matches your intended Meter Type.

### 2. Connected to a radio of a manufacturer other than RG3.

Connect the programming cable. In the Actions menu choose Troubleshoot Tomahawk. If you get information, the Tomahawk is working. If you do not get information, check the cable and wires to see if damage has occurred.

## Troubleshoot Optical Encoder Register

Run water to make sure the register is totalizing. To check connectivity, attach another Tesla endpoint, swipe the magnet on the endpoint and troubleshoot Tesla.

## No Read

Cause(s):

1. Wrong account
2. Data problem
3. Endpoint malfunction

### No Read - Wrong Account

You may be at the wrong account.

- ✓ Check the Endpoint UID on the endpoint and meter serial number on the meter against the account in laptop. If they don't match, you are at the wrong account OR;
- ✓ Verify you are at the right account using the previous read, or even better, run water at the service address and make sure meter is showing usage.

### No Read - Data Problem

After the account is verified check to see if the Endpoint ID is recorded correctly.

- ✓ See if the Endpoint ID in the laptop (that came from billing) matches the Endpoint ID on the endpoint. If they do not, and the account has been verified, the data problem is in billing (office). Record the read manually and make a note for the Office to change the Endpoint ID to match the field or you will have the same problem next month.

### No Read – Endpoint Malfunction

After the account and data have been verified troubleshoot the endpoint. Right click on the account and choose Troubleshoot Tesla. Alternatively, click Actions then Troubleshoot Tesla.

- ✓ If the endpoint responds the problem is not in the endpoint.
- ✓ If the endpoint does not respond, replace the endpoint.

## Zero Consumption or Odd Reading

### Cause(s):

1. Water is not used
2. Encoder Comms
3. Register is removed from meter
4. Stuck meter
5. Customer is stealing water

### Troubleshoot:

1. Water is not used
  - a. Determine if this account should be using water. If vacant, zero usage makes sense. If the account should be using water investigate further.
2. Encoder Comms
  - a. Look for Encoder Comms alarm indicating that the register & radio endpoint are not communicating.
  - b. Fix: Check wire & connection. Verify Endpoint ID to make sure ID matches account info. If it doesn't, the data is wrong in billing or you are at the wrong meter.
3. Register is removed from meter
  - a. Look to see if the register is attached to the brass meter properly.
  - b. Fix: If register is loose, properly mount register and security screw.
4. Meter measuring chamber has obstruction stopping its movement (stuck)
  - a. Turn on water at account to ensure register is totalizing and making connection.
  - b. Fix: If not, then the meter measuring chamber likely has an obstruction stopping its movement (stuck) or the register is stuck.
    - i. Replace register to see if the meter totalizes. If so, register is the problem.
    - ii. Remove meter from service, clean out measuring chamber, and put back in service.
5. Customer is stealing water
  - a. Turn on the water at the account. If water is flowing, but the meter isn't registering, the meter is stuck or the customer is stealing water.
  - b. Fix: Make sure the meter isn't stuck. Make sure there isn't another meter at the account you don't know about. Customer theft is the only possibility left.

## Negative Read (99,999,999 in Reading column header)

Cause(s):

1. Legitimate backflow
2. Meter is installed backwards
3. Register is not correct for the meter type or size in question

Troubleshoot:

1. Legitimate backflow
  - a. If backflow is less than 10 gallons it is most likely a legitimate backflow.
  - b. Fix: Reading can be reset to "10" on register to show positive usage. To avoid this in the future, set all new installs to zero in billing and have the Field set the Tesla to "10".
2. Meter is installed backwards
  - a. Verify the meter is installed in the correct direction by looking at the arrow in relation to the shut off valve and potentially running water at the service while watching the register to make sure it is incrementing in the correct direction.
  - b. Fix: If meter is backwards, turn it around.
3. Register is not correct for the meter type or size in question
  - a. If the register is an Optical encoder register, look at the faceplate to verify it is the correct size for the meter type.
  - b. If the register is a Tomahawk encoder, troubleshoot to make sure the register is programmed to the correct meter by checking the K Factor in the parameters.
  - c. Fix: If the register isn't correct, change it out to a register for that meter type and size.

## Negative Consumption (99,999,999 in Consumption column header)

This occurs when the previous months readings were higher than the current month.

Causes:

1. Roll over
2. Manual adjustments or errors were made in last month's billing
3. Register is incorrect for the meter type or size in question
4. Backflow on dormant or inactive account

Troubleshoot:

1. Roll over
  - a. This is normal on high usage meters.
  - b. Fix: Adjust this account in billing and set the new read to the current read on the register.
2. Manual adjustments or errors were made in last month's billing
  - a. If the number in Reading column appears to be normal, look at billing history for that account. Likely there was an adjustment to the previous months reading in billing, or the register was replaced and set to zero or 10, without making the change in billing.
  - b. Fix: Get current reading off register and program that into billing.
3. Register is programmed incorrectly for the meter type or size in question
  - a. Different meter types flow in different directions. Make sure the register is programmed to the correct meter type and size.
  - b. Fix: Troubleshoot the register. Check the K factor to make sure the register is programmed to the correct meter. If not, change the register with one for that meter type and size.
4. Backflow on dormant or inactive account
  - a. Example:  $500,000$  (previous read) + backflow of  $1$  (current read) =  $99,999,999$  in billing
  - b. Fix: Get current reading off register and program that into billing.

TIP- Consumption in TeslaNet MDM is not transferred into billing!!! So, it really is not pertinent data, other than it shows us immediate issues that will be showing up in billing later. Consumption for billing, is calculated in billing.

## Evaluating a Negative Consumption (999,999,999)

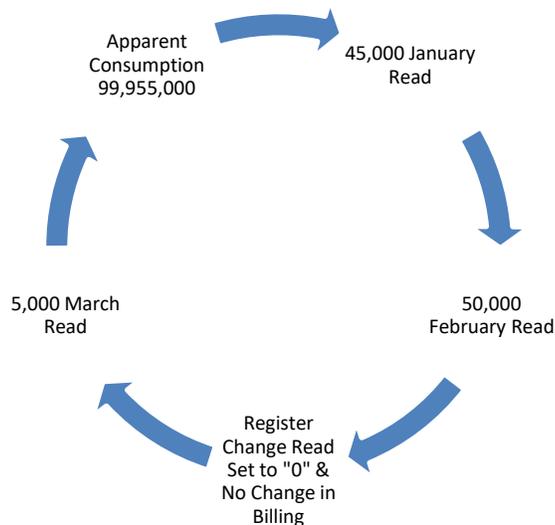
If 999,999,999 type number is in the consumption in billing software, and this month's read appears to show normal usage for that account, likely there was no "Meter Change-Out" (or reading correction) completed in billing when a register, or meter and register, was changed.

The UB software views this as a rollover.

### **Example:**

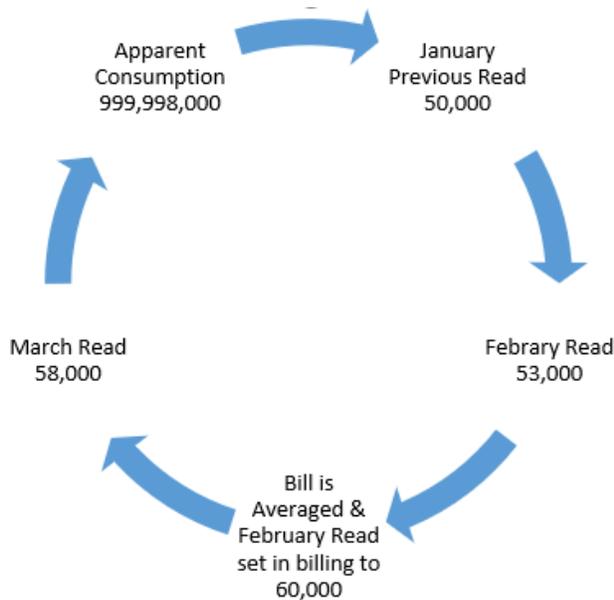
January 15 <sup>th</sup>	45,000	reading
February 15 <sup>th</sup>	50,000	reading
Register changed February 16 <sup>th</sup>	0	reading
March 15 <sup>th</sup>	5,000	reading
February's previous read from Billing	50,000	reading
March's current read put into Billing	5,000	reading
Appears as if a rollover has occurred		
Apparent March consumption	99,955,000	in billing

50,000 (previous read) + 5000 (current) = Apparent Rollover or 99,955,000 in billing



FIX – Get current reading off register, and program that into billing.

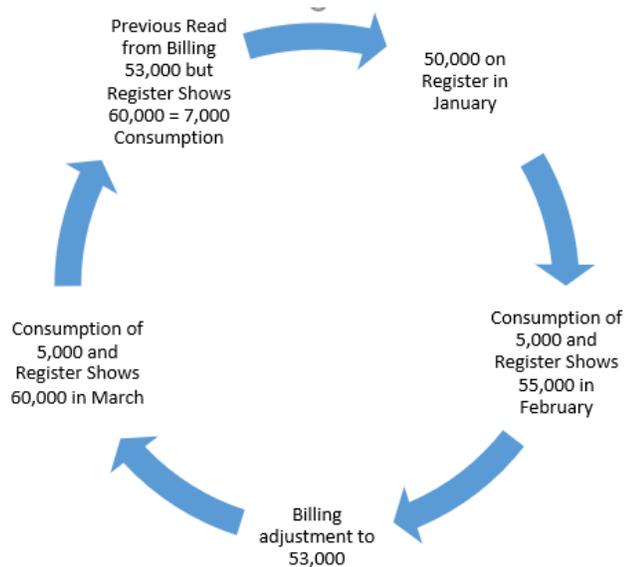
**Adjustments made in billing last month that exceed what this month's actual reading is.**



Example: Meter wasn't read in February and account was averaged in billing. When meter was read in March, actual usage was lower than the amount averaged in billing. This creates an apparent rollover, or a 99,999,999.

**Adjustments made in billing to pacify a customer.**

This often happens when a customer complains of a high water bill. Actual usage is higher than the customer believes. If a lower adjustment is made in billing than the actual usage on the register, the customer will complain again. If another adjustment is made, an ever-widening gap is created.



FIX: Use read on register to determine actual usage. Bill actual usage. Use Data log to show customer actual usage.

## Consumption Report - How to Find Origin of a Negative Consumptions

1. Login to TeslaMDM
2. Click Reports
3. Click Read Reports
4. Click Consumption
5. Choose the Billing Session you would like to examine from the drop-down menu
6. Click Change Filter
7. Click on "Reading" column header to sort from low to high. Look for any account that does not have a reading
8. Click on "Consumption" column header and sort from low to high to find negative consumptions.
9. Click on an account in question.
10. Under Read History take note of Billing System Previous Read (see below).

### READ HISTORY

[Read Source Report](#) | [Detailed Reads](#) | [Add Manual Read](#)

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**Last Read:** 6,776

**Last Read On:** 8/24/2020 2:37 PM

**Billing System Previous Read Date:** Wed Jul 22 2020

**Billing System Previous Reading:** 7,944

11. Click on Detailed Reads (see above)
12. The Billing System Previous Reading should match last month's read in Detailed Reads. If not, an adjustment has been made in Billing. You will need to get the current read from the register and correct the read in billing to solve the problem.
13. If each month's reads in Detailed Reads are incrementing in reverse, the problem is in the field (Incorrect register for meter, meter installed backwards, or true backflow).
14. Make a list of these issues. Cross reference all issues with the account Notes the Field made while servicing the system (Notes file).

## Consumption Report – How to Find Data Problems

Check data in TeslaNet MDM **AFTER** Field has completed reading, servicing the system, and provided you with Notes on all accounts serviced and **AFTER** the route has been sent to TeslaNet MDM.

1. Login to TeslaNet MDM
2. Click Reports
3. Click Read Reports
4. Click Consumption
5. Choose the Billing Session you would like to examine from the drop-down menu
6. Click Change Filter
7. Click on “Reading” column header to sort from low to high. Examine the top 20 and the bottom 20 accounts. Look for any account that does not have a reading and cross reference that with account Notes.
8. Click on “Consumption” column header and sort from low to high and high to low. Examine the top 20 and the bottom 20 accounts. Investigate anything that does not look correct including readings that don’t line up with the account history.
  - a. Look for:
    - i. Negative consumptions (99,999,999 type) (details below)
    - ii. “zero” consumptions (details below)
  - b. Make a list of these issues. Cross reference all issues with the account Notes the Field made while servicing the system (Notes file).
- ✓ Make Endpoint ID changes in UB (billing). Use other Notes to create work orders (change lid, raise service, etc.).
9. Have field personnel check anything you think may be suspect.
10. Create a Consumption Report from your billing system after reads are uploaded, but **BEFORE** any adjustments are made to any accounts by the billing staff. Review for unusually high consumptions, negative consumptions, zero consumptions, etc.
11. Update billing
- ✓ **Billing needs to mirror the field readings.** All issues will need to be cleaned up prior to sending out bills.