TReK Frequently Asked Question

Question
I'm receiving GSE Packet data, but it doesn't look like TReK is processing the data. What could be wrong?

Answer
GSE packets contain data that is preprocessed by the POIC. Each parameter in a GSE packet has an associated overall status that is set by the POIC when placing the parameter in the GSE packet. If any errors occur during preprocessing this will be indicated in the overall status. TReK uses this status to determine whether or not the data for the parameter should be processed.

The following paragraphs explain how the status information affects TReK processing. If you have any further questions or require any assistance, please call the TReK help desk at 256-544-3521 or send us an email at trek.help@msfc.nasa.gov.

Payload Health and Status Data
Many TReK users define GSE packets that contain payload health and status parameters. These parameters are extracted from the payload health and status packet (APID 876). The payload health and status packet is transmitted via Ku-Band. When Ku-Band is not available, the payload health and status data will not be available. When this occurs the POIC cannot place the payload health and status parameters in the GSE packet and this is indicated in the status information.

How TReK Handles Errors in GSE Packets (Default Behavior)
By default, TReK will not process a parameter that contains any errors (overall status is not OK). If the parameter is not being processed because of errors, any call to the TReK API for that parameter will return with the no data available error (API_NO_DATA_AVAIL).

Changing the Default Behavior
It is possible to change the way TReK processes GSE parameters by changing the error control object associated with the parameter. TReK automatically creates a default error control object whenever you add and activate a GSE packet. This error control object, named *default*, can be changed by selecting the default error control object on the Error Control for Preprocessed Parameters dialog (Processing menu) and pushing the modify button.

You have three options to choose from: Disallow All Errors, Allow All Errors, and Specify. If you choose Disallow All Errors, TReK will not process the data if the overall status is not OK. If you choose Allow All Errors, TReK will ignore whatever error is placed in the GSE packet for the parameter and process the data anyway. If you choose

Specify, TReK will process the data if the errors received are allowed based on your selection. Once you have made your changes, you can press OK and TReK immediately applies the changes. All packets that arrive after this point will be processed based on your new selections.

If you want TReK to allow different errors depending on which GSE parameter is being processed, you can add additional error control objects and assign them to the individual GSE parameters. To change the error control object for a GSE parameter, go to the Measurements dialog (Processing Menu->Measurements), select the measurement and push the modify button. When the Modify Measurements dialog is displayed you can change the error control object name at the bottom of the dialog.

What Changing the Default Behavior Means To You

If you allow all errors, then you are responsible for checking the overall status to see if you really want to trust any data returned to you. You can get the overall status associated with a parameter by calling the GetOverallStatus function in the TReK API. See the API Reference Manual for examples on the GetOverallStatus function. The API Reference Manual is available on the TReK menu item (Start Menu->Programs->TReK).

Instead of having to check the overall status in your code, you can have TReK do this work by selecting the errors you would like to allow. This means that TReK will filter out any error that you wish not to allow and anything that you retrieve with a TReK API function will not have any errors other than the ones you allowed.

How To Determine What Errors You Are Receiving

In many instances, the errors being generated for parameters in a GSE packet are the same for each parameter in the packet. If you need to determine the exact error for the parameter, you can change the error control object for that parameter to allow all errors through and make a call to the GetOverallStatus function in the TReK API.

You can also call the TReK help desk or send an email to trek.help@msfc.nasa.gov and ask for the API Tester program. This program was written for internal testing by the TReK Team and can provide the information you need to determine the errors in the GSE packet. You must be a registered TReK user to get this program.

Further Reading:

Additional information can be found on the following topics:

* For general information on how TReK handles telemetry, see the Telemetry Tutorial. Sections 4.8 and 5.6 are especially relevant to GSE packets.

* For information on how the error control object dialogs work, see the Telemetry Processing Users Guide sections 6.16 and 6.69 through 6.72.

* For a tutorial on working with GSE packets in TReK, see section 5.12 of the Telemetry Processing Tutorial.

* For additional information on the errors and status characters placed in the GSE packet, see Section 8.6.3.3 of the Payload to Generic User IDD (PGUIDD).