SlideSentinel Node → Base Data Protocol

Format: #*DataType*,*NodeNum*$*Data*<CR><LF>

DataType – A binary encoded, **8-bit integer**, indicating the way the base should handle the incoming data. DataType value meanings:

- 1: Record NMEA data to the file corresponding to NodeNum
- 2: Record (RTK quality) NMEA data to the file corresponding to NodeNum and to the satellite upload file
- 3: Record state to NodeNum state file
- 4: Emergency NMEA data
- 5: Emergency state data

NodeNum – A binary encoded, **8-bit integer**, indicating which node the measurements came from

Data – ASCII Character encoded measurement data to be handled by the base

- State data includes temperature, time, accelerometer average and any additional readings
- NMEA data is the gps position data recorded by the node's rover GPS

SlideSentinel Node Data Measurement and Recording Scheme

Measurement states: Sleep → Read Data → Process Data → Send Data → Sleep

Sleep

The node is in a sleep state, GPS and radio are off, only able to wake from preset real-time-clock (RTC) interrupt or detected accelerometer interrupt (programmed threshold in configInterrupts())

Read Data

Measurements are gathered and sent to their respective files: *AllGPS*, *AllState*, *CurrentWakePeriodGPS*, *CurrentWakePeriodState*

- *AllGPS*: Contains every GPS reading from the rover since the first startup
- *AllState*: Contains every state reading from the rover since the first startup
- *CurrentWakePeriodGPS:*Includes GPS readings from current wake period only
- *CurrentWakePeriodState*:Includes state readings from current wake period only

Process Data

Measurements from the current wake period are parsed and prepared to be sent to the base. Averages of the state data are calculated and highest quality GPS strings are written to an upload file.

Send Data

Average state measurements and the selected GPS strings are uploaded to the base using the Freewave radio. These are encapsulated according to the "Node → Base Data Protocol"

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