



AirLink Telemetry Protocol (ATP) 2.1 Specification

AirLink Telemetry



SIERRA
WIRELESS®

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Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

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In accordance with ANSI/ISA 12.12.1-2011, Section 16 and CSA C22.2 No 213, Section 5.5, the following instructions and warnings apply:

This apparatus is suitable for use in Class I, Division 2, Groups A, B, C and D.

Warning: EXPLOSION HAZARD—SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

Avertissement: RISQUE D'EXPLOSION-LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION 2.

Warning: EXPLOSION HAZARD—DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS.

Avertissement: RISQUE D'EXPLOSION-NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOURS TENSION, A MOINES QU'IL NE S'AGISSE D'UN EMPLACEMENT NON DANGEREUX.

Warning: DO NOT USE THE USB CONNECTOR IN A HAZARDOUS AREA.

Avertissement: NE PAS UTILISER DE CONNECTEUR USB DANS LES ENVIRONNEMENTS DANGEREUX.

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Revision History

Revision number	Release date	Changes
1	March 9, 2018	Initial revision for 2.1 spec. Changes include updates to the <i>WAN Link Info</i> data points and the addition of new <i>Miscellaneous</i> data points.

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>> 1: Introduction

This document describes the AirLink Telemetry Protocol (ATP) 2.1 transport layer data format. This document provides details on the data format used for collecting vehicle telemetry data from supported AirLink gateways and routers. It is anticipated that ATP can be transported over different transport layers, depending on the requirements of the user. As an example, an early proof of concept build of AVTA sent ATP over the M3DA protocol. The current implementations of ATP (in the AVTA 1.1 AAF application) uses JSON over MQTT, so as to be compatible with AirLink Management Service (ALMS). The data formats outlined in this document are expressed as JSON constructs.

ATP 2.1 is an adaptation of the data format used by the original AVTA 1.0.x AAF application that reduces the verbosity (bandwidth usage) of the protocol, and has been improved based on field trial and input from the user community. In addition, the previous release of the protocol was limited to and included within the AVTA 1.0 AAF application, making the protocol and the application synonymous. This release separates the protocol naming from the application naming. ATP 2.1 formalizes the protocol apart from the application, meaning that AVTA 1.1 uses ATP 2.1. For clarity and future reference, the data format used by AVTA 1.0 should be considered ATP 1.0.

For more information on AirLink Telemetry, refer to the AirLink Vehicle Telemetry User Guide.

Notes:

- Whereas in AVTA 1.0 there was a 1-1 correspondence between configuration name and sent data parameter name, this is no longer the case. For illustrative purposes, the configuration name (in AVTA 1.1) appears in the tables below, even though they are not part of the ATP definition. Note that not all parameters are configurable.
- The ordering of data points within the proposed data point format is not guaranteed; each data point within a package may appear in any order.

The following table lists the data points in the protocol. Items marked in **red** are changes made in 2.1, and items marked in **green** additions made in 2.1.

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Driving Behaviour						
Accelerometer incident start	ainc_strt	atp.inci atp.inct	Initial accelerometer reading - Milli g-force Threshold - Milli g-force	{ <timestamp>: {"atp.ainc_strt": 1, "atp.inci": <threshold setting>, "atp.inct":<value>, atp.iid:<value>, "atp.glon": <value>, " atp.glat ": <value>, "atp.ghed": <value>}}	Accelerometer incident start is detected based on gateway threshold. Reported threshold value is configured ALEOS (via ACEmanager) threshold setting. <ul style="list-style-type: none"> • atp.ainc_strt = • atp.inci = the initial reading when the threshold was first exceeded (mG) • atp.inct = currently configured event threshold (mG) • atp.iid = incident ID matches atp.iid in ainc_strt event • atp.glon = GPS longitude (decimal degrees) • atp.glat = GPS Latitude (decimal degrees) • atp.ghed = GPS Heading (decimal degrees) <p>This event indicates occurrence of an accelerometer event as reported by ALEOS (4.9.0 or later on MP70 only). Accelerometer configuration is external to application. ** Note that GPS data will only be included if there is a GPS fix.</p>	acceleration_incident_start Configurable Settings: <ul style="list-style-type: none"> • enable • max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Cornering incident start	cinc_strt	atp.inci atp.inct	Initial accelerometer reading - Milli g-force Threshold - Milli g-force	{ <timestamp>: {"atp.cinc_strt": 1, "atp.inci": <threshold setting>, "atp.inct":<value>, atp.iid:<value>, "atp.glon": <value>, " atp.glat ": <value>, "atp.ghed": <value>}}	<p>Cornering incident start is detected based on gateway threshold.</p> <p>Reported threshold value is configured ALEOS (via ACEmanager) threshold setting.</p> <p>** Note that GPS data will only be included if there is a GPS fix.</p> <ul style="list-style-type: none"> • atp.cinc_srt= • atp.inci = the initial reading when the threshold was first exceeded (mG) • atp.inct = currently configured event threshold (mG) • atp.iid = incident ID • atp.glon = GPS longitude (decimal degrees) • atp.glat = GPS Latitude (decimal degrees) • atp.ghed = GPS Heading (decimal degrees) <p>This event indicates occurrence of an accelerometer event as reported by ALEOS (4.9.0 or later on MP70 only). Accelerometer configuration is external to application.</p>	<p>cornering_incident_start</p> <p>Configurable Settings:</p> <ul style="list-style-type: none"> • enable • max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Deceleration incident start	dinc_strt	atp.inci atp.inct	Initial accelerometer reading - Milli g-force Threshold - Milli g-force	{ <timestamp>: {"atp.dinc_strt": 1, "atp.inci": <threshold setting>, "atp.inct":<value>, atp.iid:<value>, "atp.glon": <value>, " atp.glat ": <value>, "atp.ghed": <value>}}	Deceleration incident start is detected based on gateway threshold. Reported threshold value is configured ALEOS (via ACEmanager) threshold setting. ** Note that GPS data will only be included if there is a GPS fix. <ul style="list-style-type: none"> atp.dinc_strt = atp.inci = the initial reading when the threshold was first exceeded (mG) atp.inct = currently configured event threshold (mG) atp.iid = incident ID atp.glon = GPS longitude (decimal degrees) atp.glat = GPS Latitude (decimal degrees) atp.ghed = GPS Heading (decimal degrees) This event indicates occurrence of an accelerometer event as reported by ALEOS (4.9.0 or later on MP70 only). Accelerometer configuration is external to application.	deceleration_incident_start Configurable Settings: <ul style="list-style-type: none"> enable max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Accelerometer incident end	ainc_end	atp.incp atp.inca atp.incd	Peak accelerometer reading - Milli g-force Average accelerometer reading - Milli g-force Duration - mS	{ <timestamp>: {"atp.ainc_end": 1, "atp.incp": <peak value during event>, "atp.inca":<value>, "atp.incd": <duration of event>, atp.iid:<value>, "atp.glon": <value>, "atp.glat ": <value>, "atp.ghed": <value>}}	Accelerometer incident peak and duration are reported upon end of event. <ul style="list-style-type: none"> atp.ainc_strt = atp.incp = peak value during event (mG) atp.inca = average accelerometer reading during the incident atp.incd = duration of the incident atp.iid = incident ID atp.glon = GPS longitude (decimal degrees) atp.glat = GPS Latitude (decimal degrees) atp.ghed = GPS Heading (decimal degrees) ** Note that GPS data will only be included if there is a GPS fix.	acceleration_incident_end Configurable Settings: <ul style="list-style-type: none"> enable max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Cornering incident end	cinc_end	atp.incp atp.inca atp.incd	Peak accel - Milli g-force Average accel - Milli g-force Duration - mS	{ <timestamp>: {"atp.cinc_end": 1, "atp.incp": <peak value during event>, "atp.inca":<value>, "atp.incd": <duration of event>, atp.iid:<value>, "atp.glon": <value>, " atp.glat ": <value>, "atp.ghed": <value>}}	Cornering incident peak and duration are reported upon end of event. <ul style="list-style-type: none"> atp.cinc_strt = atp.incp = peak value during event (mG) atp.inca = average accelerometer reading during the incident atp.incd = duration of the incident atp.iid = incident ID matches atp.iid in ainc_strt event atp.glon = GPS longitude (decimal degrees) atp.glat = GPS Latitude (decimal degrees) atp.ghed = GPS Heading (decimal degrees) ** Note that GPS data will only be included if there is a GPS fix.	cornering_incident_end Configurable Settings: <ul style="list-style-type: none"> enable max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Deceleration incident end	dinc_end	atp.incp atp.inca atp.incd	Peak accelerometer reading - Milli g-force Average accelerometer reading - Milli g-force Duration - mS	{ <timestamp>: {"atp.dinc_end": 1, "atp.incp": <peak value during event>, "atp.inca":<value>, "atp.incd": <duration of event>, atp.iid:<value>, "atp.glon": <value>, " atp.glat ": <value>, "atp.ghed": <value>}}	Deceleration incident peak and duration are reported upon end of event. <ul style="list-style-type: none"> atp.dinc_strt = atp.incp = peak value during event (mG) atp.inca = average accelerometer reading during the incident atp.incd = duration of the incident atp.iid = incident ID matches atp.iid in ainc_strt event atp.glon = GPS longitude (decimal degrees) atp.glat = GPS Latitude (decimal degrees) atp.ghed = GPS Heading (decimal degrees) ** Note that GPS data will only be included if there is a GPS fix.	deceleration_incident_end Configurable Settings: <ul style="list-style-type: none"> enable max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration/ Units	Message Format	Description	AVTA 1.1 Config
Dead Reckoning Calibration event	drc_updt	atp.drc	Enum (0 = not started, 1 = started, 2 = calibrated)	{ <timestamp>: {"atp.drc_updt": 1, "atp.drc": <value>, "atp.glon": <value>, "atp.glat": <value>, "atp.ghed": <value>}}	<p>Dead reckoning calibration status. Reported at boot, and when value changes.</p> <ul style="list-style-type: none"> atp.drc_updt = Reporting configuration (parameter dreckon_sensor_calibration): atp.drc = enumeration of calibration status (0=not started, 1=started, 2=calibrated) atp.glon = GPS longitude (decimal degrees) atp.glat = GPS Latitude (decimal degrees) atp.ghed = GPS Heading (decimal degrees) <p>Indicated the MP70 dead reckoning accelerometer calibration status. Reported upon app start, and when value changes.</p> <p>** Note that GPS data will only be available if there is a GPS fix.</p>	<p>dreckon_sensor_calibration</p> <p>Configurable Settings:</p> <ul style="list-style-type: none"> enable

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration/ Units	Message Format	Description	AVTA 1.1 Config
GPS Info						
GPS Location		atp.glon atp.glat	Decimal Degrees Decimal Degrees	{ <timestamp>: { "atp.glon": <value>, "atp.glat": <value>}}	<p>GPS location.</p> <p>Sent when the GPS location changes. Note that it changes based on the configuration threshold.</p> <ul style="list-style-type: none"> atp.glon = current longitude coordinate (decimal degrees) atp.glat = current latitude coordinate (decimal degrees) <p>GPS location will only be generated if GPS fix is available, and indicates location at time of event. Calculates great circle distance between points, in meters, to apply threshold comparison (by distance in and direction). This is polled every 1 second.</p> <p>Default reporting configuration (parameter gpslocation): enable=1 threshold=20 (meters) min rate=300 (Seconds) max rate=5 (Seconds)</p>	<p>gpslocation</p> <p>Configurable Settings:</p> <ul style="list-style-type: none"> enable min max threshold

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration/ Units	Message Format	Description	AVTA 1.1 Config
GPS Speed		atp.gspd	Kilometers per Hour	{ <timestamp>: { "atp.gspd": <value>, "atp.glon": <value>, "atp.glat": <value>, "atp.ghed": <value>}}	<p>Speed as reported by GPS. Sent based on configured time and/or distance threshold.</p> <ul style="list-style-type: none"> atp.gspd = current speed as measured by GPS, in Kilometers / Hour atp.glon = current longitude coordinate (decimal degrees) atp.glat = current latitude coordinate (decimal degrees) atp.ghed = current GPS heading <p>GPS Speed will only be generated if GPS fix is available, and indicates speed, location, and heading at time of event. This is polled every one second.</p> <p>Reporting configuration (parameter gpsspeed): enable=1 threshold=5 (kilometers / hour) min rate=60 (Seconds) max rate=5 (Seconds)</p> <p>** Note that GPS data will only be available if there is a GPS fix.</p>	<p>gpsspeed</p> <p>Configurable Settings:</p> <ul style="list-style-type: none"> enable min max threshold

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
GPS State		atp.gstt atp.gsat atp.gqal	Enum (1 = has fix, 0 = no fix) Number Enum	{ <timestamp>: { "atp.gstt": <value>, "atp.gsat": <value>, "atp.gqal": <value>} }	Sent when GPS Fix status changes or number of satellites changes when satellite count <= four. <ul style="list-style-type: none"> • atp.gstt = enumeration of GPS state (1=has fix, 0=no fix) • atp.gsat = number of satellites at time of event • atp.gqal = GPS quality 	gpsfix This event is not configurable.

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
WAN Link Info						
WAN Rx Bytes		atp.wrx atp.link	Number of Bytes String ("cell1" or "wifi1" or "eth1" or "eth2" or "eth4")	{ <timestamp>: { "atp.wrx": <value>, "atp.link", <value>}}	<p>WAN link RX Bytes report. ** Note that WAN Rx Bytes is only available for the Cell link.</p> <p>Sent when the current number of received bytes changes according to telemetry reporting parameters for "wanlinkrxbytes".</p> <ul style="list-style-type: none"> atp.wrx = number of bytes received via this interface over lifetime of gateway. atp.link = string indicating target interface. <p>Sent when any VPN changes state according to any of the variables below. Param0 = 1 if any VPN is connected, else 0 Param1 = 0 Extra =</p>	wanlinkrxbytes Configurable Settings: <ul style="list-style-type: none"> enable min max threshold

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
WAN Tx Bytes		atp.wtx atp.link	Number of Bytes String ("cell1" or "wifi1" or "eth1" or "eth2" or "eth4")	{ <timestamp>: { "atp.wtx": <value>, "atp.link", <value>}}	<p>WAN link TX Bytes report.</p> <p>Sent when the current number of transmitted bytes changes according to telemetry reporting parameters for "wanlinktxbytes".</p> <p>** Note that WAN Tx Bytes is only available for the Cell link.</p> <ul style="list-style-type: none"> atp.wtx = number of bytes transmitted via this interface over lifetime of gateway. atp.link = string indicating target interface. 	<p>wanlinktxbytes</p> <p>Configurable Settings:</p> <ul style="list-style-type: none"> enable min max threshold
WAN Status		atp.wans atp.wana atp.link	Enum (0 = network down, 1 = network ready) IP address in 32-bit integer (blank if link is down) String ("cell1" or "wifi1" or "eth1" or "eth2" or "eth4")	{ <timestamp>: { "atp.wans": <value>, "atp.wana": <value>, "atp.link", <value> "atp.glon": <value>, "atp.glat": <value>, "atp.ghed": <value> } }	<p>Sent when WAN link changes state.</p> <ul style="list-style-type: none"> atp.wans = enumeration of status (0=network down, 1=network ready) atp.wana = address of interface, as 32 bit integer atp.link = string indicating target interface atp.glon = current longitude coordinate (decimal degrees) atp.glat = current latitude coordinate (decimal degrees) atp.ghed = current GPS heading <p>This event indicates changes in WAN link state.</p> <p>** Note that GPS data will only be available if there is a GPS fix.</p>	<p>wanstatus</p> <p>This event is not configurable.</p>

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Primary WAN Link		atp.pwan	String ("none" or "cell1" or "wifi1" or "eth1" or "eth2" or "eth4")	{ <timestamp>: { "atp.pwan": <value> "atp.glon": <value>, "atp.glat": <value>, "atp.ghed": <value> } }	Identifies which WAN link is the Primary WAN. Sent when Primary WAN link changes. <ul style="list-style-type: none"> atp.pwan = string indicating target interface, or "none" if no active WAN atp.glon = current longitude coordinate (decimal degrees) atp.glat = current latitude coordinate (decimal degrees) atp.ghed = current GPS heading ** Note that GPS data will only be available if there is a GPS fix.	primarywan This event is not configurable.

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
VPN Status		atp.vpns	Enum (0 = VPN down, 1 = VPN up)	{ <timestamp>: { "atp.vpns": <value> "atp.glon": <value>, "atp.glat": <value>, "atp.ghed": <value>}}	<p>This event indicates whether a (any) VPN is up, or all are down.</p> <ul style="list-style-type: none"> atp.vpns = enumeration of VPN status (0=VPN down, 1=VPN up) atp.glon = current longitude coordinate (decimal degrees) atp.glat = current latitude coordinate (decimal degrees) atp.ghed = current GPS heading <p>** Note that GPS data will only be available if there is a GPS fix.</p>	<p>vpnstatus</p> <p>This event is not configurable.</p>
Gateway Life Cycle						
Gateway Startup		atp.strt	None.	{ <timestamp>: { "atp.strt":}}	<p>Gateway Startup event, sent once upon gateway startup.</p> <p>Timestamp of this event is set to the time the gateway booted,. This event will be generated only once upon the gateway boot.</p> <ul style="list-style-type: none"> atp.strt = 	<p>gateway_start_stop</p> <p>This event is not configurable.</p>
Gateway Shutdown		atp.shut	Boolean (0 = clean, 1= unclean)	{ <timestamp>: { "atp.shut":<value>}}	<p>Gateway Shutdown event.</p> <ul style="list-style-type: none"> atp_shut = 	<p>gateway_start_stop</p> <p>This event is not configurable.</p>

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Gateway Heartbeat		atp.hb	Seconds	{ <timestamp>: { "atp.hb": <value>}}	Gateway OS up-time, in seconds. Sent based on configured time threshold. atp.hb =	heartbeat Configurable Settings: <ul style="list-style-type: none"> • enable • min
GPIO						
GPIO Input State		atp.gpi	Each bit will represent one input, with bit0 for input0, etc. (0= inactive, 1= active)	{ <timestamp>: { "atp.gpi": <bitvalue>, "atp.glon": <value>, "atp.glat": <value>, "atp.ghed": <value>}}	General Purpose input state. Sent upon gateway boot, and subsequent state change on any of the inputs. ** Note that GPS data will only be available if there is a GPS fix. <ul style="list-style-type: none"> • atp.gpi = bit value of all GPIO inputs combined • atp.glon = current longitude coordinate (decimal degrees) • atp.glat = current latitude coordinate (decimal degrees) • atp.ghed = current GPS heading (decimal degrees) Extra GPS info will only be present if GPS fix is available, and indicates conditions it time of event.	gpioinput This event is not configurable.

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Vehicle Telemetry						
Engine Run Time		atp.ert	Seconds	{ <timestamp>: { "atp.ert": <value>, "atp.glon": <value>, "atp.glat": <value>}}	Length of time since engine starts. Sent based on configured time threshold. <ul style="list-style-type: none"> atp.ert = atp.glon = current longitude coordinate (decimal degrees) atp.glat = current latitude coordinate (decimal degrees) atp.ghed = current GPS heading (decimal degrees) ** Note that GPS data will only be available if there is a GPS fix.	engine_run_time Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Ambient Air Temperature		atp.atmp	Degrees Fahrenheit	{ <timestamp>: { "atp.atmp": <value>}}	The current ambient air temperature. atp.atmp =	ambient_air_temperature Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
A/C System Refrigerant Monitor		atp.asrm	Boolean (0 or 1)	{ <timestamp>: { "atp.asrm": <value>}}	A/C System Refrigerant monitor status. <ul style="list-style-type: none"> atp.asrm = the current status of the A/C system refrigerant monitor. 1=on, 0=off. 	ac_system_refrigerant_monit or Configurable Settings: <ul style="list-style-type: none"> enable min max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Battery Voltage battery_voltage		atp.bat	Volts	{ <timestamp>: { "atp.bat": <value>}}	Battery Voltage. <ul style="list-style-type: none"> atp.bat = current battery voltage. 	battery_voltage Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Brake Switch Status		atp.bss	Boolean (0 or 1)	{ <timestamp>: { "atp.bss": <value>}}	Brake Switch Status. <ul style="list-style-type: none"> atp.bss = the current status of the brake. 1=on, 0=off. 	brake_switch_status Configurable Settings: <ul style="list-style-type: none"> enable min max
Catalyst Monitor		atp.cm	Boolean (0 or 1)	{ <timestamp>: { "atp.cm": <value>}}	Catalyst state monitor <ul style="list-style-type: none"> atp.cm = the current status of the catalyst monitor. 1=on, 0=off. 	catalyst_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
Comprehensive Component Monitor		atp.ccm	Boolean (0 or 1)	{ <timestamp>: { "atp.ccm": <value>}}	Comprehensive component monitor. <ul style="list-style-type: none"> atp.ccm = the current status of the comprehensive component monitor. 1=on, 0=off. 	comprehensive_component_monitorgpioinput Configurable Settings: <ul style="list-style-type: none"> enable min max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Evaporative System Monitor		atp.evsm	Boolean (0 or 1)	{ <timestamp>: { "atp.evsm": <value>}	Evaporative system monitor state. <ul style="list-style-type: none"> atp.evsm = the current status of the evaporative system monitor. 1=on, 0=off. 	evaporative_system_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
Heated Catalyst Monitor		atp.hcm	Boolean (0 or 1)	{ <timestamp>: { "atp.hcm": <value>}	Heated catalyst monitor. <ul style="list-style-type: none"> atp.hcm = the current status of the heated catalyst monitor. 1=on, 0=off. 	heated_catalyst_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
Distance since DTC cleared		atp.dtcd	Miles	{ <timestamp>: { "atp.dtcd": <value>}}	Distance in miles since the diagnostic trouble codes were cleared. <ul style="list-style-type: none"> atp.dtcd = distance in miles since the diagnostic trouble codes were cleared. 	distance_since_dtc_cleared Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
DTCs		atp.dtcs	Text	{ <timestamp>: { "atp.dtcs": <value>}	Diagnostic trouble codes. <ul style="list-style-type: none"> atp.dtcs = a string containing diagnostic trouble codes currently present. 	dtcs Configurable Settings: enable
Engine Coolant Temp		atp.ect	Degrees Fahrenheit	{ <timestamp>: { "atp.ect": <value>}}	Engine coolant temperature. <ul style="list-style-type: none"> atp.ect = the current temperature of the coolant in degrees. 	engine_coolant_temp Configurable Settings: <ul style="list-style-type: none"> enable min max threshold

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Engine Speed		atp.espd	Number	{ <timestamp>: { "atp.espd": <value>}}	Engine speed. <ul style="list-style-type: none"> atp.espd = the current speed of the engine. 	engine_speed Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Fuel Level		atp.flvl	Percent	{ <timestamp>: { "atp.flvl": <value>}}	Fuel level. <ul style="list-style-type: none"> atp.flvl = the current fuel level as a percentage. 	fuel_level Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Fuel Rate		atp.frat	Gallons per Hour	{ <timestamp>: { "atp.frat": <value>}}	Fuel rate. <ul style="list-style-type: none"> atp.frat = the current rate of fuel consumption in gallons per hour. 	fuel_rate Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Fuel System Monitor		atp.fsm	Boolean (0 or 1)	{ <timestamp>: { "atp.fsm": <value>}}	Fuel system monitor. <ul style="list-style-type: none"> atp.fsm = the current status of the fuel system monitor. 1=on, 0=off. 	fuel_system_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
EGR System Monitor		atp.esm	Boolean (0 or 1)	{ <timestamp>: { "atp.esm": <value>}	EGR system monitor. atp.fsm = the current status of the EGR system monitor. 1=on, 0=off.	egr_system_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
Ignition Status		atp.igns	Boolean (0 or 1)	{ <timestamp>: { "atp.igns": <value>}	Ignition status. <ul style="list-style-type: none"> atp.igns = the current status of the ignition. 1=on, 0=off. 	ignition_status Configurable Settings: <ul style="list-style-type: none"> enable min max
Misfire Monitor		atp.mfm	Boolean (0 or 1)	{ <timestamp>: { "atp.mfm": <value>}	Misfire monitor status. <ul style="list-style-type: none"> atp.mfm = the current status of the misfire monitor. 1=on, 0=off. 	misfire_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
MIL Status		atp.mil	Boolean (0 or 1)	{ <timestamp>: { "atp.mil": <value>}	MIL status. <ul style="list-style-type: none"> atp.mil = the current status of the MIL. 1=on, 0=off. 	mil_status Configurable Settings: <ul style="list-style-type: none"> enable min max
odo		atp.odo	Miles	{ <timestamp>: { "atp.odo": <value>}}	Odometer. <ul style="list-style-type: none"> atp.odo = the current mileage count of the odometer in miles 	odometer Configurable Settings: <ul style="list-style-type: none"> enable min max threshold

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Oil Life Remaining		atp.oill	Percentage	{ <timestamp>: { "atp.oill": <value>}}	Oil life remaining. <ul style="list-style-type: none"> atp.oill = the current oil life remaining as a percentage. 	oil_life_remaining Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Oxygen Sensor Heater Monitor		atp.oshm	Boolean (0 or 1)	{ <timestamp>: { "atp.oshm": <value>}}	Oxygen sensor heated monitor status. <ul style="list-style-type: none"> atp.oshm = the current status of the oxygen sensor heated monitor. 1=on, 0=off. 	oxygen_sensor_heater_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
Oxygen Sensor Monitor		atp.osm	Boolean (0 or 1)	{ <timestamp>: { "atp.osm": <value>}}	Oxygen sensor monitor status. <ul style="list-style-type: none"> atp.osm = the current status of the oxygen sensor monitor. 1=on, 0=off. 	oxygen_sensor_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
PTO Status		atp.pto	Boolean (0 or 1)	{ <timestamp>: { "atp.pto": <value>}}	PTO status. <ul style="list-style-type: none"> atp.pto = the current status of the PTO. 1=on, 0=off. 	pto_status Configurable Settings: <ul style="list-style-type: none"> enable min max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Seatbelt Fastened		atp.sbft	Boolean (0 or 1)	{ <timestamp>: { "atp.sbft": <value>}	Seatbelt status. <ul style="list-style-type: none"> atp.sbft = the current status of the seatbelt. 1=fastened, 0=off. 	seatbelt_fastened Configurable Settings: <ul style="list-style-type: none"> enable min max
Secondary Air System Monitor		atp.sasm	Boolean (0 or 1)	{ <timestamp>: { "atp.sasm": <value>}	Secondary air system status monitor. <ul style="list-style-type: none"> atp.sams = the current status of the secondary air system monitor. 1=on, 0=off. 	secondary_air_system_monitor Configurable Settings: <ul style="list-style-type: none"> enable min max
Throttle Position		atp.tpos	Percentage as Integer	{ <timestamp>: { "atp.tpos": <value>}}	Current position of the throttle. <ul style="list-style-type: none"> atp.tpos = the current position of the throttle as a percentage. 	throttle_position Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Tire Pressure Monitoring Status		atp.tpms	Normal/ Abnormal (0 or 1)	{ <timestamp>: { "atp.tpms": <value>}	Tire pressure monitor status. <ul style="list-style-type: none"> atp.tpms = current status of the tire pressure monitoring system. 1=normal, 0=abnormal. 	tire_pressure_monitoring_status Configurable Settings: <ul style="list-style-type: none"> enable min max

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration/ Units	Message Format	Description	AVTA 1.1 Config
Tire Pressures		atp.tprs	PSI (string of CSV)	{ <timestamp>: { "atp.tprs": <value>}}	Tire pressures. <ul style="list-style-type: none"> atp.tprs = a comma separated string of tire pressure values. 	tire_pressures Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Transmission Fluid Temperature		atp.tft	Degree Fahrenheit	{ <timestamp>: { "atp.tft": <value>}}	Transmission fluid temperature. <ul style="list-style-type: none"> atp.tft = the current transmission fluid temperature. 	transmission_fluid_temperature Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Trip Fuel Consumption		atp.tfc	Gallons	{ <timestamp>: { "atp.tfc": <value>}}	Trip fuel consumption. <ul style="list-style-type: none"> atp.tfc = the amount of fuel consumed on the current trip in gallons. 	trip_fuel_consumption Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
Trip odometer		atp.todo	Miles	{ <timestamp>: { "atp.trip_odo": <value>}}	Trip odometer. <ul style="list-style-type: none"> atp.odo = the number of miles traveled on the current trip. 	trip_odometer Configurable Settings: <ul style="list-style-type: none"> enable min max threshold

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Vehicle Speed		atp.vspd	Miles per Hour	{ <timestamp>: { "atp.vspd": <value>}}	Vehicle speed. <ul style="list-style-type: none"> atp.vspd = the current speed of the vehicle in MPH. 	vehicle_speed Configurable Settings: <ul style="list-style-type: none"> enable min max threshold
VIN		atp.vin	Text	{ <timestamp>: { "atp.vin": <value>}}	Vehicle identification number (VIN). Sent only once upon boot. <ul style="list-style-type: none"> atp.vin = the vehicle's VIN number. 	vin Configurable Settings: <ul style="list-style-type: none"> enable
Miscellaneous						
Device Info		atp.imei	String of the gateway's IMEI	{ <timestamp>: { "atp.imei": "<value>" }}	Sent once, at application startup. Provides the gateway IMEI. Other values may be added under this configuration later. <ul style="list-style-type: none"> atp.imei = the IMEI. 	gwinfo
Info Message		atp.inf	String containing text message	{ <timestamp>: { "atp.inf": "<value>" }}	Conveys informational strings. <ul style="list-style-type: none"> atp.inf = the string. These are application implementation dependent. Example AVTA messages: "AVTA Ver = 1.1.1.001, build = 2018-02-06T14:56:56-0800, commit = 8eee28d, ATP = 2.1" "Firmware update <version>" Message sent only when message_level set to 3 or higher.	messages_level

Data Point	Event Name	Data Point Name	Units/ Threshold/ Peek/Duration Units	Message Format	Description	AVTA 1.1 Config
Warning Message		atp.wrn	String containing text message	{ <timestamp>: {"atp.wrn": "<value>" } }	<p>Conveys strings about internal AVTA warnings.</p> <ul style="list-style-type: none"> atp.wrn: the warning message. <p>These are application implementation dependent. Example AVTA warning messages: "Unsupported B&B Streamer model: xxxx" "OBDII disconnected" Message only sent when message_level set to 2 or higher.</p>	messages_level
Error Message		atp.err	String containing text message	{ <timestamp>: {"atp.err": "<value>" } }	<p>Conveys strings about AVTA error conditions.</p> <ul style="list-style-type: none"> atp.err: the error message. <p>These are application implementation dependent. Example AVTA warning messages: "FW update (<component>) failed - <code>" Message only sent when message_level set to 1 or higher.</p>	messages_level

Parameter Description/Details

Events are represented through the inclusion of a parameter, named after the event, which is set to a value of true. Events contain multiple related data elements, correlated by the timestamp, whereas variable updates contain only a single data element.

The information below provides extra details for data parameters reported according to the above table. Some of these are specific to specific events and/or conditions, and some are shared among several events. Although appearance may vary, the meaning of each of these parameters is consistent with its name.

Boolean values are true/active/on etc = 1

Monitors indicate: 0 = Monitor Complete or 1 = Monitor Not Complete

Table 0-1: Parameter Description/Details

Parameter	Meaning	Description
apt.iid	Incident Identifier	A string value, unique to an individual incident, that is shared by each message at each report stage of that particular incident (e.g. start/end). Used to assist correlation component reports of an incident.
atp.tfc	Trip Fuel Consumption	Using the MP70 internal CAN interface, this is 0 when the ignition is off, and increases from 0 when ignition is on. Using the B&B streamer interface, trip fuel consumption does not reset, and continues to increase indefinitely.
atp.todo	Trip Odometer	Using the MP70 internal CAN interface, this is 0 when the ignition is off, and increases from 0 when ignition is on. Using the B&B streamer interface, trip fuel consumption does not reset, and continues to increase indefinitely.
atp.glat	GPS Latitude	Location latitude via GPS. Included with a number of events to indicate location at which event occurred
atp.glon	GPS Longitude	Location longitude via GPS. Included with a number of events to indicate location at which event occurred.
atp.ghed	GPS Heading	Heading via GPS. Included with a number of events to indicate current heading when event occurred.