



**DIGITAL
COMMUNICATIONS
TECHNOLOGIES**

ANTARES

Firmware 5.30

New features
Presentation

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The Store & Forward Thresholds allow to create reports based on the number of stored events in the Store & Forward Buffer of a particular Destination Point.

OBD Interface Support.

Use the vehicle's OBD parameters to generate reports based on Engine's RPM, Throttle Position, Speed, Acceleration, Odometer, Fuel Level, Fuel Consumption Rate, Ignition State, and Malfunction Indicator Light.



Garmin Devices Support.

Use Garmin devices as communication tools between the driver and the AVL server. Chat with the driver and send Stop Messages.

The Garmin device allows an Antares user to send and receive text messages from or to a server. It also allows to receive Stop Messages from the server, that can help create routes for the vehicle to follow. Antares can work with any Garmin device that have the Fleet Management Protocol implemented.

To use the Garmin devices, Antares must be set in Garmin mode (similar to the MDT mode) using the TAIP message:

>SXAGME0<

The Garmin mode and the MDT mode (MT) are mutually exclusive. To exit the Garmin mode, either send via the serial port the string:

EXIT_COMMDATA

as a single packet. Or send the TAIP message:

>SXAGMD<

over the air.



Garmin Devices Support. (cont.)

To send a text message to the Garmin device, use the following TAIP message:

```
>SXAGMTS0000001244751579Hello World<
```

Antares will also send unsolicited messages to the server indicating any changes made on the text messages received by Garmin. For example, if the user deletes a text message from the Garmin's message inbox, Antares will send to the server:

```
>RTXGMTS000002<
```

When the user sends a text message from the Garmin device, Antares will send this text message to the server using the **TX** TAIP message. For example:

```
>RTXGMTR00000001140936501600Hello World!<
```

It is also possible to send Stop Messages to the Garmin device which can be used to create routes for the vehicle to follow. The coordinates sent to the Garmin device have to be specified in semicircle units. For example:

```
>SXAGMS0001244753308+0307600189-0957793861DCT<
```

Antares will also send unsolicited messages to the server indicating any changes done on the Stop Messages received by the Garmin device. For example, if the user deletes a Stop Message, Antares will send:

```
>RTXGMSS000104---<
```



Garmin Devices Support. (cont.)

It is possible to send text messages to the Garmin device, which can only be replied using a list of canned replies.

The Garmin device also allows to set a Driver ID that help keep track on the driver of a vehicle and Driver ID Status that are related to each Driver ID.

For additional information on the Garmin Devices Support, please refer to **AN0022EN ANTARES INTEGRATION WITH GARMIN DEVICES** application note.



Virtual Odometer.

Use to count the travelled distance.

This virtual odometer is non-volatile. Meaning that its value will be preserved even after an unexpected -1 reset or a power loss. To consult the value of the Virtual Odometer use the TAIP message:

>QXAVOV<

The L signals were created to associate up to five distance thresholds

For example, to create a threshold of 500km:

>SXAVOT00000500000<

This will set signal L00 to true when the Virtual Odometer value reaches 500km

The Virtual Odometer can also be set with any value. For example, to set the Virtual Odometer with the actual vehicle's odometer:

>SXAVOV000010458<



Orbcomm System Satellite Modem Support.

Use Orbcomm's satellite modems as a backup to send reports when a GPRS-IP destination is unreachable.

Antares communicates with the Orbcomm satellite modem using a new MDT mode which is activated with the **R** mode of the **MT** TAIP message:

>SMTR<

When this mode is activated, the user will only need to define the Antares events using the qualifier **O** on the "Message ID" field of the **ED** configuration message. This qualifier will make Antares send any message to the serial port using the SC-Originated Default Message protocol used by the Orbcomm satellite modems. If the same message is sent to a regular GPRS-IP destination too, a regular TAIP message will be sent to this destination. For example, to set an event that will use the Orbcomm satellite modem as destination use:

>SED00NO**0;F00+<**

For this example, the *Destination Address 0* must contain the serial port as a destination point.

For additional information on the Orbcomm System satellite modem support, please refer to the **AN0018EN SATELLITE MODEM BASIC INTEGRATION** application note.



Region ID Report.

Use the Region ID report to define a single event for several circular and polygonal regions. A report will be sent using only one event code when the associated regions' signals transition.

The TAIP message used to define the event is:

>SXARE<

This TAIP message will generate a report every time the unit enters a region and/or the unit leaves a region. The generated report will include: In/Out indicator, the type of region, and the region index.

To define the report using the event code 00 that will report both when the unit goes In or Out from a region, use the following message:

>SXAREB00NV0<

A report generated when the unit entered the circular region 10 would be:

>REV001524377378+0475230-0740249100000012;RE=IK10;ID=test<

A report generated when the unit left the polygonal region 20 would be:

>REV001524377378+0475230-0740249100000012;RE=OR20;ID=test<



Binary Version Of The EV TAIP Message.

It is now possible to send a regular EV TAIP message (which is normally found in ASCII) in a binary form.

The binary protocol does a 1 to 1 conversion of the ASCII EV message. Meaning that the information from the regular EV message will not be lost. However, this binary protocol can reduce the size of the data transmitted by Antares over GPRS by up to 51% (Approx.), which leads to a 30% (Approx.) reduction of the TCP/IP GPRS package.

The binary from of Antares' EV messages is configured by simply using "X" as the Message ID qualifier in the event definition. It is important to note that the *Destination Address* of the messages must contain an IP-type *Destination Point* and that the destination server must be configured to decode the binary messages. For example, to define an event that will use the binary from of the EV message use:

>SED00N**X**0;U00+<

A standalone Binary Decoder Tester tool is available for Windows. This tool will help verifying that the Binary Decoder running on the listening server is decoding the binary message properly.

For additional information on the Binary version of the EV TAIP message, the configuration of the binary decoder in the server, and the Binary Decoder Tester tool, please refer to the **AN0020EN BINARY VERSION OF THE EV MESSAGE** and **AN0021EN BINARY EV MESSAGE ANTARES SETUP** application notes.



SMS Alias.

Send configuration or consult TAIP messages using SMS alias.

The SMS Alias were created to associate a ten character long text message to a regular TAIP message. When an Alias is received through a SMS message, the associated command to this Alias is executed by Antares.

The TAIP message used to create the SMS Alias is:

>SXATA<

For example, to create a SMS Alias that will set the Output 1 of Antares to true use this message:

>SXATA001;SSSXP11;VehicleOFF<

For this example, Output 1 is connected to a Engine Turn OFF Circuit that will turn the vehicle off when the Output 1 is set to true, that is why the text message "VehicleOFF" was used.



SMS Messages Gateway.

The SMS Messages Gateway allows Antares to send any text message through a TAIP message. The SMS messages gateway bypass the Store & Forward Buffer mechanism.

The text message to be sent can be up to 80 characters long. The TAIP message created for this purpose is:

>SXASG<

It is possible to send a SMS message to a defined phone Destination Point or any other phone number that have not been previously defined.

For example, to send a SMS message to Destination Point 10, use this message:

>SXASGP10;Alert!<

Or to send a SMS message to a phone number that is not defined in any Destination Point use the following message:

>SXASGN3055551234;Return to base<

Only one SMS message can be sent at a time using this mechanism. To cancel a pending SMS message that could not be sent for any reason, use the following message:

>SXASGC<



Authentication Mechanism.

An AVL server can now authenticate incoming TCP connections from Antares to prevent fake reports.

To use this mechanism Antares must first be configured once with a password using the following TAIP message:

```
>SXAPWpassword<
```

This password can be any alphanumeric message between 4 and 40 characters. The server must know this password as well. The server will then need to send the TAIP message:

```
>QXAAUMchallenge_text<
```

Where challenge_text is any random text between 4 and 80 characters. Antares will then reply with the TAIP message:

```
>RXAAUMoperation_result<
```

Where operation_result is obtained from the operation:

```
MD5(MD5(password):challenge_text)
```

The server does this same calculation and compares it to the Antares response. If the results does not match the server may close the connection.



Checksum.

The checksum allows to detect data corruption from the TAIP console.

The CS_FLAG was added to the **RM** TAIP Message, this flag enables or disables the use of checksums on the TAIP console. Error code 89 was added for when a checksum error occurs (Checksum mismatch or not present in the command). The checksum is added to TAIP responses, TAIP commands and TAIP events.

To activate the checksum flag use the following message:

```
>SRM;CS_FLAG=T<
```

Antares will add the checksum result to every response message:

```
>RRM;CS_FLAG=T;*4C<
```

Consequently, every message sent to Antares must have the correct checksum or else Error 89 will be returned:

```
>QID<  
>RER89:QID;ID=Check;*40<
```

```
>QID;*73<  
>RIDCheck;ID=Check;*7B<
```



XCT Silent Actions.

The Silent Actions allow to define actions that will only be reported via the serial port using the ED TAIP message.

The Silent Actions prevent sending unnecessary reports to the server, which helps reduce communications costs.

The Silent Actions are define like a regular Event Action, but using the "XCT=" message instead of the "ACT=" message. For example, to define several actions per event that will only be sent to the serial port use:

```
>SED35SV0;F00+;XCT=SGC05TC;XCT=SSSU041;XCT=SGC07U<
```



Command Session ID.

The Command Session ID allows an AVL server to associate each TAIP message with its corresponding answer.

The Command Session ID is used simply by adding the Session ID message to a TAIP message send to Antares. The Session ID message is:

;SI=xxxx

If a TAIP message contains the “;SI=xxxx” characters, the response to this message will include those same characters. The maximum length of a Session ID message is 10 alphanumeric characters

For example, to query the Antares' version using the Session ID, use:

>QVR;SI=123ABC<

The response will include the Session ID used:

>RVR ANTARES GPS 05.30;SI=123ABC;ID=test<



Binary Full MDT Mode.

New MDT mode that allows to use the full range of binary characters.

This new MDT mode does not have any user defined escape character or any defined Packet delimiters. This allows that any binary character can be sent to an accessory connected to Antares' serial port. To activate the Binary Full MDT mode, use the TAIP message:

>SMTH<

There are only two ways to deactivate the Binary Full MDT mode. One way is to send via the serial port the string:

EXIT_COMMDATA

as a single packet. The other way is to send the TAIP message:

>SMTN<

over the air.



Store & Forward Thresholds.

The Store & Forward Thresholds allow to create reports based on the number of stored events in the Store & Forward Buffer of a particular Destination Point.

The TAIP message used to define the Store & Forward Thresholds is:

>SXAGF<

The H signals were created to associate up to five Store & Forward Thresholds :

For example, to create a threshold of 100 messages for Destination Point 00:

>SXAGF00N000100<

This message will set signal H00 to true when the Store & Forward Buffer for Destination Point 00 has 100 messages stored.

This thresholds can also be define with a percentage value:

>SXAGF01P000050<

This message will set signal H01 to true when the Store & Forward Buffer for Destination Point 00 reaches 50% of the total messages that can be stored.



OBID Interface Support.

Use the vehicle's OBD parameters to generate reports based on Engine's RPM, Throttle Position, Speed, Acceleration, Odometer, Fuel Level, Fuel Consumption Rate, Ignition State, and Malfunction Indicator Light.

The OBD interface support allows Antares to use driving metrics and other parameters taken directly from the vehicle for more precise reports that depend on this metrics and parameters. To use this driving metrics a new MDT mode was create. This mode is activated using the **O** mode of the **MT** TAIP message:

>SMT0<

When this mode is activated, the driving metrics can be consulted. It is important to note that not all the parameters are supported by all vehicles and not all vehicles are supported. To consult the communication state between Antares and the OBDII interface use the TAIP message:

>SXAOS0<

This message will also indicate which parameters are supported by the vehicle. For example, Antares may reply to this TAIP message like this:

>RXAOS05;00;01;02;08;09;22;99<



OBD Interface Support. (cont.)

Five new TAIP messages were created which allow to create thresholds based on the parameters supported that can be used to generate reports. Each message has a *signal* and a *extended EV tag* associated to them. These new messages are:

XAOE

This message allows to create up to five thresholds based on the vehicle's Engine RPM. The associated signal is: **OE**. The extended EV tag is: **;OE**. For example, to set RPM threshold 3 to 5000 RPM, use:

```
>SXA0E3105000<
```

XAOT

This message allows to create up to five Throttle position thresholds. The threshold value is given in percentage. The associated signal is: **OT**. The extended EV tag is: **;OT**. For example, to set throttle threshold 2 to 70 percent, use:

```
>SXA0T21070<
```

XAOF

This message allows to create up to five Fuel Level thresholds. This fuel level is presented in a percentage value. The associated signal is: **OF**. The extended EV tag is: **;OF**. For example, to set Fuel Level percentage threshold 1 to 5 percent, use:

```
>SXA0F11005<
```



OBID Interface Support. (cont.)

XAOG

This message allows to create up to five Fuel Level thresholds. This fuel level is presented in Gallons remaining. The associated signal is: **OG**. The extended EV tag is: **;OG**. For example, to set Fuel Level threshold 1 to 10 gallons remaining, use:

>SXAOG11010<

XAOR

This message allows to create up to five Fuel Consumption rate thresholds. The threshold value is given in gallons per hour. The associated signal is: **OR**. The extended EV tag is: **;OR**. For example, to set Fuel rate threshold 1 to 5 gallons per hour, use:

>SXAOR11005<

Additional to the signals associated the previously mentioned TAIP messages, five more signals are available:

OS0:	Status: Communicating with vehicle.
OS1:	Status: Communication Check Sum error.
OS2:	OBID Vehicle Ignition State.
OS3:	Vehicle Malfunction Indicator Light (MIL) (Check Engine Indicator)
OS4:	Secondary OBID tool connected .

For additional information on the OBID Interface Support, please refer to the **AN0014E OBID INTERFACE BG ANTARES** application note.





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END

For more information consult the Antares' Manual.

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