

Version 25



Trapeze

Enterprise Asset Management

Telematics

MAXQueue Module Guide

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Technical Support

Trapeze provides several ways to connect with the Customer Care team. Please provide detailed information to the representative. If you are reporting an issue by e-mail, include any error messages, screen shots of your problem, and steps to replicate the issue.

Customer Care is available Monday through Friday, 8:00 a.m. to 8:00 p.m., Eastern Standard Time.

Toll-Free Telephone: 1-877-411-8727

E-mail: cc@trapezegroup.com

FTP Site: <https://ftps.trapezegroup.com/>

Web Site: <https://collaborate.trapezegroup.com>

The website provides access to Trapeze Collaborate which offers resources to implement and operate the software, search knowledge, participate in communities, log/track service requests, sign-up for release alerts, view product health recommendations, and download updates or documentation. For secure access to Collaborate, contact Customer Care through the website or by calling the number above.

Product Compatibility

Refer to the latest [Product Compatibility](#) information on Trapeze Collaborate for requirements including operating system information, databases, Crystal reports, network protocol, HTTP servers and browsers that are supported.

Telematics Integration – MAXQueue Module Guide

Version 25.x

February 2025

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1. Overview

As vehicles and their on-board technology have become more sophisticated, so has the ability to gather and track the data associated with that vehicle via telematics. There are numerous sensors and systems within a vehicle to monitor its performance.

Cloud Telematics technology is integrated in real time with the FleetFocus maintenance management system. This gives fleet managers quick and easy access to vehicle location as well as diagnostics and vehicle maintenance alerts without having to switch to another application. Additionally, real-time meter readings are sent directly from the vehicle to FleetFocus which saves time, increases accuracy, and allows for timely scheduling of preventive maintenance.

If Cloud Telematics detects a diagnostic problem in a vehicle, a service request is automatically generated in FleetFocus. This helps streamline maintenance and reduce vehicle downtime. By knowing potential component failures ahead of time and being proactive with preventive maintenance scheduling, maintenance professionals can reduce the cost of repairs on the vehicle and ultimately increase that vehicle's uptime.

2. Setup

The following setup information is for customers who have purchased Cloud Telematics which also includes the Telematics Module. The following information provides details on how to properly configure the alerts, diagnostics, odometer, and how to configure the Cloud Telematics interface to communicate with your asset management system.

Requirements

The Cloud Telematics module uses a combination of MAXQueue services, the MAXQueue.TelematicsCloudlibrary, and the MAXQueue.Telematics library to communicate Cloud Telematics data through the MAXQueue Telematics API and into the asset management system.

You must register and receive a client ID for use with Cloud Telematics.

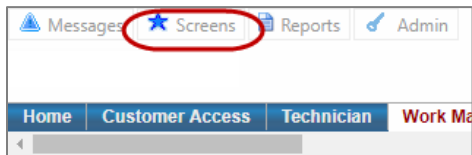
Components

MAXQueue

- Install MAXQueue base.
- Install and Configure the Cloud Telematics module.
- Create or load supporting lookup data by executing CreateTMDData.sql/LoadTMDData.sql.

System Configuration

To configure the system, in Web Modules, click the **Screens** shortcut to open the Enterprise Portal. Use the following Telematics screens to configure information as necessary.



Telematics – Alert Actions

Telematics - Alert Actions

Search Reload Sort Select Filter Select Sort New Copy Delete Edit Save Cancel

Row #	Source type	Subsystem code	Element code	Asset category ID
-------	-------------	----------------	--------------	-------------------

Source type

Basic Info

Subsystem code

Element code

Asset category ID

☐ Track occurrences

Action type: SERVICEREQUEST, SERVICEREQUESTWITHWO, NONE

- In the **Action type** choice-list, select whether you want to create a service request (SERVICEREQUEST) or service request with a work order (SERVICEREQUESTWITHWO) for a given alert (subsystem code/element code/asset category).
- Check the **Track occurrences** checkbox to enable occurrences to be tracked for a service request. Leave unchecked to not track these occurrences.

Telematics – Symptom Lookup

Telematics - Symptom Lookup

Search Reload Sort Select Filter Select Sort New Copy Delete Edit Save

Row #	Source type	Subsystem code	Element code	Symptom

Source type

Basic Info

Subsystem code

Element code

Symptom

Asset category ID

Configure the Symptom code that will be associated with the given alert for cases where a service request is created.



ANY can be specified as a wildcard for a subsystem code/element or code/asset category. If it is not clear what element deserves a service request, you can start by using the ANY wildcard for these values.

3. Telematics Cloud

The Telematics Cloud service can process alerts, odometer, position and diagnostics warnings from the Telematics Cloud.

Configuration

Configure the Variables

In MAXQueueDesigner on the Settings tab, create (or verify if they already exist) the following variables:

Global Variables

Variable	Value
vars.AppUser	[Set to a Valid Application UserId]
vars.AppUserPassword	[Set to a Valid Application Password]

Instance Variables

Variable	Value
vars.TMOdometerMapping	This is optional. This is a semi-colon separated list of FA/EAM Meter Types that represent distance meters.
vars.TMHoursMapping	This is optional. This is a semi-colon separated list of FA/EAM Meter Types that represent time meters.

Service Variables

Variable	Value
vars.APIUrl	Defaults to https://telematics.assetworks.com/api/ which is the end point for accessing the cloud telematics data.
vars.ClientId	This is an ID specific to the client, which provides access to client data.
vars.ProcessDiagnostics	Y or N . If set to Y , then Diagnostic (or Measurement) data will be returned.
vars.ProcessAlerts	Y or N . If set to Y , then Alerts will be created for “Faults” that are reported; optionally a WO will be created.

Variable	Value
vars.ProcessOdometer	Y or N . If set to Y , then Meter readings for the equipment will be updated.
vars.ProcessPosition	Y or N . If set to Y , then Position readings for the equipment will be updated.
vars.WOWorkClass	If an alert triggers a work order to be created, this is the work class that is used on the work order.
vars.DiagnosticCodesToSelect	This may contain a semi-colon separated list of diagnostic codes or measurement codes to select. If left blank, all codes are selected.
vars.VehicleNotFound	Values available are ERROR or SKIP. • SKIP: If the VIN being processed is not found in the application, no MAXQueue error is logged. • ERROR or blank: If a VIN is not found, the following message is logged in the MAXQueue Error Log: <i>Telematics Cloud reported data for a vehicle(s) with the following vins, but there where no vehicle(s) in Fleet Equipment with these vin(s). The telematics data for these vehicle are being skipped. Update Fleet Equipment with these vehicle and future telematics data will be processed. This error cannot be reprocessed-please delete. VINs not reported:</i> <i>[List of VINS]</i>
vars.VIN	For testing purposes only; this processes only this single VIN.
vars.AppClientId	For internal use: Do not change
vars.AppClientToken	For internal use; Do not change
vars.FromDateTime	For testing purposes only; this process from this date and time: e.g. 2018-10-22T18:00:00Z
vars.UseMockService	For testing purposes only; this bypasses the actual call to the web service and serves up fake data.
vars.LogWSCall	For install use: Do not change

Interfaces and Notifications

The following section gives a brief overview of each interface within the telematic library that interacts with, and uses, Cloud Telematics data.

As previously mentioned, the interface has common workflow settings for determining how often, along with the amount of telematic data being consumed. Also, each have default variables which can be configured to specific customer needs:

- **Timer:** Determines how often each service will run.

Alerts

This service queries Cloud Telemetry for vehicles that have alerts. For each alert, telemetry data is recorded. When the alert type is for a service order, a service request and work order are created. When there are no alerts then nothing for that vehicle flows through the remainder of the workflow.

Diagnostics

This service retrieves and processes diagnostic (measurement) data retrieved from vehicles with telematic devices.

Notes

- **vars.DiagnosticCodesToSelect:** This may contain a semi-colon separated list of Diagnostic Code/Masurement Code to select. If left blank, all codes will be selected.
- **vars.TMHoursMapping:** If the vars.TMHoursMapping and Meter 2 source is set to HOURS, and if the MId code is ENGHRS, the service will update Meter 2 with the MId value.
- **VIN:** If entered, this workflow is limited to only this VIN.
- Multiple Meter Source values can be separated by a comma in the vars.TMHoursMapping variable.

Meter

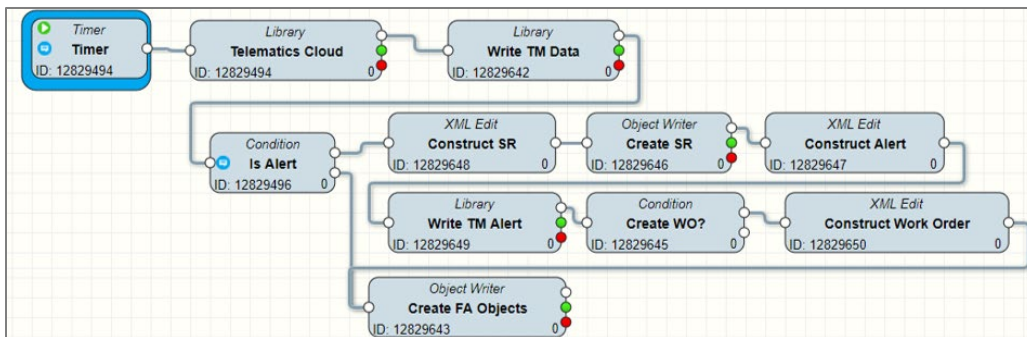
This service retrieves meter reading for all equipment with Could Telematics devices and updates the assets meter reading in the asset management system.

Positions

This service retrieves the GPS data (current and historical) for all equipment with Cloud Telematics devices installed and stores it in the asset management system.

Interface Notes

- The above MAXQueue variables are required for proper Cloud Telematics configuration. Other variables may be necessary for proper Telematics setup (for example, vars.UseODBIICode and vars.TMHoursMapping).
- Telematics does not support setting both Meter 1 and Meter 2 as the same meter type (for example, they cannot both be set as time).
- Enable the following service for Telematics Cloud:



Configure the Adapters

Timer: This setting determines how often the service runs. By default, it runs every 15 minutes.

Timer

☐ Requires Review

Description: Timer

Properties

Execution Type: Frequency

Process Every: 15 Minutes

Comments

By default, this service runs over 15 minutes.

This service looks at our Telematics Cloud and updates the APP with telematics related data.

**Notes:**

- If the VIN from Telematics Cloud cannot be found in the asset management system, a MAXQueue error is logged. This is the same message described in the table above for *vars.VehicleNotFound*.
- This service uses the Telematics Cloud license and a license is needed for each piece of equipment. Each piece of equipment has a **Supports Telematics Cloud** option. Each piece of equipment processed by this service is only processed if this flag is on. If the flag is off, the service will attempt to turn it on. If it succeeds, then everything processes correctly. However, if it fails because the clients have met or exceeded their license count, then this VIN is not processed and the following MAXQueue error is logged:

The vehicle <VIN> has telemetry data from CloudTelemetry but is not marked as Cloud Enabled. You are currently at your license limit for CloudTelemetry and therefore this Cloud Telemetry is not being stored by the CloudTelemetry MAXQueue Service. Application message is: Maximum number of telematics cloud assets exceeded - PR-ERR: 2602 Element: SupportsTelematicsCloud. This message cannot be re-processed; it is informationally only. Please update your TelematicsCloud license count and delete this message.

Telematics Cloud – License Check

The Telematics Cloud – License Check MAXQueue service provides a notification when the number of Telematics Cloud licenses used is within a certain percentage of the total available.

For example, if you are licensed for 500 Telematics Cloud units within the asset management system, and are currently using 460 licenses, and the service is configured to notify you when you are within 10% of your remaining licenses, then you will be notified. Ten percent of 500 is 50, so you will be notified when your count is at or above 450.

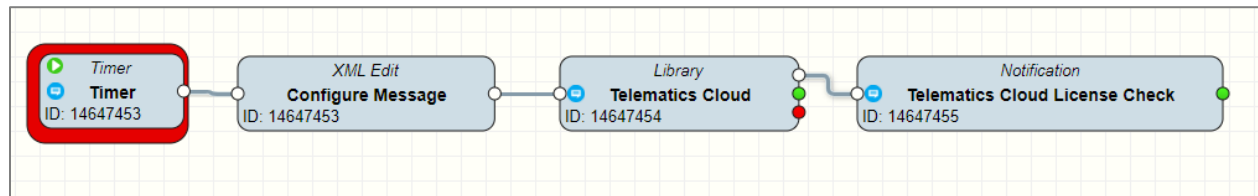
Configuration

Variable	Value
vars.NotifyWhenCountWithinPercentOfMax	This defaults to 10. 10 is 10%.
vars.EmailAddressToNotify	Semicolon separated list of email addresses where this notification should go. This is optional
vars.AppUserToNotify	Semicolon separated list of application users to notify. This is optional.
vars.UseHtmlForNotification	Accepts values Y or N. If set to Y, it will wrap the notification in the HTML template that is specified in vars.HtmlTemplate.

Variable	Value
vars.HtmlTemplate	If vars.UseHtmlForNotification is Y, then this is the name of the HTML template found in the directory HTML/HTMLTemplate. If this is left blank, it defaults to HTMLEmail.html.



NOTE: While both *vars.EmailAddressToNotify* and *vars.AppUserToNotify* are optional, at least one of the two options must have an entered value.



Default Message

Message Type	Message Area	Text
Default Message	Subject	Telematic Cloud – Approaching License Limit
	Body	You are currently licensed for a maximum of [LicenseMaxCount]. You are currently using [LicenseCurrentCount] of those. The places you within [CurrentPercentOfMax] of the number of licenses available.

4. Telematics

Configuration

1. Execute the *CreateTMDData.sql* and *LoadTMDData.sql* scripts as emsdba. These scripts load all the telematic data that can be captured.

```

LoadTMDData.sql
-- run while logged in as EMSDBA

SET define off

INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '0', 'Data valid but above normal operational range');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '1', 'Data valid but below normal operational range');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '2', 'Data erratic, intermittent, or incorrect');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '3', 'Voltage above normal or shorted high');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '4', 'Voltage below normal or shorted low');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '5', 'Current below normal or open circuit');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '6', 'Current above normal or grounded circuit');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '7', 'Mechanical system not responding properly');
INSERT INTO TM_ALERT_RANGETYPE (row_id, source_type, code, description)
VALUES (UNIQUE_ROWID.nextval, 'J1708', '8', 'Data valid but above normal operational range');

```

2. Create a new symptom called TROUBLECODE.

- i. In Enterprise Portal, open the Symptoms screen.

The screenshot shows the 'Symptoms' screen in Enterprise Portal. The sidebar on the left contains the following tabs: Basic Info, Manufacturers, Asset Categories, Corrections, Reporting Sources, Procedure Info, and Related Symptoms. The 'Basic Info' tab is selected, showing a form with the following fields: Name (text input), Description (text area), Severity (dropdown), Comment (text input), and Rank (text input). Below the form is a table titled 'Supported tasks' with columns: Row #, Delete, Task ID, and Task description. The table is currently empty.

- ii. Create the new symptom: TROUBLECODE. This symptom code is the default used when generating Service Requests.
- iii. Enable the following settings for the symptom:
 - On the Asset Categories tab, check **Supports all asset categories**.
 - On the Reporting Sources tab, check **Supports all reporting sources**.
- iv. Save the symptom code.

3. Create a Meter Source for TELEMATICS.

- i. In Enterprise Portal, open the Meter Source screen.

The screenshot shows the 'Meter Source' configuration page. At the top, there's a dark blue header with the title 'Meter Source'. Below the header is a light gray toolbar containing icons for Search, Reload, and Sort, along with dropdown menus for 'Select Filter' and 'Select Sort', and buttons for 'New' and 'Copy'. On the left side, there's a sidebar with a tab labeled 'Basic Info'. The main content area has a 'Meter source ID' input field. Below this, there's a 'Basic Info' section with two checkboxes: 'Required by the system -- cannot be deleted' and 'Update the last meter read source and date if the new meter reading is the same as the old reading'.

- ii. Create the TELEMATICS meter source.
 - iii. Check the **Update the last meter read source and date if the new meter reading is the same as the old reading** option.
 - iv. Save the meter source.
4. Set up the alert actions.
 - i. In Enterprise Portal, open the Telematics – Alert Actions screen.
 - ii. Check the **Track occurrences** option to track the action being created. Also, for for a given alert (source type/subsystem, code/element, or code/asset category) set the following **Action type** if desired:
 - Create a service request (select **SERVICEREQUEST**)
 - Create a service request with a work order (select **SERVICEREQUESTWITHWO**).
 - Only track the alerts if received Fault Codes generate an action of creating a Service Request (specify **NONE**).

Telematics - Alert Actions

Search Reload Sort Select Filter Select Sort New Copy Delete Edit Save Cancel

Row #	Source type	Subsystem code	Element code	Asset category ID
-------	-------------	----------------	--------------	-------------------

Source type

Basic Info

Subsystem code

Element code

Asset category ID

☐ Track occurrences

Action type

- SERVICEREQUEST
- SERVICEREQUESTWITHWO
- NONE

iii. Click **Save** when complete.

Functionality

Telematic data is defined in the following tables:

- Subsystem Codes (stored in TM_SUBSYSTEM_LOOKUP)
- Elements (stored in TM_ELEMENT_LOOKUP)

Types of scenarios that the Telematics module can process:

- Alerts (stored in TM_ALERTS)
- Diagnostic Readings (stored in TM_READINGS)
- Odometer readings (stored in EQ_METER_READ)
- Position info (stored in EQ_POS)

Odometer readings, position info, and diagnostic readings do not require any system-related setup. For those readings, it is purely MAXQueue writing to the telematic tables in the asset management system without any filters or restrictions applied. It is only the alert transactions that use the Telematic screens, and as a result require that those screens are configured.

To retrieve odometer and position readings, the information is stored on the equipment primary record, Fleet Equipment screen. Diagnostic readings currently can only be retrieved by creating an ad hoc report using the TM_READINGS table.

Alerts Workflow

The following information is the process workflow for alerts:

1. MAXQueue processes an alert into the Telematics – Alerts screen.
 - Alerts can automatically generate service requests (seen on the Service Requests/Defects screen).
 - Alerts can automatically generate a linked pair of a service requests and work Orders (seen on the Work Order Center screen).
2. To clear the alert, on the Telematics – Alerts screen check the **Acknowledged** checkbox.



Note: If the same alert occurs for this vehicle a second time, and this box has not been checked, MAXQueue will not generate another service request or work order.



Note: If a service request is rejected, the Acknowledged flag will be updated.

Telematics - Alerts

ADMIN MODECHANGE REQUESTHELPPREFERENCESMENU

Search

Reload

Sort

Select Filter

Select Sort

New

Copy

Delete

Edit

Save

Cancel

Export

Report

Row #

Equipment ID

Subsystem

Element

Basic Info

Codes

Equipment ID

Alert key

Basic Info

Subsystem

Element

Description

Severity

Action type

Number of occurrences

Symptom

Meter 1 reading

☐ Acknowledged

Begin date and time

End date and time