ProTHeV

A Better Way To Test

User Manual: Version 0.1.0

July 1st, 2025

© Vidny Software Solutions

Contents

© Vidny Software Solutions

1 Introduction

ProTHeV is a software solution designed to assist automotive vehicle product development teams in Testing, Homologation, and Engineering Validation activities. The current version, 0.1.0, supports the fundamental functions of automotive safety performance testing. ProTHeV enables organizations to gather product data, generate product safety performance test requests, and track tasks that are awaiting input.

Future versions of ProTHeV will also support features such as Simulation planning which will help managers in software and manpower requirements planning for Computer Aided Engineering (CAE) simulations. In addition, future versions are planned to automate test series planning which will help managers to plan for ordering vehicles, subassemblies and components.

2 System Setup

2.1 ProTHeV API Server

2.1.1 System Requirements

The recommended minimum requirements for the processor, RAM, and hard disk vary based on the number of simultaneous users. The specifications provided here are applicable for 1 to 50 users.

Specification	**Minimum Recommended Requirement**
Processor	A 4-core processor
RAM	8 GB RAM
Hard Disk	256 GB Note: This is an estimated space for media storage and will increased depending on images uploaded in the system.
Operating System	Windows Server 2022 or newer Ubuntu Server 22.04.5 LTS or newer
Application Platform	Node.js 22.13.1 LTS
Database Server	PostgreSQL 17.2
Single Sign On (SSO) Identity Provider	Any SSO implementation with OAuth 2.0 Authorization Code Flow
Email Service	Azure Communication Services Amazon SES SendGrid
Message Broker	Redis 7.4 Node.js 22.13.1 LTS

2.1.2 Installation Instructions

a. Install Node.js version as per system requirements.
b. Create an OAUTH2 client in the SSO identity provider.
c. Create a database in your PostgreSQL Server.
d. Configure message broker and create authentication url if you are using Redis.
e. Extract ProTHeV software package and move the prothev-server directory to the desired location.

f. Configure application environment using the .env.template file in the prothev-server directory. This file defines environment variables for required services, such as PostgreSQL database.
g. Refer your operating system manual to configure firewall and open port configured in the server .env file above.
h. Note down the URL for the API server.

2.2 ProTHeV Application

2.2.1 System Requirements

ProTHeV is a modern Single Page Application built using React 18.2 and as such can be used with any web server capable of hosting static web applications.

Specification	Minimum Recommended Requirement
Web Server	• Nginx 1.26.2 • Apache 2.4.63

2.2.2 Installation Instructions

a. Extract ProTHeV software package and move the prothev-app directory to the desired location.
b. Configure your web server to serve the ProTHeV application from the extracted location.
c. The web server configuration must use index.html as the default file to serve as well as the fall back file to serve if the requested URL doesn't exist. ProTHeV uses react router and this configuration is critical for normal operation.
d. Note down the URL at which ProTHeV application is accessible.

3 User Interface

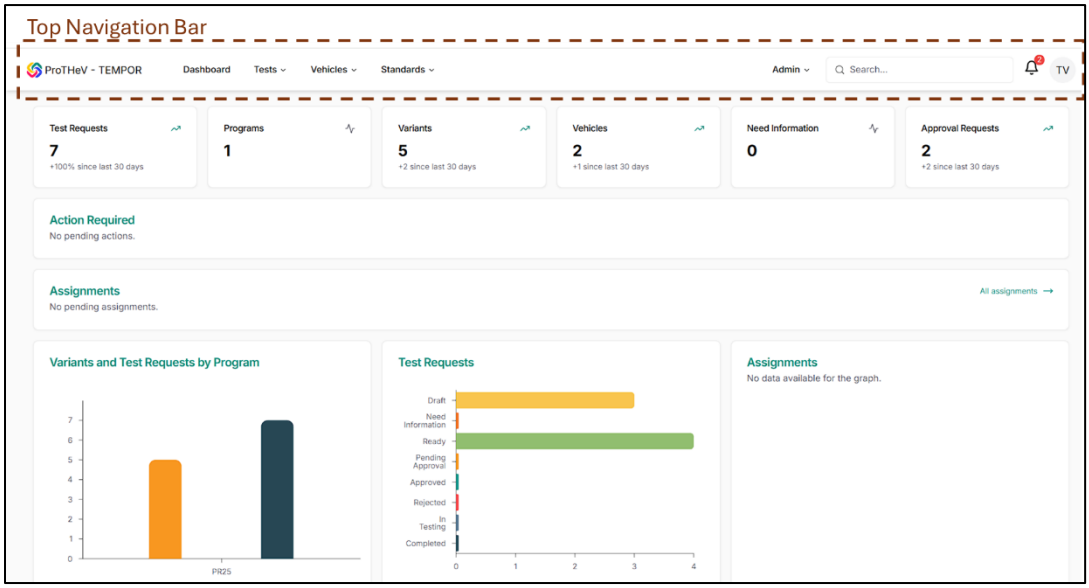

Figure 1 ProTHeV Dashboard

- ProTHeV includes a top navigation bar that remains visible on all screens for easy access to areas of interest for the user.
- Upon login, the ProTHeV Dashboard displays a summary of the number of vehicles, test requests, assigned tasks, and pending tasks.

4 Administrator Setup

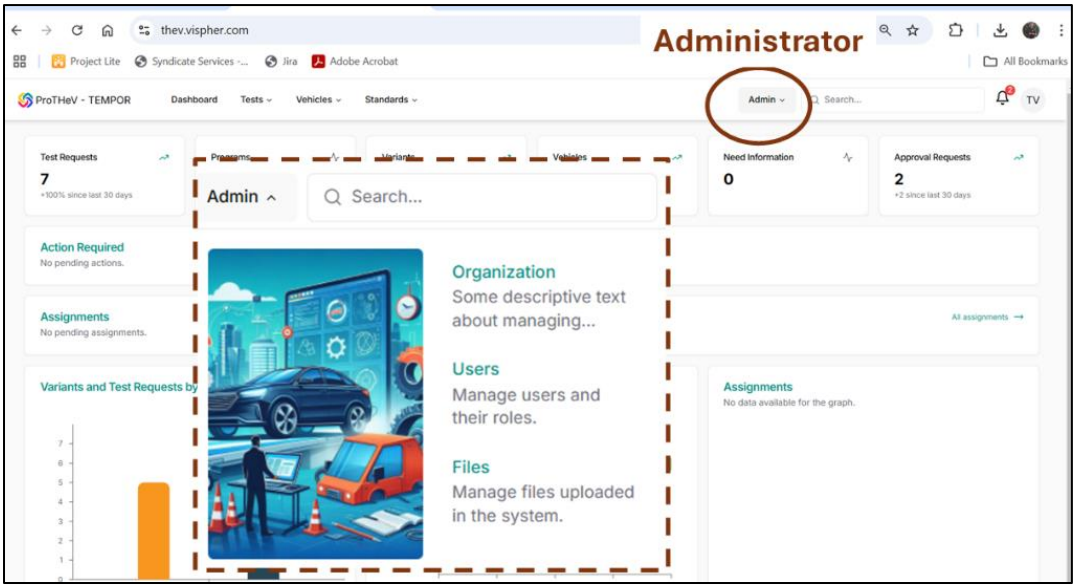

Figure 2 Administrator Settings

After installing the software, administrators can set organization-level options and manage users. Figure *2* shows the expanded Admin menu.

4.1 Organization

4.1.1 License

i. The License menu displays the file name, region, and validity.
ii. The administrator can update the license by uploading files.

4.1.2 Organization Details

i. Specify the Organization name
ii. Admin selects units for quantities needed to create a test request.

4.2 Users

a. Users can log in to the program using the organization's Single Sign-On (SSO) feature.
b. Administrators can assign a role to the user based on their intended use. There are four roles available:
   - **Member**: A general user assigned a task to obtain necessary input.
   - **Engineer**: An engineer is responsible for creating a variant and test request.
   - **Manager**: A manager can perform all the activities that an engineer does, in addition to being responsible for approving variants and test requests.
   - **Admin**: Can assign user roles, update licenses, and test standards.

5 Standards

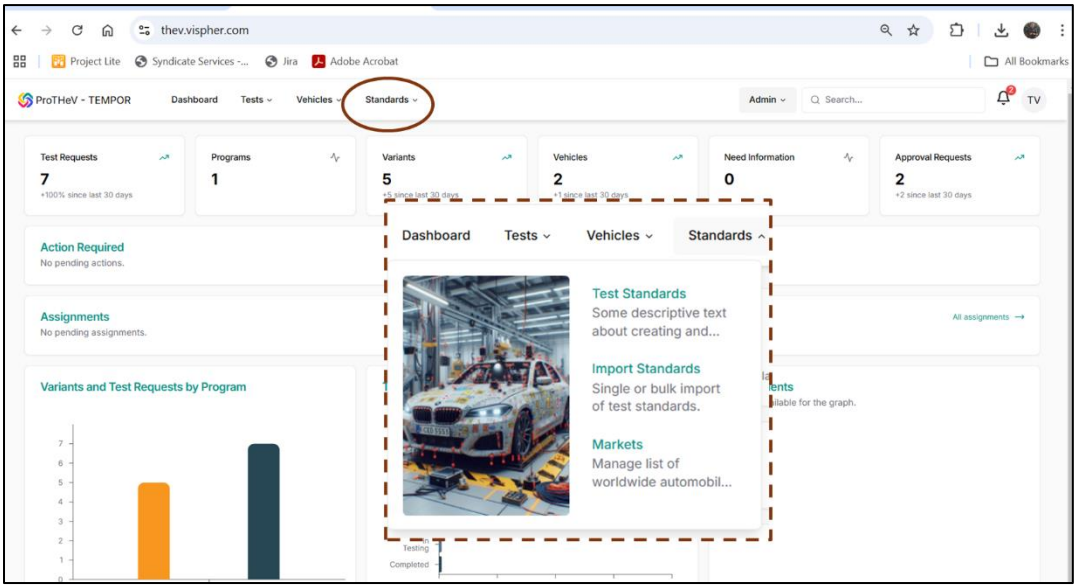

Figure 3 Test Standards

This page lists all the standards supported by the current version of ProTHeV. The "Year" field indicates whether the standard is in effect in 2025 or will be implemented later.

Market field indicates the geographical areas supported by the license, such as the European Union, North America, India, and China. The "Internal" market field is for defining OEM internal testing standards.

5.1 Import Standard

This feature allows users to import new standards that are not currently supported by ProTHeV.

5.2 New Standard

a. This feature allows users to establish a new standard, primarily for conducting internal tests related to sensing speed thresholds.
b. When a new standard is created using ProTHeV, the program automatically assigns two elements:
    - Market = Internal
    - Standard Type = Sensing
c. The user may specify the requirements for occupants and barriers, as well as determine the speed at which the test should be conducted.

5.3 Delete Standard

a. The deletion of a standard should be approached with caution, as it may lead to errors during the creation of test requests.
b. A standard cannot be deleted if it is linked to a test request.
c. Use this option is recommended only for internal test standards created with the "New Standard" menu.

6 Vehicles

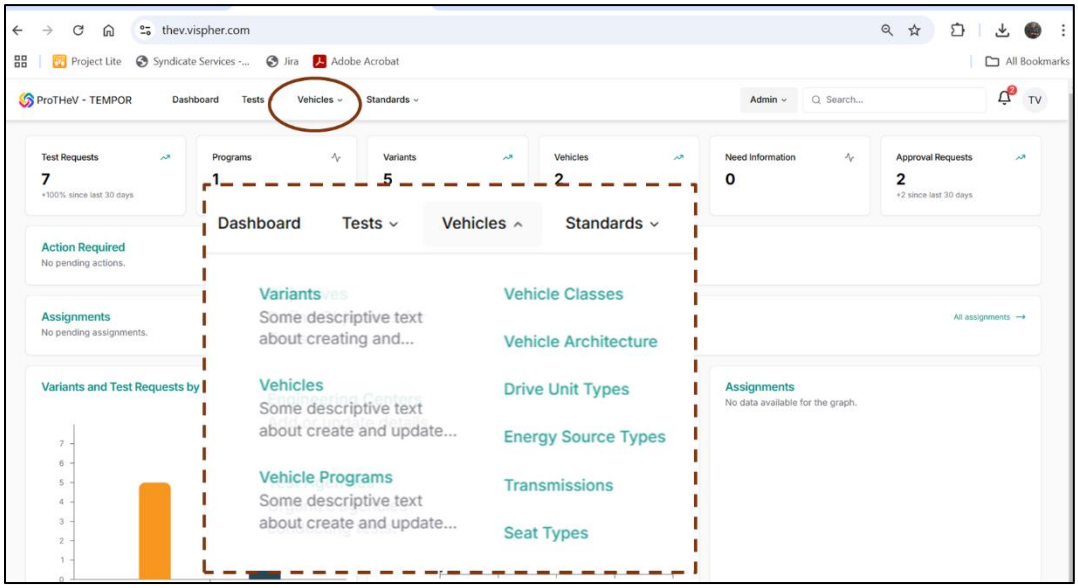

Figure 4 Vehicles Definition

Please follow these steps to create a variant before creating test requests.

6.1 Vehicle Class

Use “New Vehicle Class” to create classes like Sedan, SUV, MPV, PickUP, etc.

6.2 Vehicle Architecture

Use “New Vehicle Architecture” to create architectural details like Body on Frame, Monocoque, etc.

6.3 Drive Unit Type

Use “New Drive Unit Type” drive units like ICE-Longitudinal, ICE-Transverse, Electric AC Motor, etc. to create

6.4 Energy Source Type

Use “New Energy Source Type” to create energy sources like Gasoline, Diesel, CNG, Hydrogen, DC Battery, etc.

6.5 Transmission

Use “New Transmission Type” to create transmission type like Automatic, CVT, Manual, Direct Drive, etc.

6.6 Seat Type

Use “New Seat Type” to create seats as required like Single, Captain, Bench 100, Bench 40, Bench 60, etc.

6.7 Vehicle Program

Create “New Vehicle Program” as required.

6.8 Vehicle

Create “New Vehicle” specifying Vehicle Program, Model Year, Make and Model.

6.9 Variant

a. Establish a "New Variant" for a vehicle created in the previous step. A variant will be recorded in the database only when the following information has been provided:
    - Vehicle Details
    - Engine & Transmission
    - Steering Column
    - Vehicle Weights
    - Vehicle Dimensions
    - Bumper / Pedestrian Requirements
    - Thumbnail

b. Each new variant receives a unique ID, automatically generated by the system, for ProTHeV to store variant information. This ID is not related to any product specification.

c. The "Engineer" can enter the remaining information for the variant or assign it to another user within the organization to complete. The following sections need to be completed:
    - Attitude
    - Reference Points
    - Seating Layout
    - Restraints
    - Additional Details
    - ECU

6.10 Variant Status

a. Draft: Each new variant initially receives a “Draft” status by default. It remains in this status until all the required information is provided.

b. Ready: The status is updated to “Ready” once all required information has been submitted. Once the variant is “Ready”, the “Engineer” requests approval from the “Manager”.
c. Approved: The status changes to “Approved” upon manager's approval. Only approved variants can be used to create a test request.

6.11 Variant Dashboard

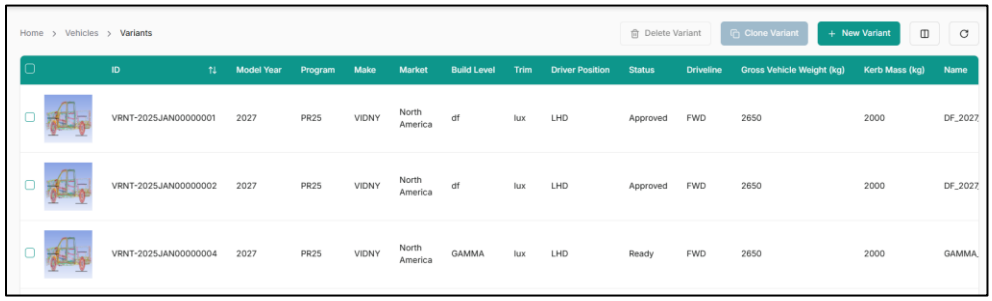

Figure 5 Variant Dashboard

a. The variant dashboard provides a summary of all variants available in the system. Columns in this table can be configured to display the necessary information.
b. Cone Variant: Create a new variant by cloning an existing one for minor changes. Cloned variants receive a new ID.
c. Delete Variant: A variant can be deleted if it is not currently associated with any test request.

7 Tests

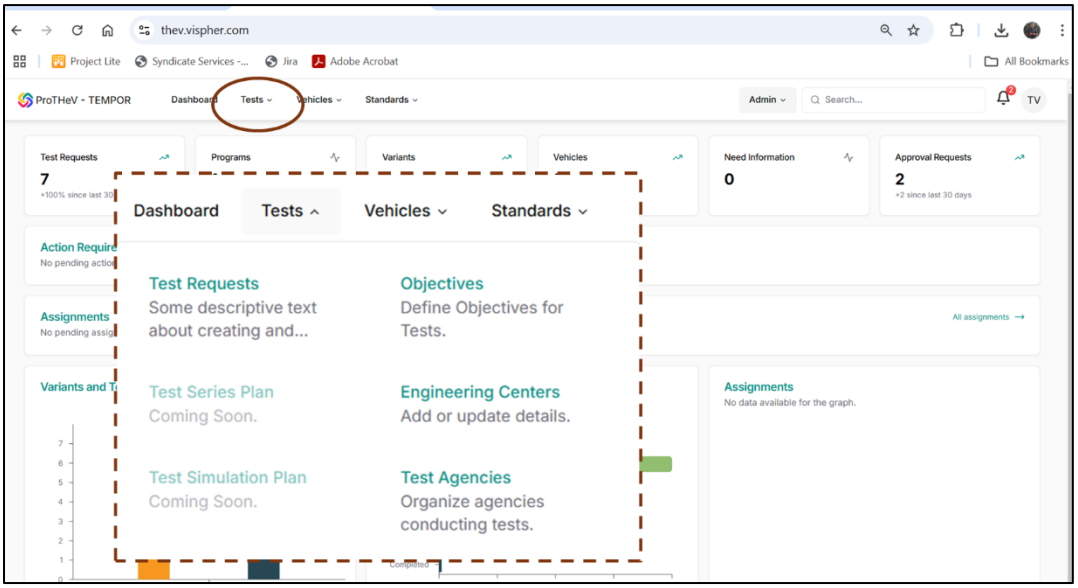

Figure 6 Test Request Menu

Figure 6 illustrates the menu that appears when "Tests" is selected on the main dashboard page. Please adhere to the following steps to create a test request.

7.1 Objectives

The test objectives, such as Compliance, Third Party, and Sensing, are determined based on the license file.

7.2 Engineering Centers

Establish new engineering centers in this menu for convenient reference when creating test requests.

7.3 Test Agencies

Create new test agencies here for quick reference when making test requests.

7.4 Test Requests

a. Create “New Test Request" to start. A Test Request will be recorded in the database only when following information has been provided:
   - Variant
   - Administrative Details
   - Test Agency
   - Test Summary

- Test Standard
- Test Configuration
- Test Asset Details
- Occupant Compartment Settings

b. Each new Test Request is assigned a unique identifier generated automatically by the system. This identifier is used exclusively by ProTHeV for storing test information.
c. The remaining information for the Test Request can be entered by the user or assigned to another individual within the organization to complete. These sections need to be completed:
    - Occupant and Seat settings
    - Restraints
    - Instrumentation, Contacts and Break switches
    - Painting Instructions
    - Target Markers
    - Cameras
    - Vehicle scans
    - Post Test activities

7.5 Test Request Status

a. Draft: New test requests start as “Draft” until all required information is provided.
b. Ready: Status changes to “Ready” when all information is submitted. The “Engineer” can then request approval from the “Manager”.
c. Approved: The status changes to "Approved" upon managerial approval.

7.6 Print Test Request

a. You can preview a test request using the “Print Preview” button and save it as a PDF for electronic distribution.
b. Print only "Approved" Test requests for electronic distribution.

7.7 Test Request Dashboard

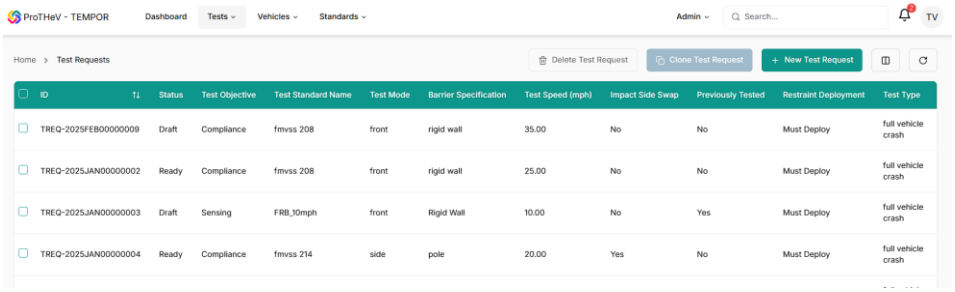

Figure 7 Test Request Dashboard

a. The Test Request dashboard summarizes all test requests in the system. Columns can be configured to display required information.
b. Clone Test Request: Create a new Test request by cloning an existing one for minor changes. Cloned requests receive a new ID.
c. You can delete an "Approved" Test Request.