User Guide

Brief description

The user guide aims to provide a first insight and quick hands-on experience with the truck platooning simulation platform. The proposed platform allows users to easily integrate their preferred software with it, due to its modularized structure design. For demonstration purpose, two demos, combining the proposed platform with PTV Vissim, are provided.

Requirements

To run the demos, ensure that the PTV Vissim software and a valid Vissim license are installed on your computer with the Windows operating system.

Vissim download

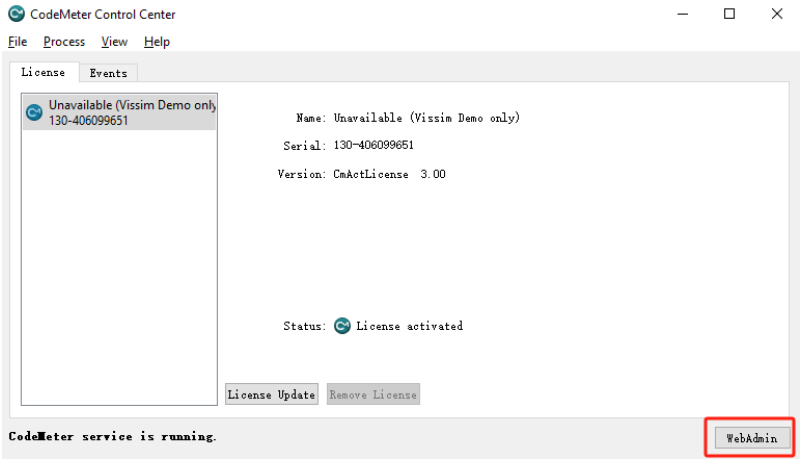
Go to this website https://cgi.ptvgroup.com/visionSetups/en/ to download the Vissim. Please note that only the 2022 or 2023 versions of Vissim can be downloaded. We recommend users to download the Vissim 2022, as shown in follow:

2023.00-13		PTV Vissim Kernel (Linux) Readme Document	Document	Download (pdf | 54 KB | 2024-02-15)
2023.00-13	64 bit	PTV Vissim Kernel (Windows)	Setup	Download (exe | 155 MB | 2024-02-15)
2023.00-13	64 bit	PTV Vissim Kernel (Linux)	Setup	Download (txz | 39 MB | 2024-02-15)
2022		Installation Manual	Document	Download (pdf | 1144 KB | 2022-04-26)
2022.00-13		Release Notes	Document	Download (pdf | 339 KB | 2023-08-23)
2022.00-13	64 bit	PTV Vissim	Setup	Download (exe | 1389 MB | 2023-08-23)
2022	64 bit	Service Packs	Updates	Go to Update Packages
2022.00-13		PTV Vissim Kernel (Linux) Readme Document	Document	Download (pdf | 53 KB | 2023-08-23)
2022.00-13	64 bit	PTV Vissim Kernel (Windows)	Setup	Download (exe | 186 MB | 2023-08-23)
2022.00-13	64 bit	PTV Vissim Kernel (Linux)	Setup	Download (txz | 36 MB | 2023-08-23)
2021		Installation Manual	Document	Download (pdf | 656 KB | 2022-05-11)

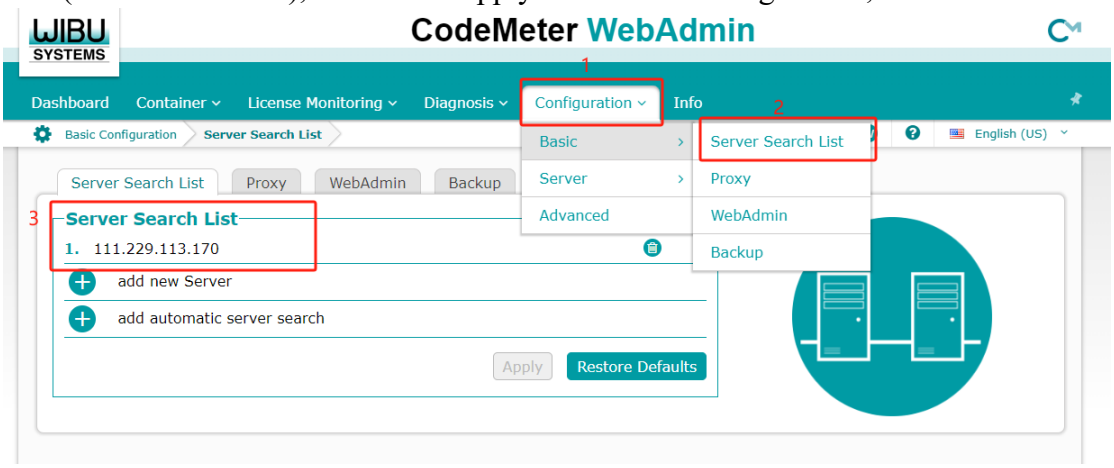
Vissim license

An academic license is provided by this research team. The license supports the version of Vissim 2022 and Vissim 2023. The user can configure the license by following these steps:

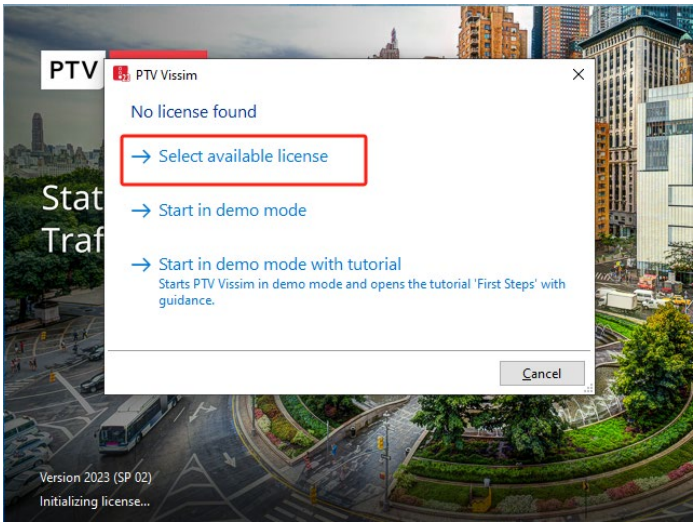
1. Search for ‘CodeMeter Control Center’ in the windows search bar and open it;
2. Click on ‘WebAdmin’ and open the ‘CodeMeter WebAdmin’ website;



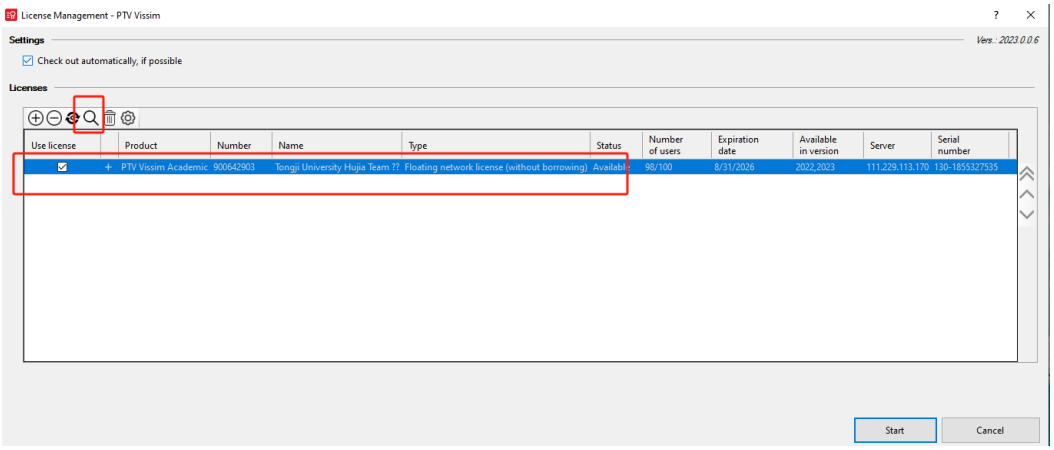
3. Add the new server ip: click on ‘Configuration -- Server Search List -- add new Server 111.229.113.170’. We recommend removing automatic server search (255.255.255.255), then click 'Apply' to save the configuration;



4. Open the vissim 2022, and choose the ‘Select available license’;



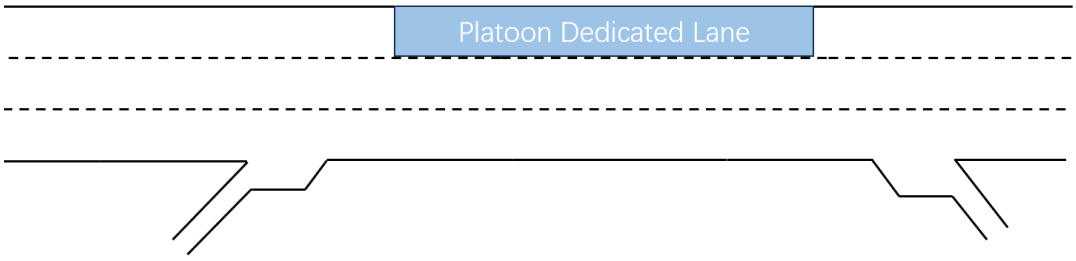
5. In the subsequent dialog box, click the magnifying glass icon to search for servers. After a moment, a server with the IP address 111.229.113.170 will appear in the dialog box. Select it and click ‘Start’.



Demo 1: Single-platoon lane-changing with background traffic

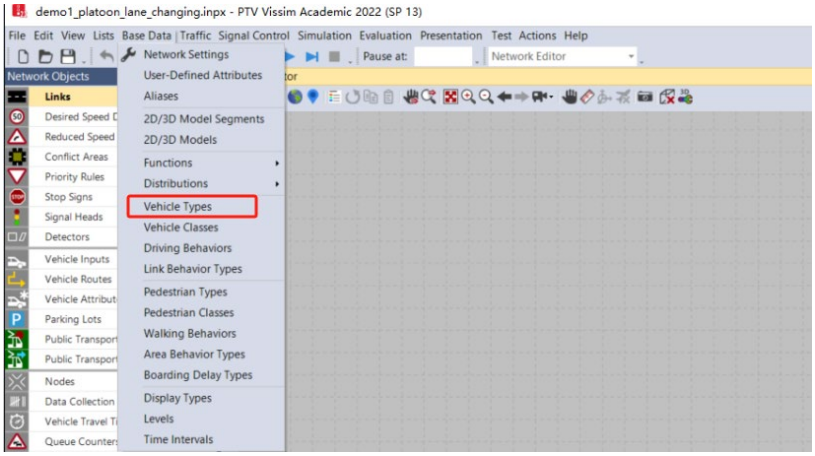
Scenario description

A single-platoon is generated at the beginning of on-ramp in the fifth minute. It merges onto the mainline and changes lanes to the platoon dedicated lane. As the platoon approaches the off-ramp, it changes lanes to exit. The platoon is with the background traffic throughout the simulation. The road network is as follows:

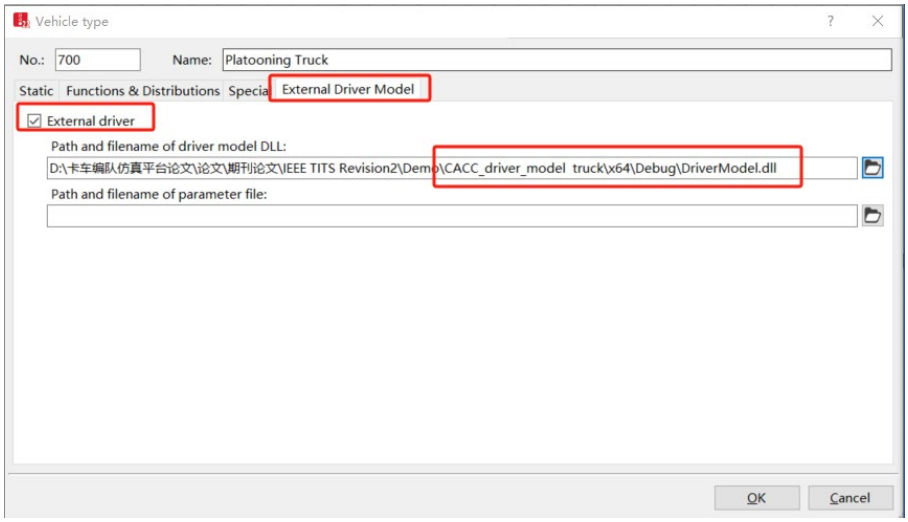


Quick start

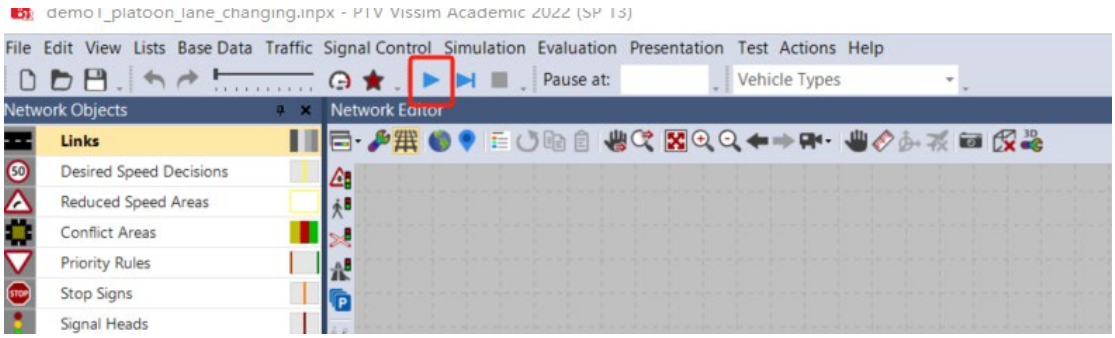
1. Open the ‘Demo1 single-platoon lane-changing with background traffic\ demo1_platoon_lane_changing.inpx’;
2. From the menu bar to choose ‘Base Data – Vehicle Types’;

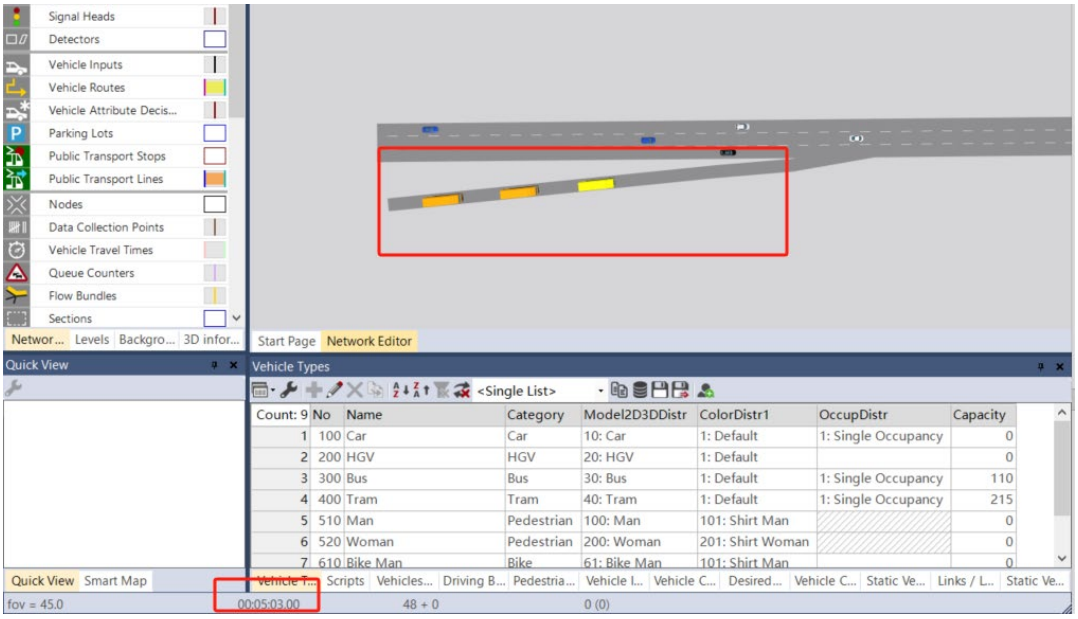


3. In the vehicle types list, double click the ‘Platooning Truck’ to open the dialog box. Select the external driver model, and import the DriverModel.dll from ‘CACC_driver_model truck\x64\Debug\’ directory. The DriverModel.dll is the library of truck platooning system, including truck platooning management and truck control modules;



4. Run the simulation. The truck platoon will be generated on the on-ramp in the fifth minute, as shown in the following figure. Users can observe the lane-changing behavior of the truck platoon and its interaction with background traffic in this demo.





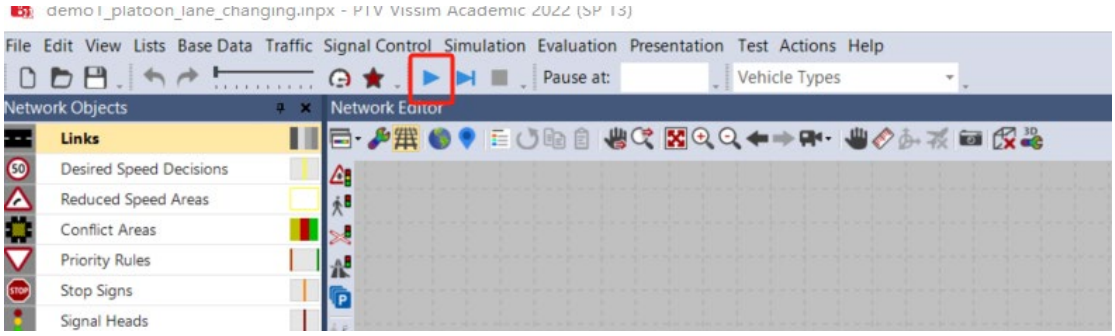
Demo 2: Multiple-platoon cruising with background traffic

Scenario description

Multiple truck platoons cruise on the freeway. The platoons travel amongst background traffic, as shown in the following figure.

Quick start

1. Open the ‘Demo2 multiple-platoon cruising with background traffic\ demo2_multiple_platoon_cruising.inpx’;
2. From the menu bar to choose ‘Base Data – Vehicle Types’;
3. In the vehicle types list, double click the ‘Platooning Truck’ to open the dialog box. Select the external driver model, and import the DriverModel.dll from ‘CACC_driver_model truck\x64\Debug\’ directory.
4. Run the simulation. Trucks will be generated at the beginning of the freeway. Users can observe platoon maneuvers such as formation and splitting in this demo.


demo1_platoon_lane_changing.inpx - PTV Vissim Academic 2022 (SP 13)
File Edit View Lists Base Data Traffic Signal Control Simulation Evaluation Presentation Test Actions Help
Pause at:
Vehicle Types
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Desired Speed Decisions
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Conflict Areas
Priority Rules
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Signal Heads