PUMATRONIX

ITSCAMPRO

ITSCAMPRO NM1

SOLUTION FOR DETECTING AND SCREENING NON-METROLOGICAL INFRACTIONS

Integration

Pumatronix Equipamentos Eletrônicos Ltda.

Rua Bartolomeu Lourenço de Gusmão, 1970. Curitiba, Brasil

Visit our website https://www.pumatronix.com

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Changes History

Date	Revision	Updated content
10/30/2024	1.0	Initial Issue, referring to software version 1.7.0

Overview

The purpose of this document is to guide the developer in the use of the operating interfaces available for the ITSCAMPRO NM1 software in version 1.7.0, the software responsible for detecting non-metrological infractions, for application in various traffic flow monitoring and management requirements. With the aim of monitoring vehicles that have committed some of the infractions provided for in the CTB - Brazilian Traffic Code, among those that the product detects, listed in the Product Manual.

Information on installing the equipment can be found in the Installation and Maintenance Guide. If in doubt, please contact Pumatronix technical support.

Depending on the software version applied to the device being accessed, the web access interface differs and some functions may only be available in the latest versions.

Summary

1. Web Interface

The home screen of the ITSCAMPRO NM1 System web interface has functions that are always visible and available for access:

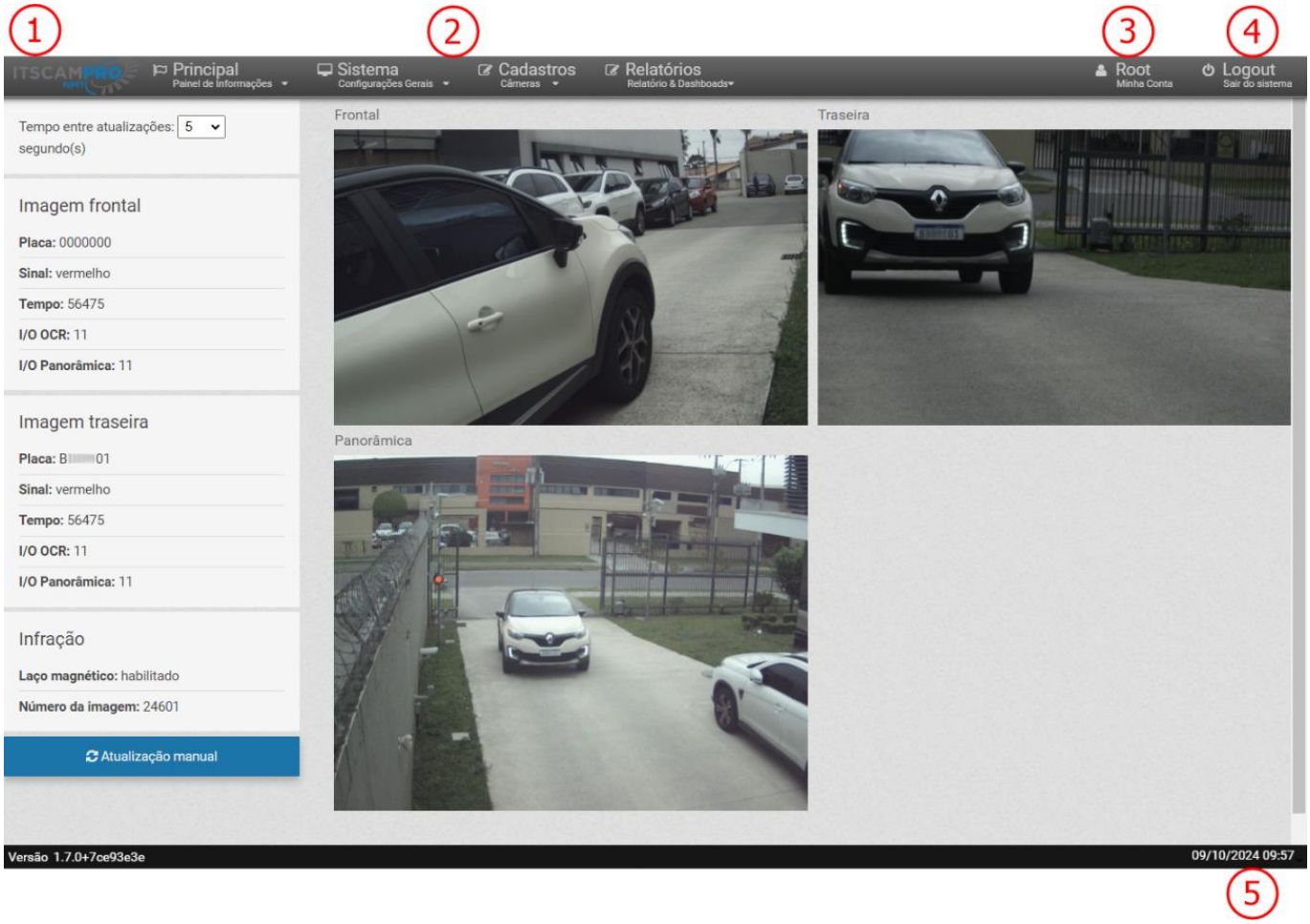

Figure 1 - Home Screen: 1) Home page access, 2) Menu Bar, 3) Account Data of the logged-in user, 4) Log-out function, 5) Status Bar showing Date and Time

2. Principal Menu

The *Principal* menu is the information panel of the ITSCAMPRO NM1 System through the *Visualização de Infrações* screens, the *Dashboard* table and the *Log do Equipamento* data.

2.1. Violation Visualization

Each log generated by the ITSCAMPRO NM1 System can be viewed in advance, in order to monitor the violations detected (1), the operation of OCR recognition by the devices (2) and the framing and quality of the images (3).

It is possible to set the *Time between updates* interval in second(s) by selecting between the options of 0.5, 1, 2, 3, 5, 7 and 10, or to carry out a *Manual update* by clicking on the button at the bottom of the screen.

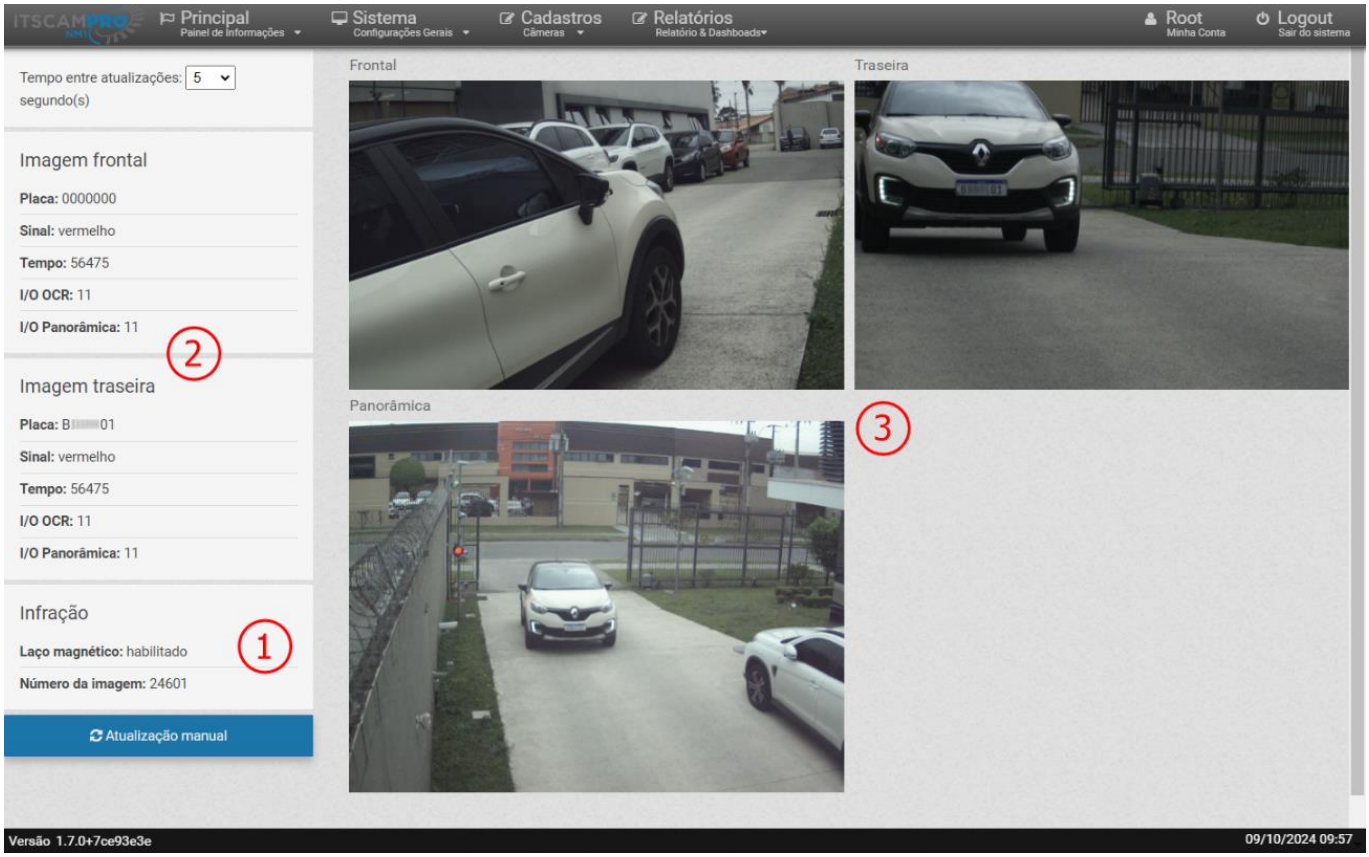

Figure 2 - Home screen of Principal > Visualizações

2.2. Dashboard

The *Dashboard* is the System Status control panel and displays *CPU*, *Memory*, *Disk*, *Send Queue* and *Service Uptime* data, which indicates how long the system has been operating without interruption. This screen also displays the installed *OCR Information*.

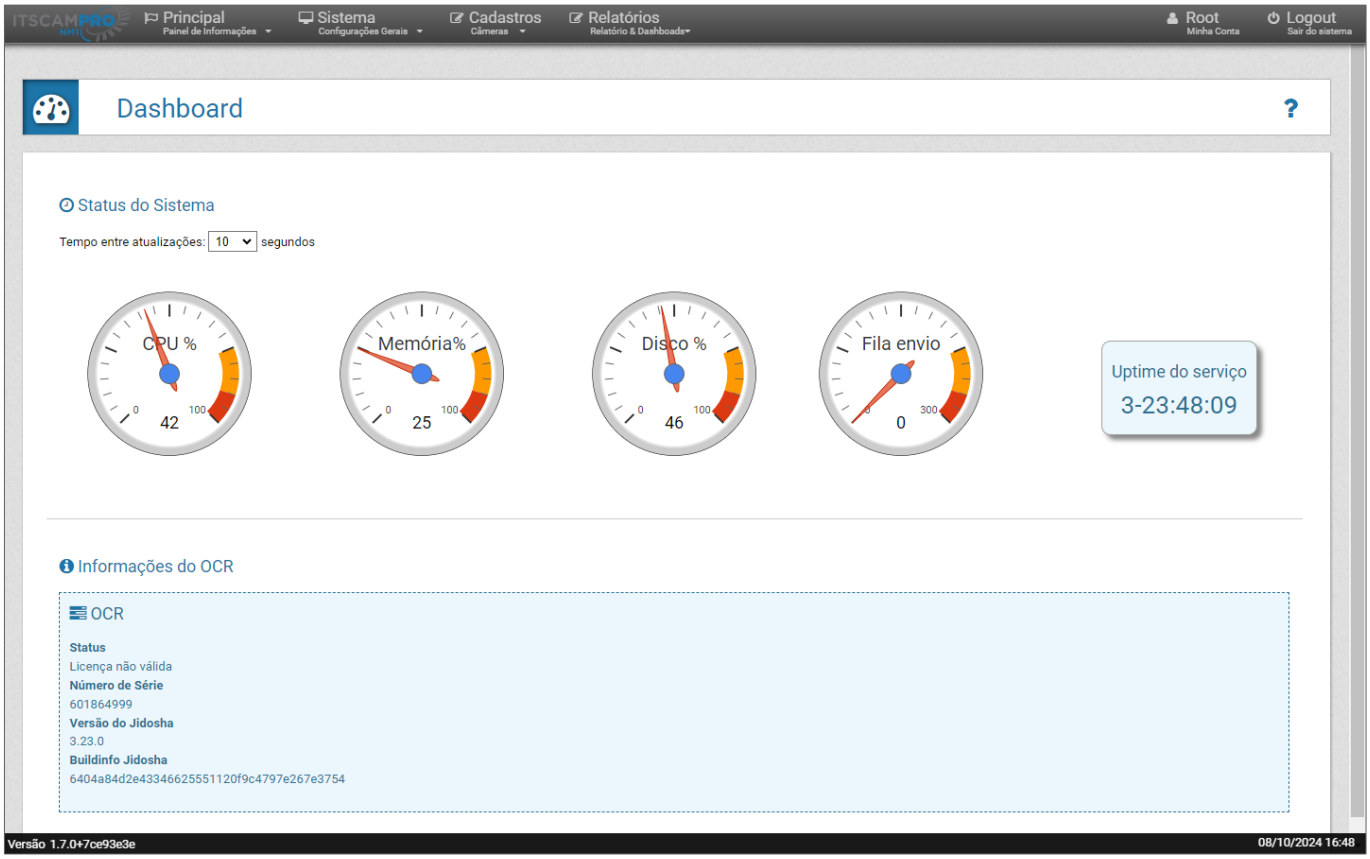

Figure 3 - Home screen of Dashboard

3. Log do Equipamento

It displays the log history of the ITSCAMPRO NM1 service in real time and allows you to download it to send to Technical Support when necessary in the event of an error.

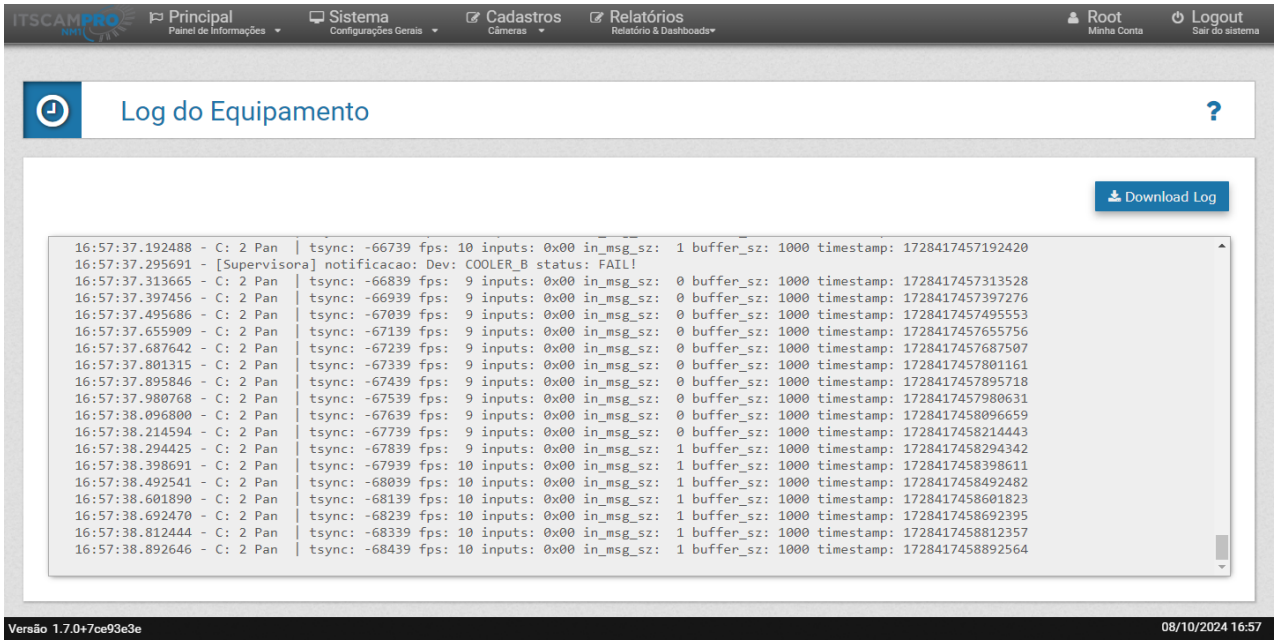

Figure 4 - Home screen of Principal > Log do Equipamento

In the *Download Log* option you can save the .txt file containing the selected logs:

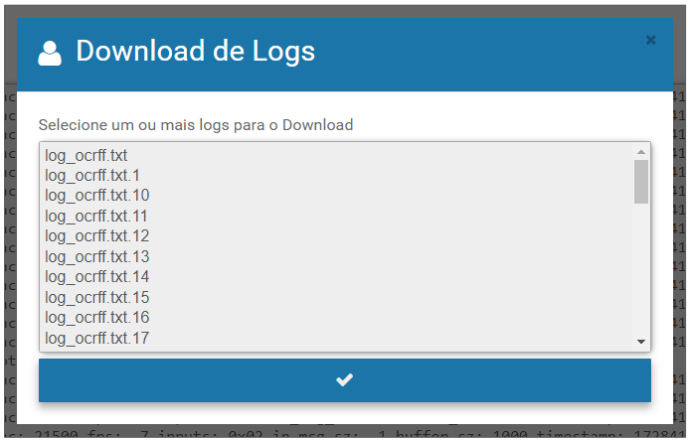

Figure 5 - Tela exibida ao selecionar Download Log

4. Sistema Menu

This menu contains the general settings available for operating the ITSCAMPRO NM1 System, grouped into *Controle de Acesso*, *Configurações* and *Manutenção do Sistema*.

4.1. Controle de Acesso > Usuários

All registered users will have access to the ITSCAMPRO NM1 system. To add a new user, click on *+Novo Usuário* and the screen shows the fields to fill in:

- *Nome*: enter a name to identify the user in the system, this is a mandatory field;
- *Ativo*: select whether the user is *Active* or *Inactive* in the system;
- *Login*: enter the unique login that will be used to access the system, which can be different from the identification name, and is a mandatory field;
- *Senha*: create a password to log in to the system, with at least 6 characters, one of which is mandatory. The password must contain lowercase or uppercase letters combined with a numeral and at least 1 special character, which can be '@', '#', '$' or '%';
- *Repetir Senha*: re-enter the password created as validation.

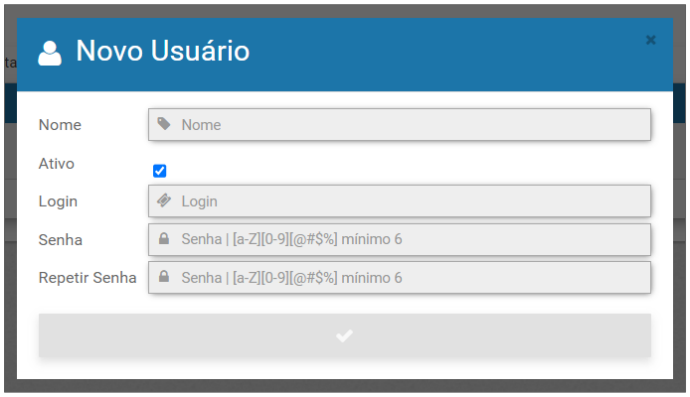

Figure 6 - New User creation screen

The home screen shows a list of registered users, which can be sorted by data by clicking on the title at the top of the list. For each registered user, some actions are possible, available in the column on the right:

- *Editar*: opens the screen for editing user data.

Figure 7 - Sistema > Usuários home screen

4.2. Configurações do Sistema

To customize the system and enable certain features, go to *Configurações do Sistema* and set up as indicated. Any changes must be applied for it to go live by clicking on the validation button at the bottom of the page. When applied, NEVADA will be updated.

4.2.1. Communication with Violation Servers (Comunicação NEVADA)

Logs generated by ITSCAMPRO NM1 can be sent to the NEVADA, Sigaem and CETAI interfaces by setting up the *Dados para Comunicação* fields:

- *Tipo do Servidor*: select the type of file pattern that will be generated according to the server that receives them, which can be *NM1 (NEVADA/SIGAEM)* or *CETAI*;
- *Protocolo*: select the *SSH-RSYNC* protocol for the NM1 server, or the *FTP* or *FTPS* protocol for the CETAI server;
- *Endereço IP*: enter the address of the server on which NEVADA/SIGAEM is installed;
- *Porta*: enter the port to connect to the NEVADA/SIGAEM server;
- *Nome do Usuário*: enter the name used in the process of connecting to the server, when CETAI;
- *Senha*: enter a password only when using FTP or FTPS protocols;
- *Tamanho máximo*: set the maximum size allowed for the log directory, in bytes, KB, MB or GB. When this size is exceeded, the oldest folders containing logs will be deleted until the log directory is smaller than the defined size;
- *Intervalo entre verificações*: enter the time interval (in seconds or minutes) between checks by the monitoring service in the log directory. The total size of this directory and the presence of files that indicate a complete log for transmission are types of checks performed by this service;
- *Diretório de backup*: indicate the location of the backup directory for the compressed log files. Whenever a new file is copied to this directory, files older than the current date are deleted. Leave this field blank so as not to store backup files;

- *Converter para formato MP4*: select whether the log video file should be converted to MP4 format before being compressed, backed up and sent. When not selected, the AVI format will be used for the video file.

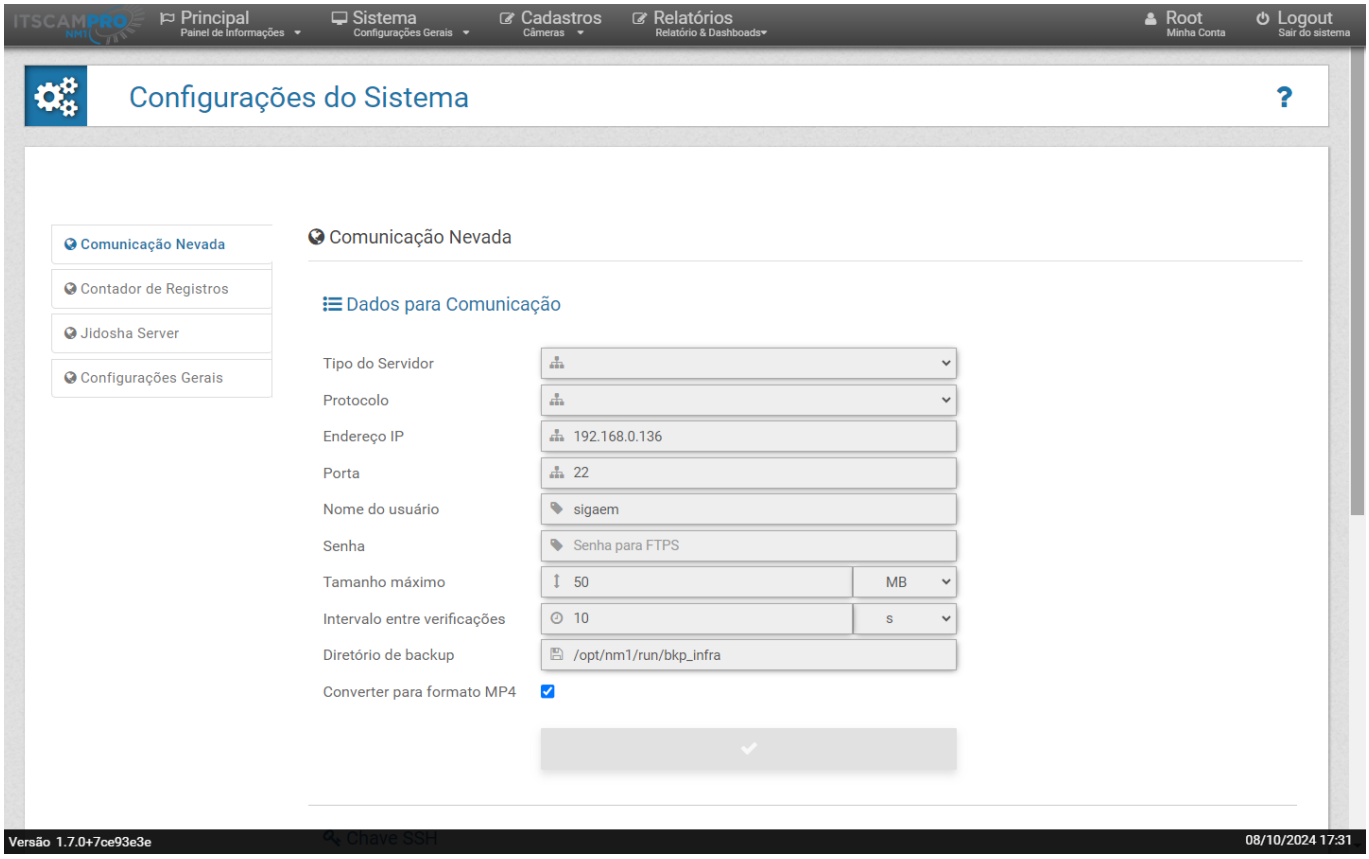

Figure 8- NEVADA system communication settings home screen

- *Chave SSH*: security in communication with NEVADA/SIGAEM is achieved by using the *SSH Key*, inserting the file in the area shown, which contains an encryption key used to establish communication with the NEVADA system. If this key is not applied to the NM1 system, the connection between the NM1 and NEVADA systems cannot be established;
- *Conexão*: use the option available on the *Test Server Connection* button to confirm communication with NEVADA;
- *Criptografia para XML*: insert a file with the public key to encrypt the xml files that contain the violation of evading to avoid paying the toll.

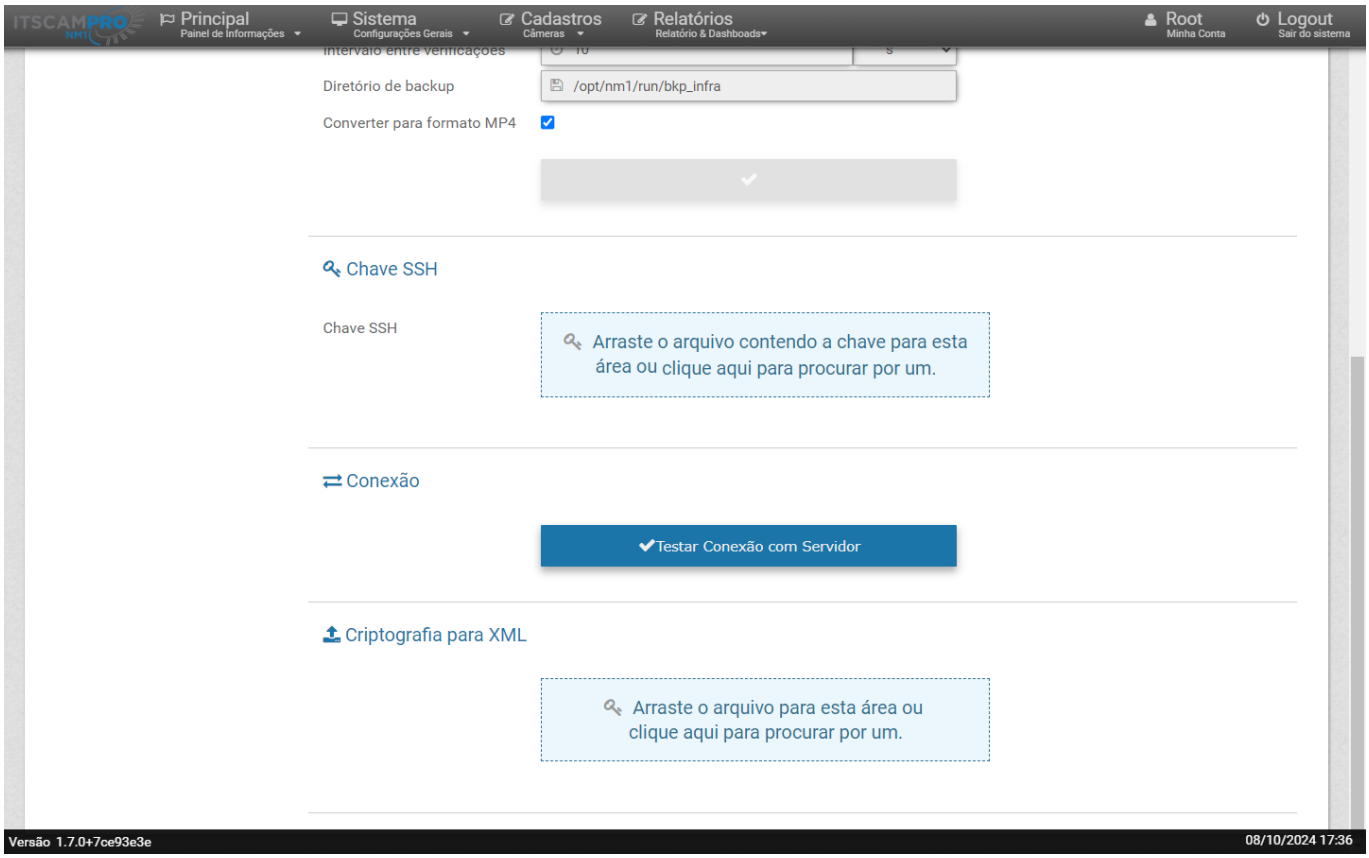

Figure 9- NEVADA system communication settings fields

4.2.2.Contador de Registros

The *Contador de Registros* is a number used to identify the logs generated by ITSCAMPRO NM1, serving as the sequential number of infractions detected. To change or reset the log counter, use the field that always displays the current value of the log counter.

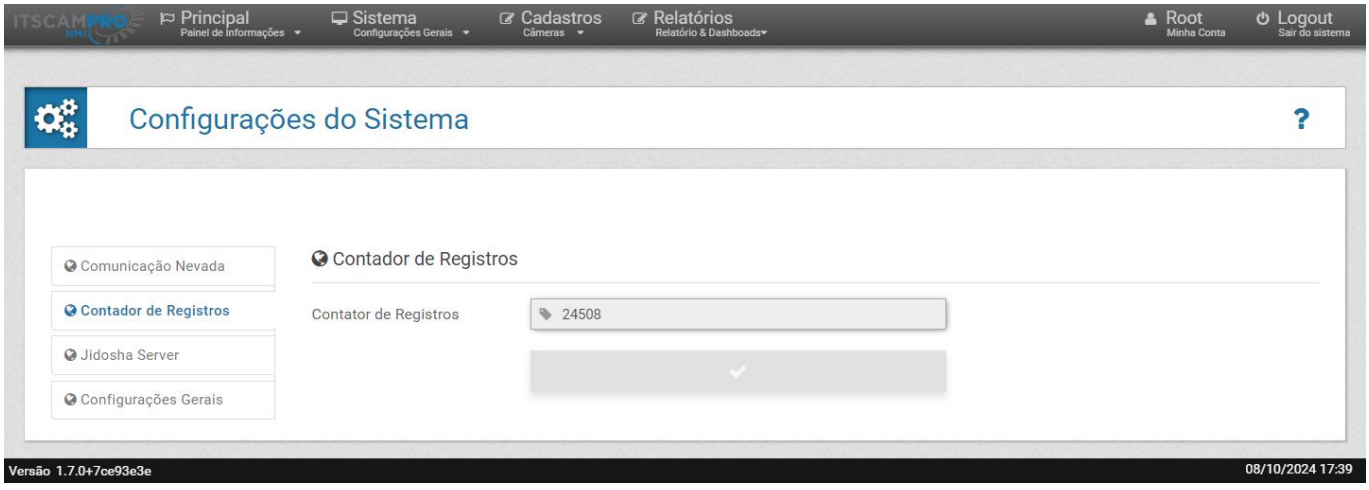

Figure 10 - Contador de Registros settings home screen

4.2.3. Jidosha Server

The Jidosha library server is used in scenarios where there is more than one ITSCAMPRO NM1 equipment sharing the Jidosha service. When there is a hardkey connected to the ULP of the NM1 Frame, this Jidosha server remains disconnected.

- *Habilitar Jidosha Server*:
  - *Endereço*: enter the address of the server on which NEVADA/SIGAEM is installed;
  - *Porat*: enter the port to connect to the NEVADA/SIGAEM server;
  - *Fila*: enter the number of margins to be processed by the equipment.

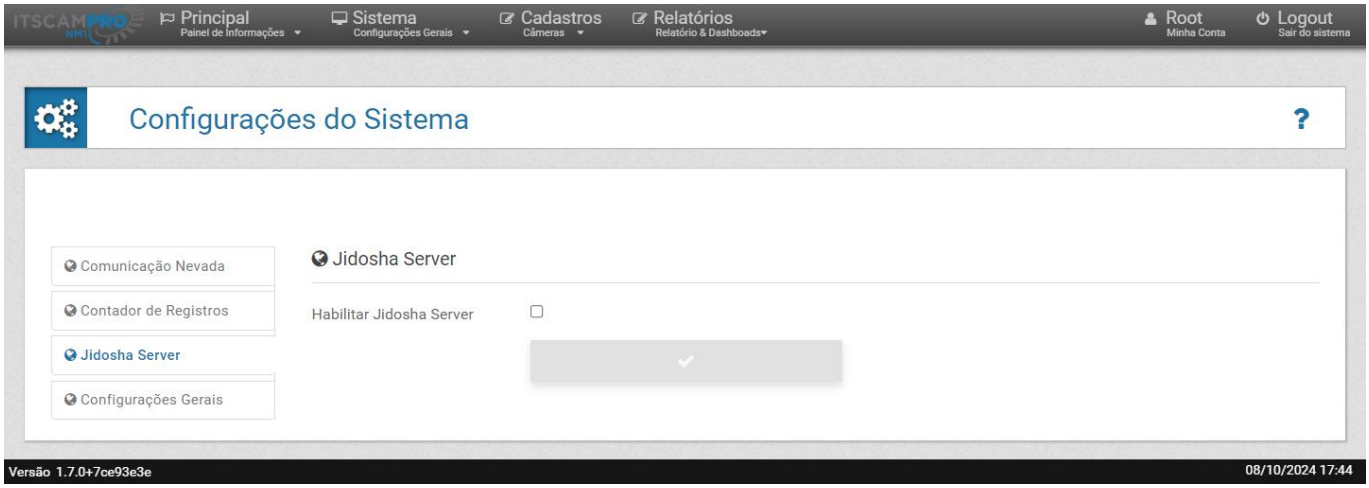

Figure 11 - Jidosha Server settings home screen

4.2.4. Configurações Gerais

- *Nome do sistema*: enter a name that identifies the system in operation, to be displayed on the access page;
- *Descrição do sistema*: enter a description for the system;
- *Número de série*: indicate the serial number of the ITSCAMPRO NM1 System product in use;
- *Diretório dos logs*: set up where the equipment logs should be stored for viewing and access in the *Main* menu > *Equipment Logs*;
- *Número de threads*: number of parallel processes, defining the number of images to be processed concurrently;
- *Porta de serviço NM1*: input port for configuring the NM1 server service on the network.

4.3. Data e Hora

Sets the date and time used by the ITSCAMPRO NM1 system, to be used in the logs made.

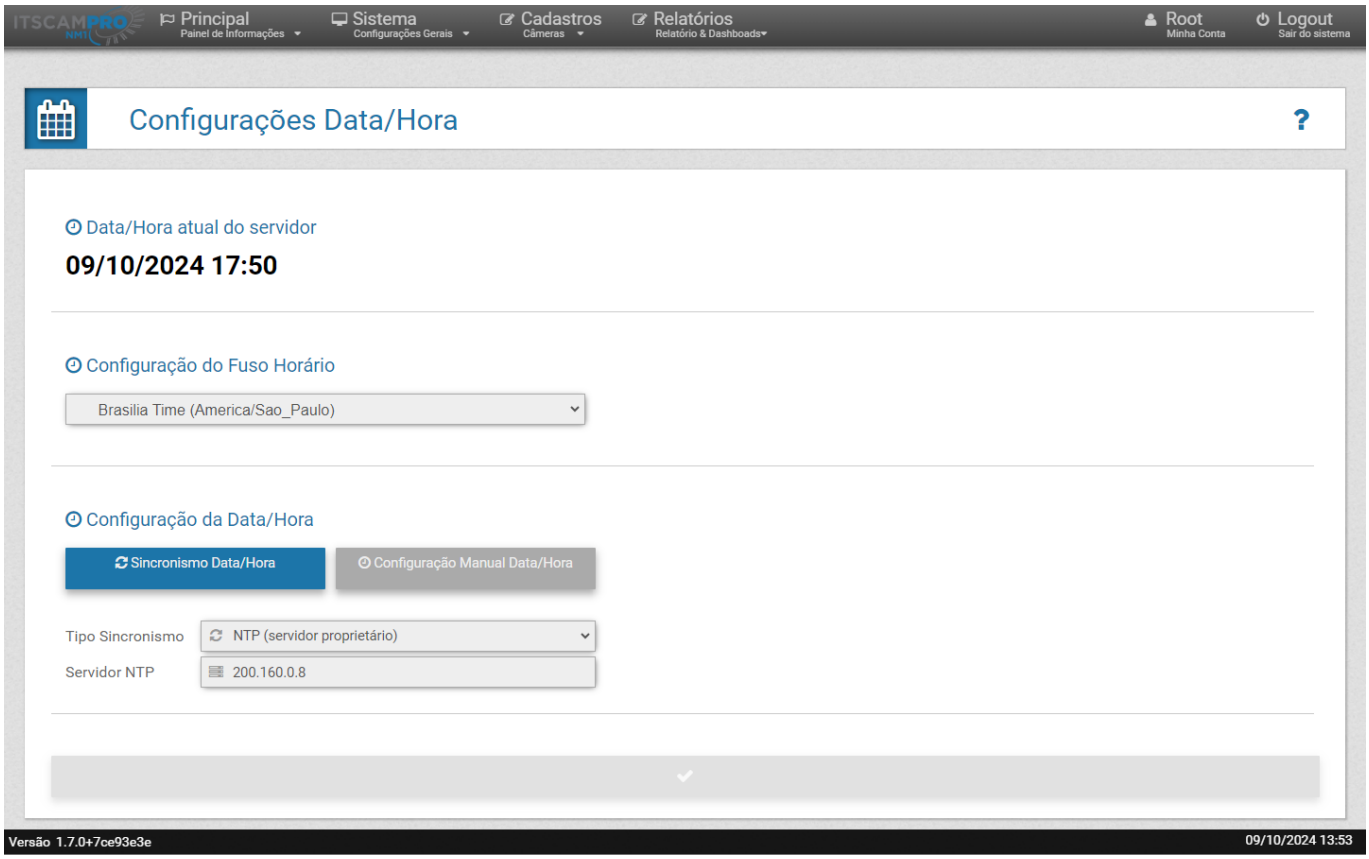

Figure 12 - Sistema > Data e Hora screen

- *Data e Hora atual do Servidor*: displays the time in current use by ITSCAMPRO NM1;
- *Configuração do Fuso horário*: select the time zone in which the system is installed;
- *Configuração da Data/Hora*: select on the corresponding button whether the setting is manual or synchronized:
    - *Tipo do sincronismo*:: the default NTP server can be selected to receive the date and time data for the system, or a local NTP server;
    - *Servidor NTP*: enter the address of the proprietary NTP server;
    - *Configuração Manual Data e Hora*: enter the *Date* and *Time* data manually.

4.4. Configurações de Rede

Place to enter the settings for the data network on which the system will operate, which can use *DHCP* or *IP Estático* protocols.

When selecting the *eth0* network on the left, the fields for the *Static IP* network are displayed and must be filled in with the *Endereço IP*, *Máscara de sub-rede*, *Gateway*, *DNS Principal* and *DNS Alternativo*:

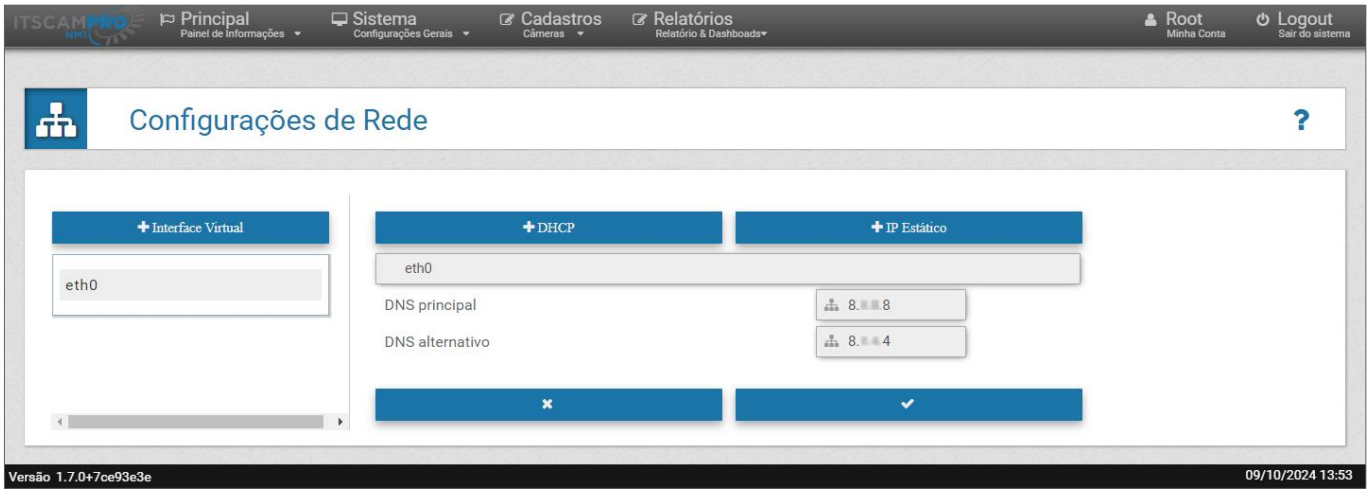

Figure 13 - Sistema > Configurações de Rede > IP Estático Screen

When selecting the option on the *+DHCP* button, the Primary DNS and Alternate DNS fields are displayed for setting the DHCP-type network:

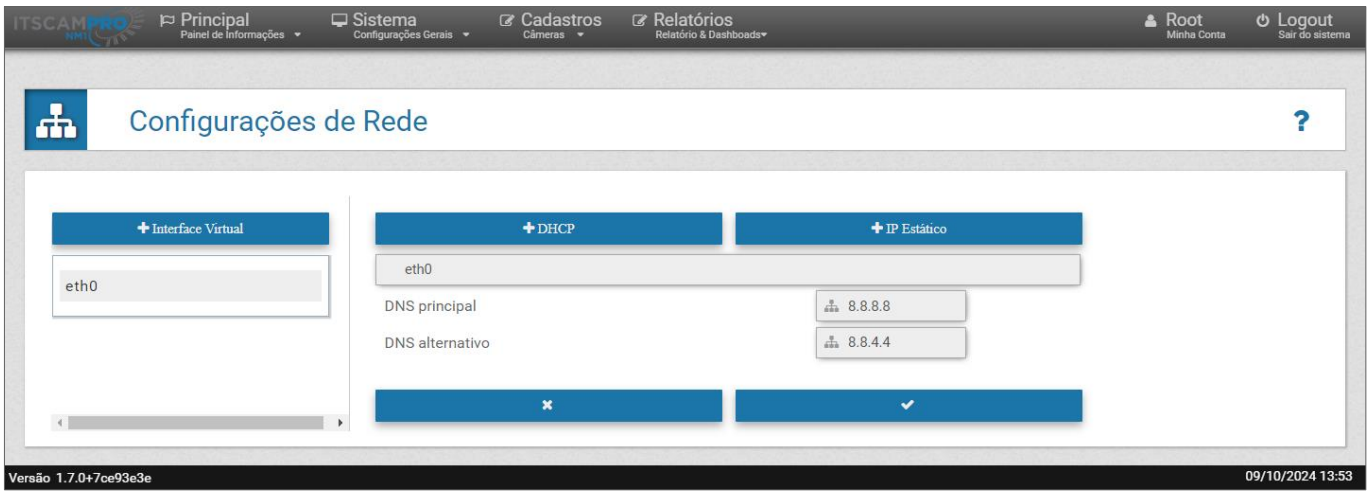

Figure 14 - DHCP network settings screen

4.5. Configurações da Placa Supervisora

The *Placa Supervisora* is responsible for supervising the operation of the modules that make up the system and can send restart commands to the devices and to the ULP in the event of more serious faults. In addition, the *Placa Supervisora* makes it possible to create simple logic between the signals coming from the traffic equipment (magnetic loop, barrier and traffic light) and the inputs of the devices, so that each can be activated by combining more than one input signal. To do this, it is necessary to set the behavior of the signal inputs and outputs in *Sistema > Placa Supervisora*:

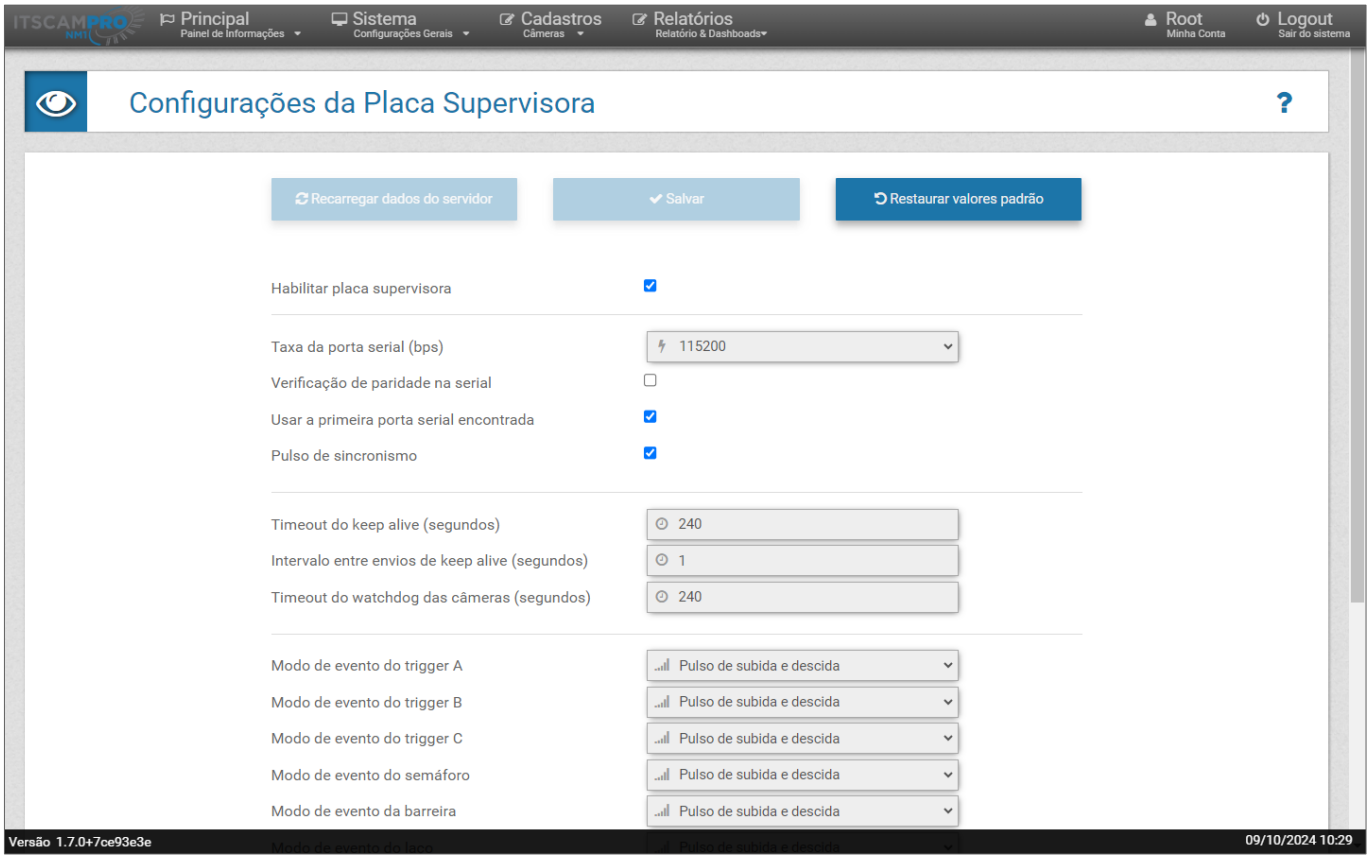

Figure 15 - Sistema > Placa Supervisora home screen

The options available on the buttons at the top of the screen allow to:

- *Recarregar dados do servidor*: loads the supervisor's settings to be displayed on the setting screen;
- *Salvar*: saves the changes made on the settings screen;
- *Restaurar valores padrão*: resets all configuration fields to the factory default values.

By selecting *Habilitar placa supervisora*, the fields for configuring connections to the board are made available:

- *Habilitar placa supervisora*: select to indicate that the system has a supervisor board;
- *Taxa da porta serial (bps)*: select the data communication rate of the supervisor board's serial port, in bits per second;
- *Verificação de paridade na serial*: select to ensure parity check in serial communication;
- *Usar a primeira porta serial encontrada*: select to ensure that the serial used is the first one found;
- *Pulso de sincronismo*: select to force synchronization with a periodic pulse sent to the devices that capture the rear and front image, responsible for OCR reading;
- *Timeout do keep alive (segundos)*: set the maximum total time, in seconds, to wait for a response from the keep-alive signal, which is the pulse sent by the ULP that indicates ongoing operation;
- *Intervalo entre envios de keep alive (segundos)*: set the time, in seconds, between sending each keep-alive signal;
- *Timeout do watchdog das câmeras (segundos)*: define the maximum total time, in seconds, that the image capture and processing devices will wait for a response;

- *Modo de evento do trigger A, Modo de evento do trigger B, Modo de evento do trigger C, Modo de evento do semáforo, Modo de evento da barreira, Modo de evento do laço*: select the type of event recognized by the respective connection from the options *Desabilitado, Pulso de subida, Pulso de descida* or *Pulso de subida e descida;*
- *Modo de saída do trigger A, Modo de saída do trigger B* and *Modo de saída do trigger C*: select the output logic of the respective connection from the options *Baixo, Alto, Semáforo, Barreira, Laço, Semáforo ou barreira, Semáforo ou laço, Barreira ou laço, Semáforo e barreira, Semáforo e laço, Barreira e laço, Semáforo e barreira e laço*;
- *Modo de entrada do semáforo, Modo de entrada da barreira, Modo de entrada do laço*: select the input signal recognized by the respective connection from the *Ativo em alta* or *Ativo em baixa* options;

4.6. Configurações do Equipamento

The correct functioning of ITSCAMPRO NM1 is related to the application of data for monitoring violations to equipment in operation. The behavior of the assembly of optical devices installed in each lane can be configured in *Sistema > Equipamento*:

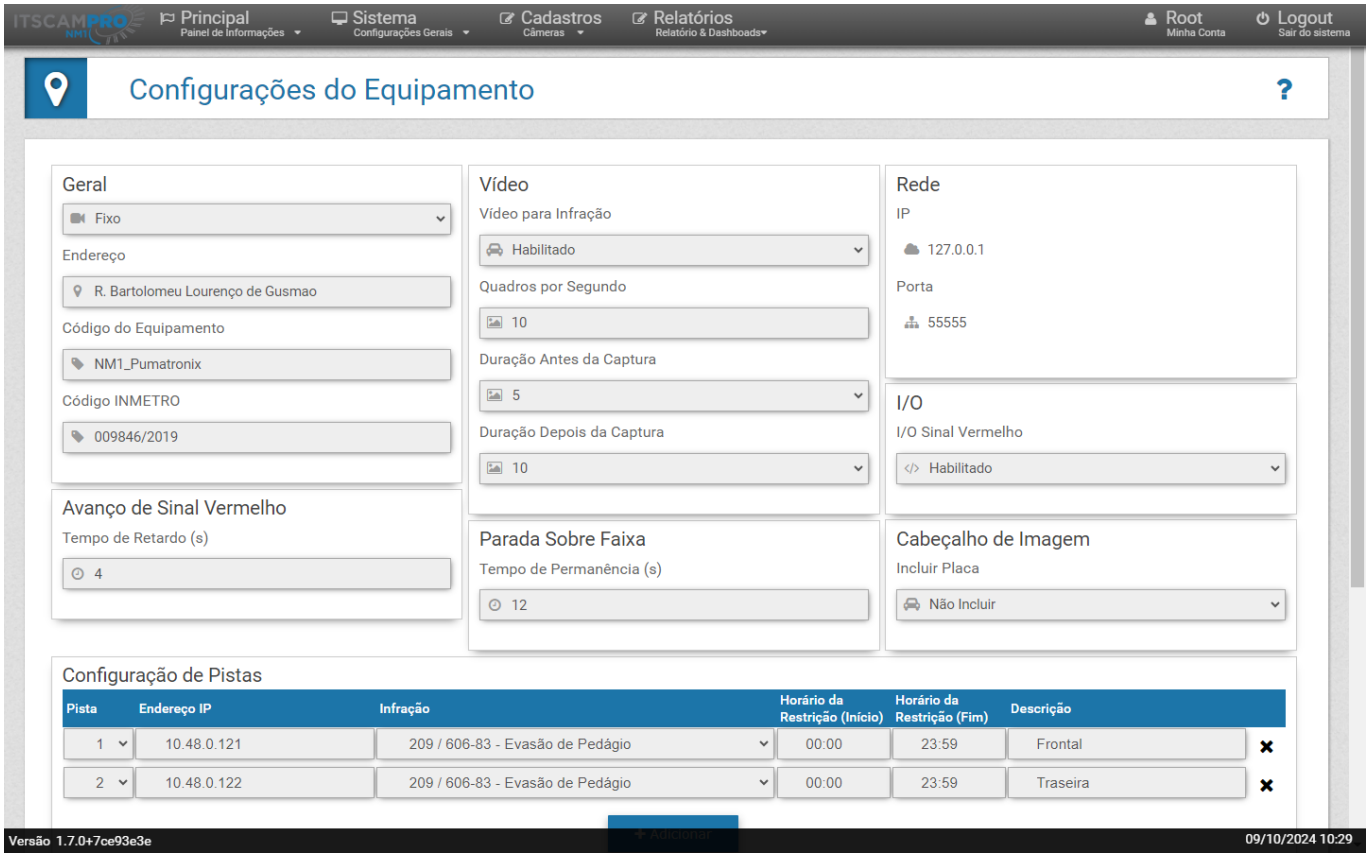

Figure 16 - Sistema > Equipamento home screen

- *Geral > Tipo de Equipamento*: select the type of installation applied to the set of devices, which can be of the *Fixo*, *Estático* or *Móvel*:
    - *Endereço*: enter the location of the equipment of type *Fixo* or *Estático*;
    - *Código do Equipamento*: enter the equipment code;
    - *Código INMETRO*: enter the product's INMETRO code;

- *Vídeo para Infração*: select as *Habilitado* or *Desabilitado* the generation of the video of the panoramic image of the moment of the violation that proves the act committed by the vehicle, which is saved together with the images of the log, captured by the device of the *Main Module*;
    - *Quadros por segundo*: select the number of frames per second when generating the video, which defines the quality and size of the generated video;
    - *Duração antes da captura*: specify when the video should be started by selecting the duration time, in seconds, before the image is captured by the *Secondary Module*'s OCR reader;
    - *Duração depois da captura*: specify when the video should be finished by selecting the duration after the image has been captured by the *Secondary Module*'s OCR reader;
- *Rede*: display of the IP address and Network Port of all the equipment installed on the monitored road;
- *I/O Sinal Vermelho*: select whether the input signal for the red indicator light at the traffic light is enabled;
- *Avanço de Sinal Vermelho > Tempo de Retardo (s)*: select the period of time to allow for the monitoring of the *Red Light Running* violation, which is considered to be the "transition" of the traffic light signal from green to red. If there is any record of a vehicle passing within this set time period, the log will be discarded;
- *Parada sobre Faixa > Tempo de permanência (s)*: select the tolerance time period for generating the *Stopping on the Crosswalk* violation, which is considered to be the minimum time spent on the crosswalk;
- *Cabeçalho de imagem > Incluir Placa*: select whether the plate read in the OCR scan should be included in the image header. When selecting *Include*, the read license plate is inserted into the image header and it is not possible to edit it. In the event of an OCR reading error, a correction can be made to the information saved in the database, but the image will remain with the old license plate information and cannot be corrected;

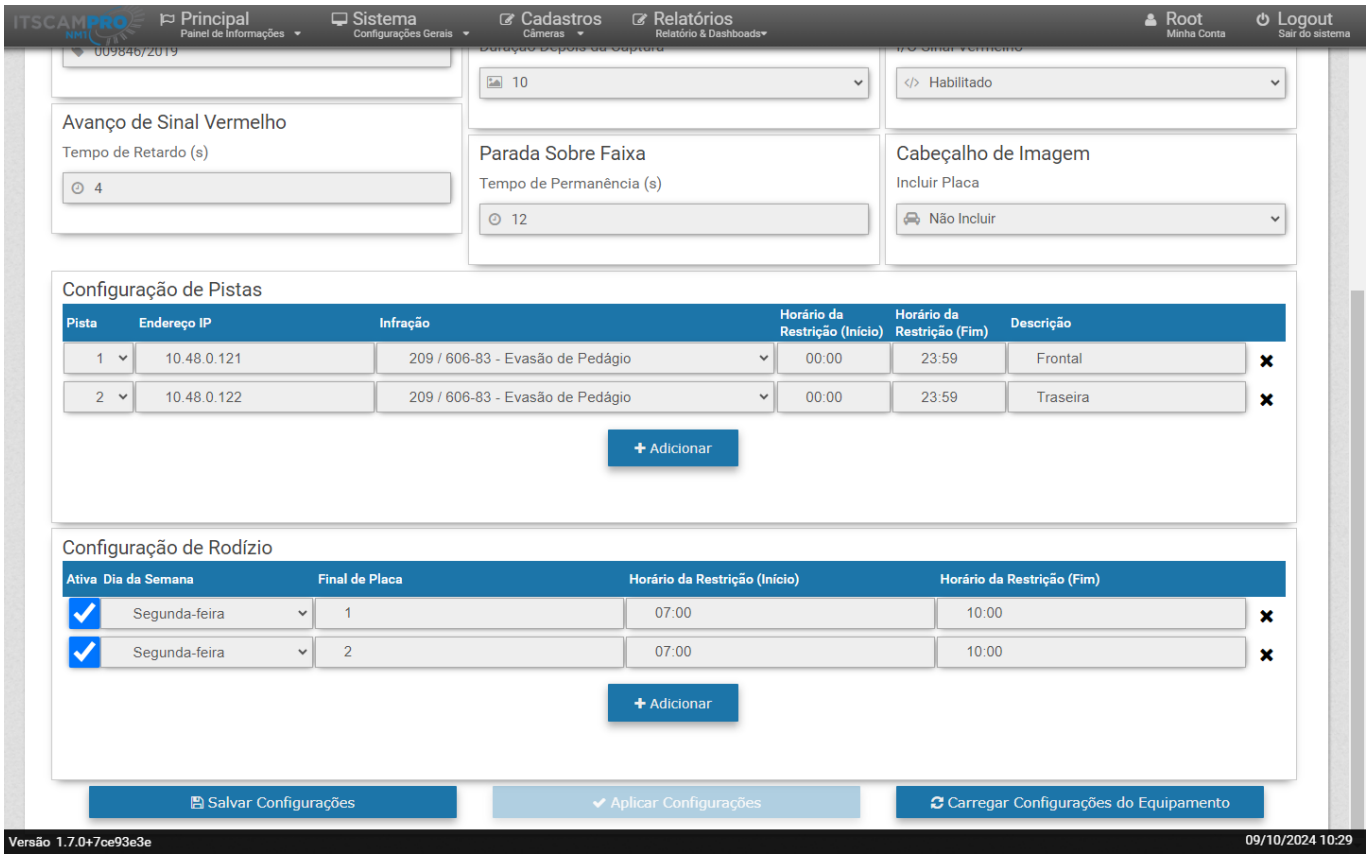

Figure 17 - Sistema > Equipamento available fields

- *Configuração de Pistas*: set the behavior of the device installed in each lane by clicking the *+Adicionar* button and entering the fields:
    - *Pista*: select a number to match the lane monitored by a device, which can be from 1 to 8;
    - *IP*: enter the IP address corresponding to the device installed on the lane;
    - Infração: select which violation will be monitored by the indicated device, from among the options:
        - 183 / 567-32 - Stopping on the Crosswalk: which monitors the violation related to Article 183 of the CTB;
        - 184-I / 568-10 - Exclusive Lane: which monitors the violation related to Article 184, item I of the CTB;
        - 184-II / 569-00 - Exclusive Lane: which monitors the violation related to Article 184, item II of the CTB;
        - 184-III / 75870 - Exclusive Lane: which monitors the violation related to Article 184, item III of the CTB;
        - 185-I / 570-30 - Failure to maintain Lane: which monitors the violation related to Article 185, item I of the CTB;
        - 185-II / 571-10 - Failure to maintain Lane: which monitors the violation related to Article 185, item I of the CTB;

- 187 / 574-62 - Road Space Rationing: which monitors the violation related to Article 187 of the CTB;
- 206-I / 599-10 - U-turn in a prohibited place: which monitors the violation related to Article 206, item I of the CTB;
- 207 / 604-12 - Prohibited Left Turn: which monitors the violation related to Article 207 of the CTB;
- 207 / 604-11 - Prohibited Right Turn: which monitors the violation related to Article 207 of the CTB;
- 208 / 605-03 - Signal Advance: which monitors the violation related to Article 208 of the CTB;
- 209 / 606-82 - Weighing Evasion: which monitors the violation related to Article 209 of the CTB;
- 209 / 606-83 - Toll Evasion: which monitors the violation related to Article 209 of the CTB;
- 209 / 606-81 - Weighing Escape: which monitors the violation related to Article 209 of the CTB;

  - *Horário de Restrição (Início)*: enter the time at which the monitoring of the violation selected for the lane should start, in HH:MM format;
  - *Horário de Restrição (Fim)*: enter the time at which the monitoring of the violation selected for the lane should finish, in HH:MM format;
  - *Descrição*: enter a description that makes it possible to identify the respective device;

- *Configuração de Rodízio*: set the monitoring of *Road space rationing* violations by entering the data for the end of the license plate that will have restricted circulation by clicking on the *+Adicionar* button:
  - *Ativa*: click on the checkbox to activate the set plate ending and uncheck to deactivate;
  - *Dia da semana*: select which day of the week the license plate end is restricted from circulation by the road space rationing;
  - *Final de Placa*: select the license plate ending that is restricted from circulation by the road space rationing;
  - *Horário da Restrição (Início)*: enter the time at which the monitoring of the road space rationing should start, in HH:MM format;
  - *Horário da Restrição (Fim)*: enter the time at which the monitoring of the road space rationing should finish, in HH:MM format;
- *Salvar Configurações*: click to save the changes made;
- *Aplicar Configurações*: click when all the changes made are to be sent to the road equipment;
- *Carregar Configurações do Equipamento*: click to load the current equipment settings, considered before applying the changes made.

4.7. Atualização do Sistema

By accessing *Sistema > Atualização do Sistema*, it is possible to set ITSCAMPRO NM1 to check for new updates periodically, automatically, by selecting the *Habilitar atualização automática* option. When enabling, the server providing the updates must be selected from the *Repositório Padrão Wetec* or *Personalizado* options, entering the *Server Address* in the latter option. Click *Save* to apply the selected update repository. It is also possible *Forçar atualização* or *Recarregar dados do servidor*, which displays the current configuration before the changes made are saved.

The manual update can be done by inserting the respective file in the *Versões* area:

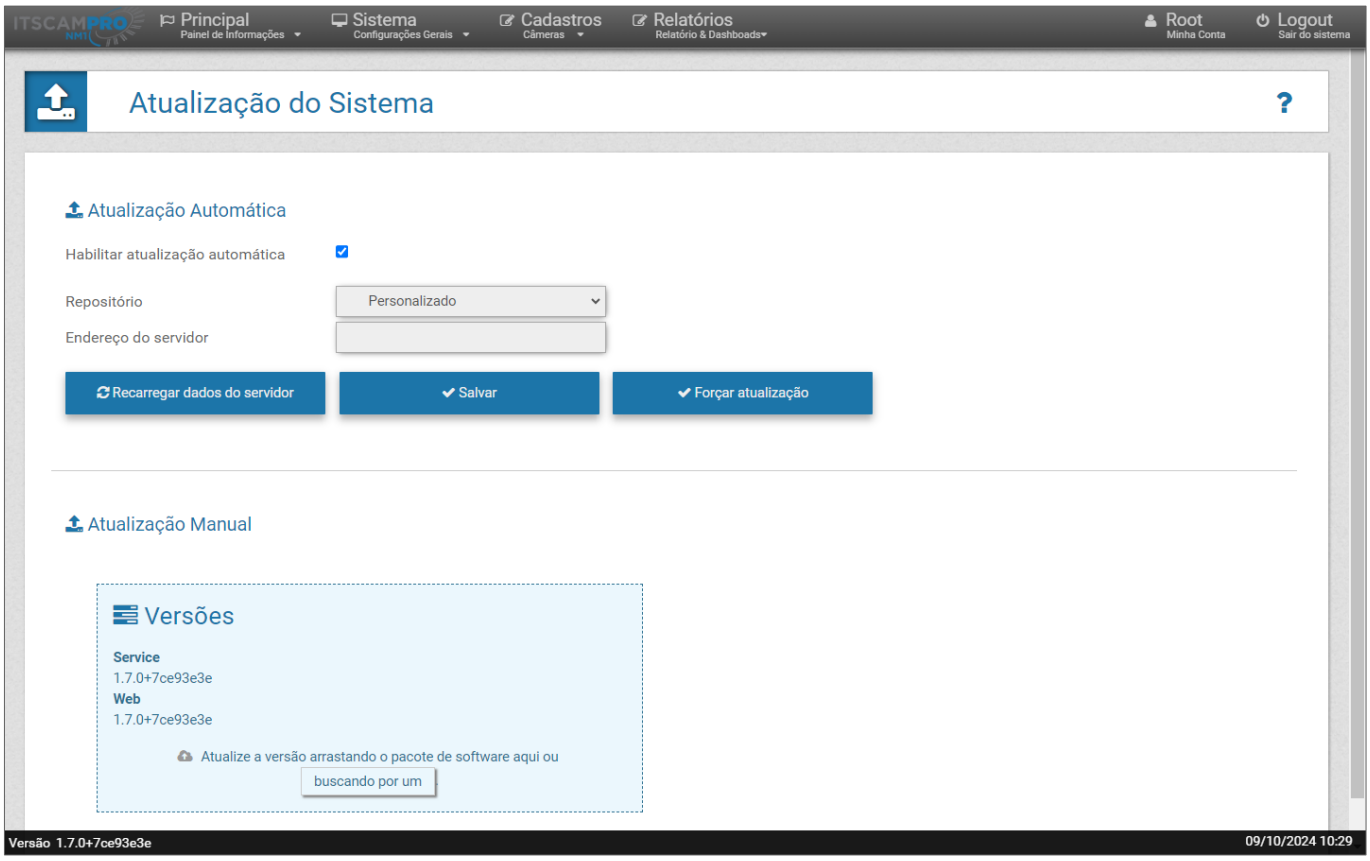

Figure 18 - Sistema > Atualização do Sistema home screen

4.8. Manutenção do Equipamento

ITSCAMPRO NM1 devices can be maintained using the following options:

- *Reinicialização de Módulos*: option to *Reiniciar Serviços*, which restarts each module individually, or *Reiniciar Equipamento*, which restarts the ULP (Local Processing Unit). In this last option, the server interrupts all connections to the devices during the reboot process and during this time, captures may be lost;
- *Gestão de Armazenamento*: it is possible to clear up files using the option opção *Limpar arquivos não Enviados*, which deletes temporarily stored files, or *Limpar arquivos de backup*, which deletes files saved as backups.

5. Menu Cadastros > Câmeras

Through the *Cadastros* menu, information can be entered into the ITSCAMPRO NM1 system regarding the monitored lanes, by registering the devices responsible for capturing the panoramic, front or rear images. The main device that provides information for the ITSCAMPRO NM1 are the ITSCAM devices from Pumatronix. On this screen it is possible to register, change, remove or disable a device in the system. When new devices are added, they will be listed on the home screen:

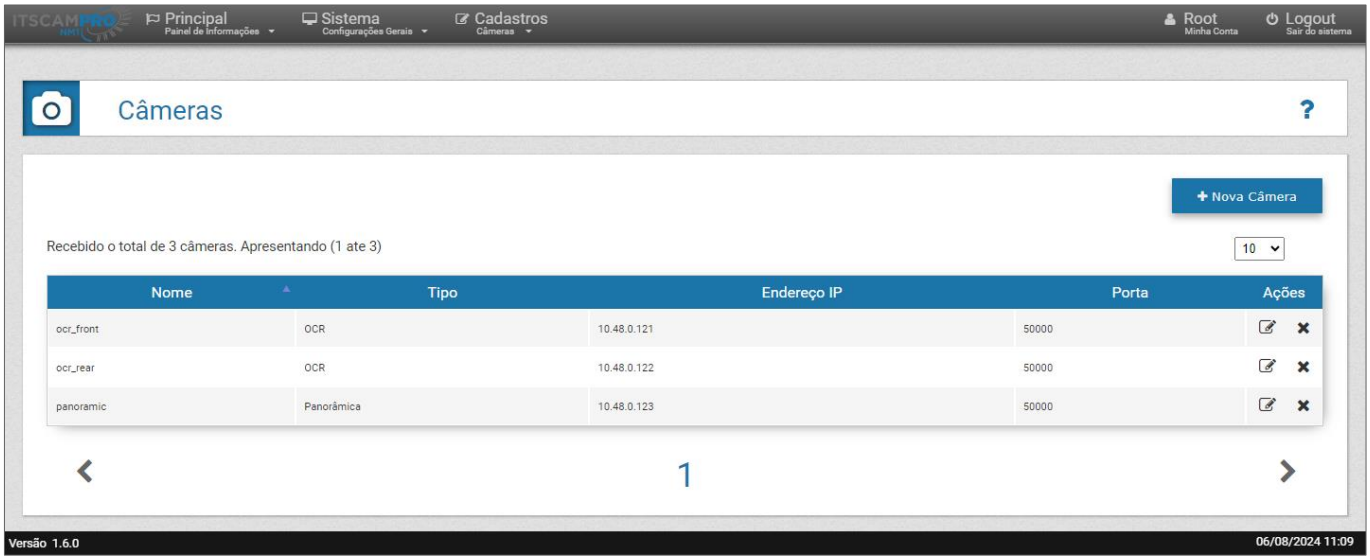

Figure 19 - Cadastros > Câmeras home screen

By clicking on *+Nova Câmera* it is possible to set up a new device and register it in the system:

- *General* tab:
  - *Tipo da câmera*: enter to the system the type of image the device captures, selecting whether it reads OCR (*Secondary Module*) or captures the *Panoramica* image (*Main Module*);
  - *Protocolo*: select which protocol will be used to communicate with the device, whether *Pumatronix* (ULP connects to the device, ideally always use this option) or ITSCAMPRO (when there is already a connection to the device);
  - *Nome*: enter a name to identify the device in the system;
  - *Endereço IP*: enter the IP address of the device;
  - *Porta*: enter the port for communication with the device;
  - *Qualidade*: set the quality applied to image capture by the device, in percent (%);
  - *Frontal/Traseira*: select whether the image generated by the device refers to the OCR reading of the vehicle's *Frontal* or *Traseira* license plate;
  - *Detector de Movimento*: enter a value for the motion detector threshold.

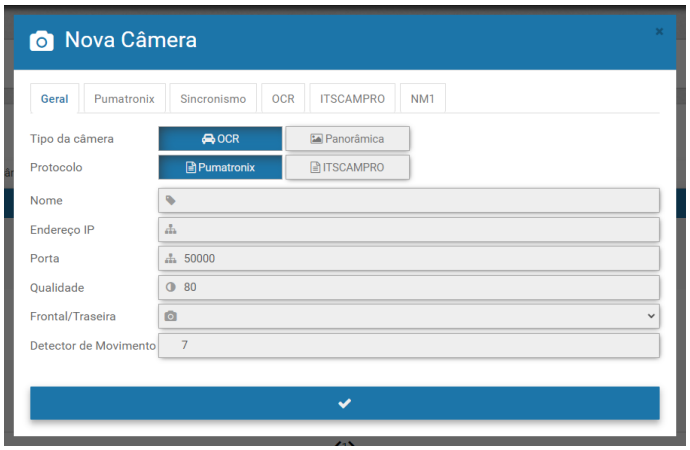

Figure 20 – Geral tab screen

- *Pumatronix* tab: available for OCR reading devices;
    - *Tipo de Req. Diurno*: select the type of image request during the *Daytime* period, which can be *Video*, *Photo* or *Trigger*;
    - *Núm. Fotos Diurno*: select the number of images to be captured during the *Daytime* in a *Photo* request, which can be 1, 2, 3 or even 4 photos per request;
    - *Tipo de Req. Noturno*: select the type of image request during the *Nighttime* period, which can be *Video*, *Photo* or *Trigger*;
    - *Núm. Fotos Noturno*: select the number of images to be captured during the *Nighttime* in a *Photo* request, which can be 1, 2, 3 or even 4 photos per request;

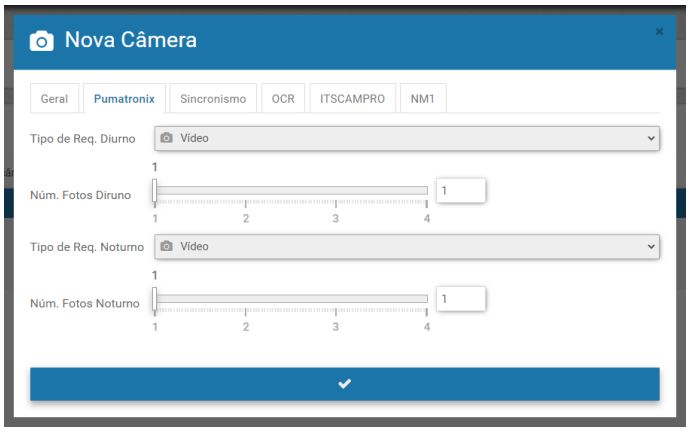

Figure 21 - Pumatronix tab screen

- *Sincronismo* tab:
    - *Sincronismo Hardware*: select whether hardware synchronization should occur, which is done by connecting the devices to the *Supervisor Board*, disregarding the date and time of each equipment.

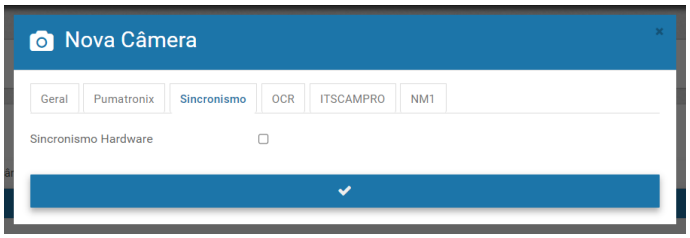

Figure 22 - Sincronismo tab screen

- *OCR* tab:
  - *Habilita Monitor do OCR*: select whether the OCR rate should be monitored periodically, which will be displayed on the NEVADA interface;
  - *Timeout Jidosha*: enter the maximum waiting time when searching for a license plate in the image;
  - *Envia registro sem placa*: select whether the device sends the log even when there is no license plate recognized in the OCR reading.

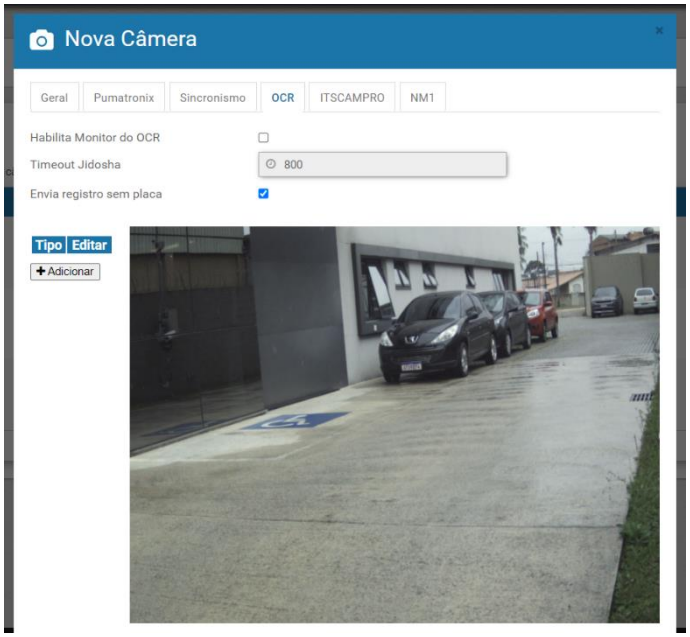

Figure 23 - OCR tab home screen

+Adicionar button: click to create a ROI *(Region of Interest)* in the image, in polygon format, which is intended to restrict the search for license plates to the selected portion in the image;

- Creating the ROI: click on the image, defining the 4 vertices of the polygon;

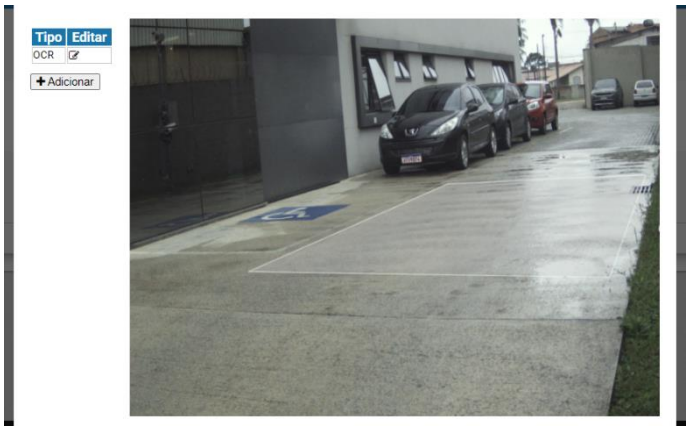

Figure 24 - OCR tab screen with ROI created

- Edição da ROI: click on the icon in the edit column and move to the desired new position, rotate, or use the *Limpar Seleção* option, which deletes the defined trace to be created again:

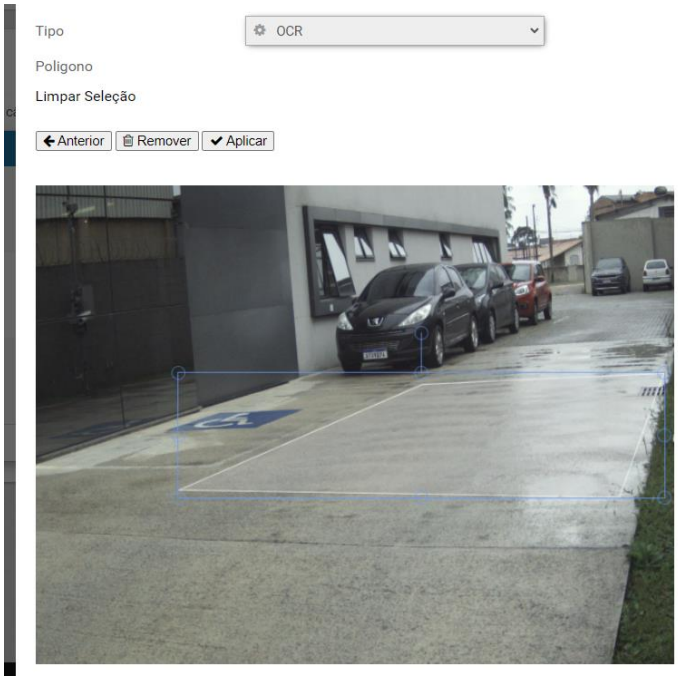

Figure 25 - OCR tab screen with ROI created

- *ITSCAMPRO* tab:
  - *Habilita o envio do ITSCAMPRO*: select to enable sending to the ITSCAMPRO server;
  - *IP do ITSCAMPRO*: enter the IP address of the ITSCAMPRO server;
  - *Porta do ITSCAMPRO*: enter the communication port of the ITSCAMPRO server;
  - *Habilita o uso do buffer em HD*: select for the use of HD buffer memory by ITSCAMPRO;
  - *Tamanho máximo do buffer / Máximo consumo de HD*: enter the maximum size of HD buffer usage;
  - *Sincroniza Relógio*: select this option to use the ITSCAMPRO server as the server clock for synchronizing the date and time on the devices.

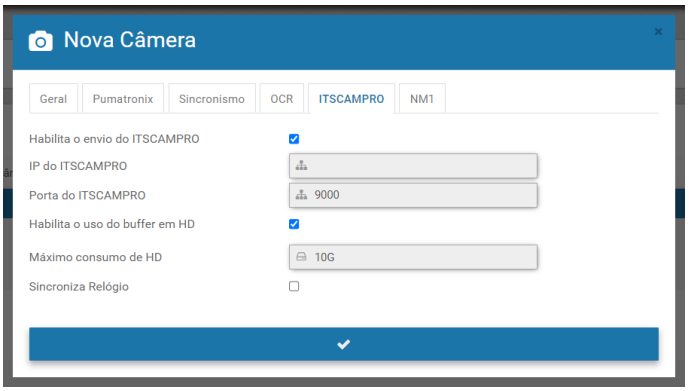

Figure 26 - ITSCAMPRO tab screen with sending enabled

- *NM1* tab:
  - *Outra câmera*: select which is the complementary OCR reading device, when using *Front* and *Rear* image in the log of the violation;
  - *Panorâmica Fluxo*: select which panoramic image capture device is responsible for generating the image in the direction of the flow of vehicles. This field must always contain a device that ensures that the non-metrological violation is logged;
  - *Panorâmica Contrafluxo*: select which panoramic image device is responsible for capturing the panoramic image in the opposite direction to the flow of vehicles;
  - *Modo do Registro*: select how the data in a generated log will be compiled, whether there will be *Uma imagem por registro, Múltiplas imagens quando não ler a placa* or *Todas as imagens do registro*;
  - *Usar OCR Traseira*: select whether the rear image capture device should be responsible for OCR reading the generated log;
  - *Validação pelo Laço*: select whether the log should be validated by *Validação no tempo de vídeo* or *Validação na foto traseira* when the presence of a vehicle is detected by the loop. When there is no loop installed, select *Desabilitado*;
  - *Validação pulsos curtos*: select to have the ITSCAMPRO NM1 ignore very short pulses on the barrier sensor;
  - *Enviar imagens para a web*: in order to be able to temporarily view images of the offending vehicle on the main screen of the ITSCAMPRO NM1 software, the capture device must be configured to *Enviar imagens para a web*.

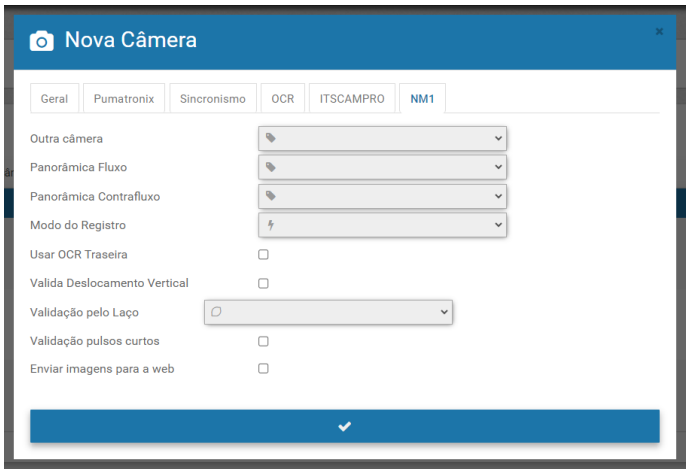

Figure 27 – NM1 tab screen

5.1. Image Adjustments for ITSCAM VIGIA+ Devices

Below are the values applied to the ITSCAM VIGIA+ in the *Front* and *Rear* positions of the ITSCAMPRO NM1, as of Firmware 18.8, and available via the Web interface in the *Settings* menu options.

Figure 28 - Web interface screen in Settings

- Values applied at the General option:

Settings	ITSCAM VIGIA+ with additional illuminator	ITSCAM VIGIA+ without additional illuminator
Auto Iris	Selected	Selected
Operating Mode	Automatic	Automatic
Color photo in Night mode	Yes	Yes
Desired level	20	20
Day to Night transition threshold	50	50
Night to Day transition threshold	90	90
Visible to IR transition threshold	40	40
IR to Visible transition threshold	40	40

- Values applied in the Inputs and Outputs option:

Settings	ITSCAM VIGIA+ with additional illuminator	ITSCAM VIGIA+ without additional illuminator
Number of captures per Pulse	4	4
Respect the Illuminator's rest time	Selected	Not selected
Outputs set up for	Trigger illuminator/flash	Control equipment
Flash mode	Automatic	Automatic
Automatic flash with shot	With infrared light	With infrared light
Flash power on the second shot	50%	7%

- Values applied in the *Image Adjustment* option:

Settings	ITSCAM VIGIA+ with additional illuminator	ITSCAM VIGIA+ without additional illuminator
Desired level	20	20
Gain operation	Automatic	Automatic
Shutter operation	Automatic	Automatic
Maximum Shutter (Resolution up to 800x600)	30	30

- Values applied in the *Lighting Adjustment* option (Day Mode):

Settings	ITSCAM VIGIA+ with additional illuminator	ITSCAM VIGIA+ without additional illuminator
Maximum Gain/ Global Gain	40	40
2nd Picture Gain/ License plate in the shade gain	20	20

Settings	ITSCAM VIGIA+ with additional illuminator	ITSCAM VIGIA+ without additional illuminator
Gamma	Logarithmic	Logarithmic
Gamma Value	110	110
Saturation	100	100
Gloss	10	10
Contrast	100	110
White balance (Red, Green and Blue)	0	0

- Values applied in the *Lighting Adjustment* option (*Night* Mode):

Settings	ITSCAM VIGIA+ with additional illuminator	ITSCAM VIGIA+ without additional illuminator
Maximum Gain/ Reflexive plate gain	10	40
2nd Picture Gain/ Global Gain	40	1
Gamma	Logarithmic	Linear
Gamma Value	150	0
Gloss	3	3
Contrast	100	100

6. Menu Relatórios > Relatório CETAI

The integration of ITSCAMPRO NM1 with CETAI (Image Management, Treatment and Auditing Center) sends the logs of detected violations and the respective images captured to the BHTRANS system, as well as test images.

The *Relatório CETAI* can be generated from the ITSCAMPRO NM1 interface by searching with the start and end date and time filter, and the logs that have been made and have not yet been sent are listed. The list shows the *Tipo do Registro*, the *Sequencial* number of the log made, the *Data/Hora*, the *Equipamento*, the *Pista*, the *Placa* detected in the OCR reading and the *Arquivos* of the images captured in the log.

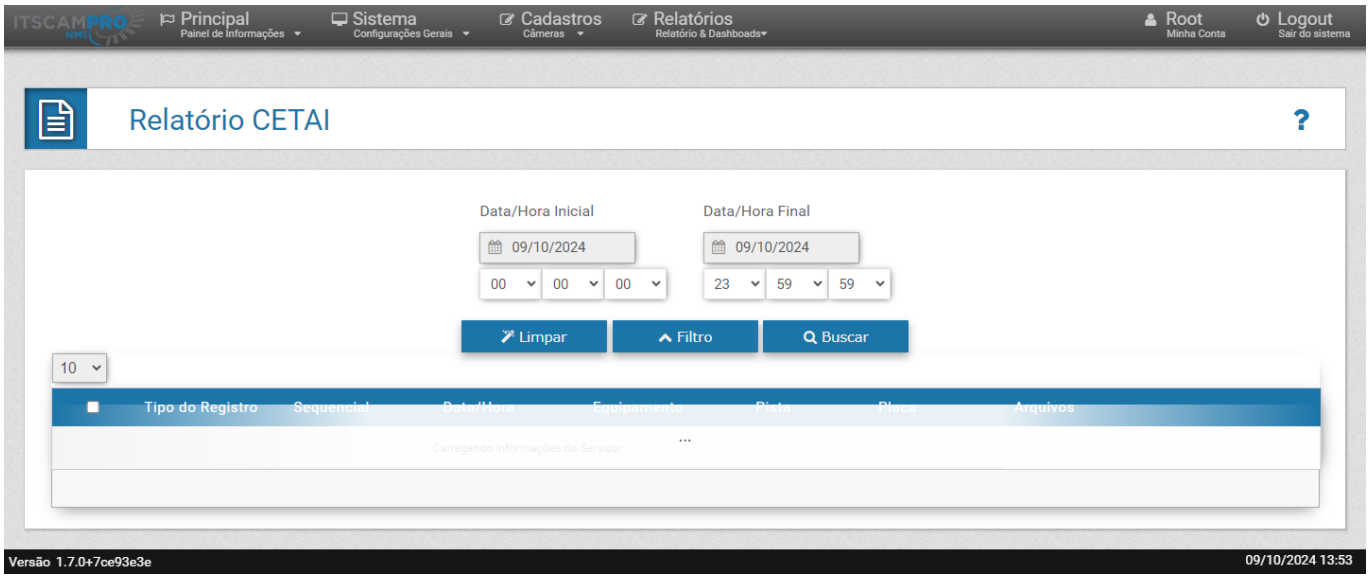

Figure 29 - Relatórios > Relatório CETAI home screen

7. Privacy Policy

In compliance with the General Data Protection Law (LGPD) - Law No. 13709, dated August 14, 2018, this product has programmable functions for capturing and processing images that may infringe the LGPD when used in conjunction with other equipment to capture personal data.

The equipment does not collect, use or store personal information, whether sensitive or not, for its operation.

Pumatronix is not responsible for the purposes, use and treatment of the images captured, and control of the information and ways of operating the product are the sole decision of the user or purchaser of the product.

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