IV Visualizer: operating instructions

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1 Introduction

These instructions provide detailed guidance on how to effectively and efficiently use IV_Visualizer Software. In this manual, you will find step-by-step procedures, tips and essential information to navigate through various features and functionalities.

2 Installation

The following steps need to be done for the frontend and backend. Frontend and backend do not have to be installed on the same system.

1. unzip the folders with the code
2. run docker network create –driver bridge ivNet
3. navigate to the root directory of the project
4. either run the docker files, or start devcontainers
5. execute each build.sh
6. navigate to each build directory
7. execute the dummy
8. execute the ivbackend
9. execute the IV_VISUALIZER_FRONTEND

3 Run Backend Tests

After completing the build.sh and being in ./build: start "./test/IV_VISUALIZER_test

4 Setting options

4.0.1 Frontend

All settings that can be made outside the IV Visualizer frontend are managed in the file 'source/main/IvVisualizerConf.conf'. In order for changes to the config to take effect, the frontend part of the visualizer must be restarted.

CAUTION! Under no circumstances may the 'max_id' attribute under 'region_of_interest' be changed because the ROIs can then no longer be assigned correctly.

Although the export files, such as the stream export files, can also be edited, it is not recommended to change them. Files can no longer be read due to invalid changes and the visualizer can no longer load the streams.

4.0.2 Backend

Set enviroment variables in docker or create a .ENV file.
The following settings are defined:

1. DATA_MANAGER_MIN_BUFFER_SIZE
2. DATA_MANAGER_MAX_BUFFER_SIZE
3. DATA_MANAGER_BATCH_SIZE
4. TTL
5. SCYLLA_IP
6. SCYLLA_USERNAME
7. SCYLLA_PASSWORD
8. VIDEO_LENGTH_IN_FRAMES
9. VIDEO_PATH
10. TTL_VIDEO
11. TTL_CLEANUP_INTERVAL

5 Functionalities

5.1 Display a stream

1. If not already present, create a cluster window by left-clicking on 'View' and 'open cluster'.
2. If not already present, add a camera by right-clicking on 'Cams' and selecting 'Add cam'. Specify the camera URL and name, then click 'OK' to confirm.
3. Click on the arrow in the cluster Frame, located to the left of 'Cams', to display all active cameras.
4. If not already present, create a camera window by left-clicking on 'View' and 'open camera'.
5. Select the camera window by left-clicking on it (the selected window will be highlighted), then click on a camera from the cluster Frame.
6. The camera window will become clickable and display the stream.

5.2 Displaying & filtering log data

In the configuration file, you can specify the frequency at which a request should be made to the log database.

1. If not already present, create a log window by left-clicking on 'View' and 'open logs'.
2. Optionally, select the checkboxes in the log window.
3. The logs will be automatically displayed and updated in the text box below the checkboxes.

5.3 Saving project settings

The GUI layout, including open windows and their positions, as well as the colors of bounding boxes for a specific class, are automatically saved when the GUI is closed. When the GUI is reopened, these settings are automatically loaded.

To save and load streams:

1. To save the streams, left-click on 'File' and 'export settings'.
2. In the file selection dialog, choose any path and name for the file, then click 'Save'.
3. To load the streams, left-click on 'File' and 'import settings'.
4. In the file selection dialog, click on any stream configuration file, then click 'Open'.

5.4 Rewind up to 72 hours in the video stream

The camera window features two sliders, a fine slider, and a coarse slider. The granularity of the sliders can be adjusted in the configuration file. The fine slider is the upper of the two sliders.

To rewind the stream:

1. Display a stream as explained in chapter 4.1.
2. Adjust one or both of the sliders as desired.

5.5 Play & Pause Stream

To pause the stream:

1. Display a stream as explained in chapter 4.1.
2. While the stream is running, left-click on 'Stop'.

To play the stream:

1. Display a stream as explained in chapter 4.1.
2. Stop the stream (as explained above).
3. While the stream is stopped, left-click on 'Play'.

To play the live stream:

1. Display a stream as explained in chapter 4.1.
2. Activate the 'Live' checkbox.

To deactivate the live stream, click the checkbox again.

5.6 Viewing Individual Frames

To display the next frame, press the '.' key on the keyboard. To display the last frame of a stream, press the ',' key on the keyboard. Both actions are possible whether the stream is paused or running.

5.7 Adding Removing Special Regions of Interest (ROIs)

1. Display a stream as explained in chapter 4.1.
2. Left-click on the 'Region Of Interest' button in the camera window.
3. Left-click on 'New Region' in the newly appeared window.
4. Click multiple times, at least 3 times, on the image on the right side of the window with the left mouse button to add points to the ROI.
5. Left-click on 'Add Region'.
6. Provide a name for the ROI and a value for transparency, then click 'Save' with a left-click.
7. Each ROI can be deleted by left-clicking on 'Delete'.
8. Left-click on 'Save' to save the changes.

5.8 Configuring the streams

1. Display a stream as explained in chapter 4.1.
2. Left-click on the 'Config' button in the camera window.
3. Make all desired settings and save them by left-clicking on 'submit'.

5.9 Exporting video streams

before exporting a video make sure you have enough free space on your hard drive

1. Display a stream as explained in chapter 4.1.
2. Left-click on the 'Export' button in the camera window.
3. Left-click on the 'Choose start' radio Button
4. move one of the two sliders to set the start point
5. Left-click on the 'Choose end' radio Button
6. move one of the two sliders
7. click on 'Export selected area'
8. select one of the three view types (only video / annotation and video / annotation without video) with a left-click on one of the radio buttons
9. select a file location and name inside the file select window
10. wait for the video to be written

To export the entire available video data of the stream to an MP4 file, click the button 'Export whole video'. Please note that it might take a significant amount of time to create the MP4 file, depending on the stream duration.