Manual

VILLAGE ISLAND

# VF-REC

## Version 3.12.0

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# 1 Introduction

VF-REC is the default and cost-effective software solution to record Transport Streams and SDI signals. Thanks to its ability to use standard and affordable PC hardware, and its wide range of supported video broadcast interfaces, VF-REC (formerly DtGrabber+) has been adopted by thousands of users. It will keep evolving continuously, according to customer needs and new generations of broadcast services.

This new version 3 of VF-REC receives a major GUI overhaul using web-based technology and client/server architecture. This enables high-end users to integrate easily the VF-REC within their professional environment, while enabling multiple session management and control from remote stations.

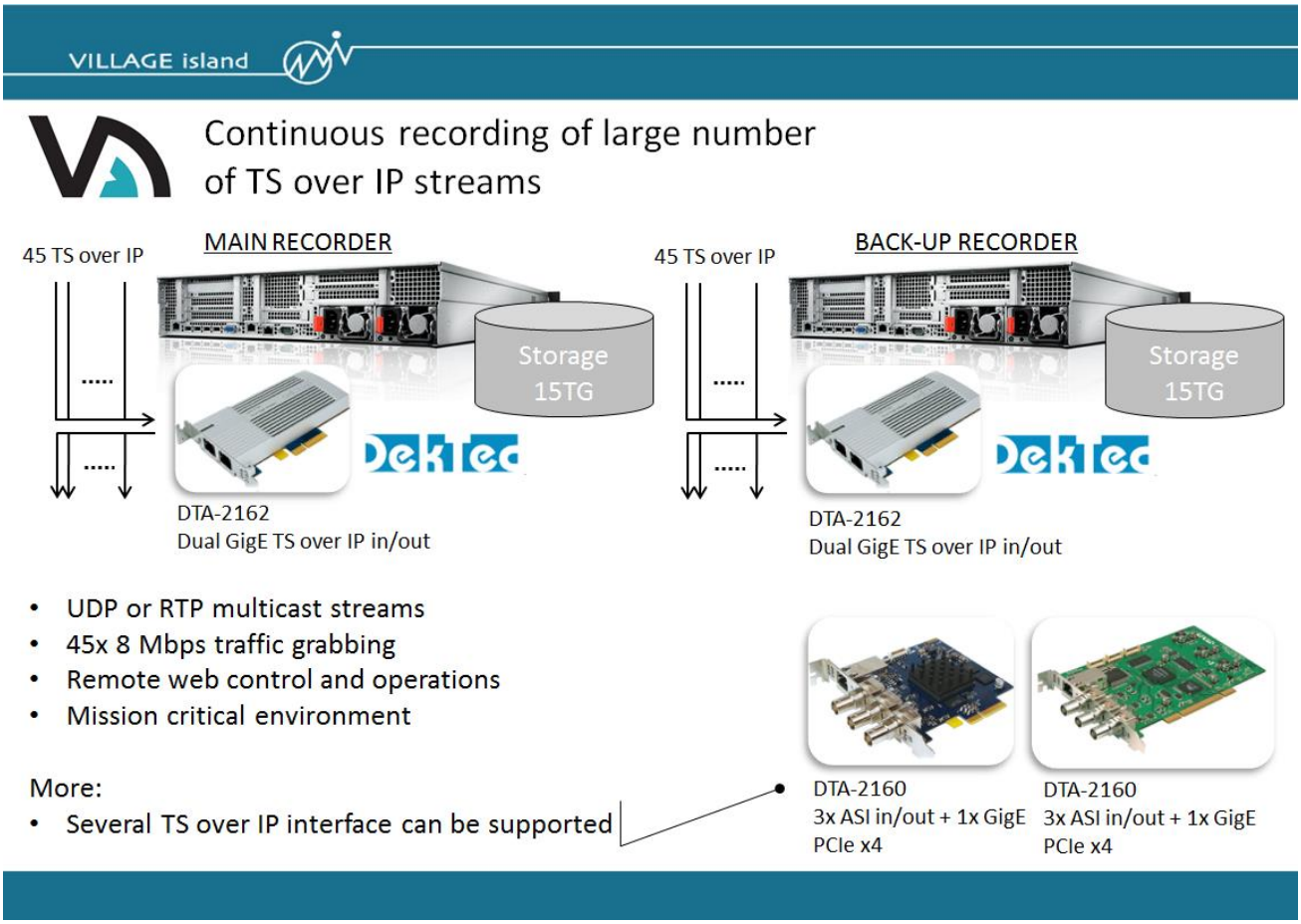


**Figure 1. Sample user case: Massive TS over IP recording for 24H/7D operations with VF-REC v3**

# 2 System requirements

| | ASI, IP, uncompr. SDI |
|---|---|
| CPU | 64 bit Intel Celeron or equivalent |
| GPU | Not needed |
| RAM | 4 GB Single Channel |
| Disk | HDD / SSD |
| OS | 64 bit Windows 7 or newer |

**Table 1. General requirements.**

The disk must have sufficient **sustainable writing** speed. HDD and SSD manufacturers often either don't provide this information or advertise high speeds that cannot be achieved in practical workloads. Instead, it is recommended to use HD Tune Pro benchmark for speed measurement. Results for popular disks can be found on the internet, a trial version of the application can be also downloaded for free (see Figure 2).

For ASI, IP and uncompressed SDI recording the required speed can be computed knowing the total bitrate of input signals:

speed [MB/s] = (bitrate1 + bitrate2 + .. + bitrateN) * 1.25

The last element in the equation is a correction coefficient: speed measurement with HD Tune Pro doesn't take into account overhead introduced by the NTFS filesystem. To compensate for this, 25% margin is added.

Additionally, please take into consideration the following facts:

- Operating system constantly uses the disk to read and write data. These operations can slow down disk response and consequently negatively affect VF-REC recording. To avoid this interference it is strongly recommended to use dedicated disk (i.e. other than the OS disk) as a VF-REC file recording destination.
- Maximum recording speed decreases with time due to disk fragmentation. It is recommended to perform disk formatting once in a while if large amount of data is being written continuously to the disk (data must be backed-up, formatting removes everything). NOTE: removing all files from the disk manually does not give the same effect as formatting it. In order to regain original writing speed the disk must be formatted.
- The speed of HDD decreases as it gets full. This is in contrary to SSDs which maintain almost constant speed regardless of the remaining free space (unless disk is heavily fragmented).

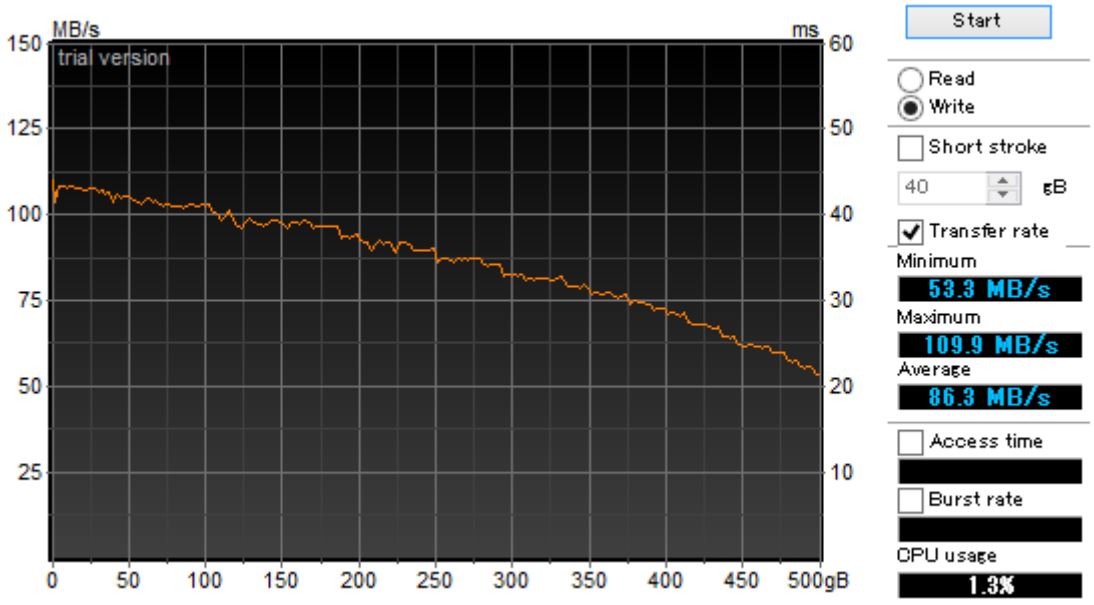


**Figure 2. HD Tune Pro benchmark result for Toshiba MQ01ABD050.**

It is not a trivial task to select proper storage so let's try here to evaluate disk suitability by reviewing some benchmark results. In this example 2.5 inch 500 GB Toshiba HDD model MQ01ABD050 was used. The benchmark results presented on Figure 2 show that this hard drive can practically sustain about 50 MB/s of recording **right after being formatted**. The initial speed is higher but it drops quickly as the HDD gets full. If the user removes afterwards some or all files from the hard drive and keeps recording new ones the speed of writing will further decrease because of ongoing data fragmentation (much below 50 MB/s, after thousands of recorded gigabytes it may drop to 20 MB/s or so). As mentioned before the only way to have the original performance back is formatting of HDD. The conclusion is that the hard drive presented in this example can be used only for recording of low bitrate TS streams.

# 3 Version history

| Version | Date | Remarks |
|---|---|---|
| 3.12.0 | 2024-06 | Added support for DTA-2131B. |
| 3.11.1 | 2023-10 | Update memory control for high-rate stream recording. |
| 3.11.0 | 2023-09 | Added support for DTA-2110,DTU-331<br>Added to set database access limitation. |
| 3.10.6 | 2023-06 | Updated to sync status of chunk files in database.<br>Added to set database access limitation. |
| 3.9.5 | 2023-05 | Added support for DTA-2127<br>Fixed a bug to search services on Extractor. |
| 3.8.1 | 2022-08 | Add administrator control interface. |
| 3.8.0 | 2022-08 | Add feature to select elements on Extractor. |
| 3.6.0 | 2022-04 | update misc. |
| 3.6.0 | 2022-02 | Support for new driver<br>Discarded omitted parameters<br>Enabled modulation-types(QAM -B,QAM-C) for DTA-2131 |
| 3.5.14 | 2021-06 | Support for new driver<br>Discarded GPU scanner |
| 3.5.13 | 2021-04 | Support for new driver |
| 3.5.12 | 2021-01 | Fixed a bug that DTU-351 could not be used |
| 3.5.11 | 2020-09 | Support for new driver |
| 3.5.10 | 2020-09 | Fixed a bug that DTA-2132 recorder stopping |
| 3.5.9 | 2020-08 | Support for new driver |
| 3.5.8 | 2020-06 | Added support for DTA-2139C、DTA-2178-ASI |
| 3.5.7 | 2020-03 | Added support for capturing at Virtual LAN for DTA-2160,DTA-2162 |
| 3.5.6 | 2020-03 | Added support for DTA-2175、DTA-2172、DTA-2132 |
| 3.5.5 | 2020-02 | Discarded J2K functions |
| 3.5.4 | 2019-08 | Fixed a bug that was preventing to delete some files |
| 3.5.3 | 2019-08 | Fixed the default path in File merger<br>Removed the merging progress percentage in the recorder list |
| 3.5.2 | 2019-08 | Fixed a bug in the file merger that was showing progress bigger than 100% |
| 3.5.1 | 2019-05 | Fixed a bug that was preventing to start recorder |
| 3.5.0 | 2019-05 | Added support for DTA-2139B |
| 3.4.8 | 2019-03 | Now FileMerger supports space in filename |
| 3.4.7 | 2019-02 | Updated Dektec drivers that fix a crash in old PC |
| 3.4.6 | 2019-02 | Added DtPcie driver to support new boards |
| 3.4.5 | 2019-02 | Fixed wrong header when 6riting dtsdi file |
| 3.4.4 | 2019-02 | Fixed dropping frame when recording dtsdi files |
| 3.4.3 | 2019-01 | Added a button to enable/disable scanning of GPU |
| 3.4.2 | 2018-11 | Fixed license bug for the streamer<br>Now support non ASCII characters in the filenames<br>In the GUI now shows all the licenses for all the device |
| 3.4.1 | 2018-07 | IQ and T2MI is now part of the base product no extra licenses are required |
| 3.4.0 | 2018-06 | Now can use any device if there is a valid license |
| 3.3.7 | 2018-04 | Fixed recorder crash when using motherboard NIC |
| 3.3.6 | 2018-03 | Added support for DTA-2180. |
| 3.3.3 | 2017-12 | Fixed capture with motherboard network adapters. |
| 3.3.2 | 2017-11 | Added support for DTA-2195 recording.<br>Added ancillary data capture. |

| Version | Date | Remarks |
|---|---|---|
| 3.2.3 | 2017-05 | Fixed to run under Windows 10 “Creators Update”. |
| 3.2.2 | 2017-05 | Added support for DTA-2195 streaming. |
| 3.2.1 | 2017-05 | Various bug fixes. |
| 3.2.0 | 2017-04 | Added support for RF capture devices. |
| 3.1.6 | 2017-03 | Added support for motherboard NICs. |
| 3.1.5 | 2017-02 | Fixed default directories. |
| 3.1.2 | 2016-12 | First release. |

# 4 Installation

Please download DtInfo utility from www.dektec.com and confirm that device which is going to be used with VF-REC has the latest firmware (Figure 3).

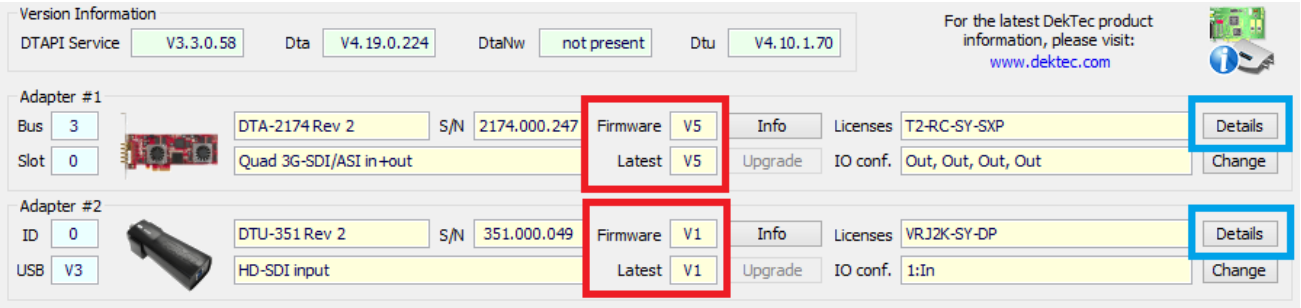


**Figure 3. DtInfo utility.**

Furthermore, please click on the *Details* button and confirm that device has sufficient bandwidth for communication with the PC (Figure 4).

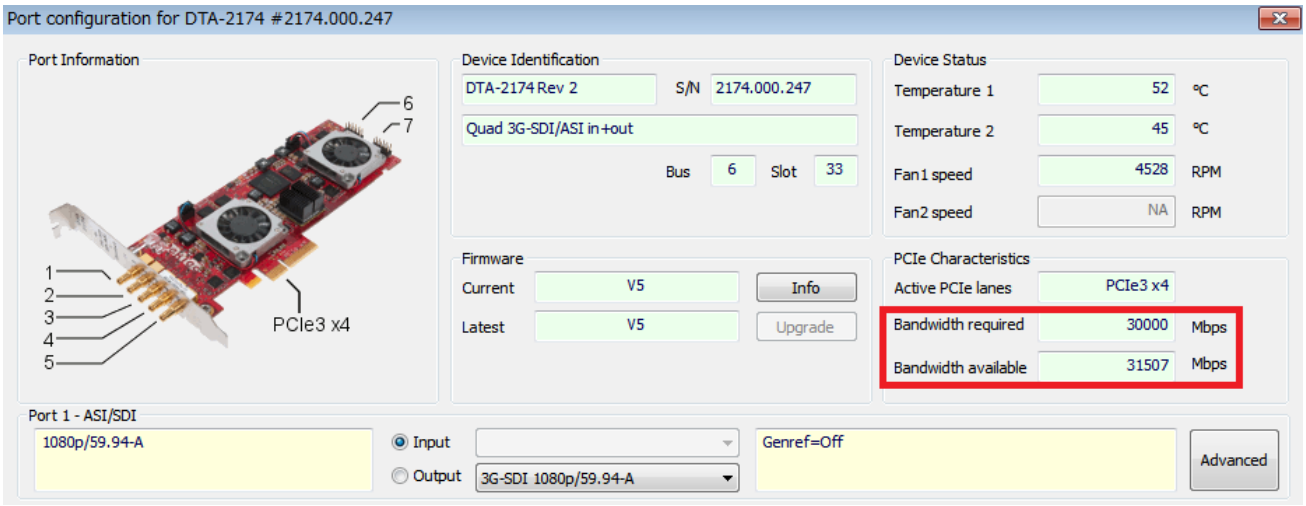


**Figure 4. Details view in DtInfo utility.**

Windows Sleep and Hibernation mode shouldn't be used on the PC, they are not supported. Also, for unattended operation, please make sure that there are no other tasks that could affect the speed of the PC at some point, for example Windows Update, scheduled antivirus disk scan, etc.

# 5 Usage overview

During the installation of VF-REC a shortcut on a desktop and an entry in Start Menu are created. The application's interface is displayed in an internet browser. The window is divided into three regions: the title bar, the recorders list, and the selected recorder's control panel.

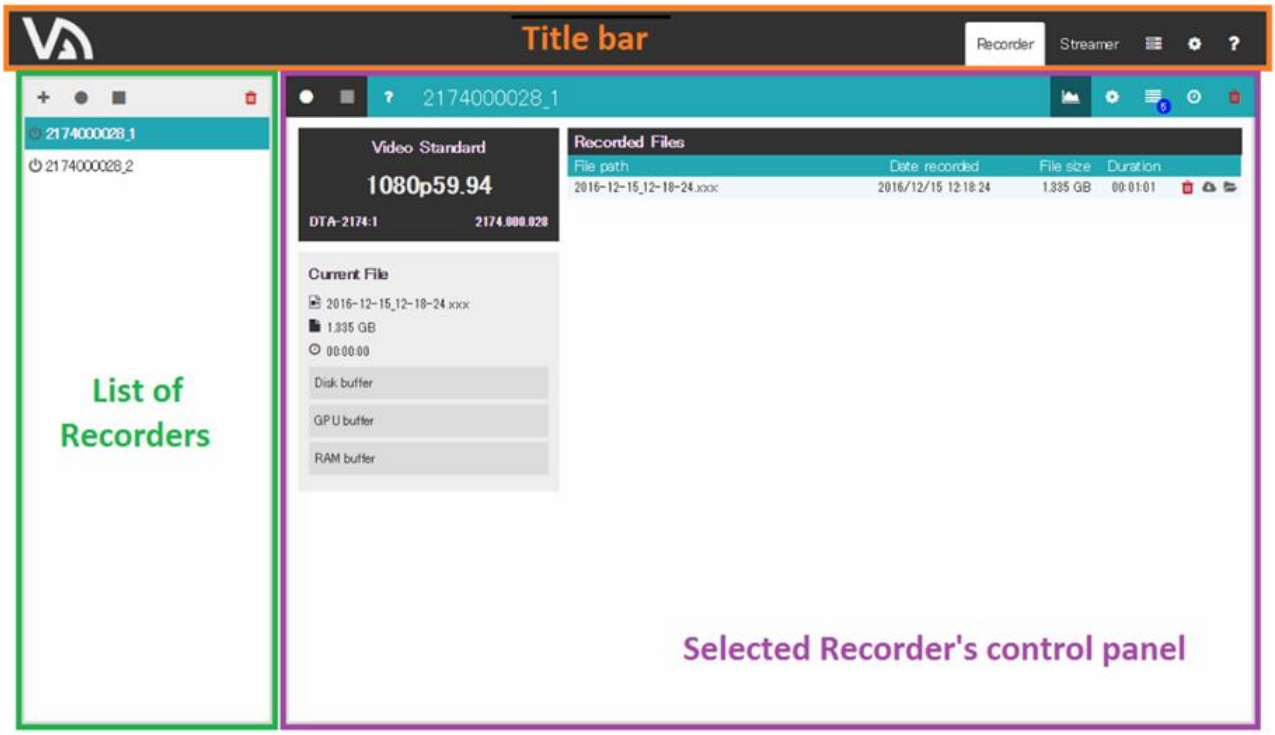


**Figure 5. Elements of application window.**

The configuration of recording starts with creation of a recorder instance. To do that, please click on the plus (+) icon on top of the left frame. In the pop-up window please choose input type (ASI, TS over IP, RF, SDI) and select one of the available devices. A recorder will be added to the list with default name consisting of device's serial number and port number.

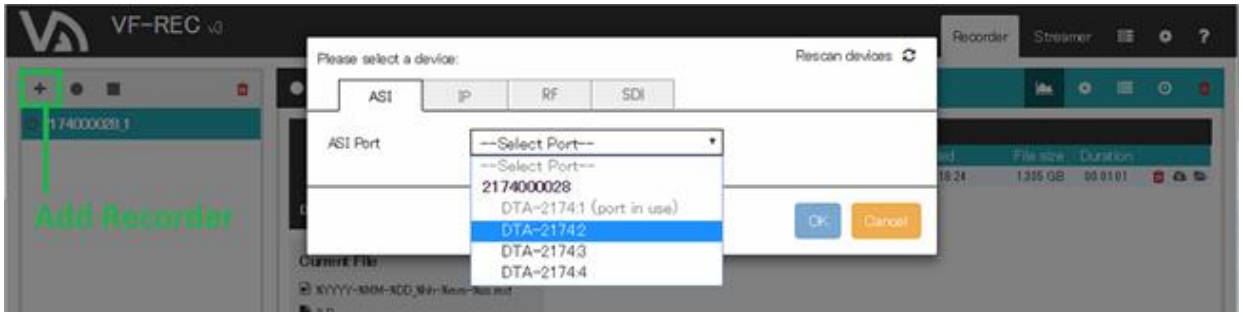


**Figure 6. Device selection window.**

The name of a Recorder can be changed by clicking on it in the control panel on the right side. Two buttons on the left side of the recorder's name are used for starting and stopping the recording process. A trash bin button on the far right is used for deletion of recorder. If multiple recorders are present, it is also possible to start/stop/delete them simultaneously using similar buttons on top of the recorders list.

For delete all Recorders, need to set administrator password. (See to *8 User Preferences*)

Closing the browser's window doesn't stop the applications; they will still keep running in the background. All ongoing recordings will continue without interruption.

Two Recorder instances could potentially have the same name; in that case, the user can press the '?' (question mark) icon on the left of the Recorder name in order to verify the unique ID corresponding to that Recorder.

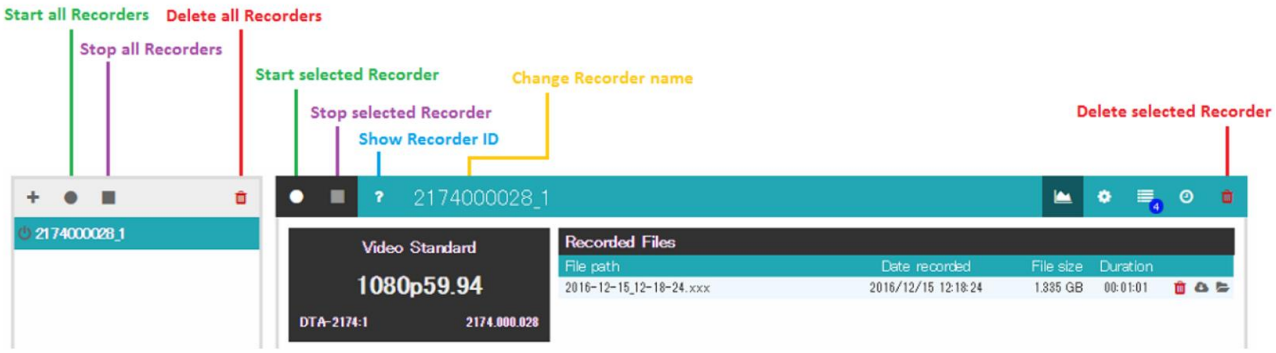


**Figure 7. Buttons for control of recording.**

Each recorder in the list has action buttons, as well as status indicators, as shown in Figures 7, 8 and 9.

Each recorder will show a red "Recording" indicator next to it while recording is in progress.

When a recorder process is active, the "Detach recorder resources" button will be available (figure 7), in order to release the DekTec device so that it can be used by other applications. When a process is inactive, the "Restart recorder process" button will be shown instead (figure 9).

If a recorder process logs an error or warning while another recorder is being monitored, the "Unobserved error/warning" indicators will turn on. If clicked, they will take the user directly to its corresponding Logs view.

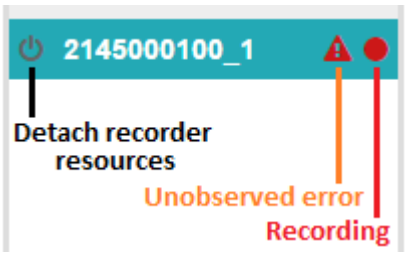


**Figure 8: Recorder buttons and indicators**

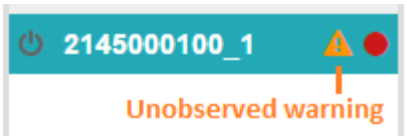


**Figure 9: Recorder buttons and indicators (2)**

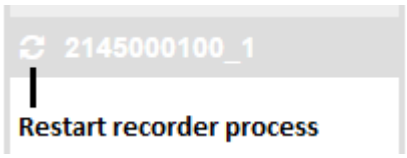


**Figure 10: Recorder buttons and indicators (3)**

The recorder's control panel is made up of several views. The default view which is shown upon creation of encoder is called "Monitor view". To switch between the views, please use the buttons located on the right side of the recorder's name.

Note: the File merger view and functionality is only available for TS recordings.

Note: when a process has been detached, the Settings and Scheduler views are unavailable.

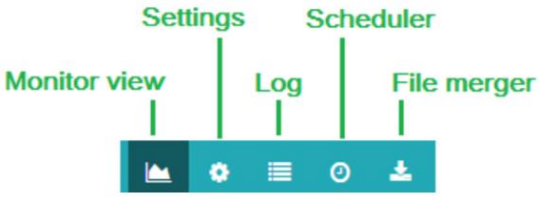


**Figure 11. Views available in control panel.**

## 5.1 Monitor view

The Monitor view shows the status and progress of the ongoing recording, as well as the list of previously recorded files. The recorded files are stored in sessions, which are defined when a recorder starts to when the recorder is stopped. It is possible to delete individual recorded files or complete sessions from the file system and the database using the trash can icon. Individual files can also be downloaded to the local PC that is connected to the VF-REC server, using the download button next to each recorded file within the session.

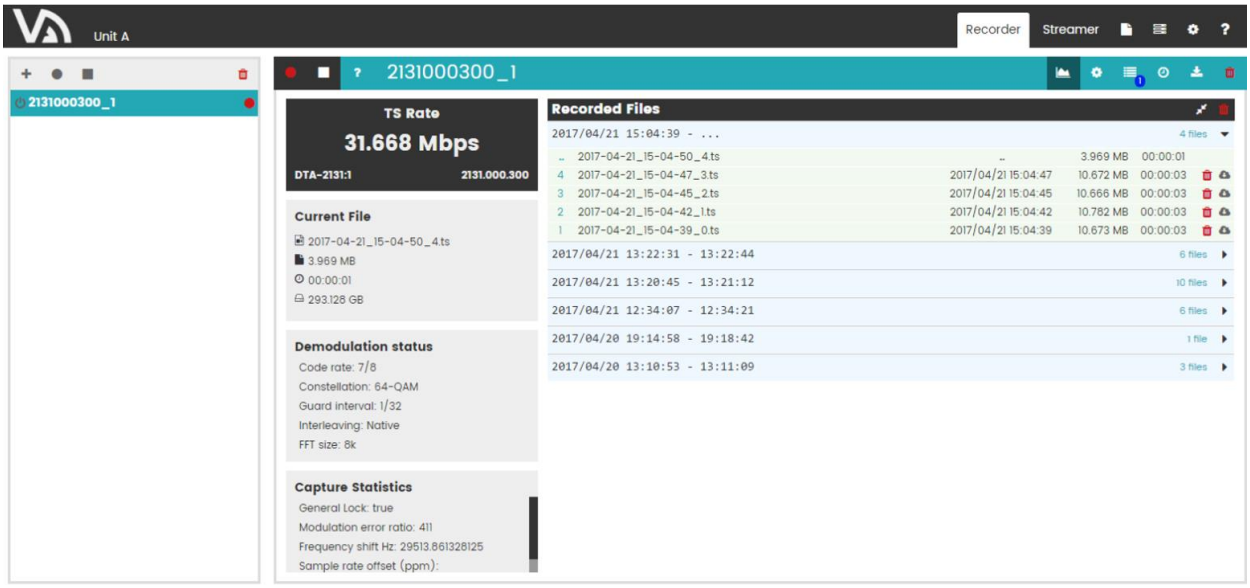


**Figure 12. Monitor view.**

## 5.2 Settings view

The settings view offers different configuration parameters, depending on the input type.

| Parameter | Description |
|---|---|
| File Path | Path to the TS file to be recorded.<br>A timestamp can be added to the file name, using the following placeholders (all or part of them): *%YYYY-%MM-%DD_%hh-%mm-%ss* |
| File Chunk Option | Rule for automatically chunking into multiple files. This option can be used to prevent creation of large files which are difficult to handle. The options are: *No chunking*, *Size*, *Time.* |
| Chunk Size/Duration | If chunking is enabled: size or time limit for each file. |

**Table 2. TS settings (ASI, IP)**

| Parameter | Description |
|---|---|
| Port Number | Local port number for IP reception. |
| Multicast Address | If checked, the multicast group address specified in the text box is joined. |
| Source Filter Address | Source-specific multicast filtering by IP address. |
| Source Filter Port | Source-specific multicast filtering by port number. |
| VLAN ID | VLAN ID<br>(for using, the system must be attached VLAN adaptor has same ID.) |

**Table 3. IP specific settings**

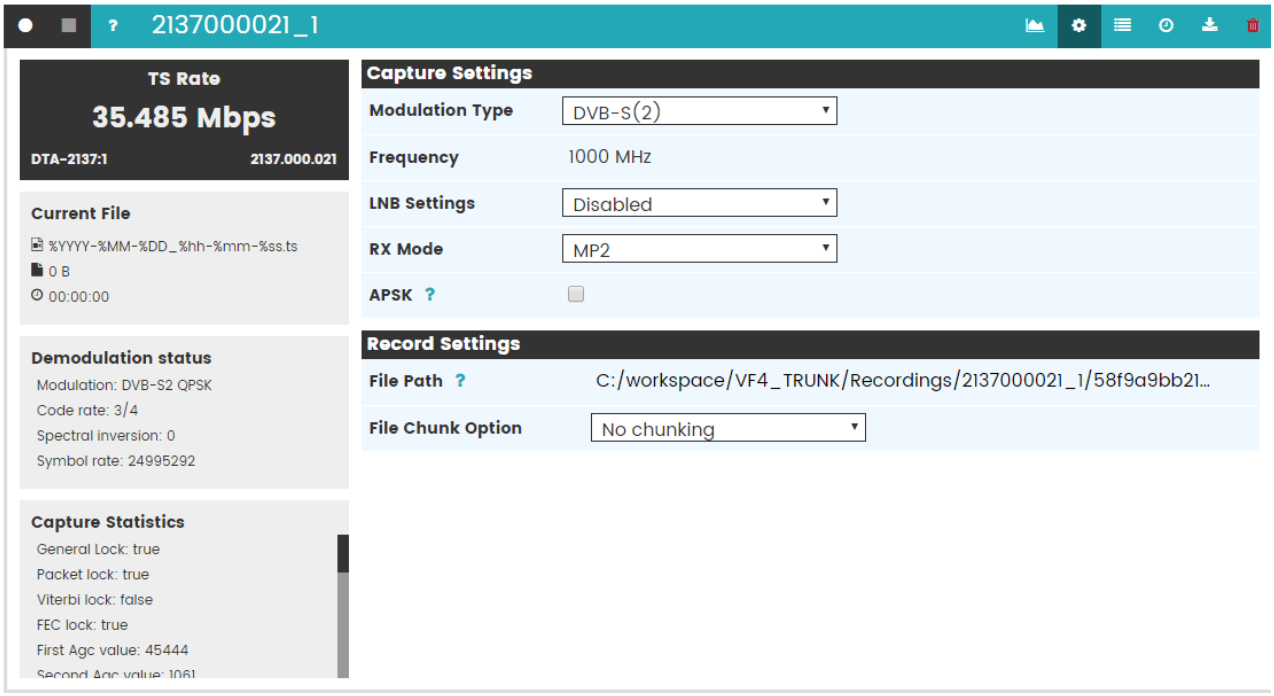


**Figure 13 DVB-S2 Settings.**

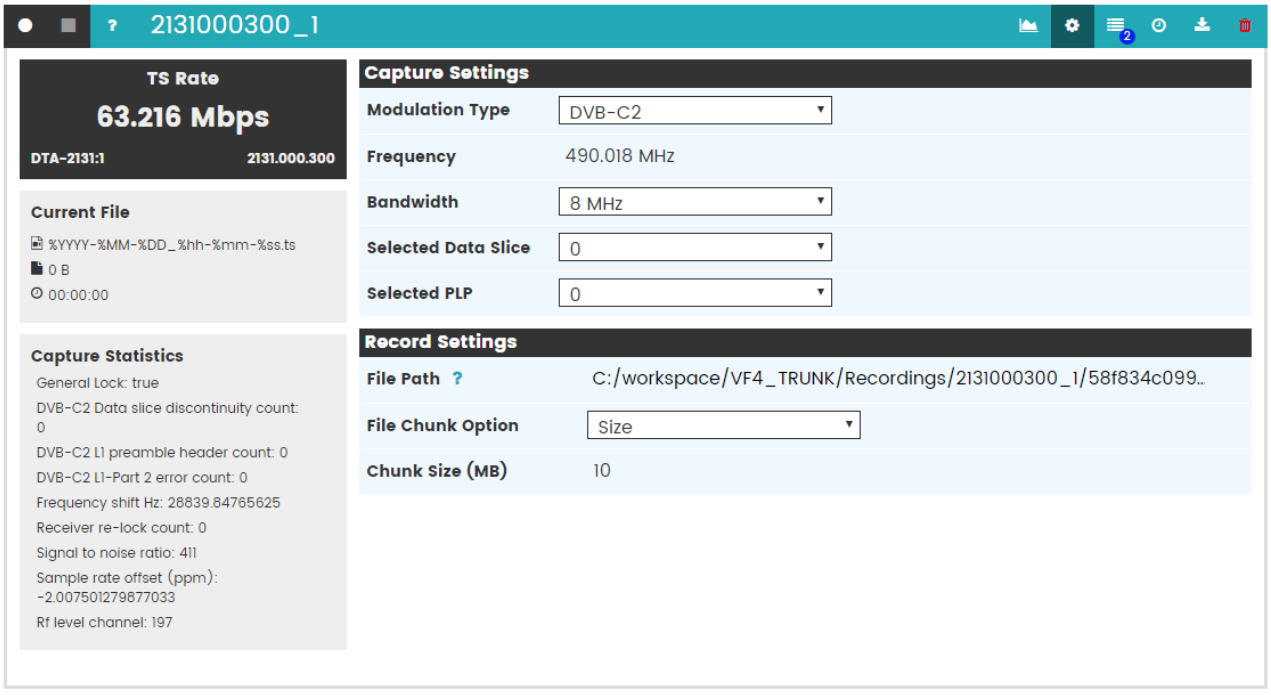


**Figure 14. DVB-C2 Settings.**

## 5.3 Logs view

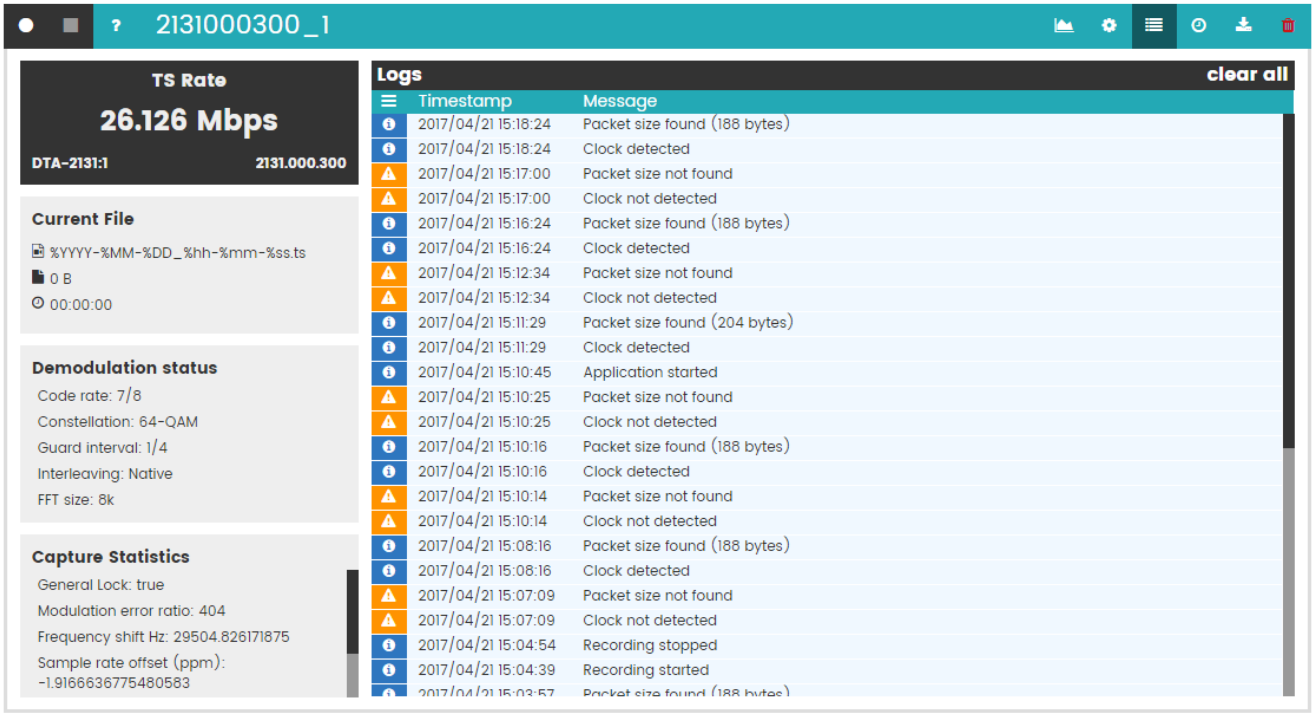


**Figure 15. Logs view.**

Messages from the application are listed here. It is possible to filter them by type (warning, alarm etc.) by clicking on the header of the first column. In order to search for a particular text in all messages please type it in the “Search message” field.

## 5.4 Scheduler view

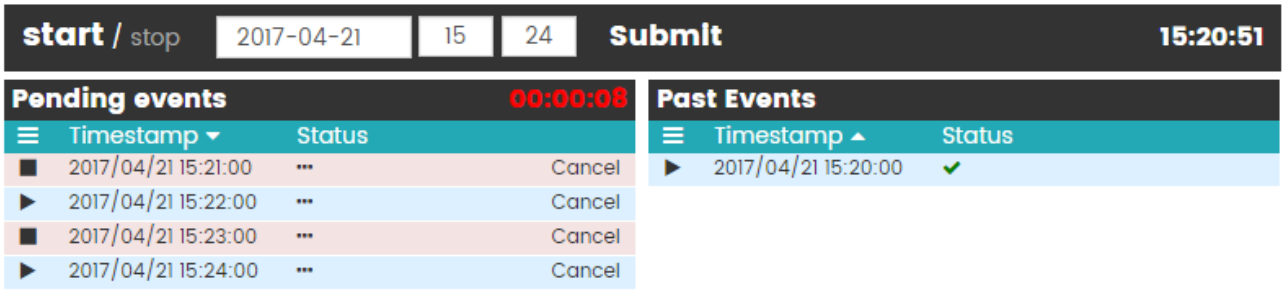


**Figure 16. Scheduler view.**

Recordings can be scheduled in this view. Typically recording consists of two events: start and stop. In order to add an event, select the date and time, and specify whether it has to “start” or “stop” by clicking on either button. Then finish configuring the event by pressing the Submit button. If a stop event is not defined, a recording session will continue until it is manually stopped.

## 5.5 Extractor view

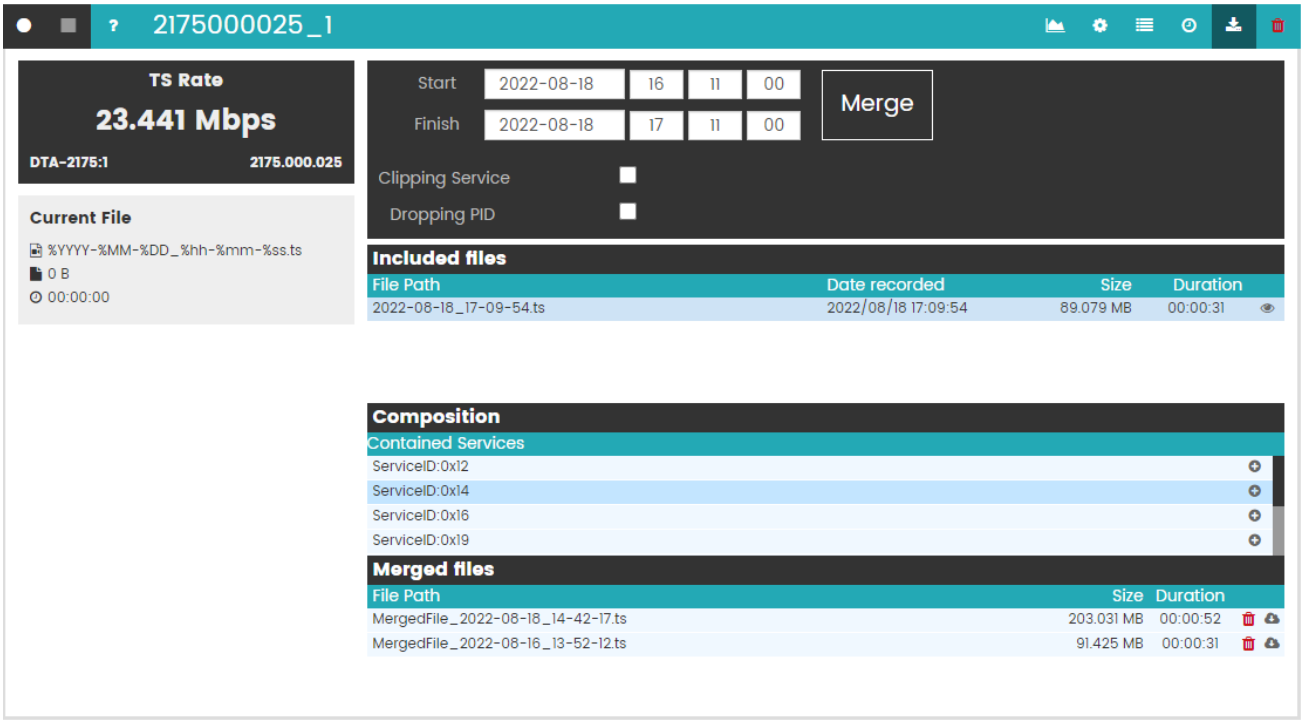


**Figure 17. Extractor view.**

The Extractor view allows the user to select a start date/time and an end date/time, to concatenate recorded files that have been recorded within that time.

**Clipping Service** : Select specified services to extracted file from recorded files.

**Dropping PID** : Drop specified packets to extracted file from recorded files.

Enabling check box to view edit box for select parameter.

For specify clipping service to set below.

**SID=[service_id] or [Service Name]**

For select some services to set ';'(semicolon) as delimiter.

Press eye mark on right of "Duration" of included files, then list of contained services in the file will be displyed on Composition.

For select dropping packets to enumerate PID below .

**ex)**

**101 102 103**

**0x201 0x202 0x203**

# 6 Recorded Files

The recorded files view displays every file located in the database, regardless of the recorder that they are linked to. The recorded files are displayed by session and it is also possible to delete files / sessions from the database / file system.

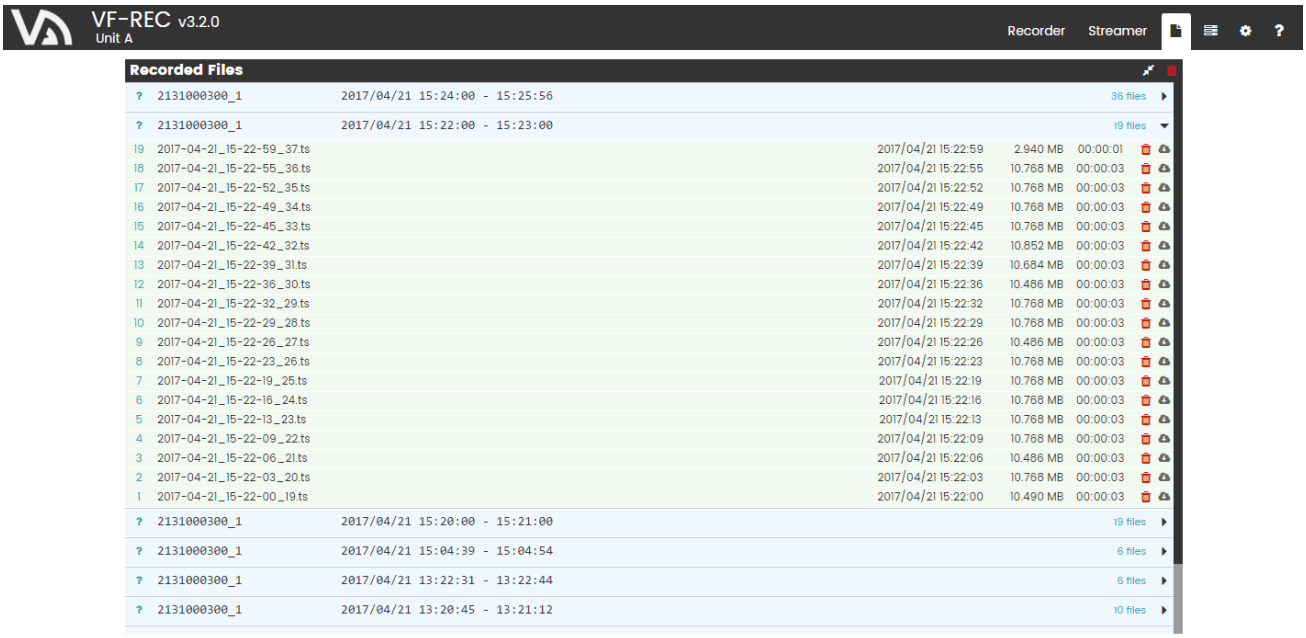


**Figure 18. Recorded Files.**

# 7 List of devices

The view lists all available capture and output devices.

The licenses held by each device are also listed next to its name.

The devices that are displayed grayed out are already in use by an application, be it VF-Rec Recorder, or any other application.

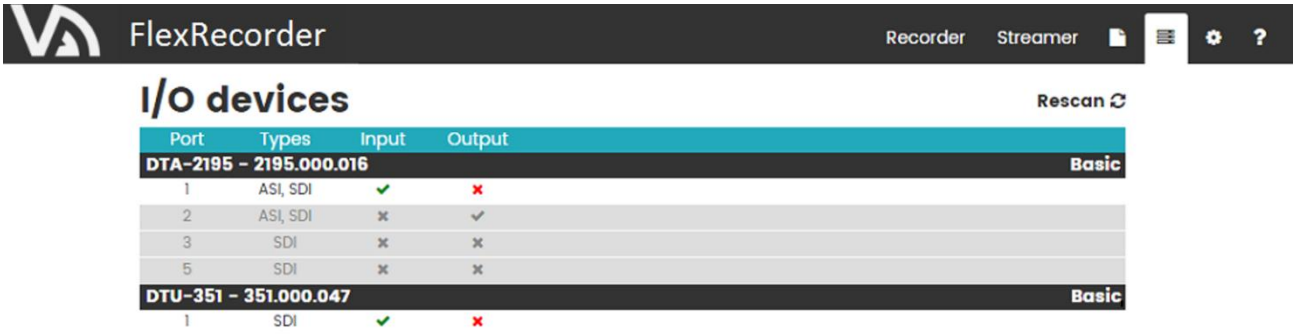


**Figure 19. List of devices.**

# 8 User preferences

This view lists application-wide fields that can be configured according to user preferences.

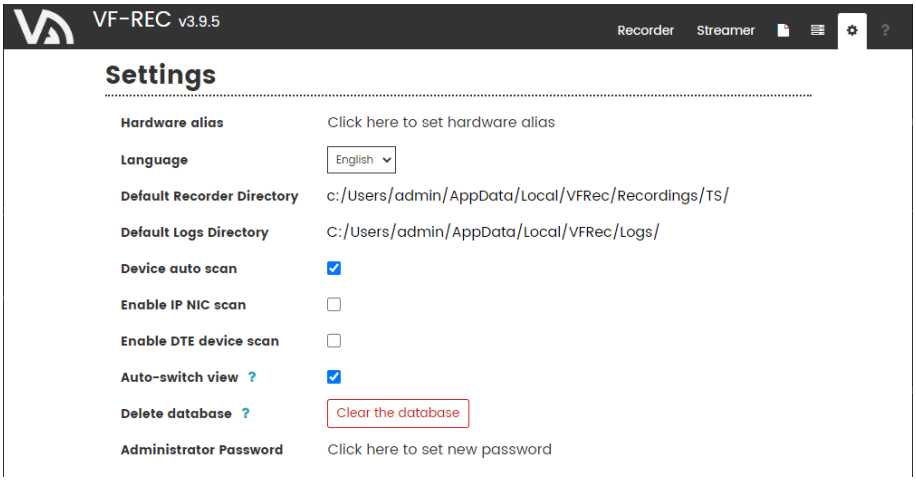


**Figure 20. User preferences.**

The specified ***Hardware alias*** will be shown under the label of “VFRec” in the title bar.

The default directory for recorded files, which is initially set to

*C:/Users/<user_name>/AppData/Local/VFRec/Recordings*

can be changed to any other preferred directory.

The default directory for application log files can be configured as well.

***Device auto scan*** enables an automatic update of the available devices

***Enable IP NIC*** *scan* enables motherboard network controllers to be used for recording. However, bear in mind that these devices are only usable with a USB license dongle.

***Enable DTE device*** *scan* similarly enables the usage of DekTec DTE devices.

***Auto-switch view*** enables automatically switching to the Monitor view whenever the Start button is pressed, for both Recorders and Streamers.

***Delete database*** clears all the information in the VF-Rec database: Recorders, as well as the recorded files’ information, and user preferences. Note that the physical files are NOT deleted from your computer, but the information about them in the VF-Rec database will be lost. This option should only be used in extreme cases when the database seems to have been corrupted by unexpected errors.

***Administrator Password*** is used to delete all Recorders or Streamers on the List of Recorder/Streamer.

The default password is “**administrator**”.

# 9 Troubleshooting

### Disk buffer indicator reaches 100%

The disk (HDD / SSD) is too slow for recording. Please set a smaller bitrate limit so that the size of output files is smaller.

# 10 Contact information

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