

# Webcampak User Guide

Eurotechnia Ltd.

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# Chapter 1

## Overview

### Overview

#### Webcampak or Webcampak Cloud

Our website mentions of **Webcampak** and **Webcampak Cloud**, those two names refer to the same software but installed in a different context:

- **Webcampak** is typically installed on low-power embedded computers and are directly attached to D-SLR cameras
- **Webcampak Cloud** is typically installed in a datacentre on high-performance servers and is used as a central place to store and process pictures coming from different **Webcampak** systems.

Having one since software greatly facilitates development (one codebase to maintain), but it also means a need for greater education and understanding from users, on the system's capabilities.

For example, the software will not prevent users from initiating compute-intensive manipulations on a **Webcampak** since it might make sense in some situations.

We don't have mechanisms in place to prevent a user from configuring a capture rate of 1 picture every 10s, requesting a 27-degree rotation of the picture on the fly. Even if we know this is likely to create difficulties in most situations, there might be some use cases for which this configuration is relevant, thus we don't prevent this configuration.

Webcampak try to be as verbose as possible, timing most of the lengthy events in log files available to users to assess performance.

One of our recommendation, when discovering the system, is to start small and progressively add more and more complexity into the setup to evaluate the impact of configuration settings.

Education and understanding of the implication of configuration settings are key for a good operation of the system.

#### Capture devices (D-SLR or others)

Webcampak has been built to be as flexible as possible. Adding new types of capture devices into the software is relatively straight-forward for developers (us).

The most common use-case though is the use of D-SLR cameras, Webcampak picture acquisition process relies on gPhoto2, you can find a list of known supported D-SLR cameras on this page of their documentation

#### Open Source

Webcampak is open source unless specified otherwise, most of its codebase is licensed under GNU GPL v3.

We are strong believers of the benefits of using and developing open source software, and welcome external contributions.

# Chapter 2

## Sources

### Files

Your Webcampak will probably have to store a (very) large number of pictures. It has been designed for this task and multiple features are available to manage and secure those files.

### Redundancy

Hardware failure or human error (i.e. delete pictures by mistake) do happen, taking preventing actions is always preferable.

Webcampak is able to send pictures to a remote FTP server, users can also store pictures automatically on another source of the same Webcampak to prevent human errors (just keep in mind it will require twice the amount of disk space).

### Automated deletion

Webcampak is equipped with automated deletion mechanisms to ensure its internal hard disk never runs out of space. Those mechanisms can be configured to fit various requirements.

Even if Webcampak stores pictures to a remote server, it can use its internal disk space as a buffer to ensure no pictures are lost in case of network issue. Depending on the capture frequency and picture size, this buffer size can span days, even months.

### File structure

In most cases, access to Webcampak files is done through FTP, using provisioned accounts.

A global FTP account (wpresources) is available for admins to access shared Webcampak elements, such as:

- cache files (temporary files created by Webcampak)
- Webcampak database (users, permissions, sources details)
- emails (queued, sent, failed)
- configuration files
- logs
- statistics
- common watermark files (shared between all sources)
- xfer (queued, completed, failed)

Each source then gets its own FTP account giving access to its own directory tree, containing:

- **live**: directory containing hotlink pictures and videos
- **pictures**: directory containing pictures archives, with one sub-directory per capture day

- **resources**: directory containing various source-specific elements necessary for processing and source operation
- **tmp**: temporary directory used in processing and/or picture acquisition
- **videos**: directory containing generated videos

# Chapter 3

## Capture

### Capture

#### Interval

Webcampak captures pictures at an interval defined in minutes or second, with captures triggered based on clock time.

For example, if a source is configured to capture every:

- **20s**: The capture process will be triggered at 5:00“00, 5:00”20, 5:00“40, 6:00”00, etc...
- **10mn**: The capture process will be triggered at 5:00“00, 5:10”00, 5:20“00, 5:30”00, etc...

To get a “clean” and consistent result we recommend using one of the following settings:

- **Seconds**: 10, 20, 30
- **Minutes**: 1, 5, 10, 15, 20, 30, 60

Note: a 10s capture frequency will highly depend on of your hardware, and might not be achievable.

### Accurate Capture Time

When capturing from a D-SLR camera, and depending on multiple factors, the actual capture process might be triggered a few milliseconds or seconds after the defined interval.

The system can be configured so that users can specify if the picture timestamp (and filename) should be the time the capture request was sent (interval time) or the time the picture was actually captured.

#### Filename

Webcampak uses the capture time for pictures filenames, using the following convention: YYYYMMDDHHmmSS (YearMonth-DayHourMinuteSecond).

For example, 20170224124007.jpg is a picture captured on February(02) 24th, 2017 at 12:40 and 07 seconds.

To prevent issues associated with a large number of files in a single directory, pictures are stored in a directory corresponding to the picture's day, for example, the file path for the above picture will be: pictures/20170224/20170224124007.jpg

### Weekly Calendar

A 24h-format weekly calendar is available in each source to define when to capture pictures (day of the week, time of the day).

Users can enable variable capture rate (for example capture business hours at a different rate) by configuring multiple sources with a different non-overlapping capture calendar.

## Non-overlapping sources

When configuring sources to capture from the same physical source (i.e. same D-SLR camera), users must be cautious not to have overlapping capture requests.

Cameras can only handle one capture at a time. If there is an overlap, the source to get the pictures will be “first-come-first-served”, with the other source failing with the potential risk of crashing the camera.

## RAW Files

Raw pictures are stored in a specific sub-directory, for the above picture it will be: pictures/raw/20170224/20170224124007.jpg

It might be useful to understand that, in webcampak, raw pictures are mostly considered as a supplement to jpg pictures. Picture manipulation happens on jpg pictures only. Raw pictures are stored in a different directory tree. At various processing stages, the system will check for the presence of raw pictures (and eventually configuration settings) to determine if such files should be sent.

## Handle capture failure

Webcampak verifies capture success and can take actions (such as email notification) in the case of failure to capture (or delays from expected capture slot).

In some situations, failure might be caused by issues with the D-SLR camera (such as a system failure). Webcampak can control Phidgets relays and power cycle the camera after a pre-defined number of failures. This mechanism acts on the Camera’s power supply, meaning the camera itself must be able to start back up after power loss (it is the case for most D-SLR cameras).

# Chapter 4

## Logging

### Logging

Logging has been dramatically extended from Webcampak 2.x. In this section of the document, we will details logs and emphasis on why reviewing and understanding logs is relevant.

Logs files do not take a vast amount of physical space, so we decided to build it into most of the processing done by Webcampak and log almost everything. Some logs are there for auditing purposes, others can be especially useful in configuration stages to understand what is happening under the hood.

### Configuration changes

All configuration changes are logged, this lets users understand who changed what, when. This provides users with the ability to rollback to previous configuration settings.

### Capture logs

Most actions are taken automatically by Webcampak when it captures and manipulates pictures are logged. Those logs provide timed events, not only the date and time but also the time it took to run some actions.

The most relevant value in capture logs is the overall capture time (20.7s in the below capture). It gives an idea on the maximum capture rate to be supported by the system.

```
1 2017-02-24 14:50:33,864 (INFO) Webcampak : capture.run(): Capture: Overall capture time: 20752 ms
```

Looking into the logs, users can identify the time taken by various actions, for example (below), creating a 1920x1080 hotlink file took 5.6 seconds.

```
1 2017-02-24 14:50:21,508 (INFO) Webcampak : captureUtils.generateHotlinks(): Hotlink File:  
/home/webcampak/webcampak/sources/source1/live/webcam-1920x1280.jpg
```

```
2 2017-02-24 14:50:27,157 (INFO) Webcampak : pictureTransformations.resize(): Resized picture to 1920x1280  
in 5646 ms
```

It is safe to assume that in this case, disabling this particular action in the configuration would save 5s and bring the capture time closer to 15s, potentially allowing and increased capture rate.

# Chapter 5

## File Management

### File Management

Over a project's lifetime, a Webcampak system will capture, manipulate, transfer and store a very large number of files. Different mechanisms have been implemented to ensure storage and transmission is performed in an efficient and secured manner.

#### Local storage

Webcampak is usually shipped with a 256 or 512 GB SSD, providing ample space for local storage. In a vast majority of situations, captured pictures are transferred to a NAS or another Webcampak (Webcampak Cloud generally).

In this situation, local storage can be considered as a buffer. The system will be configured to keep X days (X depending of multiple factors, but often a month or two) of pictures locally, automatically clearing older pictures.

Using Webcampak local storage as a buffer is the ideal solution to accommodate network connectivity issues, when such an event happen, you will have X days to identify and address the issue before starting to loose pictures.

At the end of the incident, a Webcampak feature (Xfer Reports) is available to transfer back missing pictures to remote servers (more below).

#### File Synchronization

Webcampak "Xfer Reports" features provides means to ensure all files on a local Webcampak are also available in remote locations, by comparing file names and file sizes. By looking at a report, users can decide to initiate transfer of any missing files.

This feature cover multiple use cases:

- Re-synchronize files after a network incident
- Transfer all files at once to a new destination (a new NAS for example)
- Ensure no pictures are missing

#### Bandwidth Constraints

Bandwidth constraints sometimes prevent pictures from being transferred after capture, for example, if there is a higher capture rate during a specific timeslot. The "Xfer" feature will deserialize picture transmission from the capture process.

New pictures are placed in a queue, which is then processed as per configured parameters (i.e. a number of parallel transfers). This prevents risks of overloading the system with too many parallel jobs.

## **Quota**

Webcampak implements a “soft-quota” policy.

Users can define how much space can be used by a source on the system and will report usage over quota. But the system will not trigger actions others than reporting over-use. Pictures are critical to our system, and we didn’t want to take any action that might result in improperly deleting pictures.

If a source goes over quota, the system will report so, but will not take further actions.

# Chapter 6

## Users

### Users

Webcampak has an authentication and an authorization module providing both feature and source isolation.

### Password

Webcampak does not store clear-text user passwords, but a salted hash of users passwords.

### Groups

Webcampak handles feature authorization on a group level. When configuring a group, users can select which features (view pictures, configure sources, run reports, etc...) are available for users in this group.

By default, Webcampak is provided with three groups:

- **View:** Access pictures and videos, no configuration
- **Configure:** Access pictures and videos, only configure sources (no access to system-level configuration)
- **Admin:** Access to all Webcampak features

Additional groups can easily be created.

### Sources Access

Source access is managed on a per user basis and is independent of feature access (managed through user groups). A user member of a “configuration group” and given permission to access sources A, B and C will be able to configure those three sources.

Webcampak does not support further granularity, for example, it is not possible for user Joe to have config permission on source A & C and view-only permission on source B. This use case has not been identified relevant in our use cases but nothing prevents an admin from creating multiple usernames to cover this use-case.

### Customers

Users can be attached to a “Customer”, this configuration has very limited impact on Webcampak and is only used to identify user provenance and customise background colour and logo.

# Chapter 7

## Authentication

### Authentication

To improve security, access to Webcampak requires authentication, user sessions are created for a predefined amount of time, prompting users to re-authenticate at regular interval.

Access to Webcampak is only possible through HTTPS, users are either be prompted to connect manually through HTTPS or are automatically redirected to an HTTPS connection.

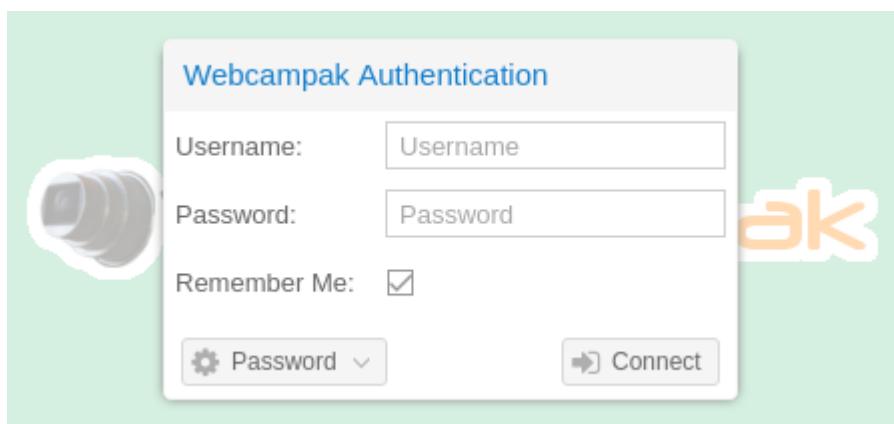
### Splash Screen

Webcampak splash screen provides users with a choice between a fully featured Desktop application and a lighter Dashboard application.

The Desktop application provides most features and allow both viewing contents and performing advanced configuration. The Dashboard application is a simpler view into the Webcampak with a more modern user interface.

### Connection

Desktop authentication



Dashboard authentication



*Desktop*



*Dashboard*



*Mobile (soon)*

Figure 7.1: Webcampak Splash Screen

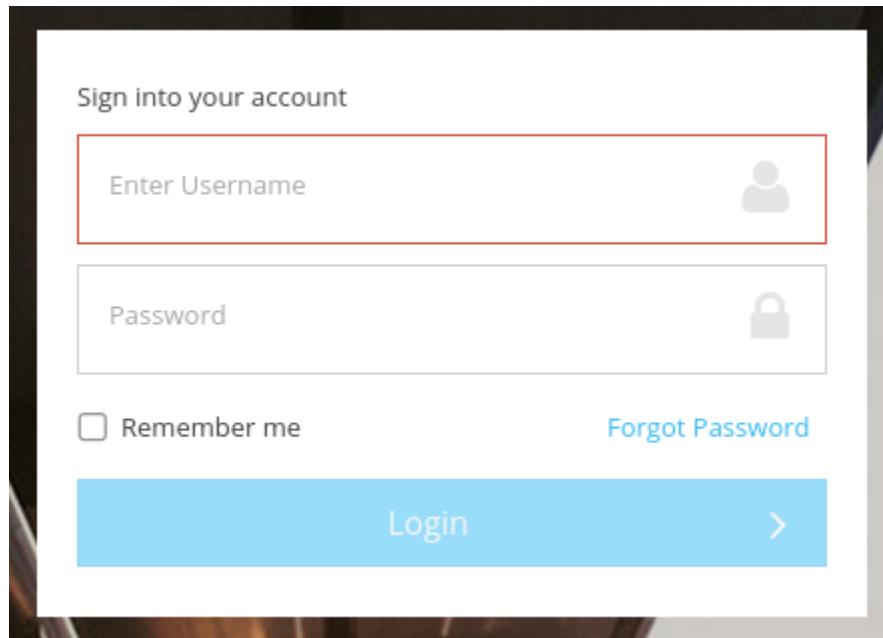


Figure 7.2: Dashboard Login Screen

## Lost Password

In the case of lost password, users can request a new one to be sent to their email address by specifying their username and email address.

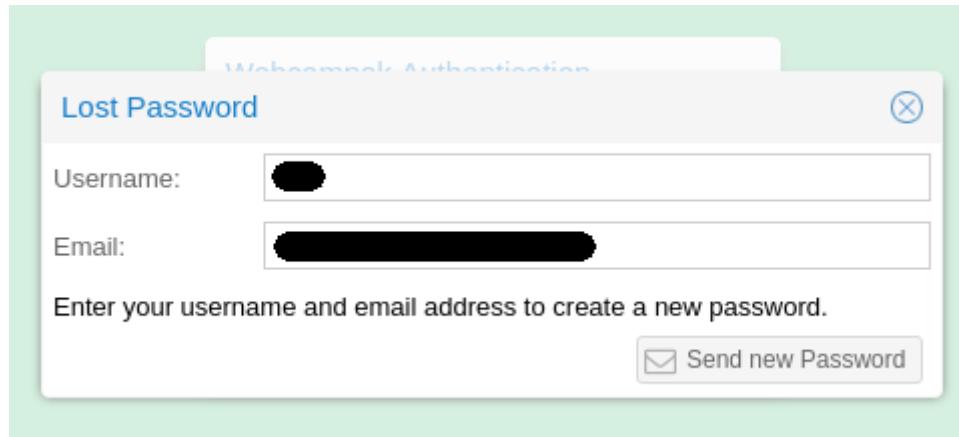


Figure 7.3: Recover Lost Password

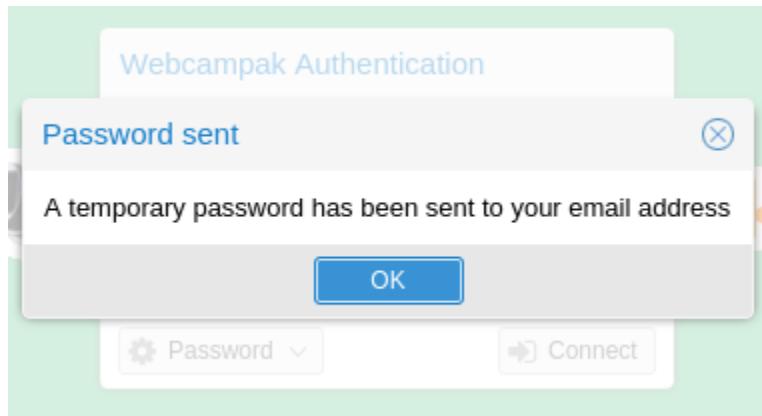


Figure 7.4: Password reset Confirmation

After successfully entering a matching username/email combo, the system sends an email containing a temporary password.

Users are then prompted to enter a new password at their next connection.

Once logged-in, users can:

- See their username displayed on the bottom right corner
- Log Out using the menu on the top right corner of the screen

New password to access your Webcampak [REDACTED]

---

 support@webcampak.com  
to [REDACTED] ▾  
Hello [REDACTED]!  
  
We have received a password request, and generated a new password for you.  
  
Your credentials are:  
Username: [REDACTED]  
Password: [REDACTED]  
  
You will be requested to change this password next time you connect.  
  
Best Regards,  
Webcampak team,  
  
*This password request has been initiated by IP: 127.0.0.1*

Figure 7.5: Password reset email

Change your password ✖

---

Current Credentials

Old Password: [REDACTED]

---

New Credentials

New Password: [REDACTED]

New Password (verif): [REDACTED]

---

✖ Cancel Save

Figure 7.6: Change password



Figure 7.7: Desktop Login Options

# Chapter 8

## Desktop Interface

### Desktop Interface

After authentication, the Webcampak desktop interface is being displayed. This interface is broken down into 3 main sections:

- **Webcampak** menu on the top left corner, giving access to all of the Webcampak features
- **Settings** menu on the top right corner, for settings of the desktop interface
- **Interface status** on the bottom right corner

### Webcampak Menu

The Webcampak menu gives access to all Webcampak features and configuration screens. Those screens are detailed later in the documentation.

### Settings

The settings menu provides access to configuration of the desktop interface itself, such as changing the password, language or logging out of the system.

### Interface Status

Status details are provided in the bottom right corner of the screen.

#### Connection

The first status displayed on the left side if the connection status, it indicates whether the desktop interface is able to communicate with its webcampak. This should be showing up “ONLINE” most of the time except in the case of network issues or if the Webcampak is being rebooted.

Mousing over the status will also display the latency in milliseconds. This latency measures how much time it takes for the desktop interface to contact the Webcampak to obtain its connection status. The lower the better, but this number might be slightly high if you or your Webcampak are connected over high latency links (in particular satellite).



Figure 8.1: Webcampak Menu



Figure 8.2: Settings menu

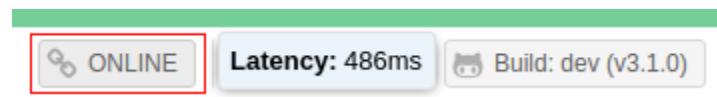


Figure 8.3: Connection Status

## Communication

The small database icon, second from the left, indicates the number of calls made to your Webcampak to retrieve or submit data. When communication happens, a number is displayed in parenthesis next to the database icon. This should only show up when an action is triggered and should clear pretty quickly.

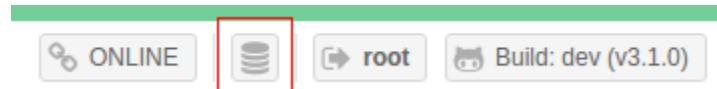


Figure 8.4: Communication Status

## Username

The third icon from the left is the currently connected user. Clicking on the user will log you out of the system.

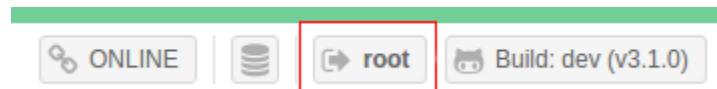


Figure 8.5: Communication Status

## Software Version

The fourth icon from the left display the current Webcampak version, clicking on the version will redirect to Webcampak GitHub organisation. Mousing-over the version will display exact version of all Webcampak components:

- **CORE:** Webcampak Core repository, contains mostly translations, installation assets, etc...
- **UI:** Webcampak User Interface (Desktop, Dashboard)
- **API:** Webcampak API, receives and interprets calls from the UI
- **CLI:** Webcampak CLI, drives all Webcampak background activities

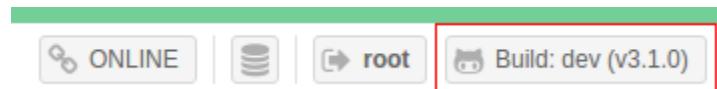


Figure 8.6: Webcampak Version

## Are you running the latest version?

We don't necessarily recommend to be running the very latest dev version, but if you do wonder about what might be missing in the version you are currently running, you can read the version tag this way: v3.1.0-6-gb0a3277

- **v3.1.0:** Webcampak version
- **6:** Number of changes (commits) deployed on this Webcampak since this version was created
- **b0a3277:** The commit tag corresponding to the version currently deployed

If we look a bit closer at the UI commit tag, we can find the currently deployed version in the commit history of the develop branch.

It basically tells us that there have been the following new changes (commits) since this Webcampak was last updated:

- Fixed a bug with configuring Phidgets sensors
- Display exception when loading status
- Update Cfgwatermarkpositionx.js
- Update Cfgwatermarkpositiony.js

It is then your call to decide whether you want to manually update to the latest version or not.

Webcampak / ui

Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Pulse Graphs Settings

Branch: develop ▾

Commits on Feb 21, 2017

-  **Update Cfgwatermarkpositiony.js**  
Fgerhoffert committed on GitHub 5 days ago
-  **Update Cfgwatermarkpositionx.js**  
Fgerhoffert committed on GitHub 5 days ago

Commits on Jan 9, 2017

-  **Display exception when loading status**  
Fgerhoffert committed on 9 Jan

Commits on Jan 6, 2017

-  **Fixed a bug with configuring phidgets sensors**  
Fgerhoffert committed on 6 Jan
-  **Corrected a typo in IP camera template**  
Fgerhoffert committed on 6 Jan

Commits on Jan 5, 2017

-  **Added support for tplink cameras**  
Fgerhoffert committed on 5 Jan

Figure 8.7: Webcampak Version

# Chapter 9

## View Pictures

### View Pictures

Captured pictures can be accessed by clicking on “Webcampak > Pictures” in the top-left menu.

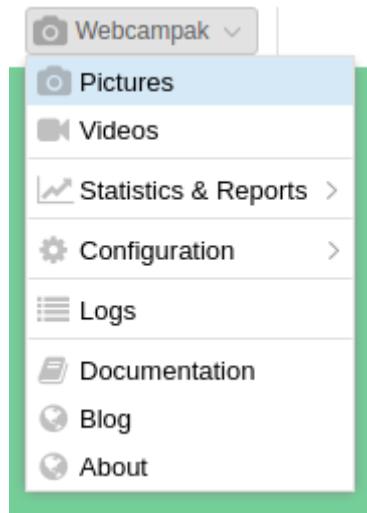


Figure 9.1: Pictures Menu

### Overview

The Pictures window allows users to navigate through sources and their archives.

Sources can be selected using the drop-down on the top-left corner of the window, once selected, the source's title is displayed on top of the source's control panel.

When selecting a source, Webcampak will automatically position the system to the latest captured picture.

Clicking on the main picture will open directly open this pictures in a new tab.

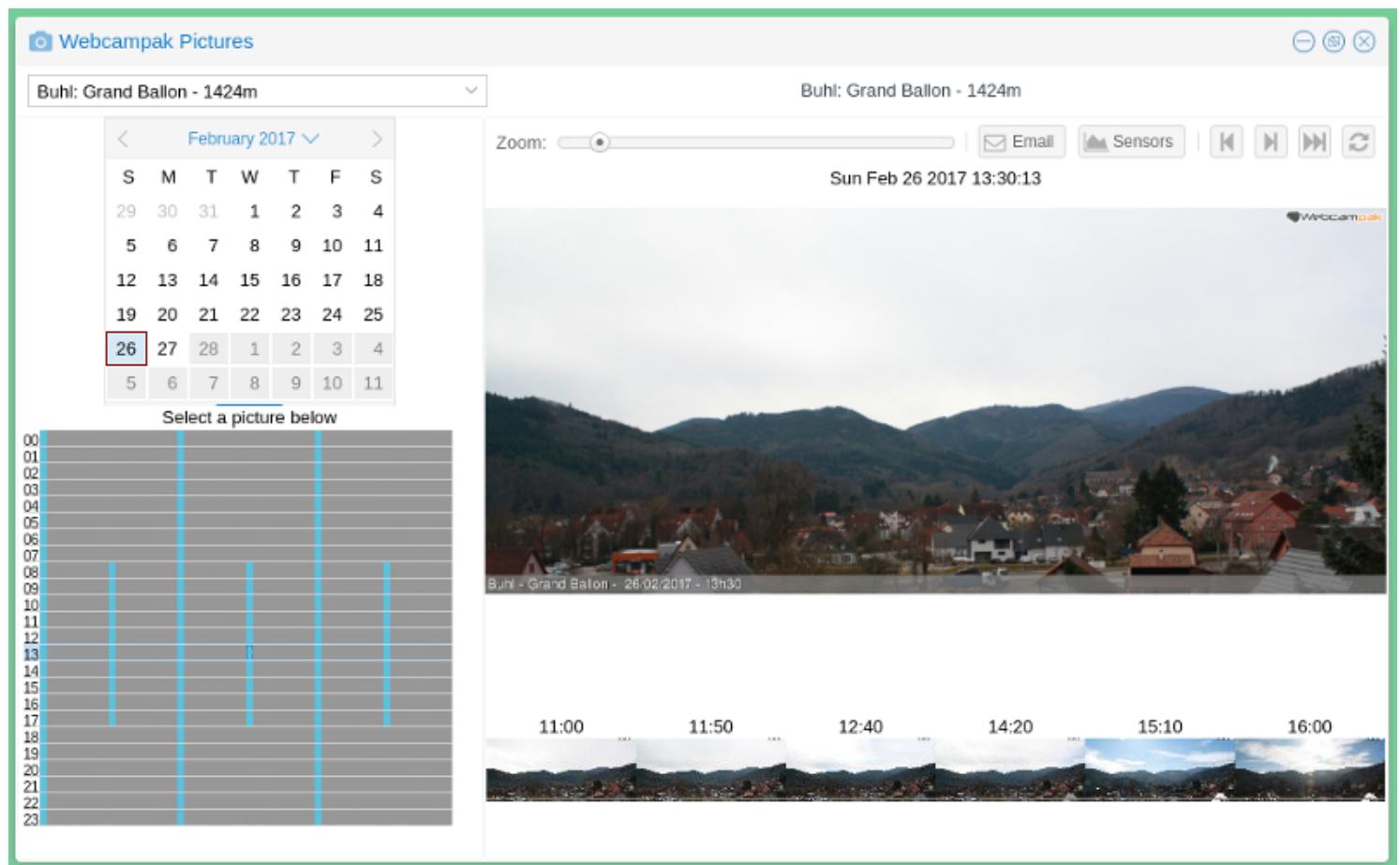


Figure 9.2: Pictures

## Navigate through archives

### Select a day

Using a calendar, users can navigate through the archives, clicking on days containing pictures. The system automatically detects available days and will gray-out days with no pictures available. The current day is automatically highlighted.

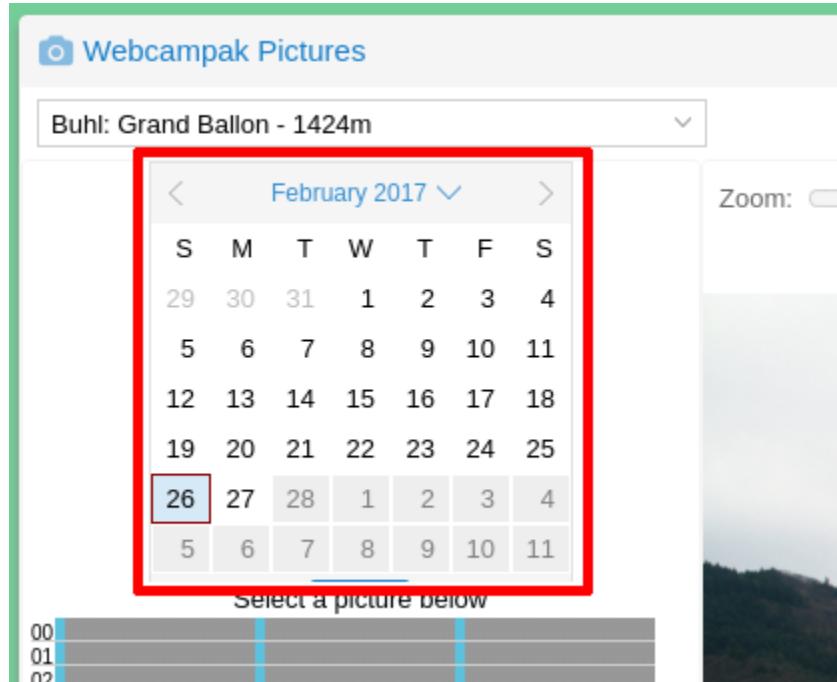


Figure 9.3: Select a day

### Select a picture

All pictures captured during the day are presented in a small widget, containing one row per hour (from 00 to 23) and one column per minute (from 00 to 59).

Blue cells represent timestamps with available pictures. Mousing over a specific cell will display the picture's time, clicking on the cell will open the selected picture.

On the example above you can notice that this Webcampak is configured with variable capture rate, with:

- one picture captured every 20mn between 00:00-08:00 and between 18:00-00:00
- one picture captured every 10mn between 08:00-18:00

### Navigate between pictures

Webcampak provides various means to navigate between pictures, at the top-right of the screen a series of buttons allow users to (from left to right):

- Go to the previous picture
- Go to the next pictures
- Go to the last picture captured by the source
- Refresh the list of pictures available for the source.

Users can also navigate by clicking on thumbnails available towards the bottom of the screen. If sufficient pictures have been captured the system will display 6 thumbnails (from left to right):

- 15th pictures captured before the currently displayed picture



Figure 9.4: Select a picture

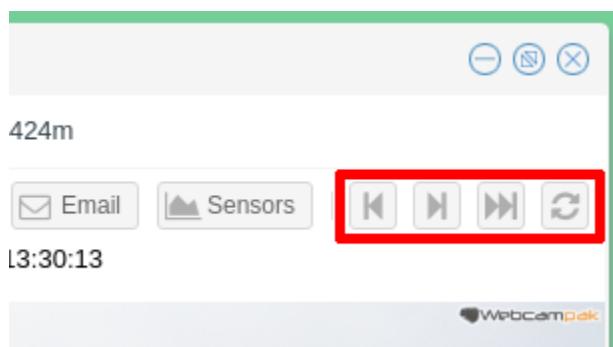


Figure 9.5: Navigation buttons

- 10th pictures captured before the currently displayed picture
- 5th pictures captured before the currently displayed picture
- 5th pictures captured after the currently displayed picture
- 10th pictures captured after the currently displayed picture
- 15th pictures captured after the currently displayed picture



Figure 9.6: Navigation Thumbnails

## Zoom into a picture

Users can also zoom into a picture by selecting the zoom level they would like to achieve (from 0% to 200%).

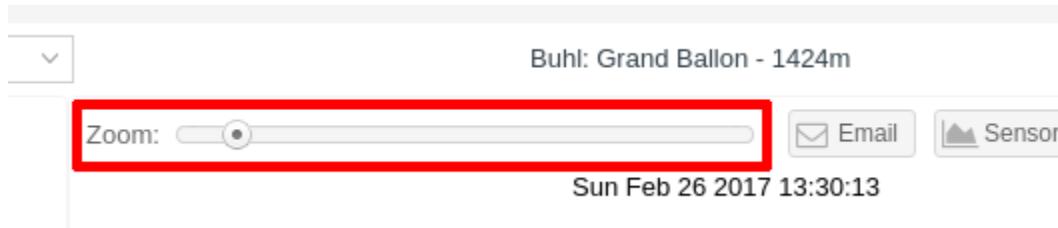


Figure 9.7: Zoom into a picture

Once the zoom level is selected, moving the mouse in the window will focus on the selected area at the selected zoom level.

## Access Sensors

Users can also click on “Sensors” to view Phidgets sensors values captured by the system for that day.

It will open a window displaying up to 4 sensors graphs.

## Email a picture

Users can send the current picture by email, by clicking on “Email”.

All parameters of the email can be customised, it is then placed into a queue and sent, usually, within a minute.

Although this email is sent by webcampak, the name of the sender is detailed in the “FROM” field to facilitates its identification and try to prevent spam.

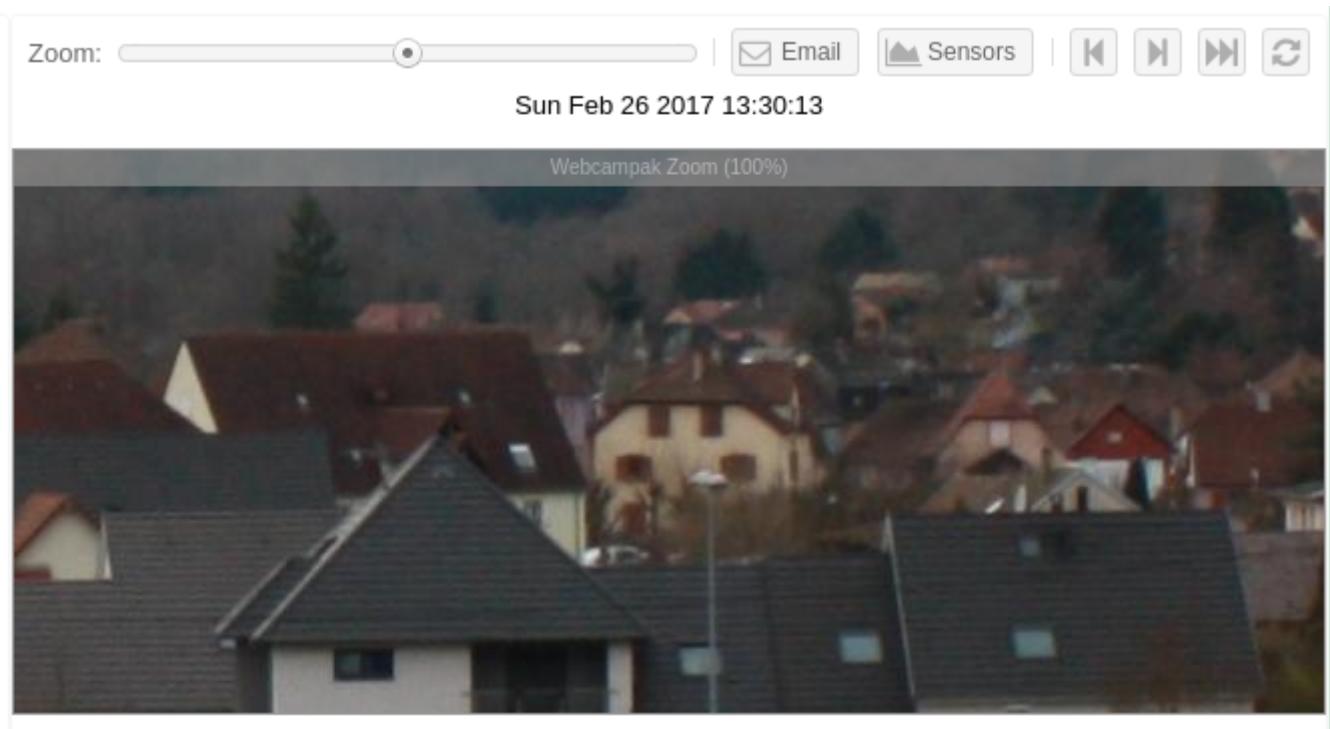


Figure 9.8: 100% Zoom

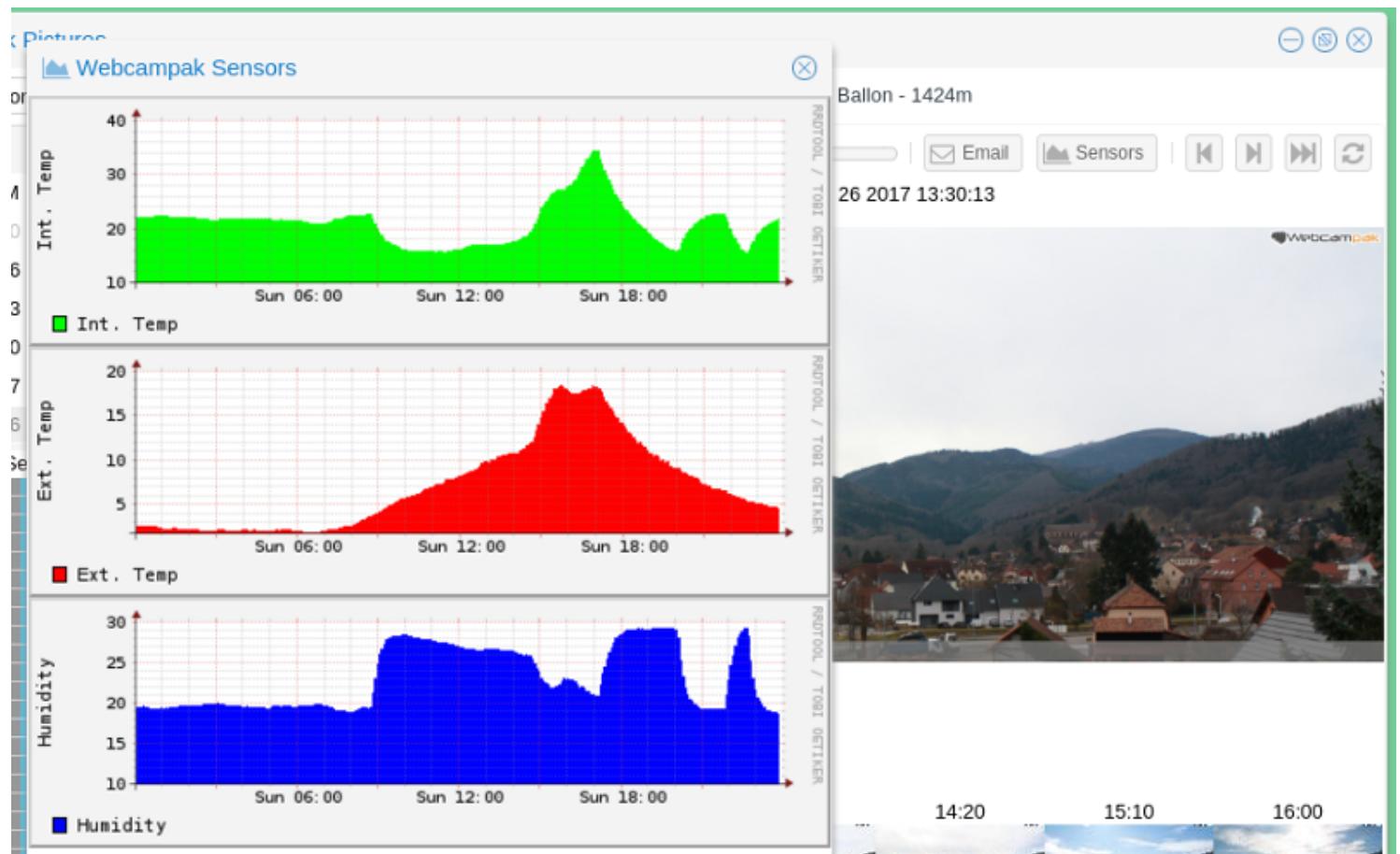


Figure 9.9: Webcampak Sensors Graphs

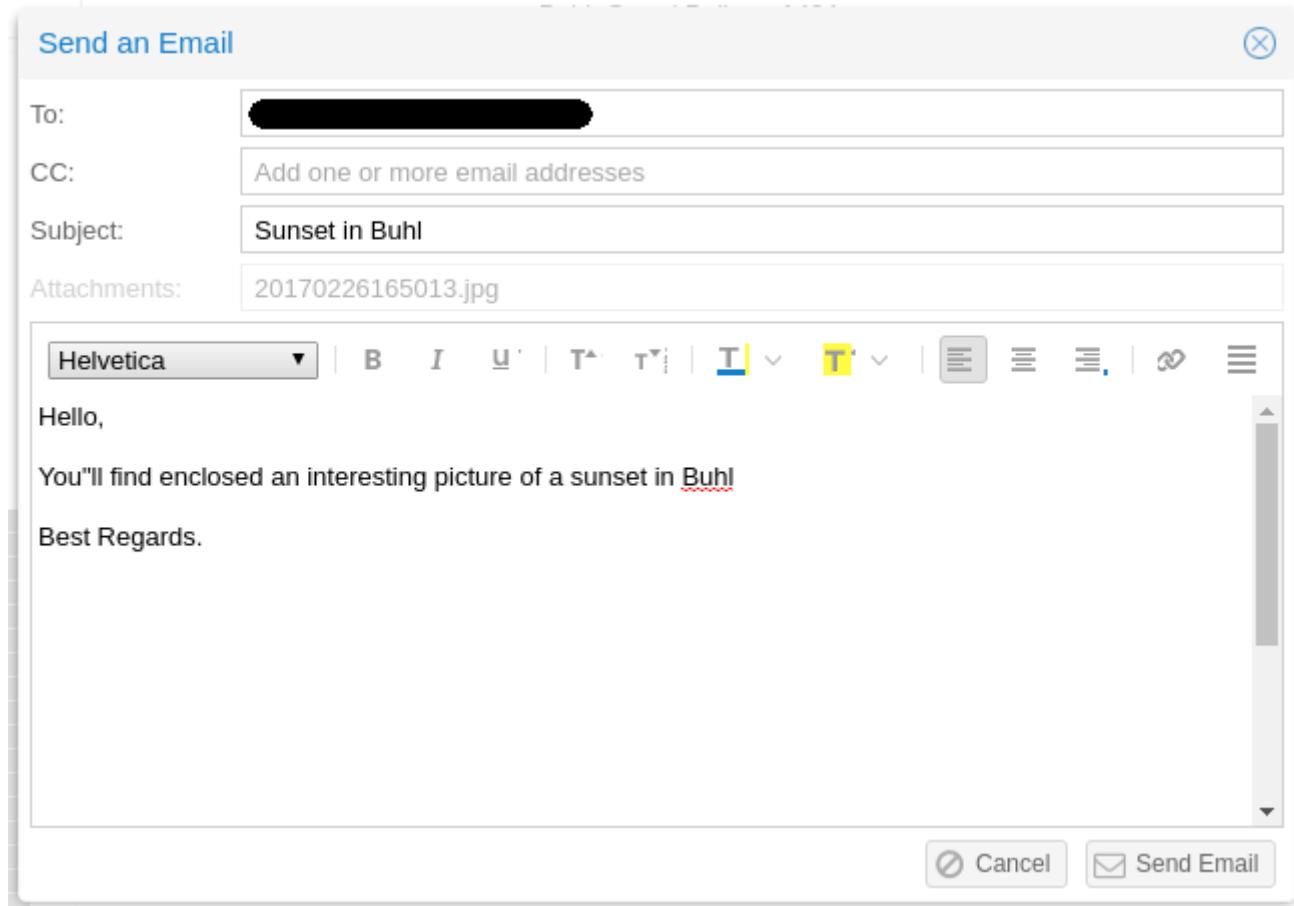


Figure 9.10: Send an email

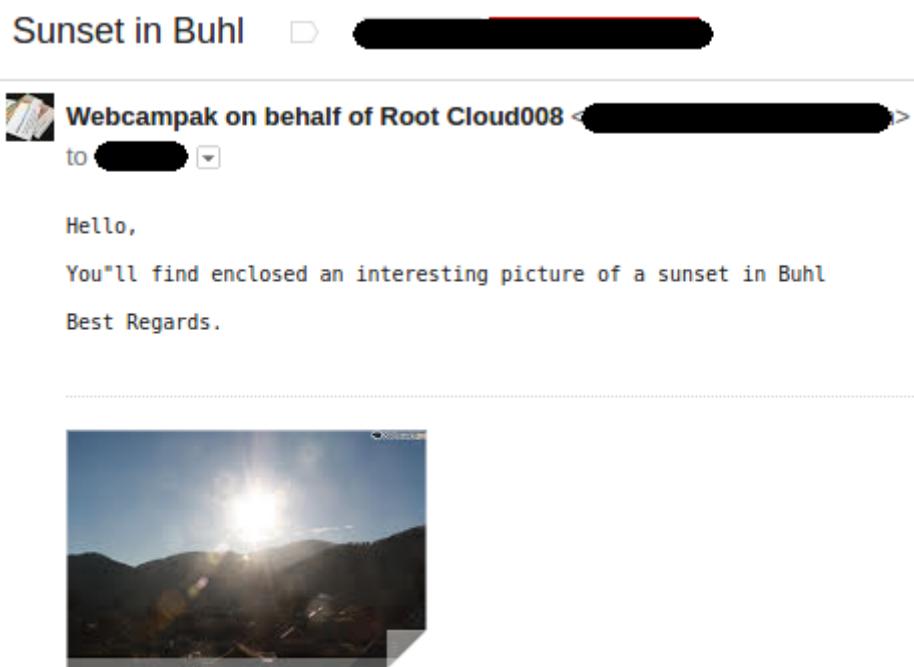


Figure 9.11: Email Received

# Chapter 10

## View Videos

### View Videos

Generated videos can be accessed by clicking on “Webcampak > Videos” in the top-left menu.

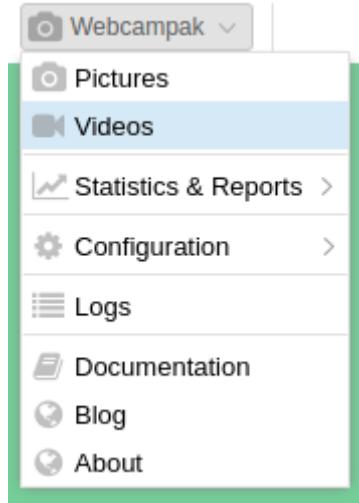


Figure 10.1: Videos Menu

### Overview

The Videos window allows users to navigate through sources and their videos.

Sources can be selected using the drop-down on the top-left corner of the window, once selected, the source's title is displayed on top of the source's control panel.

When selecting a source, Webcampak will automatically position the system to the latest day with videos of the selected source.

### Available videos

The bottom-right section of the window contains a list of available videos for the selected day. This list will contain a mix of automatically and user-generated videos.

Clicking on the corresponding row will open the video which can be played with the embedded player. The video can also be downloaded directly from this window.

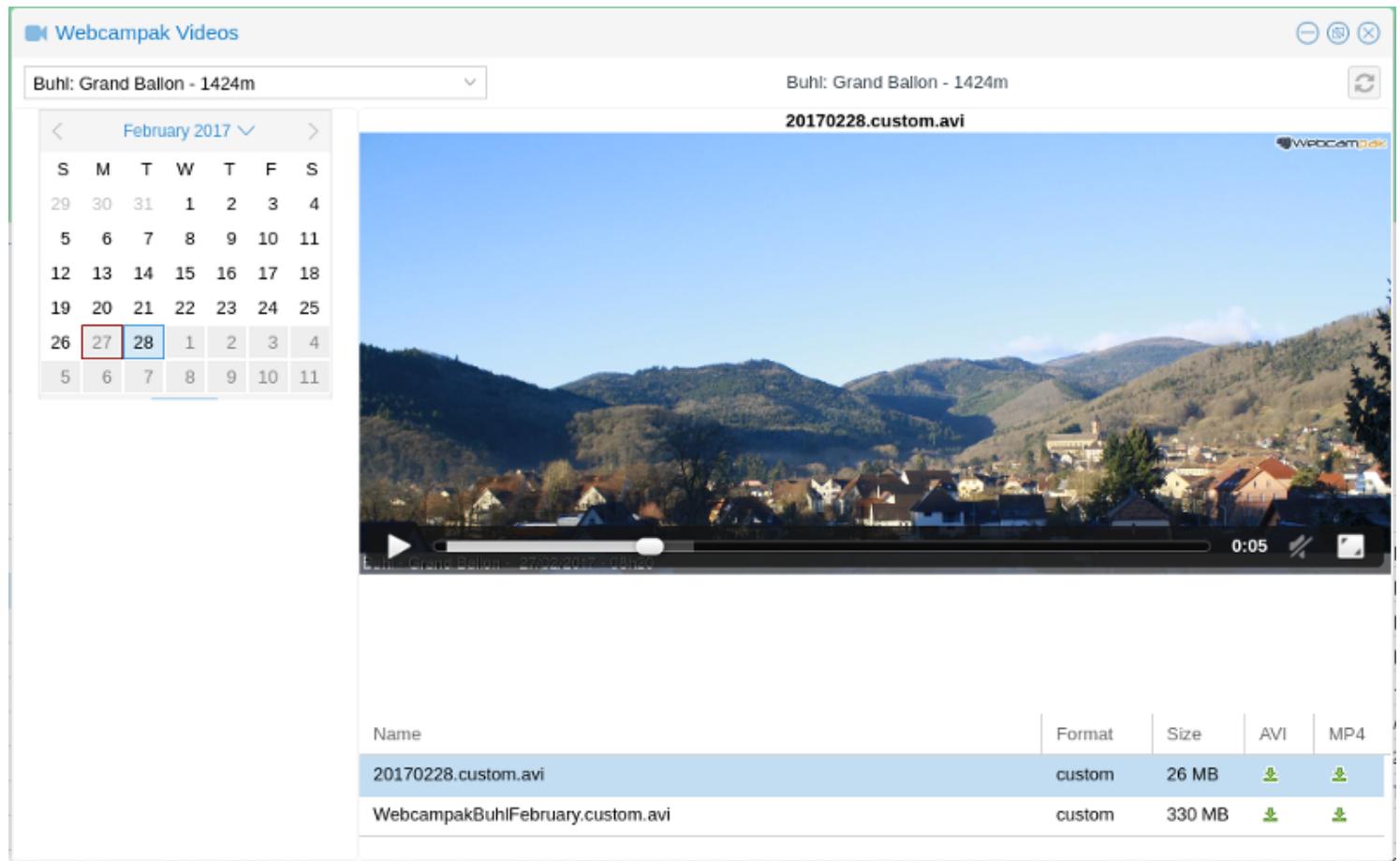


Figure 10.2: Videos

Name	Format	Size	AVI	MP4
20170228.custom.avi	custom	26 MB		
WebcampakBuhlFebruary.custom.avi	custom	330 MB		

Figure 10.3: Videos

Automatically (daily) generated video can be differentiated from user-generated videos by looking at the filename. Daily videos' filenames start with the date in YYYYMMDD format.

# Chapter 11

## Usage Statistics

### Usage Statistics

Webcampak constantly collects metrics from the system to inform users about usage and evolution over time.

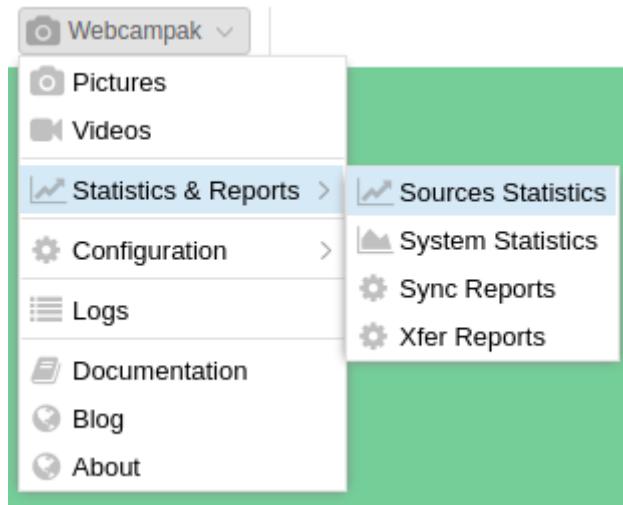


Figure 11.1: Statistics Menu

### Source Statistics

The Source Statistics provides of view of a source's usage over time.

This window is broken down into three different sections:

- **Pictures:** Number of pictures captured by day
- **Size:** Size of the pictures captured that day
- **Disk Usage:** Evolution of total source disk usage over time

### Collecting metrics

The system behaves differently depending on the type of metrics to be collected/displayed.

**Pictures** and **Size** are collected “on-the-fly” as requested by users, therefore can span the entire duration of a project. **Disk Usage** metrics are collected daily by Webcampak. In the example above, there a limited (almost none) history available since

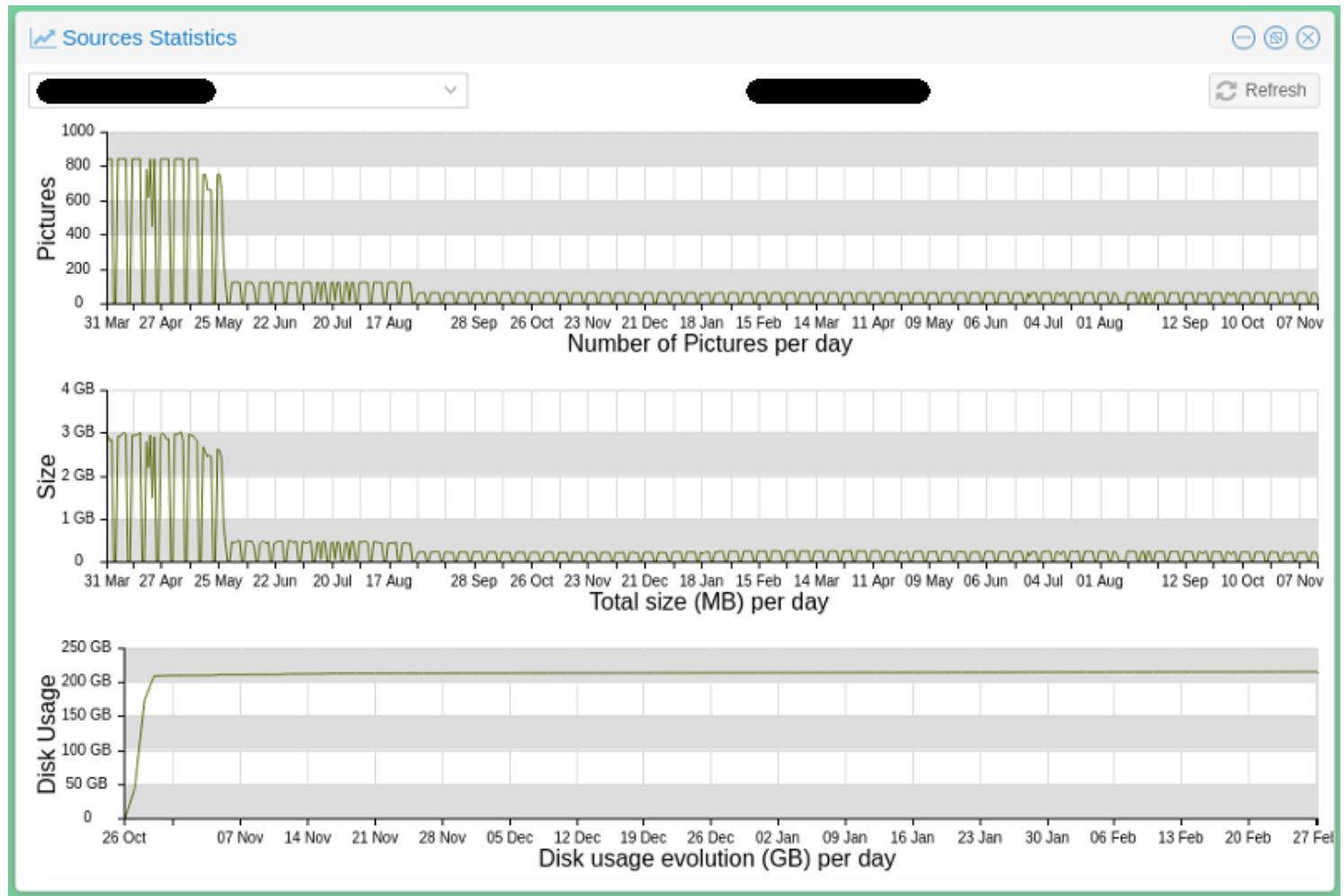


Figure 11.2: Source Statistics

this particular project completed in November 2017 just as this Webcampak 3 server was installed (Webcampak 2 stats are not compatible with Webcampak 3).

## Analysing the stats

If we look a bit closer at what can be learnt by analysing the stats

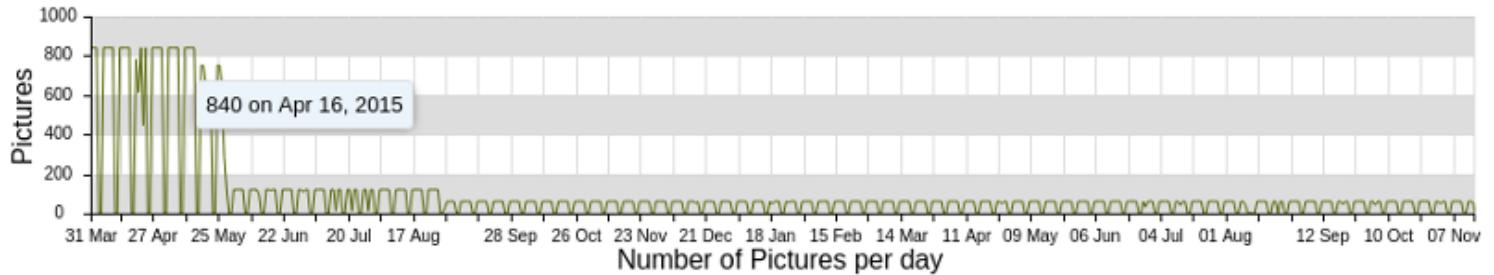


Figure 11.3: Picture Count Statistics

We can see that (using mouse-over provides more insights):

- Pictures were captured from March 31st, 2015 until November 07th, 2016.
- From March 31st until May 03rd, 840 pictures were captured per day during business days, 0 during the weekend
- Then the system progressively reduced pictures per day
- From May 28th until August 27th, the system was capturing 120 pictures per day
- From August 31st until November 7th, the system was capturing 60 pictures per day.

We can also see a couple of sessions with variation in the number of daily pictures, which likely indicates capture incidents.

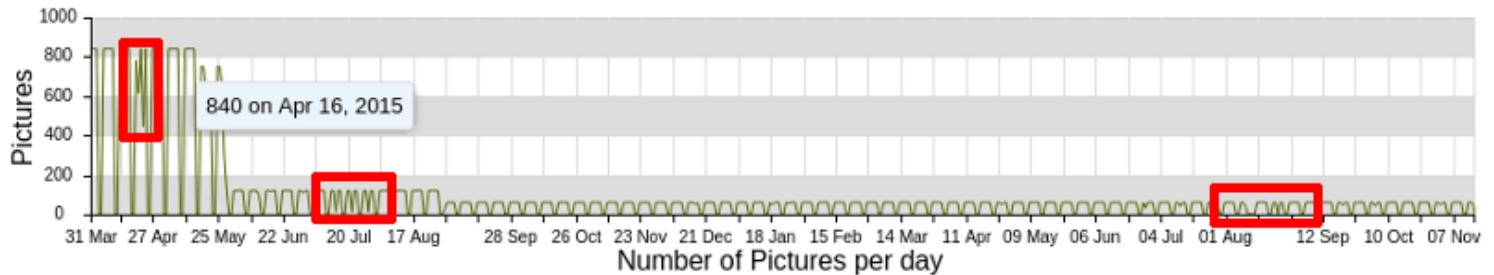


Figure 11.4: Identify capture incident

If we look a bit closer at one of those days, April 21st, 2015 (the first red rectangle), we can see that although the Webcampak was still capturing pictures, it was apparently struggling to send them between 06:00 and 14:00.

In this particular instance, there were some internet connectivity issues and it was decided that it was not worth transferring the missing pictures from Webcampak local storage. On a side note, this type of issues is one of the reasons why we implemented the Xfer mechanism, which will accommodate Internet connection issues.

## System Statistics

In the background, Webcampak will constantly record metrics about system usages on:

- Bandwidth
- Hard disk
- Memory (RAM)
- CPU

Users can then access those values and select a data range spanning:

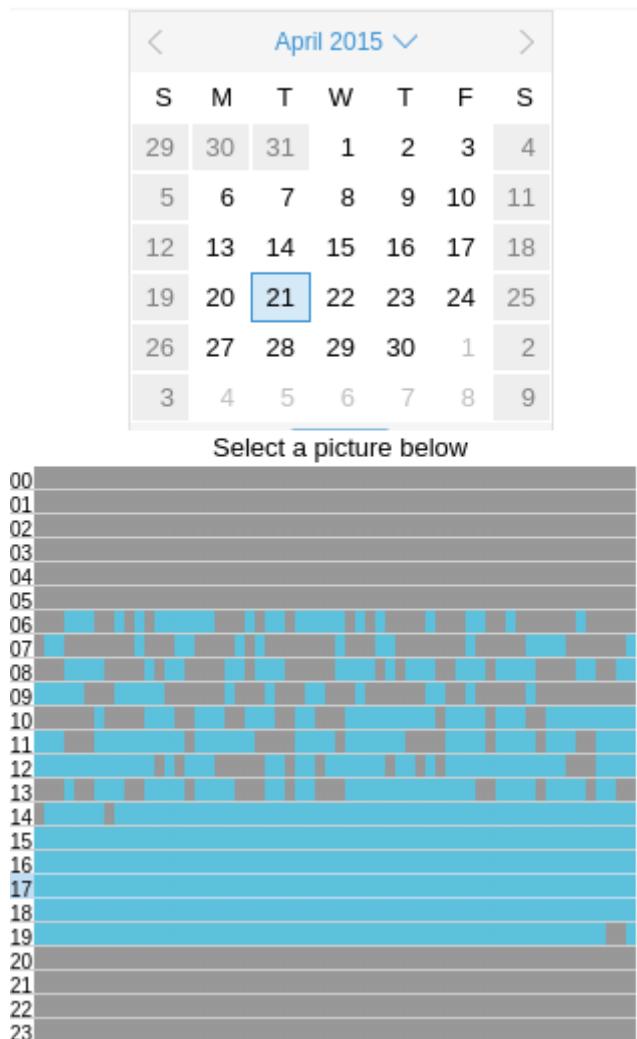


Figure 11.5: A capture incident in details

- the 50 latest snapshots
- the last 50 hours with consolidated metrics (average)
- the last 50 days with consolidated metrics (average)
- the last 50 months with consolidated metrics (average)

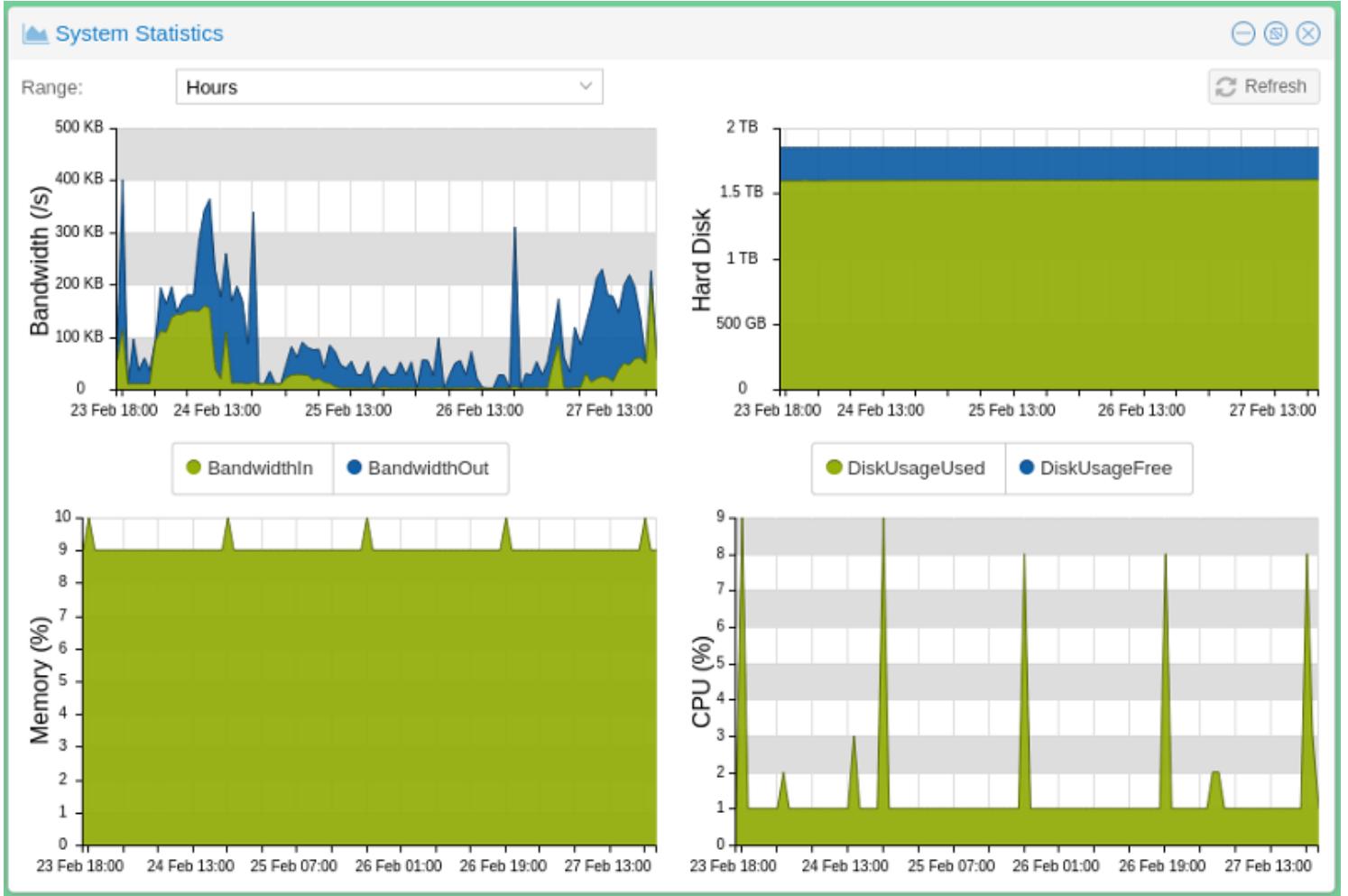


Figure 11.6: System Statistics (Hours)

On the above stats we can, for example, see that:

- There was a bandwidth spike around February 24th, where total average bandwidth for a particular hour went up to 350KB/s. Note the selected range, which means that this spike is an average over the entire hour.
- Total disk usage is currently around 1.6 TB for this Webcampak
- Average memory usage is around 9%
- Average CPU usage is between 1% and 10%

But then we can go more granular and look at the latest captured metrics and see that:

- Outgoing bandwidth did spike at 600KB/s for short period of time
- CPU usage did spike to 100% and 90% over the last 10 hours but was otherwise reasonable

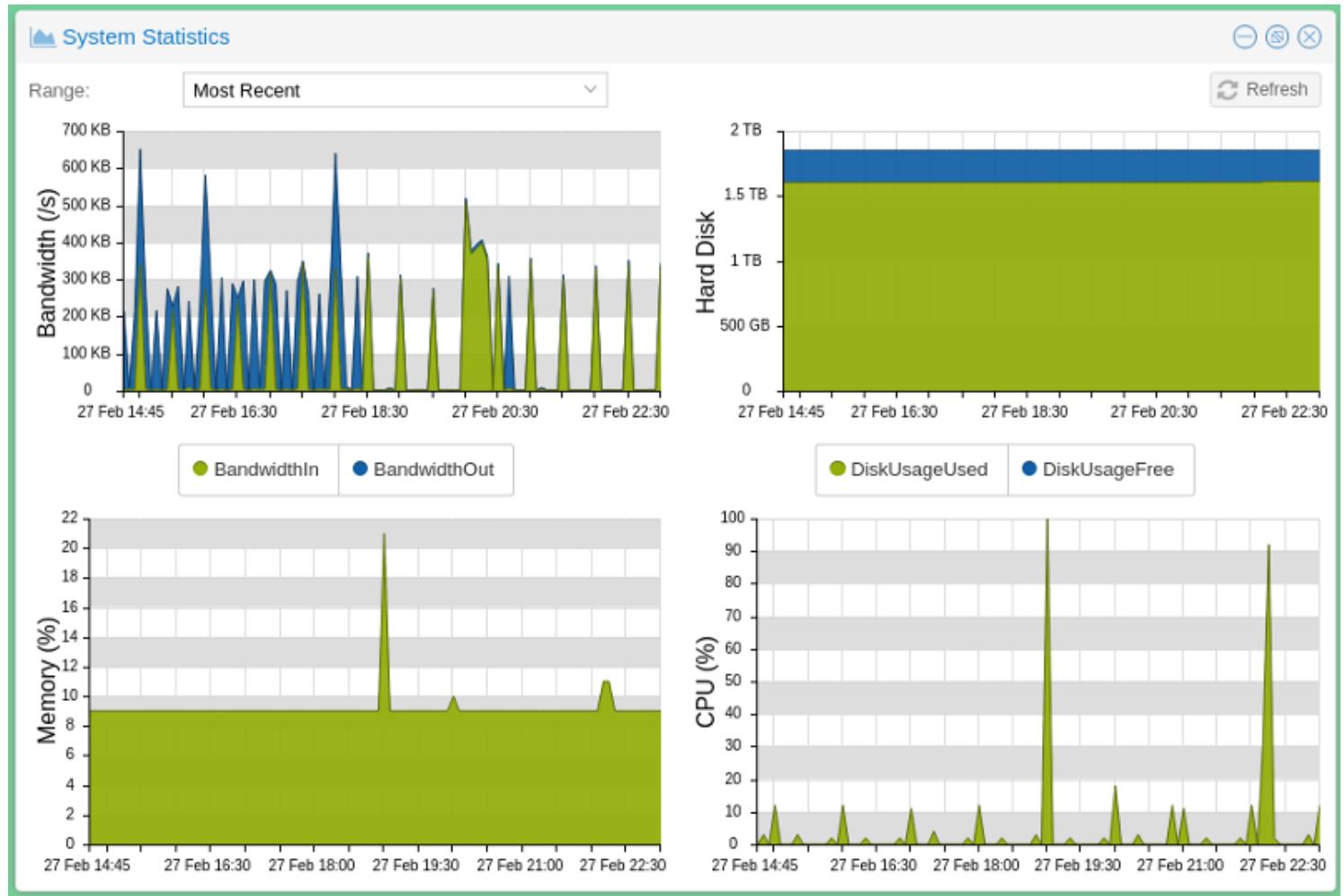


Figure 11.7: System Statistics (Recent)

# Chapter 12

## Xfer Reports

### Xfer Reports

Xfer is the file transfer mechanism available on Webcampak to deserialize picture transmission from picture processing.

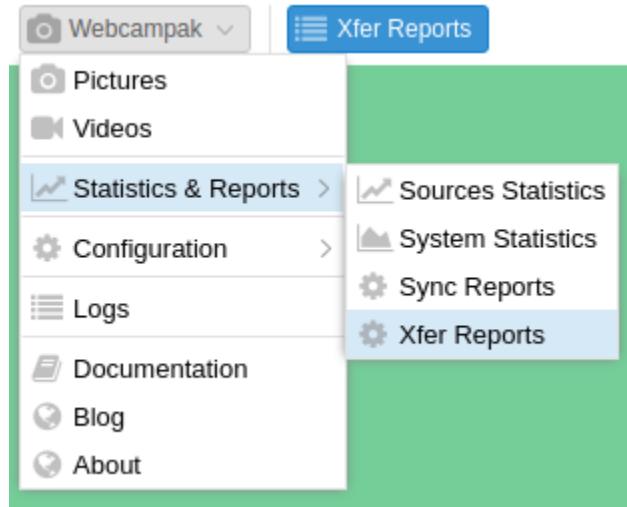


Figure 12.1: Xfer Reports Menu

### Overview

When Xfer is enabled the system will create transfer job during processing and will place those jobs in transfer queues.

The FTP Xfer Reports window provides details about the number of transfer queues and files in those queues. It focuses on jobs currently being processed on the short term. If a Sync job is being processed, this window will only provide partial details and users are encouraged to use the Sync Reports window.

The following columns are displayed:

- **UUID:** Identified of the queue
- **PID:** Webcampak process ID of the queue
- **Created:** Date & Time the queue was created
- **Updated:** Date & Time the queue was last updated
- **Queue:** Number of transfer jobs in the queue
- **Last Job:** Details about the last job processed for the queue, including its direction (upload or download, its size and average transfer rate)

UUID	PID	Created	Updated	Queue	Last Job				
					Started	Completed	Direction	Size	Rate
2879352a-04fc-4f26-ac...	21885	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	
3070519b-675e-47bf-8...	21882	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	
43194c66-bfc2-4abc-84...	21881	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	
98d021fc-1017-46e3-af...	21875	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	
a040dbe-a5d8-46bc-8...	21884	2017-02-28 20:50	2017-02-28 20:57	0	2017-02-28 20:50	2017-02-28 20:50	upload	5.5 KB	50.8 KB/s
dc4534c9-340d-4843-8...	21877	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	
f9056e9d-5060-487b-8f...	21872	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	
fab05bfe-4d35-406d-a5...	21879	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	
fbf3cbae-8cf8-408a-bc8...	21880	2017-02-28 20:50	2017-02-28 20:57	0				0 bytes	

Total number of records: 9

Figure 12.2: Xfer Reports Window

The system will regularly clear transfer queues resulting in UUID changing frequently.

# Chapter 13

## Sync Reports

### Sync Reports

Webcampak Sync Reports is available by clicking on “Webcampak > Statistics & Reports > Sync Reports”

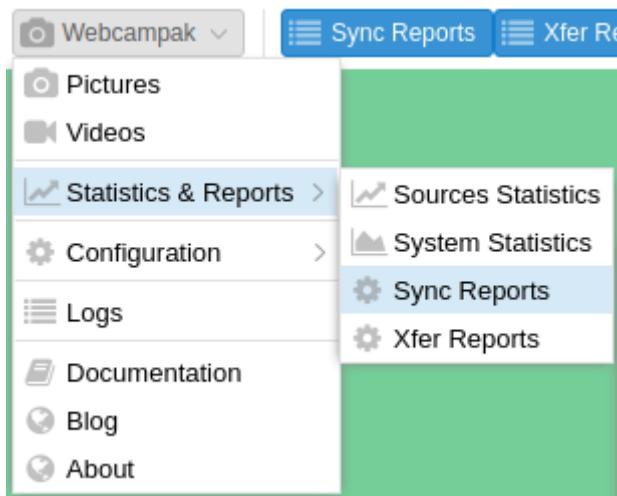


Figure 13.1: Xfer Reports Menu

### Overview

With Webcampak Sync Reports features, users can compare the content of a local and a destination source, identify differences and potentially transfer any missing files.

### Pre-requisites

To use this feature, the following pre-requisites need to be met:

- Create a local source to compare against (Webcampak does not support comparing 2 remote sources)
- Register remote FTP servers in source configuration

## Create a Sync Report

A Sync Report is the comparison of files available in a source with files available in a destination.

The screenshot shows the 'Create a Report' dialog box. At the top, it says 'Report Name: Toronto - Verify Cloud transfer status'. Below that, there are two main sections: 'Source' and 'Destination'. The 'Source' section has three dropdowns: 'Source' (set to 'Toronto: Skyline and CN tower (all)'), 'Type' (set to 'FTP'), and 'FTP Server' (set to 'cloud007:S8'). The 'Destination' section also has three dropdowns: 'Source' (set to 'Toronto: Skyline and CN tower (all)'), 'Type' (set to 'Local'), and an empty dropdown. At the bottom left is a 'Cancel' button, and at the bottom right is a 'Run' button.

Figure 13.2: Create Sync Report

In most situations, users compare the content of a remote source, with content stored on the local source. The “Type” field is used to specify whether there is a remote connection or not.

FTP Sync Reports										
Status	Name	Source		Destination		Queued	Started	Completed	Xfer	
		Name	Size	Name	Size				Active	Status
queued	Toronto - Verify...	cloud007:S8	0 bytes	filesystem	0 bytes	2017-02-28 21:28			No	n/a

Figure 13.3: Sync Report Queued

The sync report is then queued and executed as soon as a slot becomes available.

FTP Sync Reports											
Status	Name	Source		Destination		Queued	Started	Completed	Xfer	Active	Status
		Name	Size	Name	Size				Active	Status	
queued	Toronto - Verify...	cloud007:S8	0 bytes	filesystem	0 bytes	2017-02-28 21:28	2017-02-28 21:29	2017-02-28 21:29	No	n/a	
process	Toronto - Verify...	cloud007:S8	82.9 GB	filesystem	0 bytes	2017-02-28 21:28	2017-02-28 21:29	2017-02-28 21:29	No	n/a	

Figure 13.4: Sync Report in progress

When completed, users can click on the report to view its details.

In this particular example, users can learn the following:

- The Source has 19,681 files, for a total of 82.9GB
- The Destination has 41,980 files, for a total of 201.4GB
- The 19,681 files in the sources are also available at the destination (no files are missing then !)
- The Destination has 22,299 files more than the source

With the report created, users could select it and click “Re-run report” to refresh its content when necessary.

FTP Sync Reports										
		Source		Destination				Xfer		
Status	Name	Name	Size	Name	Size	Queued	Started	Completed	Active	Status
[ ] Toronto - Verify Cloud transfer status										
completed	Toronto - Verify...	cloud007:58	82.9 GB	filesystem	201.4 GB	2017-02-28 21:28	2017-02-28 21:29	2017-02-28 21:30	No	n/a

Figure 13.5: Sync Report Completed

FTP Sync Reports																		
		Source		Destination				Xfer										
Status	Name	Name	Size	Name	Size	Queued	Started	Completed	Active	Status								
[ ] Toronto - Verify Cloud transfer status																		
completed	Toronto - Verify...	cloud007:58	82.9 GB	filesystem	201.4 GB	2017-02-26 21:28	2017-02-26 21:29	2017-02-26 21:30	No	n/a								
Total number of records: 21																		
Report Name:	Toronto - Verify Cloud transfer status																	
Source																		
Source:	Toronto: Skyline and CN tower (archive)																	
Type:	ftp (cloud007:58)																	
Destination																		
Source:	Toronto: Skyline and CN tower (archive)																	
Type:	filesystem																	
Actions																		
<button>Re-run and Sync</button>																		
Results																		
					File Count		File Size											
					Total	JPG	RAW	Total	JPG	RAW								
Source					19881	19681	0	82.9 GB	82.9 GB	0 bytes								
Destination					41880	41980	0	201.4 GB	201.4 GB	0 bytes								
Intersection (files available in Source and Destination)					19681	19681	0	82.9 GB	82.9 GB	0 bytes								
Missing in Source					22299	22299	0	118.5 GB	118.5 GB	0 bytes								
Missing in Destination					0	0	0	0 bytes	0 bytes	0 bytes								

Figure 13.6: Sync Report Details

## Sync files

Aside from providing a report, this feature also allows users to trigger a transfer of missing files.

Since the previous report didn't have missing files in the destination, we are going to reverse it and trigger the transfer of missing files.

CAUTION: Sync actions cannot be cancelled so users must be sure to understand their system's limitations before starting to sync large amount of files

To avoid accidental sync jobs, users are required to run the report first, and from this report, trigger the sync job by clicking on "Re-run and Sync".

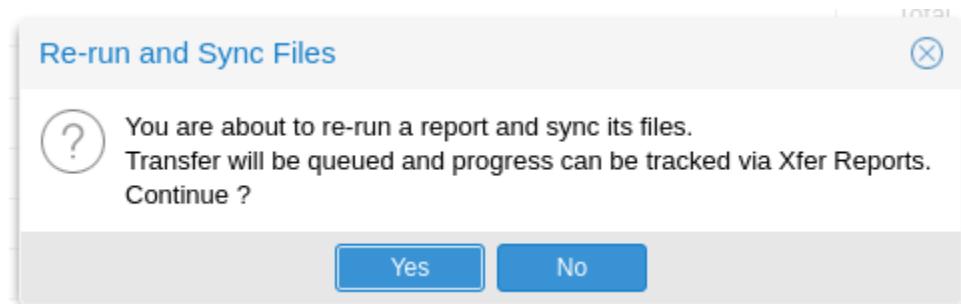


Figure 13.7: Sync Warning

The system then creates Xfer jobs and provides an update on progress, the far right column indicating total progress.

Status	Name	Source Name	Source Size	Destination Name	Destination Size	Queued	Started	Completed	Xfer Active	Xfer Status
completed	Toronto - From... Cloud008 to Cloud007	filesystem	201.4 GB	cloud007:58	82.9 GB	2017-02-20 21:56	2017-02-20 21:57	2017-02-20 21:59	No	n/a
completed	Toronto - From... Cloud008 to Cloud007	filesystem	201.4 GB	cloud007:58	82.9 GB	2017-02-28 22:01	2017-02-28 22:01	2017-02-28 22:03	Yes	0.64% (143 / 22302)

Figure 13.8: Sync Warning

Resulting files are added to the Xfer process in batches of 200 jobs per queue.

FTP Xfer Reports										<input type="button" value="⊖"/>	<input type="button" value="⊕"/>	<input type="button" value="✖"/>
UUID	PID	Created	Updated	Queue	Last Job					Size	Rate	
					Started	Completed	Direction					
012190cb-4ef2-41a1-a...	10634	2017-02-28 22:10	2017-02-28 22:13	0						0 bytes		
2298cddb-4beb-4fff-82f...	705	2017-02-28 22:10	2017-02-28 22:13	185	2017-02-28 22:13	2017-02-28 22:13	upload			4.2 MB	9.7 MB/s	
2d5632b6-3515-44d8-8...	10632	2017-02-28 22:10	2017-02-28 22:13	0						0 bytes		
305bd805-9bfe-4bc6-9...	10631	2017-02-28 22:10	2017-02-28 22:13	0						0 bytes		
39fe9b28-7388-4319-a...	714	2017-02-28 22:10	2017-02-28 22:13	186	2017-02-28 22:13	2017-02-28 22:13	upload			4.1 MB	10.3 MB/s	
4ddbf30-e701-4ce2-9f2...	10630	2017-02-28 22:10	2017-02-28 22:13	0						0 bytes		
929964d3-5277-4c66-8...	10633	2017-02-28 22:10	2017-02-28 22:13	0						0 bytes		
ce2cc37f-f150-488a-8e...	712	2017-02-28 22:10	2017-02-28 22:11	0	2017-02-28 22:11	2017-02-28 22:11	upload			5.7 KB	53.2 KB/s	
f856e139-4b78-46a5-9...	10619	2017-02-28 22:10	2017-02-28 22:13	0						0 bytes		

Total number of records: 9

Figure 13.9: Sync Warning

# Chapter 14

## Connected Devices

### Connected Devices

A screen listing connected USB devices can be accessed by clicking on “Webcampak > Configuration > Connected Devices”

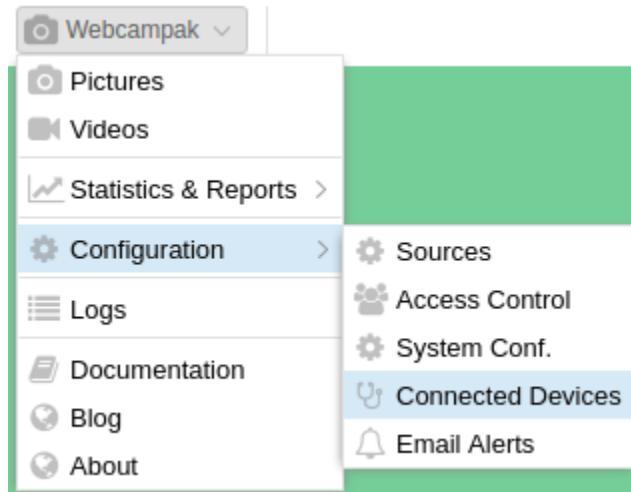


Figure 14.1: Connected Devices Menu

### Overview

This simple feature runs 3 background commands to identify devices connected to Webcampak, a refresh button on the top-right corner let users manually trigger a refresh (for example after plugging a device).

### Gphoto2: Connected camera

This section lists cameras detected by gPhoto2, the library used to communicate with the camera. If your camera is not listed there, Webcampak cannot trigger captures.

The following command is being executed in the background:

```
1 $ gphoto2 --auto-detect
2 Model           Port
3 -----
4 Canon EOS 1000D   USB:001,002
```

 Connected Devices

Gphoto2: Connected Cameras

Model	Port
Canon EOS 1000D	usb:001,002

Gphoto2: Cameras Capabilities

Abilities for camera	:	Canon EOS 1000D
Serial port support	:	no
USB support	:	yes
Capture choices	:	
	:	Image
	:	Preview
	:	Trigger Capture
Configuration support	:	yes
Delete selected files on camera	:	yes
Delete all files on camera	:	no

USB devices connected (lsusb)

```
Bus 001 Device 004: ID 148f:3070 Ralink Technology, Corp. RT2870/RT3070 Wireless Adapter
Bus 001 Device 002: ID 04a9:317b Canon, Inc.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 004 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 003 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 002 Device 002: ID 06c2:0045 Phidgets Inc. (formerly GLAB) PhidgetInterface Kit 8-8-8
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
```

Figure 14.2: Connected Devices

## Gphoto2: Cameras Capabilities

This section list camera features supported by gPhoto2. If a connected camera does not have any “Capture choices”, it’s likely that it is not supported for capture.

The following command is being executed in the background:

```
1 $ gphoto2 -abilities
2 Abilities for camera      : Canon EOS 1000D
3 Serial port support       : no
4 USB support               : yes
5 Capture choices           :
6                           : Image
7                           : Preview
8                           : Trigger Capture
9 Configuration support     : yes
10 Delete selected files on camera : yes
11 Delete all files on camera  : no
12 File preview (thumbnail) support : yes
13 File upload support       : yes
```

## USB devices connected

This section list USB devices connected to the Webcampak. If a connected camera is not listed here, it is likely not powered-on.

The following command is being executed in the background:

```
1 $ lsusb
2 Bus 001 Device 004: ID 148f:3070 Ralink Technology, Corp. RT2870/RT3070 Wireless Adapter
3 Bus 001 Device 002: ID 04a9:317b Canon, Inc.
4 Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
5 Bus 004 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
6 Bus 003 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
7 Bus 002 Device 002: ID 06c2:0045 Phidgets Inc. (formerly GLAB) PhidgetInterface Kit 8-8-8
8 Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
```

# Chapter 15

## Logs

### Logs

Webcampak constantly records its background activities and store those in files available from the desktop interface. Those can be accessed by clicking on “Webcampak > Logs”

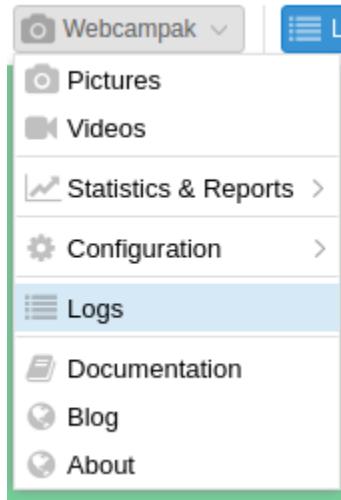


Figure 15.1: Connected Devices Menu

## Overview

This simple feature runs 3 background commands to identify devices connected to Webcampak, a refresh button on the top-right corner let users manually trigger a refresh (for example after plugging a device).

### Log Rotation

Webcampak record a very large portion of its background activities.

Working on the assumption that logs are useful to debug an issue but less useful when there is no issue, we enabled log rotation, to prevent the local hard drive from being overloaded by unused logs.

The system will break down log files in 500 KB chunks and will only keep 10 of those files, which should give you about a week worth of logs for source capture.

Sources Logs	
Available Sources	
ID	Name
1	S1: 08h00-18h00
2	S2: 18h00-08h00
10	S10: Centralisation

Logs of: S10: Centralisation

Capture   Videos   Custom Vids.   Post-prod Vids.   Configuration Changes

Line	Content
1	2017-03-01 23:45:05,171 [INFO] webcampak : ===START==
2	2017-03-01 23:45:05,172 [INFO] webcampak : capture(): Start
3	2017-03-01 23:45:05,182 [INFO] webcampak : Config.int(); Loaded IM config file: /home/webcampak/webcampak/config/config-general.cfg
4	2017-03-01 23:45:05,200 [INFO] webcampak : Config.int(); Loaded IM config file: /home/webcampak/webcampak/resources/etc/config-source10.cfg
5	2017-03-01 23:45:05,206 [INFO] webcampak : Config.int(); Loaded IM config file: /home/webcampak/webcampak/resources/etc/config-source10-ftpserver.cfg
6	2017-03-01 23:45:05,216 [INFO] webcampak : capture.intGetText(); Initialized gettext with Domain: webcampak - Language: en_US.utf8 - Path: /home/webcampak/webcampak/l18n/
7	2017-03-01 23:45:05,218 [INFO] webcampak : SmUtil.getCurrentSourceTime(); Source timezone is: Europe/Paris
8	2017-03-01 23:45:05,222 [INFO] webcampak : timeUtils.getCurrentSourceTime(); Current source time: 2017-03-01T23:45:05.221774+01:00
9	2017-03-01 23:45:05,223 [INFO] webcampak : capture.setScriptStartTime(); Script start time set to: 2017-03-01T23:45:05.221774+01:00
10	2017-03-01 23:45:05,224 [INFO] webcampak : capture.setCaptureTime(); Set Capture Time to script start time (default at script startup)
11	2017-03-01 23:45:05,225 [INFO] webcampak : capture.setCaptureTime(); Capture Time set to: 2017-03-01 23:45:05.221774+01:00
12	2017-03-01 23:45:05,239 [INFO] webcampak : capture(); Create Capture Status object and set script start date
13	2017-03-01 23:45:05,471 [INFO] webcampak : captureObj.setCaptureFile(); Capture file set to: /home/webcampak/webcampak/sources/source10/live/last-capture.json
14	2017-03-01 23:45:05,489 [INFO] webcampak : capture(); Load previous Capture Status Object if available
15	2017-03-01 23:45:05,620 [INFO] webcampak : captureObj.setCaptureFile(); Capture file set to: /home/webcampak/webcampak/sources/source10/live/last-capture.json
16	2017-03-01 23:45:05,621 [INFO] webcampak : captureObj.loadFromFile(); Load JSON file into memory: /home/webcampak/webcampak/sources/source10/live/last-capture.json
17	2017-03-01 23:45:05,640 [INFO] webcampak : capture(); Initializing the following capture driver: wpak
18	2017-03-01 23:45:05,641 [INFO] webcampak : capture.run(); Initiate capture process for source: 10
19	2017-03-01 23:45:05,643 [INFO] webcampak : captureUtils.isWithinTimethreshold(); Current Day: 3 - Current Time: 2345
20	2017-03-01 23:45:05,645 [INFO] webcampak : captureUtils.checkTimeInterval(); Capture slot available, no previous capture
21	2017-03-01 23:45:05,647 [INFO] webcampak : captureIPCam.capture(); Start Capture
22	2017-03-01 23:45:05,647 [INFO] webcampak : captureIPCam.capture(); Entering the process, template: Reditte
23	2017-03-01 23:45:05,649 [INFO] webcampak : captureIPCam.capture(); Processing: 20170301
24	2017-03-01 23:45:05,650 [INFO] webcampak : captureIPCam.capture(); 20170301 is a directory, scanning
25	2017-03-01 23:45:05,659 [INFO] webcampak : captureIPCam.capture(); Processing 20170301/20170301234014.jpg
26	2017-03-01 23:45:05,660 [INFO] webcampak : captureIPCam.processFile(); Start Capture
27	2017-03-01 23:45:05,661 [INFO] webcampak : captureIPCam.processFile(); Processing: /home/webcampak/webcampak/sources/source10/tmp/20170301/20170301234014.jpg, size 309718B
28	2017-03-01 23:45:05,663 [INFO] webcampak : captureIPCam.processFile(); File is a picture
29	2017-03-01 23:45:05,664 [INFO] webcampak : captureIPCam.processFile(); Determining picture date based on webcampak name template (YYYYMMDDHHMMSS.jpg)
30	2017-03-01 23:45:05,665 [INFO] webcampak : timeUtils.getTimeFromFilename(); Extract time from: 20170301234014 using format YYYYMMDDHHMMSS
31	2017-03-01 23:45:05,688 [INFO] webcampak : SmUtil.getTimeFromFilename(); Source timezone is: Europe/Paris
32	2017-03-01 23:45:05,692 [INFO] webcampak : SmUtil.getTimeFromFilename(); Picture date is: 2017-03-01T23:40:14+01:00
...	...

Figure 15.2: Connected Devices

# Insight into a Capture log

Logs files are the best way to understand activities being performed by the system and potentially understand what is causing issues. We always recommend our users, involved in Webcampak configuration, to understand what logs are and how to access & read them.

A Sample log file taken from one of our systems is available for reference, we'll progressively go through it.

```
1 2017-03-01 16:30:13,290 (INFO) Webcampak : ===START==
```

We can break down a log line in the following section:

- **2017-03-01 16:30:13,290**: System date and time
- **(INFO)**: Log level, anything other than "INFO" should trigger further investigations
- **webcampak**: Our application
- **====START====**: Log message, here beginning of a capture session

Before triggering a capture, Webcampak first activity will be to get ready for this capture, load config parameters, setup the timezone, prepare the capture file.

```
1 2017-03-01 16:30:13,292 (INFO) Webcampak : capture(): Start
2 2017-03-01 16:30:13,386 (INFO) Webcampak : Config.init(): Loaded INI config file:
   /home/webcampak/webcampak/config/config-general.cfg
3 2017-03-01 16:30:13,532 (INFO) Webcampak : Config.init(): Loaded INI config file:
   /home/webcampak/webcampak/resources/etc/config-source1.cfg
4 2017-03-01 16:30:13,534 (INFO) Webcampak : Config.init(): Loaded INI config file:
   /home/webcampak/webcampak/resources/etc/config-source1-ftpservers.cfg
5 2017-03-01 16:30:13,564 (INFO) Webcampak : capture.initGetText(): Initialized gettext with Domain:
   Webcampak - Language: en_US.utf8 - Path: /home/webcampak/webcampak/i18n/
6 2017-03-01 16:30:13,594 (INFO) Webcampak : timeUtils.getCurrentSourceTime(): Source Timezone is:
   Europe/Paris
7 2017-03-01 16:30:13,626 (INFO) Webcampak : timeUtils.getCurrentSourceTime(): Current source time:
   2017-03-01T16:30:13.597988+01:00
8 2017-03-01 16:30:13,627 (INFO) Webcampak : capture.setScriptStartTime(): Script Start Time set to:
   2017-03-01T16:30:13.597988+01:00
9 2017-03-01 16:30:13,628 (INFO) Webcampak : capture(): Set Capture Time to script start time (default at
   script startup)
10 2017-03-01 16:30:13,629 (INFO) Webcampak : capture.setCaptureTime(): Capture Time set to: 2017-03-01
   16:30:13.597988+01:00
11 2017-03-01 16:30:13,658 (INFO) Webcampak : capture(): Create Capture Status object and set script start
   date
12 2017-03-01 16:30:14,661 (INFO) Webcampak : captureObj.setCaptureFile(): Capture file set to:
   /home/webcampak/webcampak/sources/source1/live/last-capture.json
13 2017-03-01 16:30:14,783 (INFO) Webcampak : capture(): Load previous Capture Status Object (if available)
14 2017-03-01 16:30:15,401 (INFO) Webcampak : captureObj.setCaptureFile(): Capture file set to:
   /home/webcampak/webcampak/sources/source1/live/last-capture.json
15 2017-03-01 16:30:15,402 (INFO) Webcampak : captureObj.loadJsonFile(): Load JSON file into memory:
   /home/webcampak/webcampak/sources/source1/live/last-capture.json
16 2017-03-01 16:30:15,481 (INFO) Webcampak : capture(): Initializing the following capture driver: gphoto
```

Next, Webcampak will verify if it is allowed to capture (capture calendar, time since the last capture). If all is correct, it will initiate the actual capture process.

```
1 2017-03-01 16:30:15,482 (INFO) Webcampak : capture.run(): Initiate capture process for source: 1
2 2017-03-01 16:30:15,495 (INFO) Webcampak : captureUtils.isWithinTimeframe(): Current Day: 3 - Current
   Time: 1630
3 2017-03-01 16:30:15,497 (INFO) Webcampak : captureUtils.isWithinTimeframe(): Capture allowed between: 800
   and: 1800
4 2017-03-01 16:30:15,512 (INFO) Webcampak : captureObj.getLastCaptureTime(): Last capture time: 2017-03-01
   16:20:17.075944+01:00
5 2017-03-01 16:30:15,513 (INFO) Webcampak : captureUtils.checkInterval(): Last capture 596522 ms ago
```

```
6 2017-03-01 16:30:15,530 (INFO) Webcampak : captureUtils.checkInterval(): Minimum capture interval: 3000 ms
7 2017-03-01 16:30:15,531 (INFO) Webcampak : captureUtils.checkInterval(): Capture slot available
8 2017-03-01 16:30:15,532 (INFO) Webcampak : captureGphoto.capture(): Initiating capture
```

Just before capturing the picture, it will record the time. by comparing the current time with the beginning of the capture process, we can see that it took Webcampak a bit more than 2 seconds to get there.

Then the system actually captures the picture, transfer the file locally and check its file size.

```
1 2017-03-01 16:30:15,533 (INFO) Webcampak : timeUtils.getCurrentSourceTime(): Source Timezone is:
    Europe/Paris
2 2017-03-01 16:30:15,549 (INFO) Webcampak : timeUtils.getCurrentSourceTime(): Current source time:
    2017-03-01T16:30:15.549352+01:00
3 2017-03-01 16:30:15,648 (INFO) Webcampak : captureGphoto.triggerCapture(): Gphoto: Start Capture
4 2017-03-01 16:30:21,576 (INFO) Webcampak : captureGphoto.triggerCapture() - OUTPUT 1: New file is in
    location /capt0000.jpg on the camera
5 Saving file as /home/webcampak/webcampak/sources/source1/tmp/20170301163013.jpg
6 Deleting file /capt0000.jpg on the camera
7
8 2017-03-01 16:30:21,578 (INFO) Webcampak : captureGphoto.triggerCapture() - OUTPUT 2:
9 2017-03-01 16:30:21,580 (INFO) Webcampak : captureUtils.verifyCapturedFile(): File:
    /home/webcampak/webcampak/sources/source1/tmp/20170301163013.jpg size is 3256854 bytes
10 2017-03-01 16:30:21,581 (INFO) Webcampak : captureUtils.verifyCapturedFile(): Check File: Successful
11 2017-03-01 16:30:21,582 (INFO) Webcampak : captureGphoto.capture(): Capture successful
```

It might be interesting to focus here on the actually time between the camera was requested to capture and the time the picture was actually stored on local disk.

```
1 2017-03-01 16:30:15,648 (INFO) Webcampak : captureGphoto.triggerCapture(): Gphoto: Start Capture
2 2017-03-01 16:30:21,576 (INFO) Webcampak : captureGphoto.triggerCapture() - OUTPUT 1: New file is in
    location /capt0000.jpg on the camera
```

In this particular example, it took just short of 6 seconds. This number will vary a lot depending on exposure time, USB speed and file size.

Webcampak will then apply all the configured manipulation to the picture. You can notice that some of the manipulations are being timed, to provide additional insights into which of the manipulations take time.

```
1 2017-03-01 16:30:21,587 (INFO) Webcampak : capture.run(): Begin processing of picture:
    /home/webcampak/webcampak/sources/source1/tmp/20170301163013.jpg
2 2017-03-01 16:30:21,588 (INFO) Webcampak : captureUtils.modifyPictures(): Rotating disabled
3 2017-03-01 16:30:21,589 (INFO) Webcampak : captureUtils.modifyPictures(): Cropping disabled
4 2017-03-01 16:30:21,590 (INFO) Webcampak : captureUtils.modifyPictures(): Watermark disabled
5 2017-03-01 16:30:21,591 (INFO) Webcampak : captureUtils.modifyPictures(): Legend disabled
6 2017-03-01 16:30:21,593 (INFO) Webcampak : captureUtils.modifyPictures(): Sensor 1 disabled
7 2017-03-01 16:30:21,594 (INFO) Webcampak : captureUtils.modifyPictures(): Sensor 2 disabled
8 2017-03-01 16:30:21,607 (INFO) Webcampak : captureUtils.modifyPictures(): Sensor 3 disabled
9 2017-03-01 16:30:21,608 (INFO) Webcampak : captureUtils.modifyPictures(): Sensor 4 disabled
10 2017-03-01 16:30:21,609 (INFO) Webcampak : captureUtils.modifyPictures(): Resizing disabled
11 2017-03-01 16:30:21,611 (INFO) Webcampak : captureUtils.createLivePicture(): Copying full size JPG
    picture: /home/webcampak/webcampak/sources/source1/tmp/20170301163013.jpg to:
    /home/webcampak/webcampak/sources/source1/live/last-capture.jpg
12 2017-03-01 16:30:21,733 (INFO) Webcampak : captureUtils.archivePicture(): Saving JPG picture to:
    /home/webcampak/webcampak/sources/source1/pictures/20170301/20170301163013.jpg
13 2017-03-01 16:30:21,828 (INFO) Webcampak : captureUtils.generateHotlinks(): Hotlink File:
    /home/webcampak/webcampak/sources/source1/live/webcam-1920x1280.jpg
14 2017-03-01 16:30:27,359 (INFO) Webcampak : pictureTransformations.resize(): Resized picture to 1920x1280
    in 5529 ms
15 2017-03-01 16:30:27,360 (INFO) Webcampak : captureUtils.generateHotlinks(): Hotlink File:
    /home/webcampak/webcampak/sources/source1/live/webcam-1280x720.jpg
```

```

16 2017-03-01 16:30:30,778 (INFO) Webcampak : pictureTransformations.resize(): Resized picture to 1280x720
    in 3416 ms
17 2017-03-01 16:30:30,780 (INFO) Webcampak : captureUtils.generateHotlinks(): Hotlink File:
    /home/webcampak/webcampak/sources/source1/live/webcam-640x480.jpg
18 2017-03-01 16:30:33,945 (INFO) Webcampak : pictureTransformations.resize(): Resized picture to 640x480 in
    3164 ms
19 2017-03-01 16:30:33,947 (INFO) Webcampak : captureUtils.generateHotlinks(): Hotlink: 4 disabled
20 2017-03-01 16:30:33,983 (INFO) Webcampak : captureUtils.copyPicture(): SourceCopy: JPG Picture copied to
    /home/webcampak/webcampak/sources/source10/tmp/20170301/20170301163013.jpg
21 2017-03-01 16:30:33,984 (INFO) Webcampak : captureUtils.purgePictures(): Removing file:
    /home/webcampak/webcampak/sources/source1/tmp/20170301163013.jpg
22 2017-03-01 16:30:34,040 (INFO) Webcampak : capture.run(): Capture process completed
23 2017-03-01 16:30:34,057 (INFO) Webcampak : captureUtils.deleteOldPictures(): System configured to delete
    picture from: /home/webcampak/webcampak/sources/source1/pictures/ after 2 days
24 2017-03-01 16:30:34,058 (INFO) Webcampak : captureUtils.deleteOldPictures(): Directory 20170228 is 1 days
    old
25 2017-03-01 16:30:34,060 (INFO) Webcampak : captureUtils.deleteOldPictures(): Directory 20170301 is 0 days
    old
26 2017-03-01 16:30:34,061 (INFO) Webcampak : captureUtils.deleteOldPictures(): Directory 20170227 is 2 days
    old

```

Finally, it captures the time again, and compare it with the beginning of the script. In this particular case, the entire capture process took a bit over 20 seconds.

```

1 2017-03-01 16:30:34,063 (INFO) Webcampak : timeUtils.getCurrentSourceTime(): Source Timezone is:
    Europe/Paris
2 2017-03-01 16:30:34,067 (INFO) Webcampak : timeUtils.getCurrentSourceTime(): Current source time:
    2017-03-01T16:30:34.066954+01:00
3 2017-03-01 16:30:34,068 (INFO) Webcampak : capture.run(): Capture: Overall capture time: 20468 ms
4 2017-03-01 16:30:34,132 (INFO) Webcampak : captureObj.writeJsonFile(): Writing to:
    /home/webcampak/webcampak/sources/source1/live/last-capture.json
5 2017-03-01 16:30:34,134 (INFO) Webcampak : captureObj.writeCaptureFile(): Successfully saved last capture
    file to: /home/webcampak/webcampak/sources/source1/live/last-capture.json
6 2017-03-01 16:30:34,152 (INFO) Webcampak : captureObj.archiveJsonFile(): Writing to:
    /home/webcampak/webcampak/sources/source1/resources/capture/20170301.jsonl
7 2017-03-01 16:30:34,154 (INFO) Webcampak : captureObj.archiveCaptureFile(): Successfully archived capture
    file to: /home/webcampak/webcampak/sources/source1/resources/capture/20170301.jsonl
8 2017-03-01 16:30:34,155 (INFO) Webcampak : capture.run():

-----
9 2017-03-01 16:30:34,156 (INFO) Webcampak : ===END===

```

We usually recommend our users not to configure Webcampak to capture at a rate higher than the longest capture time over a configured time interval.

## Configuration Logs

Webcampak also records configuration changes (who changed what when).

Due to the fairly low change frequency, those logs are not size-limited and will record indefinitely.

## List of logged activities

The following activities are currently configured to be logged by webcampak

### Per Source:

- Capture process

Logs of: Buhl: Grand Ballon - 1424m						
Capture	Videos	Custom Vids.	Post-prod Vids.	Configuration Changes		
2017-01-06 06:14	root	config-source5.cfg		cfghotlinkszie3	640x480	640x275
2017-01-06 06:14	root	config-source5.cfg		cfghotlinkszie2	1280x720	1280x549
2017-01-06 06:14	root	config-source5.cfg		cfghotlinkszie1	1920x1280	1920x822
2017-01-06 06:10	root	config-source5-video.cfg		cfgftphotlinkservermp4retry		2
2017-01-06 06:10	root	config-source5-video.cfg		cfgftphotlinkservermp4id		1
2017-01-06 06:10	root	config-source5-video.cfg		cfgftphotlinkserveraviretry		2
2017-01-06 06:10	root	config-source5-video.cfg		cfgftphotlinkserveraviid		1
2017-01-06 06:09	root	config-source5-video.cfg		cfgvideocodecH264customcropheight	1080	822
2017-01-06 06:09	root	config-source5-video.cfg		cfgvideocodecH264customcreate	no	yes
2017-01-06 06:09	root	config-source5-video.cfg		cfgvideocodecH2641080pcreate	yes	no
2017-01-06 06:08	root	config-source5.cfg		cfgftphotlinkserverretry		2
2017-01-06 06:08	root	config-source5.cfg		cfgftphotlinkserverid		1
2017-01-06 06:03	root	config-source5.cfg		cfgimgtextsize	50	60
2017-01-06 06:03	root	config-source5.cfg		cfgimgtext	Captured by We...	Buhl - Grand Ba...
2017-01-06 06:03	root	config-source5.cfg		cfgimagemagicktxt	no	yes
2017-01-06 05:56	root	config-source5.cfg		cfgpicwatermarkpositiony	10	0
2017-01-06 05:56	root	config-source5.cfg		cfgpicwatermarkpositionx	10	0
2017-01-06 05:56	root	config-source5.cfg		cfgpicwatermarkfile	webcampak-log...	buhl-watermark-...
2017-01-06 05:56	root	config-source5.cfg		cfgpicwatermarkactivate	no	yes

Figure 15.3: Connected Devices

- Configuration changes
- Daily videos creation process
- Custom videos creation process
- Pros-prod creation process
- RRD graph generation

**Per Webcampak:**

- General configuration changes
- Email capture alerts
- Daily reports
- Statistics collection
- Statistics consolidation
- Cron jobs update
- FTP accounts update
- Xfer start
- Xfer dispatch
- (dev-mode only) All activities between UI and API

# Chapter 16

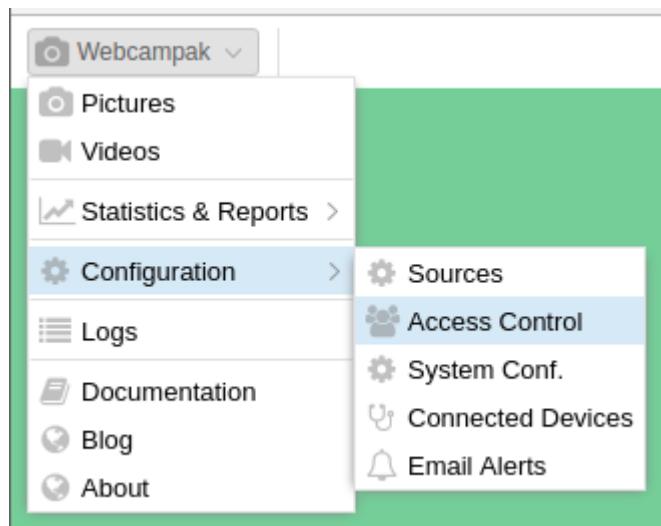
## Sources

### Sources

Sources are at the core of Webcampak picture acquisition, processing and storage. Before starting to use Webcampak, at least one source needs to be created.

### Add a source

To add a source, navigate to “Webcampak > Configuration > Access Control”.



The access control window allows users to manage users, groups, customers and sources.

Total number of records: 0

Users can add a new source by clicking on “Add”.

They will be requested to fill the following details:

- **Name:** The name of the source in the system
- **Source ID:** A numerical ID used internally to manage the source. This number must be unique but do not have to follow a sequence. For example, the FTP account for the source will be sourceX, with X being this number.
- **Weight:** the numerical value used for sorting purposes, the lowest number will be first. This number does not have to be unique, if multiple sources have the same weight, they will be sorted by name.
- **Quota (GB):** Quota to be allocated for the source. Used for reporting purposes only, quotas are (on purpose) not enforced on Webcampak.
- **Remote Host:** Unused, a placeholder for a future feature.
- **Remote Username:** Unused, a placeholder for a future feature.
- **Remote Password:** Unused, a placeholder for a future feature.

Users can then be assigned to this source, by dragging them from the left side to the right side of the screen.

“Alerts”, when turned on, will trigger emails sent by the system when there is an alert on this source and to receive daily statistics by email.

## Configuration

To configure a source, navigate to “Webcampak > Configuration > Sources”.

**Sources Configuration**

**Available Sources**

ID	Name
1	Carhaix: Vieilles Charrues 2011 (statique)
2	Toronto: Skyline and CN tower (8 days)
3	Toronto: Skyline and CN tower (archive)
4	Colorado: Conifer - 18MP D-SLR
5	Buhl: Grand Ballon - 1424m
...	...

**Configuration of: Buhl: Grand Ballon - 1424m**

**Capture** Pictures Videos Custom Vids. Post-prod Vids. Phidgets Advanced FTP

**Source Configuration**

Activate Source:

Source Type: Webcampak Source

Capture every: 5 Minutes Minimum Interval: 3 Seconds

Capture delay: 0 Seconds Picture date: Capture time

Timezone: Europe/Paris Language: French

Process RAW:  Capture Sensors:

Email alerts:  Block capture:

- Capture Calendar

- Configuration of "D-SLR USB Camera (Gphoto2 PTP mode)"

- Configuration of "Webcampak Source"

Select capture mode: Receive: Pictures sent by another source

Select source to get from:

- Configuration of "IP Camera (FTP) / Webcampak"

- Configuration of "Internet Picture" or "Video Streaming"

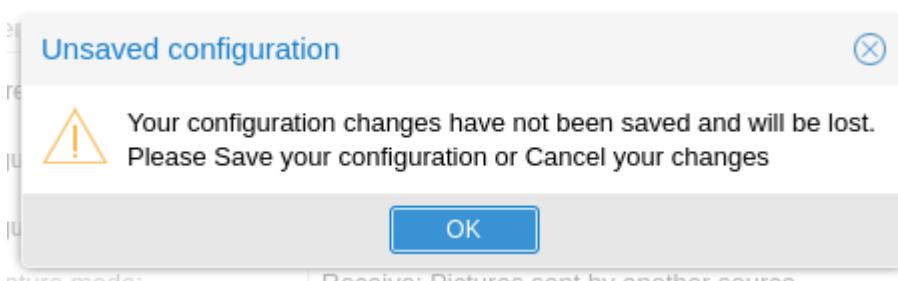
**Save** **Cancel** No configuration changes

Users are presented with a list of available sources attached to their account. Webcampak does not auto-save configuration changes and will display the status of the configuration (modified, unmodified) in the bottom toolbar.

**Save** **Cancel** No configuration changes

**Save** **Cancel** Configuration has been modified

To prevent manipulation issues, users are required to either save or cancel changes before moving to another source.



All changes to the configuration settings are logged by Webcampak (who modified what, when), those logs are available in a dedicated section of the interface. All Webcampak actions are logged, we strongly encourage users to consult those logs while the system is configured to learn more about all specificities of the capture process. Various metrics are also captured and those logs will contain details such as individual actions processing time, picture date, picture size, entire processing time, etc...

## Capture

This tab is used to configure all settings directly related to picture acquisition.

### Source Configuration

Source Configuration							
Activate Source:	<input checked="" type="checkbox"/>						
Source Type:	Webcampak Source						
Capture every:	5	Minutes	▼	Minimum Interval:	3	Seconds	▼
Capture delay:	0	Seconds	▼	Picture date:	Capture time		
Timezone:	Europe/Paris			Language:	French		
Process RAW:	<input type="checkbox"/>			Capture Sensors:	<input type="checkbox"/>		
Email alerts:	<input checked="" type="checkbox"/>			Block capture:	<input type="checkbox"/>		

The following configuration settings are available in this section:

- Activate Source:** Activate the source or not, if inactive, no action will be taken (no pictures, no videos).
- Source Type:** Type of picture acquisition mechanism to be processed by the source.
- Capture Every:** Interval at which the source will try to capture a picture.
- Minimum Interval:** Minimum interval between two pictures. This acts more as a safeguard to avoid overloading the system by misconfiguration. Ideally, this number should be set to the longer capture time during the source operation window.
- Capture Delay:** Delay before initiating capture. This is useful for chained sources to avoid processing delays.
- Picture Date:** Select if date attached to the picture should be the script start time or the actual picture acquisition time.
- Timezone:** Timezone of the source
- Language:** Language to be used by the source
- Process RAW:** Enable RAW pictures acquisition & processing
- Capture Sensors:** Enable Phidgets sensors acquisition just after picture processing
- Email alerts:** Enable email alerts for the source
- Block capture:** Block capture, disable the capture process while leaving the source active

### Capture Calendar

Capture Calendar													
Enable	<input type="checkbox"/>	If disabled, the system will capture 24/7											
Calendar:													
Monday:	<input checked="" type="checkbox"/>	Between	0	▼	:	0	▼	and	0	▼	:	0	▼
Tuesday:	<input checked="" type="checkbox"/>	Between	0	▼	:	0	▼	and	0	▼	:	0	▼
Wednesday:	<input checked="" type="checkbox"/>	Between	0	▼	:	0	▼	and	0	▼	:	0	▼
Thursday:	<input checked="" type="checkbox"/>	Between	0	▼	:	0	▼	and	0	▼	:	0	▼
Friday:	<input checked="" type="checkbox"/>	Between	0	▼	:	0	▼	and	0	▼	:	0	▼
Saturday:	<input checked="" type="checkbox"/>	Between	0	▼	:	0	▼	and	0	▼	:	0	▼
Sunday:	<input checked="" type="checkbox"/>	Between	0	▼	:	0	▼	and	0	▼	:	0	▼

The following configuration settings are available in this section:

- **Enable Calendar:** If disable, the system will capture 24/7, if enabled it will capture at days selected below.
- **Monday - Sunday:** Enable capture this particular day, between those hours (24h format)

## Configuration of D-SLR USB Camera (Gphoto2 PTP mode)

[Configuration of "D-SLR USB Camera \(Gphoto2 PTP mode\)"](#)

Multi-Cameras environment only

Camera Model:	Camera Model
Camera Port:	(usb:001,001)
Camera Owner (TAG):	
Gphoto2 Debug:	<input type="checkbox"/>

Those settings are only used when multiple D-SLR cameras are physically connected to the same Webcampak.

The following configuration settings are available in this section:

- **Camera Model:** Camera Model
- **Camera Port:** USB port of the camera, the system will auto detect available formats
- **Camera Owner (TAG):** User-defined TAG to assigned to the camera and used to verify which camera is which in case 2 identical models are connected
- **Gphoto2 Debug:** Run gphoto2 in debug mode, giving much more verbose output. Do not use this in production

## Configuration of Webcampak Source

[Configuration of "Webcampak Source"](#)

Select capture mode:	Get: Pictures copied from an other source
Select source to get from:	5DMIII - 07:00-20:00

Those settings are used when pictures are coming from another Webcampak source (chained sources).

The following configuration settings are available in this section:

- **Select capture mode:** Two modes are available “Get” or “Receive”. If “Get”, the source will actually try to capture the latest picture from the other source, this mode can only be used for local sources. If “Receive”, the source will process pictures uploaded to its /tmp/ directory, this mode is usually used when remote Webcampak are sending their pictures.
- **Select source to get from:** Source to get the picture from if “Get” is selected in “Select capture mode”.

## Configuration of IP Camera (FTP) / Webcampak

[Configuration of "IP Camera \(FTP\) / Webcampak"](#)

Define picture date based upon:	Date when file was save into /tmp/ directory
Limit hotlink processing to one picture per rotation:	<input type="checkbox"/>
Take actions if no new pictures in /tmp/ directory.:	<input type="checkbox"/>

Those settings are used to process pictures uploaded to the /tmp/ directory, whether those are coming from IP Cameras or remote Webcampak.

The following configuration settings are available in this section:

- **Define picture date based upon:** Various methods are available to identify the picture’s date. Additional parsers can be added to process more source types.

- **Limit hotlink processing to one picture per rotation:** This setting prevent multiple hotlinks to be created if multiple pictures are processed in batch. In this case, only the hotlinks corresponding to the first picture are generated.
- **Take actions if no new pictures in /tmp/ directory:** Trigger alerts if no new pictures are available in /tmp/ directory.

## Configuration of Internet Picture or Video Streaming

[Configuration of "Internet Picture" or "Video Streaming"](#)

URL File/Stream:	<input type="text" value="http://demo:omed@demo.webcampak.com/sources/source3/live/full-webcam.jpg"/>
------------------	---

Those settings are used to process pictures by acquiring a remote image of a video stream.

- **URL File/Stream:** URL of the remote resource.

## Pictures

[Configuration of: 5DIII - 20:00-07:00](#)

Capture	Pictures	Videos	Custom Vids.	Post-prod Vids.	Phidgets	Advanced	FTP
<p><a href="#">Rotate picture</a></p> <p>Rotate pictures: <input type="checkbox"/></p> <p>Rotate angle (clockwise): <input type="text" value="3.65"/></p> <p><a href="#">Crop picture</a></p> <p>Crop pictures: <input type="checkbox"/></p> <p>Size of the area: <input type="text" value="1024"/> X <input type="text" value="768"/></p> <p>Location: X: <input type="text" value="10"/> Y: <input type="text" value="10"/></p> <p><a href="#">Insert Watermark</a></p> <p>Insert a watermark: <input checked="" type="checkbox"/></p> <p>Watermark File: <input type="text" value="webcampak-logo.png"/></p> <p>Transparency: <input type="text"/></p> <p>Location of the watermark: X: <input type="text" value="10"/> Y: <input type="text" value="10"/></p> <p><a href="#">Insert Text</a></p> <p>Insert legend: <input type="checkbox"/></p> <p>Legend: <input type="text" value="Captured by Webcampak"/></p> <p>Date format: <input type="text" value="25/01/2010 - 21h30"/></p> <p>Text size: <input type="text" value="50"/></p> <p>Text location: <input type="text" value="South West"/></p> <p>Text font: <input type="text" value="Helvetica"/></p> <p>Legend Coordinates: <input type="text" value="11,10"/></p> <p>Legend Color: <input type="text" value="white"/></p> <p>Shadow Coordinates: <input type="text" value="14,10"/></p> <p>Shadow Color: <input type="text" value="black"/></p> <p><a href="#">Static pictures (hotlink)</a></p>							
<input type="button" value="Save"/>		<input type="button" value="Cancel"/>					
Configuration has been modified							

This section of the configuration allows you to define manipulations to be applied to pictures right after their capture.

Those settings are executed in sequence in the order available in the configuration screen (picture is first rotated, then cropped, etc ...).

## Rotate picture

This option can be used to rotate the picture, clockwise, by a specific angle. Note that this feature is compute-intensive and will impact the duration of the capture process.

It should preferably be used on Webcampak cloud or on Webcampak devices with low capture rate.

## Crop picture

This option can be used to crop the picture to a specific area, this is especially useful if you want to focus on a specific portion of a picture. The system asks you to detail the size of the area (in pixels) and its start location (in pixels) from the top-left corner of the source picture.

## Insert Watermark

This option can be used to insert a watermark into the picture. A watermark can simply be a logo or be a more complex decoration around a picture (such as a specific box for the date, an improved legend, etc...).

Watermark files are pulled from two locations:

- The global Webcampak /resources/watermark/ directory, shared between all sources. This directory is accessible via FTP through the “wpresources” account (see general configuration).
- The local source’s /resources/watermark/ directory. This directory is accessible via FTP through the source’s FTP account (see FTP tab).

Transparency (in %) with 0 being fully transparent and 100 being not transparent, can be defined as well as watermark’s location from the top-left corner of the picture.

## Insert Text

This option can be used to insert some text (single line) into the picture, usually a legend. If a date format is specified, it will be appended at the end of the legend’s text, following the selected format.

The text can be added to various areas of the picture (Text location), the user can then define coordinates as an offset (in pixels) from this location (X, Y). For example selecting:

- **Text location:** “South West”
- **Legend Coordinates:** 11,10

Will place the bottom left corner of the text area, to start 11 pixels on the X axis and 10 pixels on the Y axis from the bottom left corner of the picture.

Adding a shadow to the legend often makes the text more readable, the shadow is actually the same text, written behind the main text but with a different colour and a slight pixel offset.

Note: If more complex static code needs to be added, this can be done through the watermark feature.

## Static pictures

▲ Static pictures (hotlink)

Hotlink 1 size:	1920x1280
Hotlink 2 size:	1280x720
Hotlink 3 size:	640x480
Hotlink 4 size:	

Generate error hotlink:  In case of error, a hotlink with an error message will be displayed

This option can be used to create “hotlinkable” pictures, those constantly keep the same filename and are automatically replaced as new pictures are being captured.

Webcampak can be configured to create 4 of those, which should give enough flexibility to for most use case (thumbnail link, full size, etc...).

Users can also choose to “Generate error hotlink”, which, in the case of failed capture, will replace the previous picture with an error message embedded in the picture.

## Archives

The screenshot shows the 'Archives' configuration section. It includes fields for 'Save pictures into archives' (checkbox), 'Warning, if disabled video creation will not be possible.' (checkbox), 'Resize pictures before saving:' (dropdown set to 'Disabled'), 'Minimum single picture size:' (input field '3000'), 'Delete pictures after (days, 0 = no limit):' (input field '0'), and 'Maximum archive size (Mbytes, 0 = no limit):' (input field '0').

This section of the configuration contains various settings related to image size and clean-up:

- **Save pictures into archives:** If unselected, the picture will be deleted at the end of processing. This prevents any videos from being created, and might only be useful in very specific situations where this source is only used as a temporary processing step. In most situations, this should be selected.
- **Resize pictures before saving:** Resize pictures to a specific format, using XxY format (in pixels), for example: 1024x768
- **Minimum single picture size:** Minimum size, in bytes, of the picture. If below the system will consider the capture failed.
- **Delete pictures after:** Automatically delete older directories after X days. Note that it delete a full day at once, not considering hours.
- **Maximum archive size:** Maximum size of the entire pictures, in MB. If over, will delete a full day of pictures at each rotation, starting with the oldest day.

## Send pictures via FTP

The screenshot shows the 'Send pictures via FTP' configuration section. It lists three servers:

- Send pictures to: Disabled
- Send pictures to: Disabled
- Send hotlink pictures to: Disabled

Each server entry includes a dropdown menu with options like 'RAW:', 'Number of retries:', and a dropdown arrow.

This option is used to specify FTP servers to send pictures to. Those servers are defined in the FTP tab.

Unless the option is selected, RAW files are not being sent to remote servers. Users can also specify the number of retries, in the case of transmission failure. On top of sending the FTP command to send the picture. Webcampak also compares exact file size (bytes) at the end of the transfer, if files are different, it will consider that transfer failed.

## Copy pictures internally

The screenshot shows the 'Copy pictures internally' configuration section. It lists two internal copy paths:

- Copy pictures to: Disabled
- Copy pictures to: Disabled

Each path entry includes a dropdown menu with options like 'RAW:', 'Enable:', and a dropdown arrow.

This option is used to copy pictures to another source within the webcampak.

## Videos

The screenshot shows the 'Videos' configuration interface. At the top, there are tabs: Capture, Pictures, Videos (which is selected), Custom Vids., Post-prod Vids., Phidgets, Advanced, and FTP. To the right of the tabs are three small icons: a minus sign, a circle with a dot, and a cross.

**Daily video creation**

H. 264 (1080p):	<input checked="" type="checkbox"/>	HD Format, Highest	Web (MP4):	<input checked="" type="checkbox"/>	FPS:	10
H. 264 (720p):	<input type="checkbox"/>	HD Format, High quality.	Web (MP4):	<input checked="" type="checkbox"/>	FPS:	10
H. 264 (480p):	<input type="checkbox"/>	Similar to DVD.	Web (MP4):	<input checked="" type="checkbox"/>	FPS:	10
H. 264 (Custom):	<input type="checkbox"/>	H.264, custom settings.	Web (MP4):	<input checked="" type="checkbox"/>	FPS:	10

**Advanced video settings**

1080p:	Bitrate:	10000	Size:	1920	X: -3	Crop:	1920	:	1080	:	0	:	0
720p:	Bitrate:	10000	Size:	1920	X: -3	Crop:	1920	:	1080	:	0	:	0
480p:	Bitrate:	10000	Size:	1920	X: -3	Crop:	1920	:	1080	:	0	:	0
Custom:	Bitrate:	10000	Size:	1920	X: -3	Crop:	1920	:	1080	:	0	:	0

**Filter similar pictures**

Filter similar pictures:

Watermark File:

Max distance: 0.12301

**Insert Watermark**

Insert a watermark:

Watermark File:

Transparency:

Location of the watermark: X: 200 Y: 300

**Buttons**: Save, Cancel

**Message**: Configuration has been modified

This section is used to configure videos generated daily (processing starts by default at 1 am) by the system. 4 video definitions (1080p, 720p, 480p, custom) are supported by default, and 2 video formats (H.264 and MP4).

Similar to the “Pictures” section, picture manipulation settings are applied in sequence, following the configuration screen order.

### Daily video creation

In this section, users can select video definition and formats, and frames per seconds (FPS).

Please note that the MP4 file is generated by converted the H.264 file, so MP4 files alone cannot be created, the corresponding H.264 option must be selected.

### Advanced video settings

This section offer default configuration for most settings of 1080p, 720p, 480p definitions. Since in a vast majority of situations, source pictures are converted from 4:3 aspect ratio, only the last parameter (Y axis) of the crop is customizable (this is on purpose).

For example, for 1080p, settings are:

- **Bitrate:** 10000
- **Size:** 1920x-3
- **Crop:** 1920:1080:0:0

The system will take the initial picture definition (for example 5616x3744 for a Canon 5D MII) it will resize its width to 1920 while maintaining the aspect ratio (-3 parameter). The resulting picture will have a definition of 1920x1280, it will then crop this picture for the video (Width:Height:X:Y), and since we already have the correct width the only parameter we want to customise is the Y offset. In our example:

- 1920:1080:0:0 - means we cut the bottom 200 pixels of the picture
- 1920:1080:0:100 - means we cut 100 pixels at the top and the bottom of the picture
- 1920:1080:0:200 - means we cut the top 200 pixels of the picture

The custom parameter lets you personalise all settings. May you have sufficient compute power and memory resources, the system could generate 4K or 8K videos.

## Filter similar pictures

This system lets you compare the (difference)[<https://www.pureftpd.org/project/libpuzzle>] between two pictures using (puzzle-diff)[<https://linux.die.net/man/8/puzzle-diff>]. This difference is represented as a “distance”, you will probably have to run a couple of sample videos to identify the best threshold for your video.

For greater accuracy, a watermark can be defined, this watermark is applied by Webcampak on each picture before calculating the difference. For example on a construction site, you might want to add a black watermark covering everything which does not deal with the building you are capturing. This way, the difference will only be calculated if something changed on the building itself (not capturing clouds movements for example).

The difference is a calculated between two consecutive pictures. For example PIC-1 is compared with PIC-2, if PIC-2 is over the threshold, it's not selected and PIC-1 is compared with PIC-3, then PIC-3 is compared with PIC-4, PIC-4 is compared with PIC-5, and so on.

Please note that this can slightly increase video creation runtime depending on the number of calculations to be executed.

## Insert Watermark

Please refer to the Watermark section of the pictures tab.

## Pre-processing manipulations (Advanced)

**Pre-processing manipulations (advanced)**

Insert legend:	<input type="checkbox"/>		
Legend:	Webcampak -		
Date format:	25/01/2010 - 21h30		
Text size:	50	Text location:	North West
Text font:	AvantGarde-Book		
Legend Coordinates:	11,300	Legend Color:	yellow
Shadow Coordinates:	14,300	Shadow Color:	black
Resize picture before video creation			
Enable:	<input type="checkbox"/>	Picture size:	1024x768      For example: 1920x1080

This section lets you add a legend to your video (please refer to the text section of the picture tab).

It can also be used to resize pictures before video creation (this might have a positive impact on video creation time). Original pictures are not impacted by this setting.

## Add an audio file

^ Add an audio file

Add an audio track:	<input type="checkbox"/>
Audio File:	<input type="text"/>

Webcampak let you add an audio track to your videos.

To add an audio track, login into global FTP account (wpresources) and copy MP3 files to /audio/ directory. This directory is shared between all sources.

MP3 filenames must only contain regular characters without blank space.

Add an audio track: select this option to add an audio track.

Audio file: select the file to be inserted.

Webcampak is compliant with playlist upon some conditions. Create a “playlist.m3u” file, this file must contain a list of MP3 files (one file per line)

Example of a “playlist.m3u” file

01-Yellow.submarine.mp3 02-Beat.it.mp3 Upload all files (M3U and corresponding MP3) via FTP to /audio/ directory.

During the creation of the video, Webcampak will create a playlist.mp3 file, you can use this file for other videos and even rename it for later use.

## Send videos via FTP

^ Send videos via FTP

Send AVI video files to:	Disabled	Retries:	<input type="button" value="^"/>
Send MP4 files to:	Disabled	Retries:	<input type="button" value="^"/>
Send hotlink AVI files to:	Disabled	Retries:	<input type="button" value="^"/>
Send hotlink MP4 files to:	Disabled	Retries:	<input type="button" value="^"/>

Videos can be uploaded to remote FTP servers defined in the FTP tab.

## Custom Vids

Configuration of: 5DMIII - 20:00-07:00

Capture Pictures Videos Custom Vids. Post-prod Vids. Phidgets Advanced FTP

**Custom video creation**

H. 264 (1080p): <input checked="" type="checkbox"/>	HD Format, Highest	Web (MP4): <input checked="" type="checkbox"/>	FPS: 10
H. 264 (720p): <input type="checkbox"/>	HD Format, High quality.	Web (MP4): <input checked="" type="checkbox"/>	FPS: 10
H. 264 (480p): <input type="checkbox"/>	Similar to DVD.	Web (MP4): <input checked="" type="checkbox"/>	FPS: 10
H. 264 (Custom): <input type="checkbox"/>	H.264, custom settings.	Web (MP4): <input checked="" type="checkbox"/>	FPS: 10

**Advanced video settings**

1080p:	Bitrate: <input type="text" value="10000"/>	Size: <input type="text" value="1920"/>	X: <input type="text" value="-3"/>	Crop: <input type="text" value="1920"/>	:	<input type="text" value="1080"/>	:	<input type="text" value="0"/>	:	<input type="text" value="0"/>
720p:	Bitrate: <input type="text" value="10000"/>	Size: <input type="text" value="1920"/>	X: <input type="text" value="-3"/>	Crop: <input type="text" value="1920"/>	:	<input type="text" value="1080"/>	:	<input type="text" value="0"/>	:	<input type="text" value="0"/>
480p:	Bitrate: <input type="text" value="10000"/>	Size: <input type="text" value="1920"/>	X: <input type="text" value="-3"/>	Crop: <input type="text" value="1920"/>	:	<input type="text" value="1080"/>	:	<input type="text" value="0"/>	:	<input type="text" value="0"/>
Custom:	Bitrate: <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="10000"/> <input type="button" value="▼"/>	Size: <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="1920"/> <input type="button" value="▼"/>	X: <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="-3"/> <input type="button" value="▼"/>	Crop: <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="1920"/> <input type="button" value="▼"/>	:	<input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="1080"/> <input type="button" value="▼"/>	:	<input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/> <input type="button" value="▼"/>	:	<input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/> <input type="button" value="▼"/>

**Filter similar pictures**

Filter similar pictures:

Watermark File:

Max distance:

**Insert Watermark**

Insert a watermark:

Watermark File:

Transparency:

Location of the watermark: X:  Y:

Pre processing manipulations (advanced)

Configuration has been modified

Most settings in this tab are identical to those available in the “Video” tab, we will only focus on custom settings.

## Create a custom video

**Create a custom video**

Filename:	Source	
From:	<input type="text" value="07/08/2010"/> at <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="14"/> : <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/>	
To:	<input type="text" value="15/08/2016"/> at <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="13"/> : <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/>	
Only keep pictures between:	<input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/> : <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/> and <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/> : <input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/>	
Minimum interval between two pictures:	<input style="width: 40px; height: 20px; border: 1px solid #ccc; border-radius: 5px; padding: 2px;" type="text" value="0"/> Minutes <input type="button" value="▼"/>	
Send an email once creation completed:	<input type="checkbox"/>	
Start creation:	<input type="text" value="Disabled"/>	

This section let you configure settings directly related to video creation (which could take hours if creation spans multiple months).

Be careful with disk usage, Webcampak will copy all pictures to a temporary directory to apply modifications, as a result you will need free disk space corresponding to at least 2x the selected interval.

Following settings are available:

- **Filename (no spaces):** Choose the name for your video file, if an identical name already exists Webcampak will automatically append a random 4 digit number at the end of the filename.
- **From:** Select start date and hour.
- **To:** Select end date and hour.
- **Keep pictures between:** only use pictures between a specific timeframe (i.e. between 8:00am and 7:00pm) to create the video.
- **Minimum time between two pictures:** when preparing your video, Webcampak will check the time between two captures, if lower than this value, the picture will be discarded.
- **Send an email once creation completed:** select this option to receive an email once video creation is completed.
- **Start video creation:** you can choose to start video creation as soon as possible or between 4h00 and 5h00 in the morning.

## Post-prod Vids.

The screenshot shows the 'Post-prod Vids' configuration screen. At the top, there are tabs: Capture, Pictures, Videos, Custom Vids., Post-prod Vids. (which is highlighted in blue), Phidgets, Advanced, and FTP. Below the tabs, there are several sections with expandable arrows:

- Filter similar pictures:** Includes checkboxes for 'Filter similar pictures' and 'Watermark File' (set to '0.12301'), and a 'Max distance' input field set to '0.12301'.
- Rotate picture:** Includes checkboxes for 'Rotate pictures' and 'Rotate angle (clockwise)' (set to '3.65').
- Crop picture:** Includes checkboxes for 'Crop pictures', size inputs for 'Size of the area' (1024 x 768) and 'Location' (X: 10, Y: 10), and dropdowns for X and Y offsets.
- Transition:** Includes checkboxes for 'Enable Transition', size inputs for 'Size of the area' (1024 x 768) and 'Location' (X: 30, Y: 200), and dropdowns for X and Y offsets.
- Resize picture:** Includes checkboxes for 'Resize Picture', size inputs for 'Size of the area' (300 x 300), and dropdowns for X and Y offsets.
- Thumbnail:** A collapsed section indicated by a minus sign.
- Insert Watermark:** A collapsed section indicated by a minus sign.
- Insert a legend:** A collapsed section indicated by a minus sign.

At the bottom left are 'Save' and 'Cancel' buttons. A message 'Configuration has been modified' is displayed at the bottom right.

This section of the configuration allows users to batch process a large number of pictures.

Similar to the "Pictures" section, picture manipulation settings are applied in sequence, following the configuration screen order.

It was created for two main purposes:

- Reduce picture size: cropping/resizing pictures in batch reduces the overall size of pictures to be inserted into a video manipulation software.
- Advanced picture selection: copying pictures to a dedicated source allows users to delete sequences by still keeping original pictures.

This section has a lot of similarities with “Videos” and “Custom Videos” sections but with much more functionalities. Once processing is completed you can use “Custom Videos” to generate a video of the target source.

## Filter similar pictures

Please refer to the “Filter similar pictures” section of the “Custom Vids.” tab.

## Rotate picture

Please refer to the “Rotate Picture” section of the “Pictures” tab.

## Crop picture

Please refer to the “Crop Picture” section of the “Pictures” tab.

## Transition

This section allows users to progressive focus to a specific portion of the picture.

It works similarly to “Crop” but instead of applying the effect right away, it will calculate the number of frames between the first picture and last picture, and identify how to progressively modify the pictures to reach the selected coordinates.

## Resize picture

This section allows users to resize pictures by specifying new dimensions in pixels.

## Thumbnail



This section allows users to insert a thumbnail into a picture, it takes two main arguments:

- Size and location in a source, unmodified, picture (before any of the configured manipulations have been applied)
- Size and location in the destination, modified, picture (after configured manipulations have been applied)

By playing with various sizes, this allows users to play with focus area (zoom-in/out).

## Insert Watermark

Please refer to the “Insert Watermark” section of the “Pictures” tab.

## Insert a legend

Please refer to the “Insert a legend” section of the “Pictures” tab.

## Initiate processing

Initiate processing

From:	07/08/2010	at	at
To:	15/08/2016	at	at
Only keep pictures between:	0 : 0 and 0 : 0		
Minimum interval between two pictures:	0 Minutes		
Move pictures to:			
Send an email once creation completed:	<input type="checkbox"/>		
Start creation:	no		

This section let you configure settings directly related to starting batch processing (which could take hours if creation spans multiple months).

Be careful with disk usage, Webcampak will copy all pictures to a temporary directory to apply modifications, as a result you will need free disk space corresponding to at least 2x the selected interval.

Following settings are available:

- **From:** Select start date and hour.
- **To:** Select end date and hour.
- **Keep pictures between:** only use pictures between a specific timeframe (i.e. between 8:00am and 7:00pm) to create the video.
- **Minimum interval between two pictures:** when preparing your video, Webcampak will check the time between two captures, if lower than this value, the picture will be discarded.
- **Move pictures to:** select the source you would like your pictures to be moved to.
- **Send an email once creation completed:** select this option to receive an email once video creation is completed.
- **Start creation:** you can choose to start video creation as soon as possible or between 4h00 and 5h00 in the morning.

## Phidgets

Configuration of: 5DMIII - 20:00-07:00

Capture Pictures Videos Custom Vids. Post-prod Vids. **Phidgets** Advanced FTP

**Relays**

Powercycle camera in case of failure:

Number of failure before camera powercycle:

Phidget camera port:

**Graphs**

Generate Phidget sensor graph:

Send sensor graph to:  Number of retries:

**Sensors configuration**

ID	Type	Port	Legend	Color
1	Temperature	2	Temperature	FF0000
2	RelativeHumidity	4	Humidity	FF0000
3			Some sensor	FF0000
4				

**Save** **Cancel** Configuration has been modified

This section of the configuration allows users to configure interaction with Phidgets devices. Those are useful in multiple situations, and more specifically:

- Power cycle the camera after X number of failed captures
- Capture sensor values (temperature, humidity, etc...)

### Relays

This section allows users to define when to power cycle the camera (cutting power supply during a couple of seconds) in the case of capture issues. The following settings are available:

- **Powercycle the camera in case of failure:** Option to be selected to activate power-cycling.
- **Number of failure before camera powercycle:** How many failed capture before triggering the event.
- **Phidget camera port:** Port on the Phidgets board to which the relay is connected.

Note that power-cycling will only be triggered when the condition is first met (the camera will only be power cycled once).

## Graphs

Webcampak can generate RRDGraphs out of captured sensor values, enabling this option will make Webcampak refresh its sensor graphs every 5mn.

Phidgets graph gets a static name, but changing sensors settings will trigger a new name to be created.

Graphs can also be sent to a remote FTP server defined in the “FTP” tab.

## Sensors Configuration

Up to 4 different sensors can be configured in this section, by defining the following:

- **Type:** Type of sensor connected to the board (temperature, pressure, humidity, etc...)
- **Port:** Port on the Phidgets board to which the sensor is connected
- **Legend:** Legend to be displayed on the RRDGraph may such graph be generated
- **Color:** Colour of the RRDGraph may such graph be generated

## Advanced

The screenshot shows the 'Advanced' configuration tab for a camera setup named '5DMIII - 20:00-07:00'. The interface is divided into two main sections: 'Time Based Alerts' and 'Schedule Based Alerts (missed captures)'. In the 'Time Based Alerts' section, there is a checkbox for sending email alerts based on time since last capture, a dropdown menu set to '3 minutes', and another dropdown menu set to '100 minutes' for sending reminders. In the 'Schedule Based Alerts (missed captures)' section, there is a checkbox for sending email alerts based on missing captures, a dropdown menu set to '3 missing captures', a dropdown menu set to '0 minutes' for grace period, and another dropdown menu set to '100 missing captures' for sending reminders. The top navigation bar includes tabs for Capture, Pictures, Videos, Custom Vids., Post-prod Vids., Phidgets, Advanced (which is active), and FTP.

These sections allow users to configured more advanced parameters, and for now, dealing with email alerts.

### Time Based Alerts

Time-based alerts are triggered based on total elapsed time since last successful capture. This type of alert do not take into consideration any pre-configured schedule, it simply compares current time with last capture time.

At a pre-configured interval, the system will send a reminder about the failed status.

### Schedule Based Alerts (missed captures)

Schedule based alerts are triggered based on calculating the number of missed captured since last successful capture. To use this part of the system, users will define in advance the expected weekly capture schedule.

Users can also configure a “grace” period, allowing for picture processing or data transfer time. During this grace period, calculated from last expected capture slot, the system will not take in consideration any possible failed capture.

For example, if the system expects a capture at 5:10 and the grace period is set to 5 mn, the system will only send an alert if the 5:10 picture is still missing at 5:15.

## FTP

**Configuration of: 5DMIII - 20:00-07:00**

**FTP**

**Local FTP Account**

Username:	source2
Password:	qddTP6i5uC

**Remote FTP Servers**

Name	Host	Username	Password	Directory	Active	Xfer	
						Enable	# Threads
FTP Name	DNS or IP	Username	Password	Directory	NO	NO	1

This section of the configuration lets the user configure local FTP credentials as well as list all remote FTP servers they would like to use.

### Local FTP Account

Each Webcampak has its own internal FTP server, you can use those credentials to connect directly to the source, to download or delete content, or to configure another source to send pictures to this particular source.

A password is generated automatically at source creation, you can change it at any time.

### Remote FTP Servers

Source-specific (not shared with other sources) remote FTP Servers can be configured in this screen, adding a remote FTP server takes the following parameters:

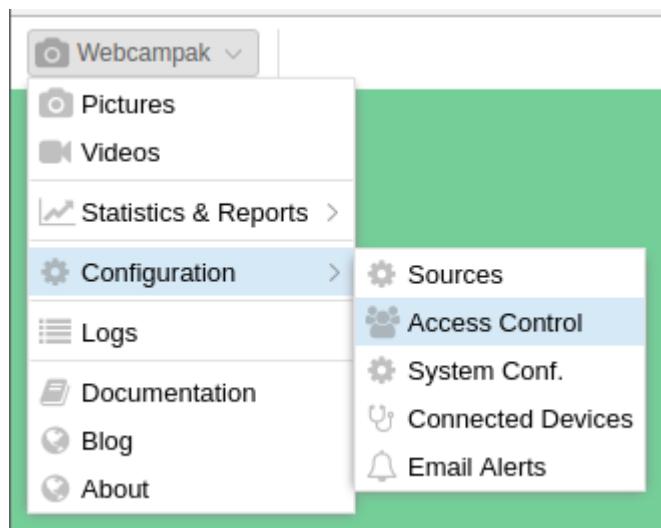
- **Name:** Local name used to reference the FTP server
- **Host:** Remote DNS name or IP Address
- **Username:** Username on the remote FTP server
- **Password:** Password on the remote FTP server
- **Directory:** Directory where the content should be sent to
- **Active:** Enable FTP Active mode
- **Xfer Enable:** Enable Xfer mode (transfer job queueing)
- **Xfer Threads:** Number of parallel transfer jobs supported by this server

# Chapter 17

## Access Control

### Access Control

The access control sections deal with who can access what, along with the definition of what the “what” is and who the “who” are. This screen can be accessed by clicking on “Webcampak > Configuration > Access Control”.



It will let you define users, groups customers and sources as well as their inter-relationships.

Access Control								
Users	Groups	Customers	Sources					
<a href="#"> Add</a>	<a href="#"> Edit</a>	<a href="#"> Delete</a>	<a href="#"> Sources</a>					<input type="text" value="Filter by Name or Username"/>
Username	Group	Customer		Firstname	Lastname	E-Mail	Active	LOG
root	Admin	Eurotechnia Ltd.		Root	Root	contact@webcam...	YES	3

Total number of records: 1

## Customers

A customer is a simple mean of grouping users and providing such users with a customised Webcampak background colour and logo. Users are not required to be attached to a customer, but if they do, they can only be attached to one.

The screenshot shows the 'Access Control' application interface. The 'Customers' tab is active. At the top, there are buttons for 'Add', 'Edit', and 'Delete'. To the right is a 'Filter by Name' input field and a refresh icon. The main table has columns for 'Name', 'BG Colo.', and 'BG Logo'. One row is shown for 'Eurotechnia Ltd.' with values 'BG Colo..', 'BG Logo (in /resources/watermark/ directory)', and a small thumbnail of a logo. The bottom right corner of the table area displays the text 'Total number of records: 1'.

Name	BG Colo..	BG Logo (in /resources/watermark/ directory)
Eurotechnia Ltd.	BG Colo..	BG Logo (in /resources/watermark/ directory)

Total number of records: 1

This screen takes the following parameters:

- **Name:** Customer Name, this field is only available for administrative purposes and is not visible to the end user.
- **BG Color:** Hexadecimal colour for Webcampak Desktop background. If left empty, the default Webcampak background colour will be displayed.
- **BG Logo:** A customer-specific logo (usually a PNG file) can be uploaded into the watermark directory of the wpresources account. If left empty the system will display Webcampak logo

## Groups

The screenshot shows a software interface titled "Access Control". At the top, there are tabs for "Users", "Groups" (which is selected), "Customers", and "Sources". Below the tabs are buttons for "Add", "Edit", "Delete", and "Permissions". A search bar labeled "Filter by Name" is also present. The main area displays a table with three rows:

Name	Notes
Admin	Access everything
Configure	Access source-specific details to view content and configure sources
View	Access source-specific details to view content (only)

Total number of records: 3

By default, Webcampak is pre-configured with three different groups:

- **Admin:** Can access all configuration screens on the system
- **Configure:** Can access configuration screens for authorised sources. General configuration settings are not available
- **View:** Can only view pictures and videos

Note that “root” user has access to every screens and configuration parameters.

By selecting a group and clicking on “Permissions”, users can refine permissions enabled for this group. By default, the “Application” view is selected.

- **Available Applications:** List all applications that can be granted access to users members of this group
- **Selected Applications:** List all applications, users member of this group, have access to.

Manage permissions of Configure

Applications     Permissions

Available Applications		Selected Applications	
	Name		Name
<input checked="" type="checkbox"/>	Access Control	<input checked="" type="checkbox"/>	Connected Devices
<input checked="" type="checkbox"/>	Alerts	<input checked="" type="checkbox"/>	Logs
<input checked="" type="checkbox"/>	Logs	<input checked="" type="checkbox"/>	Pictures
<input checked="" type="checkbox"/>	Sync Reports	<input checked="" type="checkbox"/>	Sources Configuration
<input checked="" type="checkbox"/>	System Configuration	<input checked="" type="checkbox"/>	Sources Statistics
<input checked="" type="checkbox"/>	System Statistics	<input checked="" type="checkbox"/>	Videos
		<input checked="" type="checkbox"/>	XFer Reports

The above screenshot captures the default configuration of the “Configure” group.

Clicking on the “Permissions” tab provides a mean to further refine access control, in particular in situations when a different level of permissions is necessary within one feature.

This is currently limited to sources configuration. It lets the user define which configuration settings can be accessed/modified by which type of users.

Manage permissions of Configure

Applications     Permissions

Available Permissions		Selected Permissions	
	Name		Name
<input checked="" type="checkbox"/>	SOURCES_CONFIGURATION_EXPERT	<input checked="" type="checkbox"/>	SOURCES_CONFIGURATION_ADVANCED
		<input checked="" type="checkbox"/>	SOURCES_CONFIGURATION_SIMPLE

For reference purposes, those settings are listed in the configuration model on GitHub:

- config-general.json

- config-source-ftpserver.json
- config-source-video.json
- config-source-videocustom.json
- config-source-videopost.json

The example (below), list 3 parameters, each with different permission level.

```

1 {"name": "cfgsourceactive", "default": "no", "type": "yesno", "permission":  

 "SOURCES_CONFIGURATION_SIMPLE", "description": "Activation of the source, possible values: yes or no"}  

2 , {"name": "cfgsourcetype", "default": "testpicture", "type": "alphanum", "permission":  

 "SOURCES_CONFIGURATION_ADVANCED", "description": "Type of the source, possible values: gphoto,  

 webcam, ipcam, rtsp, webfile, wpak"}  

3 , {"name": "cfgsourcedebug", "default": "no", "type": "yesno", "permission":  

 "SOURCES_CONFIGURATION_EXPERT", "description": "Turn on detailed debugging for gphoto2, possible  

 values: yes or no"}

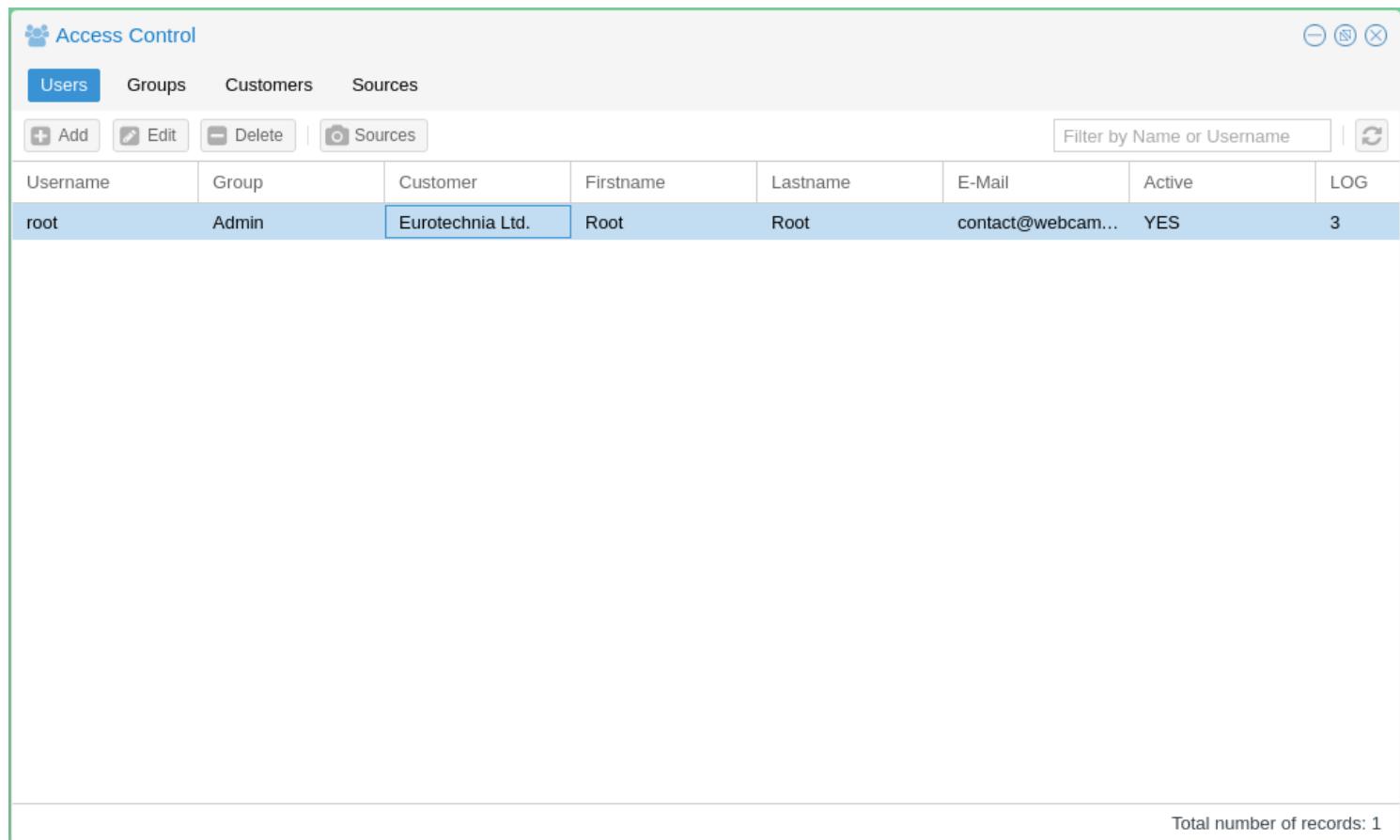
```

## Sources

Please refer to the Sources section of this user guide for details on how to add and configure sources.

## Users

The “Users” section is used add and configure Webcampak users.



The screenshot shows a user management interface titled "Access Control". The top navigation bar includes links for "Users", "Groups", "Customers", and "Sources". Below the navigation is a toolbar with buttons for "Add", "Edit", "Delete", and "Sources". A search bar labeled "Filter by Name or Username" is also present. The main content area displays a table of users:

Username	Group	Customer	Firstname	Lastname	E-Mail	Active	LOG
root	Admin	Eurotechnia Ltd.	Root	Root	contact@webcam...	YES	3

A message at the bottom right states "Total number of records: 1".

## Add User

Clicking on “Add” open the window used to add users.

The screenshot shows the 'Add a user' dialog box. It has two main sections: 'User Credentials' and 'Administrative Details'. In the 'User Credentials' section, the 'Username' field contains 'jdoe' and the 'Password' field contains 'ehfwnfjf7879q'. Both 'Active' and 'Change Password next Logon' checkboxes are checked. In the 'Administrative Details' section, the 'Customer' dropdown is set to 'Eurotechnia Ltd.', the 'Group' dropdown is set to 'View', and the 'Firstname' and 'Lastname' fields both contain 'John Doe'. The 'E-mail' field contains 'johndoe@webcampak.com'. At the bottom right are 'Cancel' and 'Add' buttons.

The system will then prompt to enter the following details:

- **Username:** Unique username on the system
- **Password:** User password on the system, note that only a hash of the password is stored, it is, therefore, impossible to “know” the password after it has been changed by the user.
- **Active:** Is the user authorised to connect Webcampak user interface.
- **Change Password next Logon:** Prompt the user to update his/her password at next login.
- **Customer:** Customer attached to this user
- **Group:** Permission group of the user, defines the permission level
- **Firstname, Lastname:** Firstname and Lastname of the user
- **E-mail:** User’s email, it is key to use a real email since the system will be sending emails (lost password, reports, etc...) depending on user privileges.

## Sources

Source access is managed on a per user basis, clicking on “Sources” allows specifying which sources can be accessed by the user.

# Chapter 18

## System

### System

The system configuration screen can be accessed by clicking on “Webcampak > Configuration > System Conf.”.

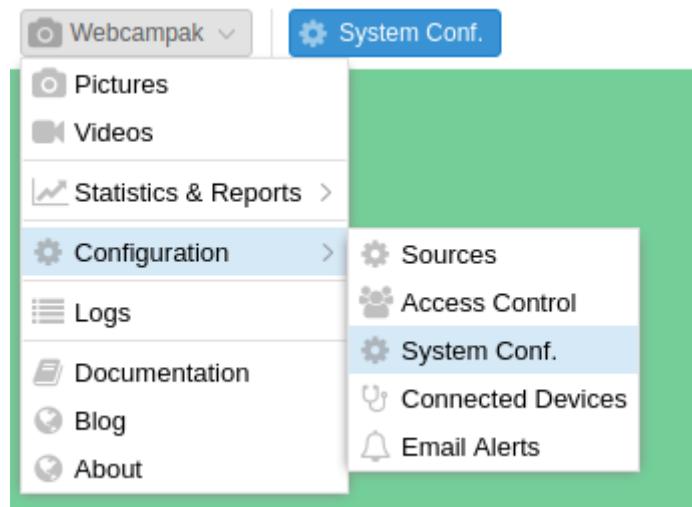


Figure 18.1: System Configuration Menu

It is used for general and non-source-specific settings.

### General

#### Network

- **Main network interface:** A webcam can operate with multiple active network interface, this setting is used to specify which one should be used to collect statistics. This is typically the Internet-connected interface.
- **Number of Xfer transfer threads:** Define the number of transfer queues. This number depends on the number of CPU cores and RAM available on the Webcampak. A higher number means more files can be transferred to various remote locations, but this also implies a greater amount of resources being used.
- **Maximum number of files in each Xfer thread:** Each queue will be provisioned regularly with a specific number of jobs. This number should be set depending on bandwidth availability and Webcampak hardware performance.

**System Configuration** (−) (S) (X)

**General**    **Reboot**

**Network**

Main network interface:

Number of Xfer transfer threads:

Maximum number of files in each Xfer thread:

**Timezone**

Timezone:

**Gphoto**

Lookup for camera automatically:

Source Type:

**Global FTP Account (resources)**

Username:

Password:

**Phidget**

Enable Phidget board:

**Statistics**

Enable Statistics Collection:

Save    Cancel No configuration changes

Figure 18.2: System Configuration

## **Timezone**

The local timezone of the Webcampak server.

## **Gphoto**

Those 2 settings are only used when Webcampak is physically connected to multiple USB D-SLR cameras in order to understand how to differentiate those multiple cameras and identify their USB port.

## **Global FTP Account (resources)**

Webcampak is equipped with an FTP account giving access to Webcampak resources directory containing items such Webcampak database, logs, configuration files, queues, shared watermark, etc...

This directory does not provide access to sources.

## **Phidgets**

Enable or not Phidgets board globally.

## **Statistics**

Enable or not statistics collection

## **Reboot**

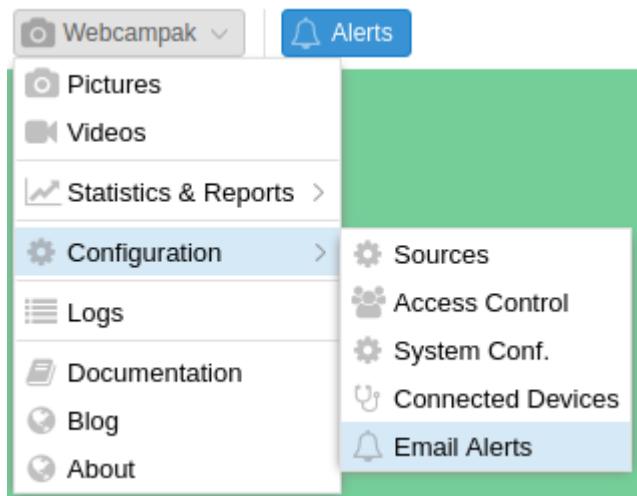
This screen can also be used to trigger a Webcampak reboot.

# Chapter 19

## Email Alerts

### Email Alerts

The email alerts configuration screen can be accessed by clicking on “Webcampak > Configuration > Email Alerts”.



This feature is used to declare when pictures are expected to be captured for some of the sources. Webcampak can then trigger alerts based on deviation from this schedule.

The screenshot shows the 'Sources alerts' configuration screen. At the top left, there's a dropdown menu set to 'SDMIII - 07:00-20:00'. On the right, there are buttons for 'Clear Calendar', 'Reload Calendar', 'Display' (set to 'Monday'), and a refresh icon. Below the dropdown, there's a 'Help' link and a note about specifying capture slots based on a schedule. A note also states that frequency is calculated from the beginning of the day (00:00). The main area contains a 'Calendar' grid where each row represents a weekday and each column represents an hour from 00 to 59. To the right of the grid is an 'Edit Calendar' section with fields for 'From' (Monday), 'Daily, from:' (8:00), 'Frequency' (5 Minutes), 'To' (Monday), and 'Action' (Addition). An 'Apply' button is at the bottom right of the calendar section.

Each line represents an hour, each column a minute. By default, the system only displays one day (selected on the top-right of the window), but it can be configured to display the full week.

Clicking in the grid will select the corresponding date and time.

## Edit Calendar

Since it would be extremely tedious to select a large number of capture slots, the “Edit Calendar” section can be used to manage addition and deletion from this calendar.

The screenshot shows the 'Edit Calendar' dialog. It has fields for 'From' (Monday), 'Daily, from:' (8:00), 'Frequency' (5 Minutes), 'To' (Monday), and 'Action' (Addition). The 'From' and 'To' fields are dropdown menus. The 'Frequency' field has a dropdown menu for 'Minutes'. An 'Apply' button is at the bottom right.

In the example above, the system will add one picture every 5 minutes, on Mondays between 8:00 and 16:00.

Users can also “clear” some of the capture slots.

<b>Edit Calendar</b>			
From:	Monday	To:	Monday
Daily, from:	12 : 0	To:	14 : 0
Frequency:	5 Minutes		
Action:	Deletion		
	<b>Apply</b>		

The above example will remove from the calendar, one picture every 5 minutes, on Mondays between 12:00 and 14:00.

Once users are satisfied with the result, they can save the alert calendar and start using it for their source.