

## **Evolution 05 / Evolution 05 Mini 360-degree Camera Series**

This document describes the enhancements and major fixes for Evolution 05 360-degree series camera firmware. Review each section to determine if an upgrade is warranted for your installation.

**NOTICE: Verify compatibility with any required VMS versions before upgrading your firmware in a live site.**

**NOTICE: Upgrading from below 1.9.16 to 1.9.16 or higher will reset the camera to factory defaults, except for User Accounts and IP settings.**

**NOTICE: Upgrading from 1.4.X to 1.9.4 or above can change system functionality.**

- Firmware version 1.9.4 introduced changes which could result in incompatibility with certain VMS integrations.
- Factory default settings are automatically restored immediately after upgrading the firmware. The procedure to back-up the current configuration of the camera is on [support.oncamgrandeye.com](http://support.oncamgrandeye.com).
- Firmware prior to v1.9.x featured square motion detection regions. This version features new polygonal regions. If you are upgrading from firmware 1.4.12 or earlier to 1.9.x, you will need to recreate motion detection regions, if required. When factory default settings are applied, the whole scene is used for motion detection until explicit regions are defined.

**NOTICE: Downgrading from releases above 1.9.11 to releases below 1.9.11 requires a factory reset that includes resetting all the camera's network settings.**

- When downgrading the camera over a routed connection, it will become unreachable outside the local subnet if there is no DHCP server to reapply the previous settings.

For additional camera information (including the latest updates to documentation, product specifications, and software downloads), visit the Oncam web site at: [www.oncamgrandeye.com](http://www.oncamgrandeye.com)

### **SUPPORT**

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For technical issues, contact Oncam Technical Support at:

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Visit [support.oncamgrandeye.com](http://support.oncamgrandeye.com) for the latest FAQs and Downloads, and how to upgrade camera firmware.

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**1.9.19 / 1.9.19L Release****(April 2019)**

This maintenance release (build 573) applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.18.12 (revision 4782)

**Fixes****Metadata Errors**

Resolved an issue with subscriber creation resulting in errors being generated.

Ref: 1702

**Admin Password Change**

Resolved the inability change Admin password via ONVIF.

Ref: 1688, 1711

**Enabling Secondary Stream**

Resolved an issue where the camera would reboot after enabling second stream rebooted camera.

Ref: 1231, 174

**Remove Unnecessary ONVIF Events – EVO-05 Mini**

Removed the ONVIF events associated with Digital Input from being visible for the EVO-05 Mini.

Ref: 1746

**ONVIF Notifications**

Improvements were made to address the long-term stability of ONVIF notifications.

Ref: 1698, 1720

**Notifications Filters**

Updated XPath handling for ONVIF Message Content filtering.

Ref: 1647, 1710

**Security Updates****Updated Libraries**

Updated internal versions as published in the Common Vulnerabilities and Exposures (CVE) catalog.

Ref: 1732

## Known Issues

### Audio Gaps (EVOLUTION 05 Only, not Mini)

Under certain conditions, when the audio connection is used on the EVO-5 camera, intermittent audio gaps of less than a second can be observed.

Ref: 1454

### Audio Requires a Reboot After Enabling

Audio will not stream after being enabled until the camera is rebooted, but the Web GUI message to alert the user doesn't appear. Audio will be disabled after upgrading to v1.9.16 because this new version applies factory defaults, so a reboot must be applied manually if re-enabling audio.

Ref: 1433

### Dual Streaming

Under certain conditions when using dual streams (either 2MP and 1MP, or 4MP and 1MP), the 1MP stream image can seem to be moving up and down a little. Under these same conditions in wall mount mode, the invert option inverts only half of the image.

Ref: 1143

## 1.9.18 / 1.9.18L Release

**(July 2018)**

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This release (build 525) applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.17.12 (revision 3102).

## Enhancements

### Reboot Button Added to Camera Web Page

A reboot button has been added to the camera Web interface in the "Maintenance" page of the "Admin" menu, along with the "Reset to Factory Defaults" button. The "Maintenance" page has been renamed from "Factory Defaults".

Ref: 1485,1526.

### HTTP Tunnelling

Tunnelling RTSP streams over HTTP is now supported.

Ref: 1479, 1480, 1481, 1482, 1483, 1514

## Fixes

### FIN HTTP response missing

Fixed a minor issue where an expected confirmation message was not sent out when a client closed its connection to certain HTTP services.

Ref: 1484, 1508

## **Known Issues**

### **Audio Gaps (EVOLUTION 05 Only, not Mini)**

Under certain conditions, when the audio connection is used on the EVO-5 camera, intermittent audio gaps of less than a second can be observed.

Ref: 1454

### **Audio Requires a Reboot After Enabling**

Audio will not stream after being enabled until the camera is rebooted, but the Web GUI message to alert the user doesn't appear. Audio will be disabled after upgrading to v1.9.16 because this new version applies factory defaults, so a reboot must be applied manually if re-enabling audio.

Ref: 1433

### **Dual Streaming**

Under certain conditions when using dual streams (either 2MP and 1MP, or 4MP and 1MP), the 1MP stream image can seem to be moving up and down a little. Under these same conditions in wall mount mode, the invert option inverts only half of the image.

Ref: 1143

## 1.9.17 / 1.9.17L Hotfix 481 Release

(May 2018)

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This release (build 481) applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.17.06 (revision 2092).

### Fixes

This release (build 481) provides an update to an internal diagnostic file used in the production environment of the camera. If already using build 1.9.17-460 of this release in the field, updating of the product to this release is not required. No other product updates or fixes have been included in this release.

### Known Issues

#### Audio Gaps (EVOLUTION 05 Only, not Mini)

Under certain conditions, when the audio connection is used on the EVO-5 camera, intermittent audio gaps of less than a second can be observed.

Ref: 1454

#### Audio Requires a Reboot After Enabling

Audio will not stream after being enabled until the camera is rebooted, but the Web GUI message to alert the user doesn't appear. Audio will be disabled after upgrading to v1.9.16 because this new version applies factory defaults, so a reboot must be applied manually if re-enabling audio.

Ref: 1433

#### Dual Streaming

Under certain conditions when using dual streams (either 2MP and 1MP, or 4MP and 1MP), the 1MP stream image can seem to be moving up and down a little. Under these same conditions in wall mount mode, the invert option inverts only half of the image.

Ref: 1143

**1.9.17 / 1.9.17L Release****(April 2018)**

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This release (build 460) applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.17.06 (revision 2092).

**Fixes****Frame gaps in recordings**

Fixed an issue where intermittent frame gaps could be seen in the video stream under certain lighting conditions.

Ref: 1451

**Extreme light change in scene**

Resolved a rare occurrence where the camera could reboot when an extreme light source was shone directly into the sensor or an extreme light change occurred in the whole scene.

**Known Issues****Audio Gaps (EVOLUTION 05 Only, not Mini)**

Under certain conditions, when the audio connection is used on the EVO-5 camera, intermittent audio gaps of less than a second can be observed.

Ref: 1454

**Audio Requires a Reboot After Enabling**

Audio will not stream after being enabled until the camera is rebooted, but the Web GUI message to alert the user doesn't appear. Audio will be disabled after upgrading to v1.9.16 because this new version applies factory defaults, so a reboot must be applied manually if re-enabling audio.

Ref: 1433

**Dual Streaming**

Under certain conditions when using dual streams (either 2MP and 1MP, or 4MP and 1MP), the 1MP stream image can seem to be moving up and down a little. Under these same conditions in wall mount mode, the invert option inverts only half of the image.

Ref: 1143

**1.9.16 / 1.9.16L Release****(December 2017)**

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This release applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.17.06 (revision 2092).

**Enhancements****Time Zone Database Update**

Expanded available time zones list to cover full IANA Time Zone Database. Fixes several other minor issues relating to time zones at the same time.

Ref: 1248, 1337, 1338, 982, 1408

**Fixes****Unable to delete Privacy Region**

Fixed a bug where in some browsers privacy regions would occasionally refuse to delete.

Ref: 1028

**Integration-specific fixes**

Several minor improvements to some VMS-specific features.

Ref: 1296, 1325, 1350, 1368, 1373, 1412, 1203

**Minor text updates in Motion Region page**

Removed references to “custom” in the names of some motion settings.

Ref: 1353

**Known Issues****Dual Streaming**

Under certain conditions when using dual streams (either 2MP and 1MP, or 4MP and 1MP), the 1MP stream image can seem to be moving up and down a little. Under these same conditions in wall mount mode, the invert option inverts only half of the image.

Ref: 1143

**Audio Requires a Reboot After Enabling**

Audio will not stream after being enabled until the camera is rebooted, but the Web GUI message to alert the user doesn't appear. Audio will be disabled after upgrading to v1.9.16 because this new version applies factory defaults, so a reboot must be applied manually if re-enabling audio.

Ref: 1433



**1.9.15 / 1.9.15L Release****(October 2017)**

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This release applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.17.06 (revision 2092).

**Enhancements****Improved Compression Performance in Fixed Quality mode**

A new compression rate control algorithm has been introduced in Fixed Quality mode that reduces bandwidth in lower light conditions, without impacting the perceived image quality. The camera's default rate control mode remains CBR.

Ref: 1279, 1278, 1281, 1290, 1304

**Fixes****Camera Stability**

Fixed an issue in Fixed Quality mode where sudden large spikes in bandwidth could sometimes cause camera instability.

Ref: 1170, 1236

Fixed an issue where long term continuous attempts at camera discovery could cause the camera to reboot.

Ref: 1277

**External Alarm Reset**

Fixed a bug preventing the external alarm reset input from resetting the alarm state correctly.

Ref: 1238

**1.9.14 / 1.9.14L Release****(May 2017)**

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This release applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.17.01 (revision 1104).

**Enhancements****Improved Motion Detection Accuracy in Low Light**

Motion detection algorithm has been enhanced in low-light conditions, for improved accuracy, efficiency and noise rejection, resulting in further-reduced false triggers.

Ref: 1236

**Fixes****ONVIF Conformance**

Fixed ONVIF conformance issue where device offers relay output, but is not supported via ONVIF

Ref: 1222

Fixed ONVIF conformance issue with User Authentication Schema

Ref: 1242

**Motion Metadata**

Fixed an issue where motion metadata always reported motion from the first motion region, regardless of which region was triggered.

Ref: 1220

**1.9.13 / 1.9.13L Release****(March 2017)**

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This release applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

The firmware version 1.9.13L on the EVO-05 Mini camera has been tested Profile S conformant with the ONVIF Device Test Tool v.16.07 SR (revision 419).

**Fixes****Fixed several low-risk security flaws**

Fixed low-risk "Etherleak" security vulnerability

Ref: 1173

Fixed low-risk SSH security vulnerabilities

Ref: 1148, 1149

**1.9.12 / 1.9.12L Release****(November 2016)**

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This release applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras.

The firmware has been tested Profile S conformant with the ONVIF Device Test Tool v.16.01 (revision 419).

**Enhancements****Improved CVBR (Capped Variable Bit-Rate)**

Added VBR and CBR bit rate controls. Resolved an issue where stream bit rate in Capped Variable Bit Rate (CVBR) remained at the maximum bit rate.

Ref: 1122

**SDK for UPnP Devices**

Improved security for UPnP by upgrading the Portable SDK for UPnP Devices from version 1.6.6 to version 1.6.18. This addresses several security vulnerabilities that were found in the previous SDK version.

Ref: 1128

**SSH Security**

Improved security for SSH by upgrading Dropbear to version 2016.74. This enhancement removes multiple vulnerabilities discovered in the previous Dropbear version.

Ref: 1129

**Camera stability**

Camera stability is improved by correcting a timing error that could cause the camera to stall.

Ref: 1111

**ONVIF Motion Detection Events**

Implementation modified for ONVIF Motion Detection Events improving Video Management System compatibility.

Ref: 1124

**Fixes**

N/A

**1.9.11 / 1.9.11L Release****(September 2016)**

This release applies to all Evolution 05 and Evolution 05 Mini 360-degree 5MP cameras. The firmware has been tested Profile S conformant with the ONVIF Device Test Tool v.16.01 (rev419).

**Enhancements****New VLC plugin**

The previous QuickTime plugin has been replaced with a VLC plugin. After installing the appropriate VLC Plugin, different browsers support H.264 video in the camera web page. Browsers supporting the VLC plugin include the following.

- Firefox
- Internet Explorer
- Edge
- Safari

**Motion Detection**

Enhancing efficiency, the new Motion Detection engine brings refined user settings to fine-tune motion detection. The new engine features eight user-definable regions and one full-scene region (active by default).

**Motion Detection – User settings****Motion Sensitivity:**

Controls the sensitivity of the camera to object movement. Where low-contrast objects are difficult to capture, increase the sensitivity to detect these objects. Setting the sensitivity lower requires more motion to activate an alarm.

Notice: Higher sensitivity values in noisy environments may cause false alarms.

**Motion Threshold:**

The amount of moving pixels required to raise a motion alarm are determined by the threshold setting. Motion alarms are caused by the cumulative moving pixels regardless of their distribution. Setting the threshold higher increases the motion's time to activate an alarm.

Notice: Low motion thresholds in noisy environments may cause increased false alarms.

**Motion Persistence:**

The period when motion is detected in a frame prior to raising an alarm is the persistence. Raising a motion alarm immediately after the motion might lead to false alarms in noisy environments. Use the motion persistence setting to ensure the system raises an alarm only when persistent motion exists.

**Motion Latency:**

Motion latency defines how many frames an alarm remains true after motion stops. A low latency allows a rapid succession of motion events to appear as multiple alarms. A higher setting will group rapid triggers into a single alarm event.

### Motion Detection – API calls

The four new motion detection user settings may also be configured using their corresponding CGI commands as follows:

`http://<ip_address>/analytics/setanalyticsconfig.cgi?motionsensitivity=99`

`http://<ip_address>/analytics/setanalyticsconfig.cgi?motionthreshold=99`

`http://<ip_address>/analytics/setanalyticsconfig.cgi?motionpersistence=2000`

`http://<ip_address>/analytics/setanalyticsconfig.cgi?motionlatency=1000`

Each of the commands have a matching [getanalyticsconfig.cgi](#) parameter that returns the value displayed to the user on the web page.

### Motion detection – Low light

The new motion detection engine is more robust with greatly improved reliability in low light conditions.

### Motion detection – Factory reset

The Factory Reset default settings have been updated. The following settings are active after a Factory Reset:

- Motion detection is enabled over the full fisheye scene
- Motion Detection is set as the Active Trigger
- Alarm is enabled

**1.9.9 / 1.9.9L Release****(May 2016)**

This release applies to all Evolution 05 and 05 Mini; 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with the ONVIF Device Test Tool v.16.01 (rev419).

**Enhancements**

- Factory Defaults Reset now retains essential IP settings unless forced
- When a user wants to reset a camera to its Factory Defaults, the following essentials IP settings will be retained by default:
  - DHCP (On or Off)
  - IP address
  - Network mask
  - Default gateway
  - Http port

However, it is possible to force the IP settings to be cleared at the same time as the Reset to Factory Defaults. To do this, the user must uncheck the box in the Factory Defaults tab of the web GUI Admin Page:

**Fixes**

- Metadata streaming not present  
Fixed a bug where Motion Detection metadata was not streamed over RTSP
- Evo-Mini Admin page has acquired Audio Tab  
Removed the Audio Tab from the web GUI Admin page, which was incorrectly present in the Evo-Mini firmware

**1.9.8 / 1.9.8L Release****(March 2016)**

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This release applies to all Evolution 05 and 05 Mini; 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with both v.14.12.SR1 and v.15.06 of the ONVIF Device Test Tool.

**Enhancements****Monochrome / Colour Switch**

A new setting has been implemented in the web interface of the camera. This setting allows the user to control how the camera image will switch from Colour to Monochrome and Monochrome to Colour in response to different illumination levels.

The available settings for the Monochrome/Colour Switch controls are:

- Automatic
- 1 Lux
- 5 Lux
- 10 Lux
- 20 Lux
- 40 Lux
- 100 Lux
- Always Monochrome

**NOTE:** for a detailed explanation about this new feature, please read the User Manual, section 6.2.6

**Fixes****Milestone Corporate**

Fixed a bug where Milestone Corporate 2016 was unable to see an Evolution 05 camera with either the firmware V1.9.6 or V1.9.4 over an Onvif connection.



**1.9.6 / 1.9.6L Release****(Nov 2015)**

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This release applies to all Evolution 05 and 05 Mini; 360-degree 5MP cameras.

This firmware has been tested to be Profile S conformant with both v.14.12.SR1 and v.15.06 of the ONVIF Device Test Tool.

**Enhancements**

- **ONVIF – support for 2 unique H.264 streams**

Using ONVIF, a user can now configure and stream a second h.264 stream over ONVIF; while previously, it was only possible to have a h.264+MJPEG (as a secondary stream)

This is a significant improvement for VMS Partners that benefit from a second h.264 stream over ONVIF.

**Major Fixes**

- **ONVIF – “SetScopes” command**

Fixed bug with ONVIF SetScopes operation

- **ONVIF – “GetDigitalInput” command**

Fixed bug with ONVIF GetDigitalInputs operation and DigitalInputTrigger notification using different tokens

This firmware also includes fixes related to Alarm Settings camera web configuration page.

**1.9.4 / 1.9.4L Release****(August 2015)**

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This release applies to Evolution 05 360-degree cameras.

This firmware has been tested to be Profile S conformant with both v.14.12.SR1 and v.15.06 of the ONVIF Device Test Tool.

**Enhancements**

- **30fps Video Stream**

The camera now supports up to 30fps at 1MP and 1/4MP resolution stream.

- **Low-light enhancements**

There has been a significant adjustment in the camera sensor settings to help address some low light performance issues that have been seen in the field. The new firmware shows a visibility improvement and reduced bandwidth (due to reduction in low-light noise) in scenes below 30lux.

- **ONVIF Motion Events Support**

ONVIF Motion Events are important for recording in partner VMS platforms that use the ONVIF driver to connect to the EVO-05 cameras.

- **SD Card Recording Support**

The camera can be configured to record a clip to an SD card based on triggered motion events.

- **Polygonal Motion and Privacy Region**

Users can now create Motion Detection Regions using a free hand drawn polygon instead of selecting rectangles from a fixed grid of motion detection areas.

- **Multicasting Support**

For customers that desire a multicast stream, this functionality is available through CGI commands and from the camera's configuration web page.

- **Manufacturing Name Changed to "Oncam Grandeye"**

This has been updated in the camera firmware to help correctly identify Oncam Evolution 05 cameras.

- **Operator and User Logins have been created and improved**

Giving customers better control of users and authentication access to the camera webpage and settings.

**1.4.12 Release****(May 2015)**

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This release applies to Evolution 05 360-degree cameras.

**Enhancements**

- **Hardware**

We have a hardware update for the Evolution 05 platform, which is included on all Evolution 05 models; Indoor, Outdoor, Concealed and Mini.

This update has added in RTC (Real-Time Clock) circuitry, re-designed EVO-05 power and main boards on to a single board (PCB).

The purpose of updating the hardware is to improve overall reliability and ESD (Electro Static Discharge) performance to pass the latest testing requirements.

- **Software**

We have updated the factory firmware from 1.4.10 to a new 1.4.12 version (1.4.12L for Mini).

The 1.4.12 firmware is completely backward compatible with any old hardware in the field today and is an optional update, not a required update. This firmware will have two primary fixes:

- White balance adjustment: Fixing an issue where the image would have a yellow hue in certain lighting conditions. This was rarely seen, but a significant customer was concerned about this and we were able to update this successfully.

- Fix for RTC updated hardware: Real Time Clock updated to match new hardware

NOTE: Neither the hardware nor firmware changes will affect any Partner Integrations today

**1.4.10 Release****(July 2014)**

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This release applies to Evolution 05 360-degree cameras.

**Major Fixes**

- Corrected an error in usage of the bit rate limit in the ONVIF video encoder configuration. The bit rate was set too low.
- Fixed an issue with ONVIF that caused a crash with a particular NVR implementation due to the way the request was constructed.

**1.4.8 Release****(April 2014)**

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**Enhancements**

- Admin password is used immediately for H.264 streaming so a reboot is no longer required.
- Added option to disable uPNP.

**Major Fixes**

- Fixed an issue with ONVIF probe.
- Fixed an issue that caused camera to fail on reboot if an apostrophe was in the camera name.
- Fixed an issue that caused changing from static to dynamic IP addressing to corrupt subnet configuration.
- Fixed an issue that caused both external and motion alarms to occur at the same time.

**1.4.7 Release****(September 2013)**

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**Enhancements**

- ONVIF conformant with the latest test tool (13.06).
- The ONVIF profile default is now set to H.264 instead of MJPEG. If a factory defaulted camera is connected to an NVR using ONVIF, the default stream will be 4M H.264.
- The factory default for the audio feature is now set to disabled.
- The watchdog module now additionally tests the web server. If the web server stops functioning, the camera will be rebooted by the watchdog.
- The web server code has been updated to make it more robust during normal operation and firmware upgrades.

**Major Fixes**

- The analog output has been fixed. This output no longer “zooms in” and fails to show the whole fisheye when the second camera is enabled.

**Contact Information**

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