



# GEN<i>CAM

## GenICam Working Group Rules

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# EMVA GenICam Working Group Rules

## History

Version	Date	Changed by	Change
0.1	12.07.2021	Christoph Zierl, MVTec Dr. Friedrich Dierks, Basler	Updated from former "GenICam License, Rules, and Application Form" document v1.6" as part of the new EMVA legal envelope for the GenICam standard
0.2	30.08.2021	Christoph Zierl, MVTec	Completed first official draft, including the necessary changes for the new GenDC module
0.3	24.11.2021	Werner Feith, EMVA	Included changes due to discussions at Fall 2021 IVSM
1.0 RC	08.02.2022	Christoph Zierl, MVTec	Included legal feedback to improve exactness and consistency
1.0	07.03.2022	Christoph Zierl, MVTec	Official release

# EMVA GenICam Working Group Rules

## 1 Introduction

This document describes the GenICam license and the specific collaboration rules within the GenICam standard working group. Note that this document is part of the “EMVA legal envelope” for the GenICam standard that comprises the following documents:

- EMVA Standards Development and Approval Procedures
- EMVA IPR<sup>1</sup> Policy
- EMVA IPR Committee Rules
- EMVA GenICam Working Group Application Form
- EMVA GenICam Working Group Rules (this document)

This document is based on the EMVA Standards Development and Approval Procedures and sets forth specific rules for the GenICam Working Group.

## 2 Overview

The goal of GenICam is to provide a generic programming interface for cameras which is independent of the camera’s interface technology like GigE Vision, USB3 Vision, CoaXPress, Camera Link HS, CSI2 or else. GenICam requires that cameras have a low level, register based programming interface, and that interface standards define a protocol for accessing these registers. All modern interface standards follow this scheme.

### *GenICam Modules*

The GenICam standard consists of several modules according to the main tasks to be solved:

- **GenApi**: standardizes the format of a XML based device description file which describes how to map high level feature access (e.g. Camera.Gain = 42) by the user to low level register accesses (e.g. Camera.WriteReg(0xff1234, 0x2A, 2)).
- **SFNC** (Standard Features Naming Convention): standardizes names, types, and behavior for the most common device features resulting in a plug&play-like interoperability between products from different vendors. Part of the SFNC is also the PFNC (Pixel Format Naming Convention) which standardizes the memory layout of video data.
- **CLProtocol**: standardizes the interface of an adapter DLL to permit interfacing Camera Link cameras with GenICam.
- **FWUpdate**: standardizes the firmware update process for devices using GenApi.

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<sup>1</sup> IPR: Intellectual Property Rights

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- **GenTL**: standardizes a generic programming interface for transport layers, which defines the enumeration, control and data acquisition of cameras. This interface allows combining drivers and image processing libraries from different vendors.
- **GenTL SFNC**: standardizes names, types, and behavior for common features of the transport layer interface.
- **GenCP** (Generic Control Protocol): standardizes a generic packet-based protocol for controlling cameras. It is used to simplify the definition and implementation of new transport layer standards.
- **GenDC** (Generic Data Container): standardizes a portable generic data container (GenDC) format. This allows devices to send any form of data in a Transport Layer Protocol (TLP) independent format and permits to share a common data container format for all the TLP standards.

### *Reference Implementation*

The GenICam working group also provides a **reference implementation** for the GenApi module. The reference implementation is a collection of software modules which can be distributed in two ways: as **runtime version** or as **development version**, see Chapters 4 and 5 for more details about using and redistributing the reference implementation.

The runtime as well as the development version may contain 3rd party modules which come with their own license. These licenses override the GenICam license.

Note that GenICam is a B2B industry standard which is mostly used by vendors “under the hood” to provide interoperability between their products. As a consequence of this, the reference implementation does not contain any driver and thus cannot be used stand-alone to control a camera.

## 3 Rules for Standard Compliancy

The standard documents are available for free to anybody. Users may download the latest version of the standard documents from the GenICam website at [www.genicam.org](http://www.genicam.org).

Regarding compliancy, the GenICam standard has been divided into four parts:

- GenICam (mainly the modules GenApi and SFNC)
- GenICam TL (mainly the modules GenTL and GenTL SFNC)
- GenICam CP (mainly the module GenCP)
- GenICam DC (mainly the module GenDC)

While the compliancy rules for GenICam (i.e, the modules GenApi and SFNC) are always valid, the compliancy rules for GenICam TL, GenICam CP and GenICam DC are only valid if applicable.

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## *GenICam Compliancy*

The term **GenICam compliant** is true for:

- Cameras (or other devices) providing a GenICam compliant XML based device description file and obeying the standard's additional rules. In particular, it must follow the GenICam Standard Features Naming Convention (SFNC), whenever applicable or possible.
- Software libraries being able to access GenICam compliant devices.

## *GenICam TL Compliancy*

The term **GenICam TL compliant** is true for:

- Products that provide a transport layer interface compatible with the definitions of the GenTL and the GenTL SFNC modules ("GenICam GenTL Producers").
- Products that can access devices via a GenICam GenTL Producer based on the definitions of the GenTL and the GenTL SFNC modules ("GenICam GenTL Consumers")

## *GenICam CP Compliancy*

The term **GenICam CP compliant** is true for:

- Cameras (or other devices) that support the generic packet-based protocol and provide the bootstrap register map as defined in the GenICam GenCP standard.
- Products that can access devices via the generic packet-based protocol and bootstrap register map as defined in the GenICam GenCP standard.

## *GenICam DC Compliancy*

The term **GenICam DC compliant** is true for:

- Products that create, transmit, receive, deliver or store GenDC containers as defined in the GenICam GenDC standard which meet the requirements given in the "List of Requirements and Objectives" and respect the related text in the GenDC specification.

## *Certification and Logo*

In general, the GenICam compliancy is declared by self-certification. The GenICam working group can provide additional checklists or certification software that have to be used during the self-certification procedure. Vendors may use the GenICam logo(s) and use the name GenICam™ for advertising GenICam compliant products. In future, additional compliancy procedures may become mandatory for new devices such as validation test suites and/or obligations to participate at plug-fests.

## 4 Rules for Using the Runtime Version of the Reference Implementation

The runtime version of the reference implementation is available for free to anybody in binary format.

Everyone may download the latest version from the GenICam website.

The runtime version is distributed under a **modified [BSD License](#)** (the term source code below refers to the header files delivered with the runtime version):

Copyright (c) 2005-<year>, <owner of the software module>  
All rights reserved.

Redistribution and use in source and binary forms, without<sup>2</sup> modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of the GenICam standard group nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

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In contrast to the BSD License the user **must not modify** the software except the installation procedure, see Chapter 5 for more details. This is to make sure only properly tested and released GenICam versions are used in the machine vision community and the support effort is restricted.

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<sup>2</sup> The original BSD License reads here "with or without modification".

## 5 Rules for Using the Development Version of the Reference Implementation

In order to get access to the development version of the GenICam reference implementation a company must become GenICam Working Group member. Application requires the completion and submission of the EMVA GenICam Working Group Application Form which can be found on [www.genicam.org](http://www.genicam.org).

GenICam Working Group members get, inter alia, the following **benefits**:

- Access to code repository, which allows GenICam Working Group members to download the source code of the development version of the GenICam reference implementation and use it for debugging.
- Access to GenICam Working Group meetings and the GenICam mailing list.
- Technical support from the GenICam community through the GenICam mailing list.
- The company name is listed on the GenICam website as a GenICam Working Group member.

By registering, the company accepts in particular, without limitation, the following **obligations**:

- It must not give the source code of the development version of the GenICam reference implementation to any 3rd party.
- All bug fixes and all changes regarding unsupported platforms and compilers (for which no official binaries exist yet) shall be submitted to the respective GenICam module maintainers for reviewing and testing. Once the code change is in the code repository, private builds can be made using the repository code, provided that the official way to create a private namespace and private binary names is used. Additionally, the self-generated release must clearly indicate the snapshot version used and state that it is not an official release.
- Custom builds of the unmodified source of the GenICam reference implementation may be re-distributed in binary format only by GenICam Working Group member companies, provided that they follow the official mechanism for utilizing private binary names, namespaces, and indicate the repository snapshot version of the source code.
- It must submit improvements to the GenICam Working Group which will validate them and add them to the next GenICam release in reasonable time.
- For details about the handling of intellectual property please see the EMVA GenICam Working Group Application Form.



## EMVA GenICam Working Group Rules

- Working group members are charged a reasonable admin fee in order to meet the EMVA's cost for hosting the GenICam standard.

### 6 Rules for Redistributing SFNC or GenTL SFNC

Redistributing (parts of) SFNC or GenTL SFNC without modification, addition or interpretation, is allowed as long as it is clearly stated that this is a copy of the GenICam (GenTL) SFNC standard document version <x.y> that can be found at [www.genicam.org](http://www.genicam.org).

### 7 Admin Fee

Companies being GenICam Working Group members are charged an annual admin fee for meeting the EMVA's cost of hosting GenICam. The fee is negotiated between the EMVA and the GenICam Working Group within the IPR Committee (see below). Once the amount has been agreed on it will stay fixed for a period of three years until the next update. The admin fee is collected by the EMVA.

### 8 Further Collaboration Rules

#### *IPR Committee*

The GenICam Working Group uses the Fiduciary Regime as described in detail in both the EMVA Standards Development and Approval Procedures and the EMVA IPR Committee Rules. The associated IPR Committee is assigned the following items to deal with, in addition to the tasks described in the IPR Committee Rules:

1. GenICam reference implementation
2. GenICam validation frameworks
3. Setting the admin fee for GenICam Working Group members

The voting of each of the two members of the IPR Committee delegated by the GenICam Working Group follows the rules for electing a vice-chair as described in the EMVA Standards Development and Approval Procedures.

The GenICam IPR Committee delegates have an imperative mandate, that is they represent the GenICam Working Group in the IPR Committee and negotiate with the EMVA delegates until a for all parties acceptable solution is found. Before the GenICam delegates can finally agree to a

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solution they need to get approval by the contributing members of the GenICam Working Group according to the voting rules (see below).

### *Chair / Vice-Chair*

The GenICam Working Group is led by one chair and one (or more) vice-chairs. The GenICam Working Group chairs are elected for a period of three years according to the EMVA Standards Development and Approval Procedures. The voting takes place during the regular meetings.

### *Module Maintainers / Sub-Chairs*

For every GenICam module the GenICam Working Group appoints a module maintainer who acts as the sub-chair for this specific module.

### *Work Packages / Homework / Contributing Members*

The GenICam standard and its reference implementation are maintained and extended by the **contributing members** of the GenICam working group. The development runs along the following workflow:

- There are regular meetings. Typically, these meetings take place twice a year. Between meetings **work packages** are given to all companies who want to stay or become contributing members. A typical work package would be extending the reference implementation, writing a part of the standard specification, developing tests for the validation framework, preparing SFNC proposals, and marketing/administrative issues.
- Each meeting starts by reviewing the work packages given from the last meeting. The contributing members accept the work package of each company by vote (simple majority). Those members having their work package accepted become contributing members as soon as the work package review is finished.

### *Voting Rules*

If during the meeting, decisions are made, the contributing members vote according to the following rules, see Chapter 4.4 of the EMVA Standards Development and Approval Procedures:

- Voting is always performed during meetings or per email if approved modifications need to be incorporated.
- For technical decisions, only contributing members can vote.
- There is one vote per independent member company.

A 2/3 majority is required for changing the collaboration rules. At the end of each meeting the contributing members define work packages available for all companies who want to contribute for the next meeting. These work packages are designed to distribute the current standard work

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on each working company and take into account the various interests and skills of each company. Any working group member can take a work package (homework) and thus become contributing member at the next meeting provided the work package is approved. Spare work packages may be defined so that companies wanting to join between meetings can pick it up and become contributing member immediately on the next meeting.