GEN<i>CAM

Generic Interface for Cameras

License, Rules, and Application Form

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HISTORY

Version	Date	Changed by	Change
0.0	22.06.2005	Dr. Friedrich Dierks, Basler	First draft
0.3	10.07.2005	Dr. Friedrich Dierks, Basler	Reformatted text; small changes
1.0	12.07.2005	GenICam standard group	RC1
1.1	15.07.2005	Christoph Zierl, MVTec	• Added logo and application form • Rephrased GenICam compliance • Improved textual consistency • Deleted description of runtime / development features
1.5 draft	29.01.2014	Dr. Friedrich Dierks, Basler Christoph Zierl, MVTec Stéphane Maurice, Matrox	• Updated text in Chapter 1 • Added updated overview of GenICam modules in Chapter 2 • Updated text about compliancy rules in Chapter 3 • Replaced "2005" by "\<year\>" in sample copyright notice in Chapter 4 • Updated text in Chapter 5, in particular clarified the usage of the GenApi reference implementation • Renamed Chapter 6 into "GenICam Collaboration Rules" and updated text • Updated layout and added intro text in membership application form
1.5	21.09.2014	GenICam standard group	Official release of v1.5
1.6 draft	03.05.2018	Christoph Zierl, MVTec	• Added chapter with rules for redistributing (GenTL) SFNC • Added GenCP compliancy rules • Added FWUpdate module • Added clarification regarding how to handle bug fixes and changes regarding unsupported platforms and compilers • Added clarification regarding how to change the GenICam teamwork rules
1.6	29.06.2018	GenICam standard group	Official release of v1.6

1 Overview

This document describes the GenICam license and the collaboration rules within the **GenICam standard group**. Furthermore, the official membership application form is also part of this document.

2 Subject of the GenICam License

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, 1394 DCAM, 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.

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.

- **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.

The GenICam standard 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 an 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.

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

- GenICam (mainly the modules GenApi and SFNC)

- GenICam TL (mainly the modules GenTL and GenTL SFNC)

- GenICam CP (mainly the module GenCP)

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

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.

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").

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.

In general, the GenICam compliancy is declared by self-certification. The GenICam standard group can provide additional checklists that have to be used during the self-certification procedure. Vendors may use the GenICam logo(s) and use the name GenICam^{TM} 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.

Everyone may download the latest version from the GenICam website anonymously.

The runtime version is distributed under a modified BSD license:

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

Redistribution and use in source and binary forms, without[1] 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.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

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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[1] 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 **associated member** of the GenICam standard group. It can do so at no cost by registering at the EMVA by using the membership application form in the Appendix section.

By registering, the designated representative contact can name a reasonable number of company individuals which get the following benefits:

- Access to code repository, in particular to download the GenICam source code and use it for debugging.

- Access to 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 an associated member.

By registering the company accepts the following obligations:

- It must not give the source code 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 by 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 standard group which will validate them and add them to the next GenICam release in reasonable time.

- The company must declare any intellectual property owned by it that may conflict with GenICam specifications. This is part of the application form.

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.

7 GenICam Collaboration Rules

The GenICam standard and its reference implementation are maintained and extended by the **contributing members** of the GenICam standard 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.

- If during the meeting, decisions are made, the contributing members vote according to the following rules:

  – Voting is always performed during meetings or per email if approved modifications need to be incorporated.

  – Only contributing members can vote.

  – There is one vote per independent member company.

  – A simple majority is required for normal technical decisions.

  – A 2/3 majority is required for releases of the standard and/or the reference implementation.

- A 2/3 majority is required for changing the teamwork rules. Any changes in the teamwork rules should, however, be communicated to and discussed with the EMVA Board of Directors.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 on each working company and take into account the various interests and skills of each company. Any associated member can take a work package 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.

  The GenICam standard group is led by one chair and several sub-chairs. Typically, the (sub-)chairs are also the responsible persons for the maintenance of specific GenICam modules. The GenICam chairs are elected for a period of three years. The voting takes place during the regular meetings and requires a 2/3 majority.

8 GenICam Standard Group Membership Application

To apply for membership, please use this form, including the "Patent and Intellectual Property Rights Disclosure Statement". Both forms have to be filled in completely, signed, and sent by email to info@emva.org with subject "GenICam Standard Group Membership Application". By signing the form, one accepts the GenICam license. After verification of the data provided in the form, the company becomes associated member of the GenICam standard group and gets access to the GenICam mailing list and repository.

We are interested in the work of the GenICam standard group, and hereby apply for membership as an associated member.

Our designated representative contact is:

Name: _____

Title: _____

Company: _____

Address: _____

_____

City: _____ **State/Province:** _____

Zip/Postal Code: _____ **Country:** _____

E-mail: _____

Phone: _____ **FAX:** _____

Signature of applicant: _____

Printed name: _____

Title: _____

Our interest category is:

❑   Supplier   *(those directly concerned with the production, manufacture, or distribution of the products or components involved)*

❑   User   *(those who use the product(s) involved)*

Our technical competence is considered to be in: *(check all areas that apply)*

❑ Camera / Camera Control   ❑ API software

❑ Frame grabber   ❑ Machine Vision software

❑ Other: _____

We have or are currently developing a GenICam compliant product: ❑ Yes   ❑ No

We plan to develop a GenICam compliant product: ❑ Yes   ❑ No

Device type: _____

Target introduction: ❑ 6 Months   ❑ 12 Months   ❑ Other: _____

Statement of qualification/interest: _____

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Additional contacts for e-mail distribution and source code access:

Name: _____ **E-mail:** _____

Name: _____ **E-mail:** _____

Name: _____ **E-mail:** _____

Name: _____ **E-mail:** _____

EMVA administration use only:

Membership Check: Patent and IP Statement:

Approval: Posted:

Patent and Intellectual Property Rights Disclosure Statement

Standards developed by the EMVA generally should not include the use of a patented item. However, technical reasons may justify such inclusion. In such cases the EMVA must place statements from parties to the standard into our records to reflect whether they are a patent holder or intend to hold any invention or intellectual property rights the use of which would be required for compliance with the proposed standard, and their intention for exercising such rights.

For acceptance as an associated member of the GenICam standard group the below listed company, its officers, or controlling parties declares:

❑ It does not hold and does not currently intend holding any invention or intellectual property rights the use of which would be required for compliance with the proposed GenICam standard.

❑ It does hold or do currently intend holding an invention or intellectual property rights the use of which would be required for compliance with the proposed GenICam standard. A license will be made available to any and all applicants under the following terms and conditions:

Certification to be completed by the appropriate Corporate Officer with reasonable oversight of corporate holdings, applications or intentions regarding patents and Intellectual Property, e.g. CEO, President or Senior Technical Officer.

I certify the above declaration to be a true and correct statement of fact.

Signature: _____ **Date:** _____

Name: _____ **Title:** _____

Company: _____