Standard Features Naming Convention

Version 1.4

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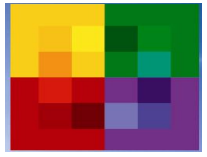

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Overview

- **Standard Features Naming Convention (SFNC)**
  - **What is the SFNC ?**
  - **Benefits**
  - **Usage Model**
  - **Structure**
  - **The SFNC document**
  - **How to create a GenICam and SFNC compliant XML**

What is the SFNC ?

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- The Standard Features Naming Convention is a specification.
- The SFNC defines:
  - Standard names to control a GenICam device
  - A simple usage model to control a GenICam device
  - The relation between those standard control features
- The SFNC:
  - Is independent of device type (Camera, Control box, …)
  - Covers many categories of features (Acquisition, I/O, …)
  - Is much more than a simple features naming convention
  - Is stable, but continuously expanding (Now at version 1.4)

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Benefits of the SFNC

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- Provides a standard way to control a device
- Permits interoperability between software and hardware of different vendors
- Provides a consistent and portable behavior to GenICam users
- Defines the basic model for Acquisition, Triggers, Exposure, Timers, I/O, Events, …
- Provides manufacturers a rich feature set to start with

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Usage model

- Simple and intuitive
- Procedural (step by step)
- Selector based
- Default behavior is easy to implement
- Specifies the behavior of Acquisition, Triggers, Exposure, Timers, I/O, Events, …

Usage model (Example #1)

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// **Acquisition with an exposure of 400us:**

```
Camera.ExposureMode = Timed;              // Set the exposure mode.
Camera.ExposureTime = 400;                // Set the exposure time.
Camera.AcquisitionMode = Continuous;      // Continuous capture mode.
Camera.AcquisitionStart();                // Start the acquisition and
                                             transmission.
    …
Camera.AcquisitionStop();                 //  Stop the acquisition.
```

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Usage model (Example #2)

```
// Acquisition using a trigger for each frame:
Camera.TriggerSelector   = FrameStart; // Select Trigger type
Camera.TriggerActivation = RisingEdge;// Set Trigger criteria
Camera.TriggerSource     = Line 1;        // Select the external connection
Camera.TriggerMode       = On;            // Activate the trigger
Camera.AcquisitionMode   = Continuous;// Continuous capture mode
Camera.AcquisitionStart();                // Restart the acquisition
    ….
Camera.AcquisitionStop();                 //  Stop the acquisition
```

SFNC structure (Features categories)

- **14 Categories for the features:**
  - DEVICE CONTROL
  - IMAGE FORMAT CONTROL
  - ACQUISITION CONTROL
  - DIGITAL I/O CONTROL
  - COUNTER AND TIMER CONTROL
  - EVENT CONTROL
  - ANALOG CONTROL
  - LUT CONTROL
  - USER SET CONTROL
  - CHUNK DATA CONTROL
  - FILE ACCESS CONTROL
  - COLOR TRANSFORMATION CONTROL
  - ACTION CONTROL
  - TRANSPORT LAYER CONTROL

SFNC structure (Features)

- **3 types of features (Mandatory, Recommended, Optional)**
- **7 mandatory features:**
  - AcquisitionMode=Continuous, AcquisitionStart, AcquisitionStop, Width, Height, PixelFormat, PayloadSize
  - Permit continuous acquisition on all cameras in a standard way
  - Same features that the GigE Vision cameras must implement
- **400 other Recommended or Optional features:**
  - Recommended features should be used when this functionality exists
  - Optional features are less common but deserve a standard name.
  - They cover the Categories mentioned above (Acquisition, Triggers, Exposure, Timers, I/O, Events, …)

SFNC compliance

- **GenICam Devices' XML follow the SFNC names and model:**
  - If a feature described in the SFNC exists in the camera (ex:Trigger), it must follow the convention
  - Implies to use the same feature name, type and behaviour
  - Permits GenICam software libraries to look for known names
  - Permits GenICam software libraries to assume a defined model
  - Provides full GenICam compliance
- **If a functionality is not defined in SFNC, it can be added:**
  - Manufacturer specific features are easy to add to the XML
  - Manufacturer specific features will appear in the GenICam browsers automatically
  - They just need to be defined outside of the standard namespace

The SFNC document

- **The SFNC source is a Microsoft Word document**
  - Contains a features summary table
  - Features are grouped in categories
  - One chapter per category
  - Each chapter describes the user model of the category
  - Numerous typical usage examples are provided at the end
- **An Acrobat reader (PDF) version is available**
  - Generated at every release
  - Published on the GenICam Web site: http://genicam.org/genicam/genicam™_document_download

How to create a SFNC compliant XML

- **A machine readable version of the SFNC is available**
  - Regular ASCII .TXT file with all the SFNC features included
  - Generated from the SFNC source document with a VB macro
  - Can be used to automate features generation (ex: Parsed using Perl)
- **A reference GenICam SFNC XML is also available**
  - Generated from the source document using the ASCII version above
  - Incarnation of the ideal camera with all the features already included
  - Can be used as a template to easily create a GenICam compliant XML
- **The GenICam group is there to help you**
  - Strong GenICam community
  - Plenty of resources on the GenICam member web site and the mailing list

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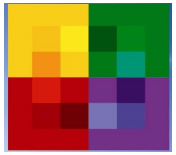

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Thank you for your attention

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Get information ➔ www.genicam.org

See the latest Standard Features Naming Convention at:

http://genicam.org/genicam/genicam™_document_download