International Color Consortium

Architecture Working Group

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Architecture Working Group Charter

The Architecture Working Group will address issues relating to ICC architecture.

Specifically the group will:

1. **Document the current architecture, including its functionality for the purpose of defining the baseline for further work and internal usage**
2. **Investigate and propose improvements and alternatives to the current architecture to address identified issues**

Agenda

- Review Working Group Charter
- The SampleIcc Project
- Documentation
- Evaluating Specification Proposals
- Past and Current Activities

The SampleIcc Project

- **"The SampleICC project is an open source object oriented C++ development effort that was written to provide an example of how various aspects of color management can be implemented."**
  - http://sampleicc.sourceforge.net
- **Aspects include:**
  - Cross Platform (Windows, Mac, Linux)
  - ICC Profile I/O
  - ICC Profile Application
    - All calculations performed using floating point
  - ICC Profile Conformance Testing

Basic Contents of SampleICC

- ***IccProfLib*** – SampleICC's C++ ICC Profile library.
- *Tools* - Contains tools that use IccProfLib.
  - *CmdLine* – Platform independent console applications
    - **IccApplyNamedCmm**, **IccApplyProfiles**, **IccProfLibTest**, **IccDumpProfile**, **IccStripUnused**, **IccV4ToMPE**
  - *wxWidgets* – Cross Platform UI .
    - **wxProfileDump** – A GUI application shows the contents of an ICC profile.
  - *Winnt* –Microsoft Visual Studio based projects
    - **SampleIccCmm** – An installable ICM DLL in Windows 2000/XP.
- *Contrib* - Third party tools and libraries that use IccProfLib.

AWG Documentation

- **Source Code of SampleICC project**
- **IccProfLib Class documentation for programmers (Found In SampleICC)**
- **ICC White papers (Found on On ICC web site)**
  - *Implementation Notes for the IccProfLib CMM in SampleICC*
  - *Profile Compliance Testing - SampleICC Implementation Notes*

Evaluating Proposals

- **SampleICC Architecture**
  - Object Oriented
  - Implemented using the “Factory” Design Pattern
    - New Tags and Tag Types can be implemented without adding them directly to IccProfLib.
  - Separate prototype extension libraries can be written and testedto evaluate proposals before they becoming part of the specification.
    - Provides a working model to identify issues and complexity
    - Platform for suggesting improvements
    - Initial conformance testing needs can be identified

Recent and Current Activities

- **Ongoing SampleICC maintenance**
- **Proposal evaluation of approved proposals**
  - Floating Point Encoding Proposal - DMPWG
    - Multi Processing Element (MPE) Tags
  - Profile Sequence Id Proposal
- **Documentation** *(in progress)*
  - Architectural Analysis
    - Static, Dynamic, and Programmable CMM's
  - Multi Processing Element Overview
  - Optional Tag Usage/Requirements Guide
  - MPE Extended ICC Probe Profile
- **Research** (*subject to approval by ICC*)
  - Printing Condition Definition Proposal - WWG
  - XML based notation for ICC profile information
  - MPE Extensions Proposals

Multi-Processing Element Extension Proposals

- **Implies a CMM that interprets profile "programming"**
- **Alternative Connection Spaces (ACS)** *(in prototype)*
  - Add markers in processing element sequence to provide flexibility of connecting profiles with an encoding space other than PCS
  - Relationship with PCS well defined by profile (not by CMM)
  - Examples: Spectral Reflectance ACS, Black Preserving ACS, and Color Appearance ACS
- **Calculator Element** *(in prototype)*
  - Allows complex non-linear operations to be defined using stack based evaluation
    - Complex device modeling directly in Profile
- **Color Transform Language (CTL)**
  - Allows transforms to be defined using a "C" type language
    - Language defined by IL&M and standardized through SMPTE

Architecture Working Group Overview

Thank You!