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](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 tested to 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!