



# Using ICS workflow profiles to better understand iccMAX

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# Challenges to iccMAX adoption

- Lack of understanding of iccMAX benefits
  - How does it benefit me?
- The iccMAX specification is very large and covers many many possible workflow scenarios
  - What workflows are possible?
  - What workflows do I need?
- Reluctance to implement more complex processing elements
  - How secure is an iccMAX implementation?
- Guidance for limited implementation requirements are provided by Interoperability Conformance Specification documents
  - Where are they?

# Some benefits of iccMAX

- Extended (floating point) encoding of the colorimetric PCS
  - Useful for HDR imaging
- Colorimetric PCS with selectable observer / illuminant
- Ability to spectrally represent and encode color
- Ability to algorithmically encode transforms

Note: Different workflows may not need all benefits

# Calculator element implementation

- ICC White Paper #52 provides guidance for implementing secure calculator element processing
  - Background
  - Parsing
  - Calculator element validation
    - Operation validation
    - Branch validation
    - Data stack usage validation
  - Calculator element application
  - Suite of test profiles in ReflccMAX Testing\CalTest folder

# Approach for basic ICSs

- Useful workflow subsets are defined that leverage various iccMAX benefits to provide functionality that is not provided by ICC v2/v4
- Workflow subsets are defined as profile sub-classes of iccMAX profile classes
- Separation of ICS parts provides the ability to use progressively more iccMAX functionality
  - Parts are associated with different profile sub-class versions
  - Allows for limited requirement implementations

# Basic iccMAX ICSs and their benefits

- `extendedRange` display and `colorSpace` ICS
  - Provides for reliable HDR encoding with option of using non-D50 illuminant
- `extendedOutput` for printing ICS
  - Printer profiles with additional spectral reflectance transform and option of using custom illuminant/observer
- `colorimetricEncoding` ICS
  - Allows for colorimetric encoding using custom illuminant/observer
- `spectralReflectance` ICS
  - Allows for spectral reflectance encoding
- *Note: `colorimetricEncoding` and `spectralReflectance` profiles are also very useful as PCC override profiles!*

# Overview of iccMAX ICSs

- **extendedRange** display and colorSpace ICS
  - Part 1 – HDR PCS using V4-ish MPE with D50/Std 2-deg observer
  - Part 2 – HDR PCS using V4-ish MPE with selection of observer/illuminant
  - Part 3 – HDR PCS with V5 MPE with selection of observer/illuminant
- **extendedOutput** for printing ICS
  - Part 1 – Colorimetric Tags and Spectral input Tag using V4-ish MPE with selection of observer/illuminant
  - Part 2 – Colorimetric Tags and Spectral input Tag using V5 MPE with selection of observer/illuminant
- **colorimetricEncoding** colorSpace ICS
  - Part 1 – Device colorimetric encoding using V4-ish MPE with selection of observer/illuminant
  - Part 2 – Device colorimetric encoding using V5 MPE with selection of observer/illuminant
- **spectralReflectance** colorSpace ICS
  - Part 1 – Device spectral reflectance encoding using V4-ish MPE with selection of observer/illuminant
  - Part 2 – Device spectral reflectance encoding using V5 MPE with selection of observer/illuminant

# Basic iccMAX ICSs & Example profiles



# Do you find the iccMAX useful?

- OS/CMM Vendors
  - Consider which workflow scenarios you find useful
  - Work to provide an implementation that supports them
- Application Developers
  - Consider which workflow scenarios that you find useful
  - Lobby OS/CMM vendors to implement support with these workflows
  - Take advantage of and implement these workflows by creating and using iccMAX profiles in your applications
- Users of color management
  - Consider which workflow scenarios that you find useful
  - Lobby OS/CMM and Application vendors to implement support for these workflows
- Enjoy the benefits of iccMAX based color management



**Thank You**

Questions?

