I. The Goal: Keep the flame alive!
II. Components of a JPEG “torch”
III. Protecting the “torch”: The Provenance Locker
IV. Passing the “torch”: Add another flame
V. Summary
I. The Goal: Keep the flame alive!

- Think of a digital signature as an Olympic flame
- The camera ignites the flame
- The photo is the torch

Many times Photo Mechanic is used by the first torch runner (photo editor), and the torch is often passed to other runners using Photo Mechanic.

We have a huge responsibility to keep that flame alive.
II. Components of a JPEG “torch”

Two Parts to a JPEG
- Metadata
- Image Data

Digitally Signed JPEG (C2PA)

Metadata
- Editable Metadata (XMP, Exif, ICC)
- Digital Signature

Image Data
- Compressed Pixels

Camera makes photo and digitally signs (aka the flame)

Photo Mechanic edits the metadata only, but this will break the digital signature.

The challenge is to edit metadata without breaking the digital signature!

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III. Protecting the “torch”: The Provenance Locker

Digitally Signed JPEG (C2PA)

Metadata
- Editable Metadata (XMP, Exif, ICC)
- Digital Signature

Image Data
- Compressed Pixels

Provenance Locker Solution

Provenance Protected JPEG

Metadata
- Edited Metadata (XMP, Exif, ICC)

Image Data
- Compressed Pixels

Result: Photo Mechanic can now safely edit the metadata because the provenance is protected

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IV. Passing the “torch”: Add another flame

Provenance Protected JPEG

Metadata
- Edited Metadata *** (XMP, Exif, ICC)

Image Data
- Compressed Pixels

Signing a Protected JPEG

Extract the Original Signed Photo and Use as an Ingredient

Original Metadata (XMP, Exif, ICC)
- Digital Signature

Create Assertions
- Metadata Changes

Sign using C2PA SDK

Digitally Signed JPEG (C2PA)

Metadata
- Editable Metadata (XMP, Exif, ICC)
- Digital Signature

Image Data
- Compressed Pixels

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V. Summary

✴ Photo Mechanic protects the provenance of signed photos by using a Provenance Locker.
✴ Metadata of protected photos can be edited repeatedly.
✴ After metadata editing, photos can be signed and passed on to other C2PA-compliant software.
✴ This provides for an efficient and authentic metadata editing workflow for C2PA photos.

∴ There is a clear path for news agencies to publish authentic photos from capture.