DT Digitization Guide

DT Solutions Overview

CulturalHeritage

“If you want to understand today, you have to search yesterday”

– Pearl S. Buck

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Jeanne (Spring), Édouard Manet
Digital image courtesy of the Getty's Open Content Program

Note: All enclosed information subject to change without notice

The World of Cultural Heritage

The goals that unite the diverse world of Cultural Heritage are to discover, provide access to, and preserve the myriad artifacts that comprise the human experience. We build systems that help institutions and individuals achieve those goals.

Provide Access

Our systems produce Preservation Digital Objects that provide unmatched digital surrogacy, often surpassing in-person viewing. Moreover, the speed of our solutions means far more material can be made available.

Preserve

Material safety is one of our guiding principles. Our systems handle objects with the care they deserve. In addition, increasing digital access reduces the frequency of physical access which reduces wear and tear.

Discover

Digitization using our equipment does more than merely record; it can promote discovery in a variety of ways! Our multispectral solutions uncover content obscured by damage, overpainting, or time. Our high-resolution show detail otherwise easily missed. Enhancement of faded content is made possible by the 16-bit color of our captures. Negative images on film or glass plates can be inverted to human-friendly images using our film scanning solutions. High-quality digital files facilitate crowdsourcing and other externalized discovery.

Thomas Jefferson Building, Carol Highsmith
Library of Congress

Our Guiding Principles

Our founder comes from the world of Cultural Heritage digitization. When he couldn't find solutions that simultaneously provided conservation handling, preservation image quality, and fast workflow, he decided to create them. Using his own experience in the field, and with extensive feedback from the community, the division of Cultural Heritage was born.

Conservation Handling

Maintaining the safety of your materials is our top-most concern. Our systems appropriately handle everything from mundane circulation materials to fragile Gutenberg Bibles.

Preservation Image Quality

Our systems create standards-based Preservation Digital Objects (PDOs) that exceed FADGI 4-Star, Metamofoze, and ISO 19264 standards, PDOs that can serve as ideal digital surrogates to the original physical material.

Fast & Efficient Workflow

Our systems are based on instant capture and provide consistent, reliable, highly automated throughput – Rapid Digitization without sacrificing quality, or material safety.

Long-Term Partnership

We always include comprehensive training, technical support, and warranty. Moreover, as your needs change, our systems can be upgraded and extended to meet new challenges.

Portrait of Joseph Roulin, Vincent van Gogh
Digital image courtesy of the Getty's Open Content Program

The Madonna of Humility, Unknown Artist
Digital image courtesy of the Getty's Open Content Program

Collection Types

Loose Flat Material

Examples: Drawings, maps, manuscripts, photos, small paintings, musical scores, letters, postcards.

The largest challenge of flat materials is their sheer quantity. Often collections contain hundreds of thousands or millions of flat items that need to be digitized.

Other challenges include the frequent need to digitize both sides of the document and material that is curled, warped, or otherwise not flat.

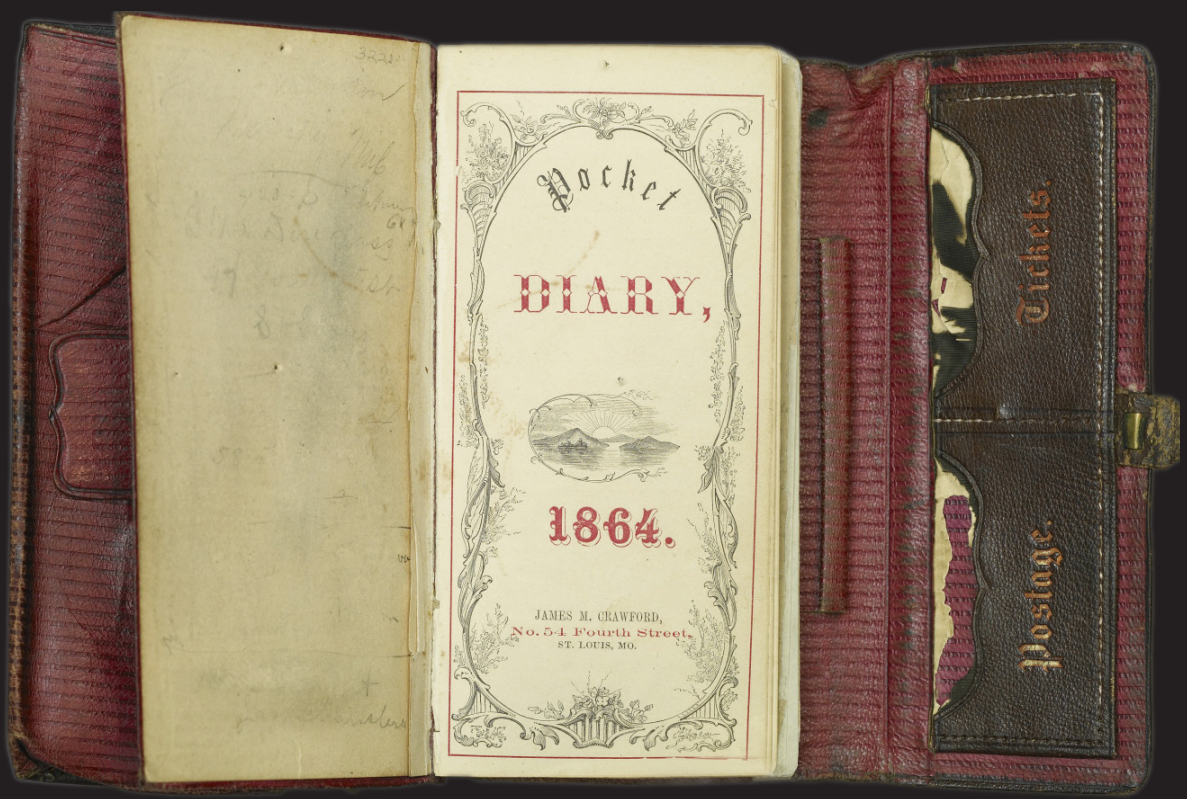
Oversized Loose Flat Material

Examples: wall tapestries, murals, oversized maps, large paintings, architectural drawings.

"Oversized" has no single definition, but generally, material exceeding 40" x 60" require special handling.

The cameras on our systems can be removed from the copy stand and used on a tripod to capture such material on an easel or wall mount. Our systems also allow wall mounting the column so the bench can be rolled away and the floor used for oversized items.

The DT BatchScript tool can be used to facilitate bulk stitching of captures when that is needed to attain the desired capture resolution for such large material.



John Wilkes Booth Diary
US National Archives

Rare Books & Bound Material

Examples: Books, diaries, newspapers, scrapbooks

A large part of the Cultural Heritage community works on the digitization of rare and delicate bound materials, such as books. Digitization of books often requires particular attention to fragile bindings and will determine how the material can be treated in the digitization process. This fact can sometimes be the limiting factor when looking for fast capture turnaround.

Using a fixed glass plate means the camera can be set to a fixed point of focus. This will accelerate the capture process, and photographing both pages at the same time with one or two cameras will also increase productivity.

Ansel Adams (After He Got a Contax Camera), 1936
Photograph by Edward Weston; Collection Center for Creative Photography

Transmissive Material: Film & Glass Plates

Examples: roll film, glass plate negatives, large format negatives, transparencies, 35mm mounted slides, microfilm, X-rays, microscope slides, movie film reels.

Uniform illumination of the materials with good color reproduction is mandatory so that all color information may be retrieved during processing, sometimes involving inverting the image from negative to positive.

The conversion process can be open to interpretation, as the base material for the original transparency varies. This is true especially for the earlier glass plates where the specific type of chemicals and processing used is unknown. Two rolls of film may behave very differently, both in the physical characteristics of the original base material and in their subsequent chemical development.

Traditional scanner solutions work with fixed sizes, such as 24x36mm, 6x6 or 6x9, thus limiting the versatility of the equipment substantially. Our solutions work with all sizes of originals. It can even scan highly unusual material like 10” x 40” Cirkut panoramic negatives.

Traditional film scanners are limited in scanning resolution and legacy 8-bit or 12-bit sensors. Our solutions use a 16-bit sensor and have scalable capture resolution, providing a substantial advantage in image quality.

There is a tremendous speed advantage in the instant medium format capture over scanning, which may speed up the process by a factor of 400 or more. This speed comes as an addition to the increased scan quality and conservation handling of the materials.

Large Objects

Examples: sculptures, pottery, installation art, cars, statues, mummies, bed frames

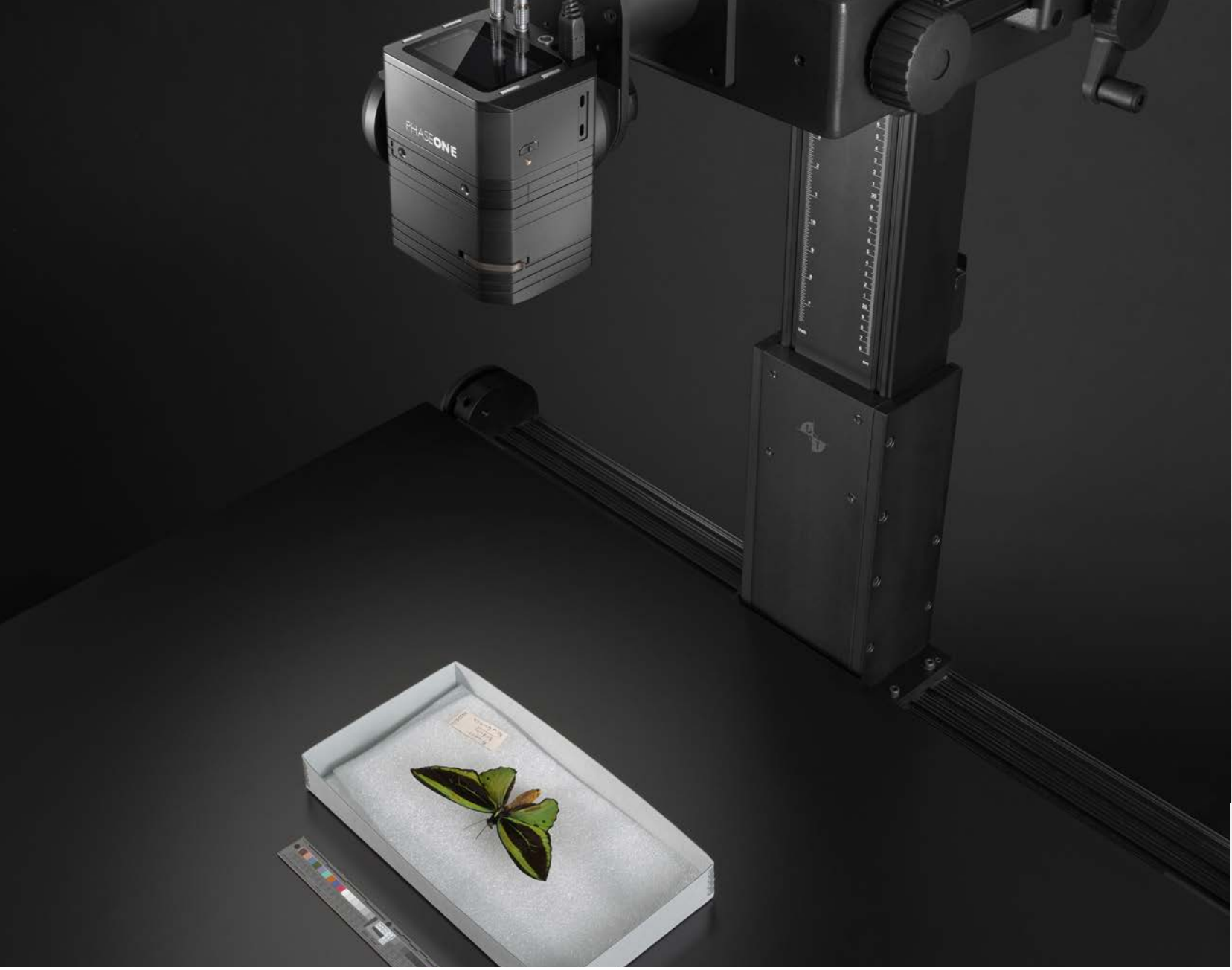
Large 3D objects are often captured from a tripod or camera stand in the photo studio or in-situ in the gallery and exhibition halls. Lighting is often selected to suit the object's character and the curator's goals in representing the object.

Best results are obtained by using medium format camera solutions on an SLR camera, or on a view camera with tilt & shift movements.

The fastest workflow uses a professional camera system such as the Phase One XF, available with the highest resolution and highest color quality sensors on the market. The focus stacking tool built into the Phase One XF is also helpful here, allowing deep depth of field at high-resolution.

Veiled Lady, Raffaelo Monti
Minneapolis Institute of Art

Tsistsistas or Lakota Headdress
Minneapolis Institute of Art



Small Objects (Macro/Micro Photography)

Examples: biological specimens, jewelry, gems, coins

Working with small objects can be a tremendous challenge! The most common problems are lighting, resolution, and depth of field.

Properly lighting small objects often requires more than a traditional setup of two lights at 45° angles. Our systems integrate perfectly with all brands of professional studio lighting to provide precise lighting of small objects. In the case of some brands, we can even control the lighting directly from the camera.

Most digitization systems provide a fixed PPI, which is highly problematic when dealing with small objects. For example, a one-inch-long beetle captured at 600ppi is only 600 pixels long, far from a desired level of detail. Our systems scale resolution based on object size; that same one-inch-long beetle would be recorded with 12,000 pixels of detail with the IQ3 100mp.

Because of the nature of optics, the imaging of small objects is a constant battle for depth of field, where only a tiny part of the object can be rendered in sharp focus. Our systems automate Focus Stacking for such situations providing focus from the front to back. Additionally, they are compatible with tech cameras and view cameras that provide flexible tilt and shift to align the plane of focus with the subject and offer significant improvements to depth of field in a single capture.

With Automatic Focus Stacking 25 captures with Phase One XF

Without Focus Stacking single captures with Phase One XF

Eudicella schultzeorum pseudowoermanni. Captured by Digital Transitions' R+D Team

© Witikon

Special Digitization Techniques

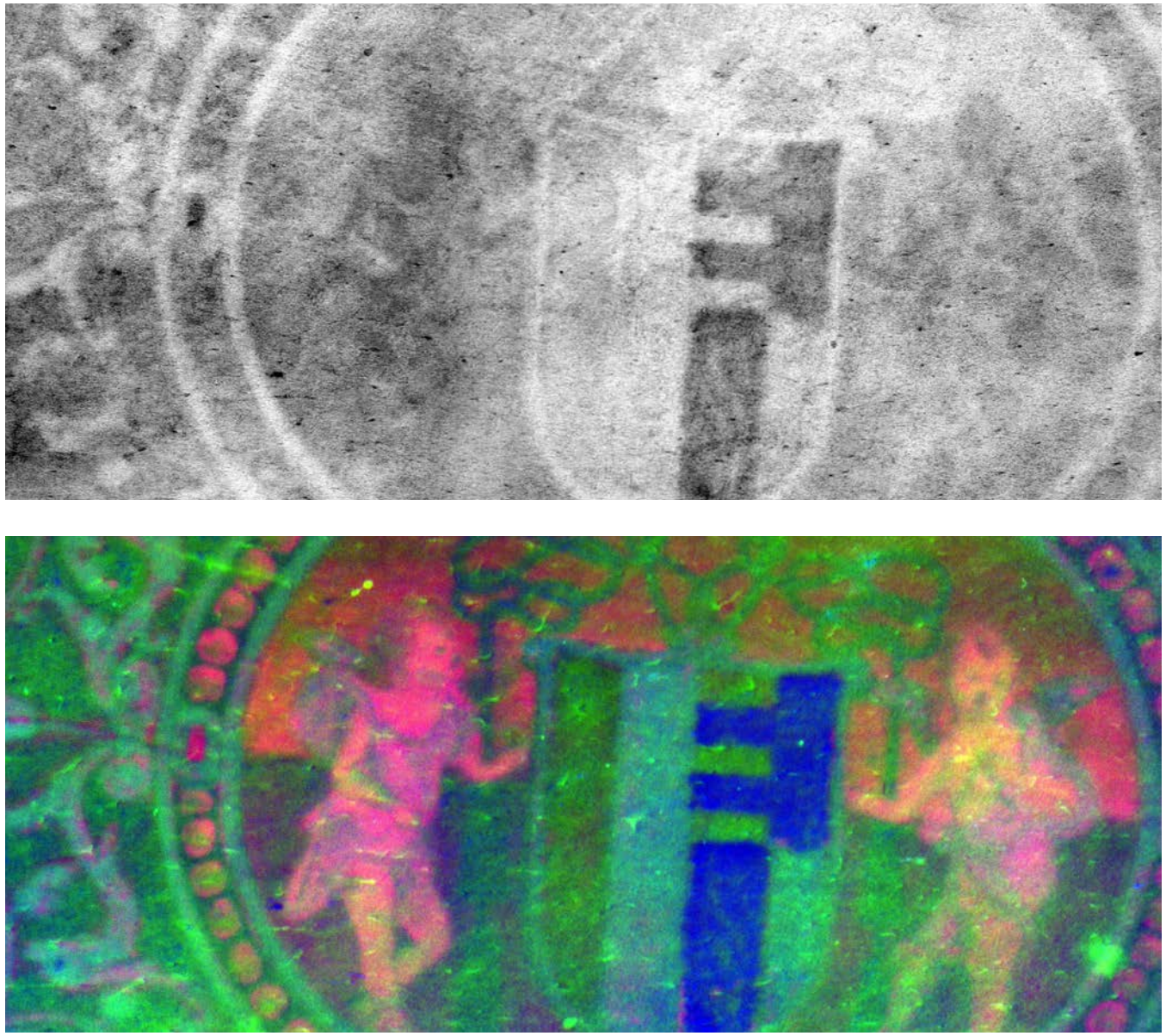
Photogrammetry

Photogrammetry allows the creation of a high-accuracy 3D model of an object by the capture of a series of still images at different angles. It is often used for measuring and evaluation of damage in historical artifacts or comparative research. The same technology is used for creating exact replicas of precious sculptures and artwork.

The high-resolution of Phase One cameras and the high-quality and precision of the optics provide the basis for Computational Imagery systems that are several times faster compared to other scanning solutions while delivering unprecedented detail and color accuracy.

The system depicted above is an example of one of the larger scale photogrammetry solutions we offer. It uses multiple 100mp cameras to capture an ultra high-resolution 3D model of even large models in a matter of minutes, with full automation.

We can also help you design a 3D capture station that uses a single camera and a simple and smaller turntable. There are many ways to leverage the resolution and precision of our solutions for 3D capture.



Images from The Cornaro Missal, Northern Italy, 1505, the world's most expensive illuminated manuscript. Images courtesy R.B. Toth Associates & Equipoise Imaging, LLC

Multi-Spectral Imaging

Many Cultural Heritage objects are fragile and sensitive, often due to various types of damage decay, and are therefore vulnerable to human touch and pressure and thus require careful handling. Others have obscured details from fading, overpainting, or erasure. Still, others have questions of provenance or authenticity.

Multi-spectral lighting systems, in conjunction with the use of narrow-band optical filters and special image processing can be utilized for Deep Discovery, discovering and retrieving information that is invisible to the eye, providing valuable information about the object.

Such investigation is non-invasive with minimal or no exposure to aggressive light rays or chemicals and bring out data that cannot be retrieved with traditional imaging techniques. This provides invaluable data for the researchers and conservators.

We offer a number of unique camera solutions capable of capturing wide-spectrum multi-band color, as well as narrow-band achromatic images.

Instant Capture vs. Scanning

Faster. Higher Image Quality.

Speed

Traditionally, flat objects such as documents and books were scanned using flatbed or overhead scanners equipped with a linear CCD sensor. Some of these devices can produce high-resolution, high-quality output; however, scanning a single page can take as long as 20-30 times more than when using our instant capture, high-resolution medium format camera.

Image Quality

When capturing Cultural Heritage items, it is important to produce and maintain the highest image quality possible, in terms of resolution, sharpness, tonality, and color.

Digital Transitions stable copy stands, Phase One's high-resolution sensors, Schneider-Kreuznach high-precision optics, and Capture One CH's advanced workflow and algorithms, enable the collections' curators, photographers, and technicians to ensure that no detail gets missed and that their collections are archived to the highest level of quality for future use and preservation.

Standards Compliance

These solutions are often being tested and successfully pass the rigor of the top preservation tier of international standards and guidelines such as FADGI, Metamorfoze, and ISO 19264.

RAW Workflow

Unlike scanners, the RAW files coming from our systems contain the RAW data and all the relevant information necessary for processing and reprocessing, ensuring a future-proof workflow and a file that can be used time and again as needed and as software performance develops and improves.

Working with RAW files also allows batch editing tools such as automatic cropping and deskewing to be used. Such edits are saved as non-destructive metadata, meaning applying them to tens of thousands of images takes seconds instead of hours.

Versatility

By their nature, scanners are designed for reproduction of flat objects with fixed lighting and due to their size, weight and basic design, cannot be used for very large or odd-shaped 3D material.

In comparison, a camera mounted on a copy stand can move up down, using different lenses to accommodate different object sizes. It can also be mounted on a tripod thus allowing complete portability and flexibility to digitize almost anything.

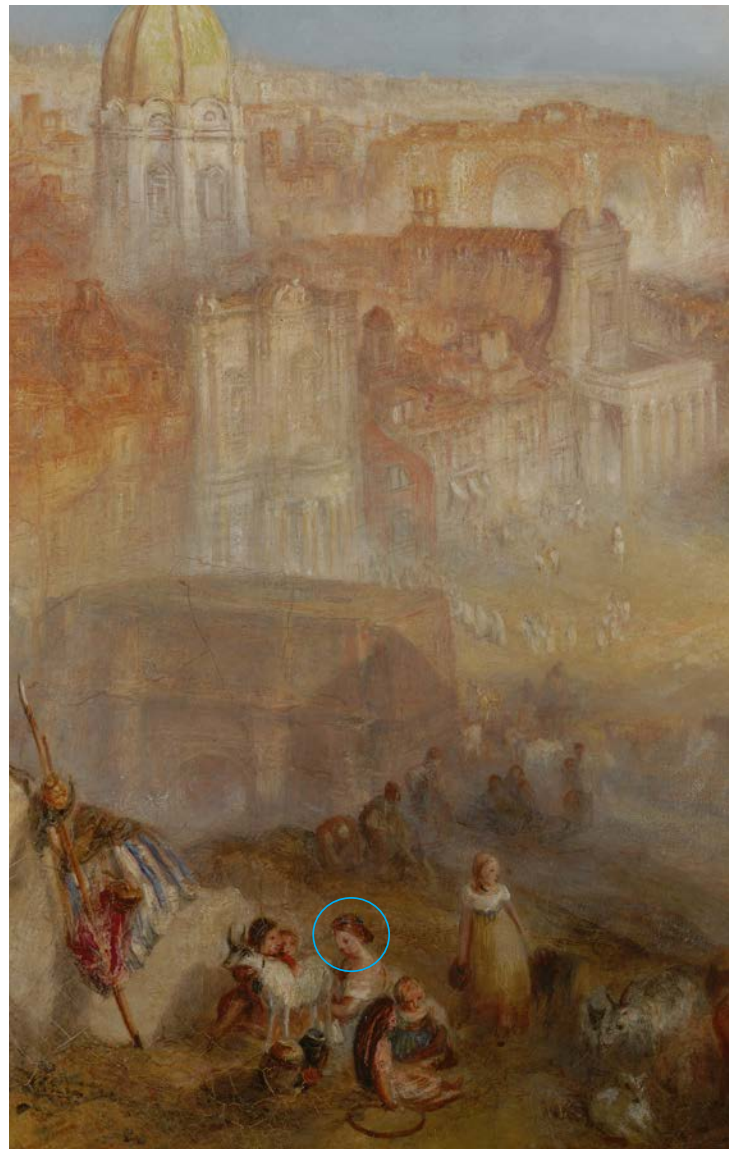
Upgradability

With the advancement in technology and improvements in sensor resolution, lighting, optics and software algorithms, each component of the system can be changed or upgraded to take advantage of these advances, while keeping the same basic setup and workflow.

Low Maintenance

Collections often include hundreds, thousands or even millions of items that need to be digitized and reproduced consistently and accurately.

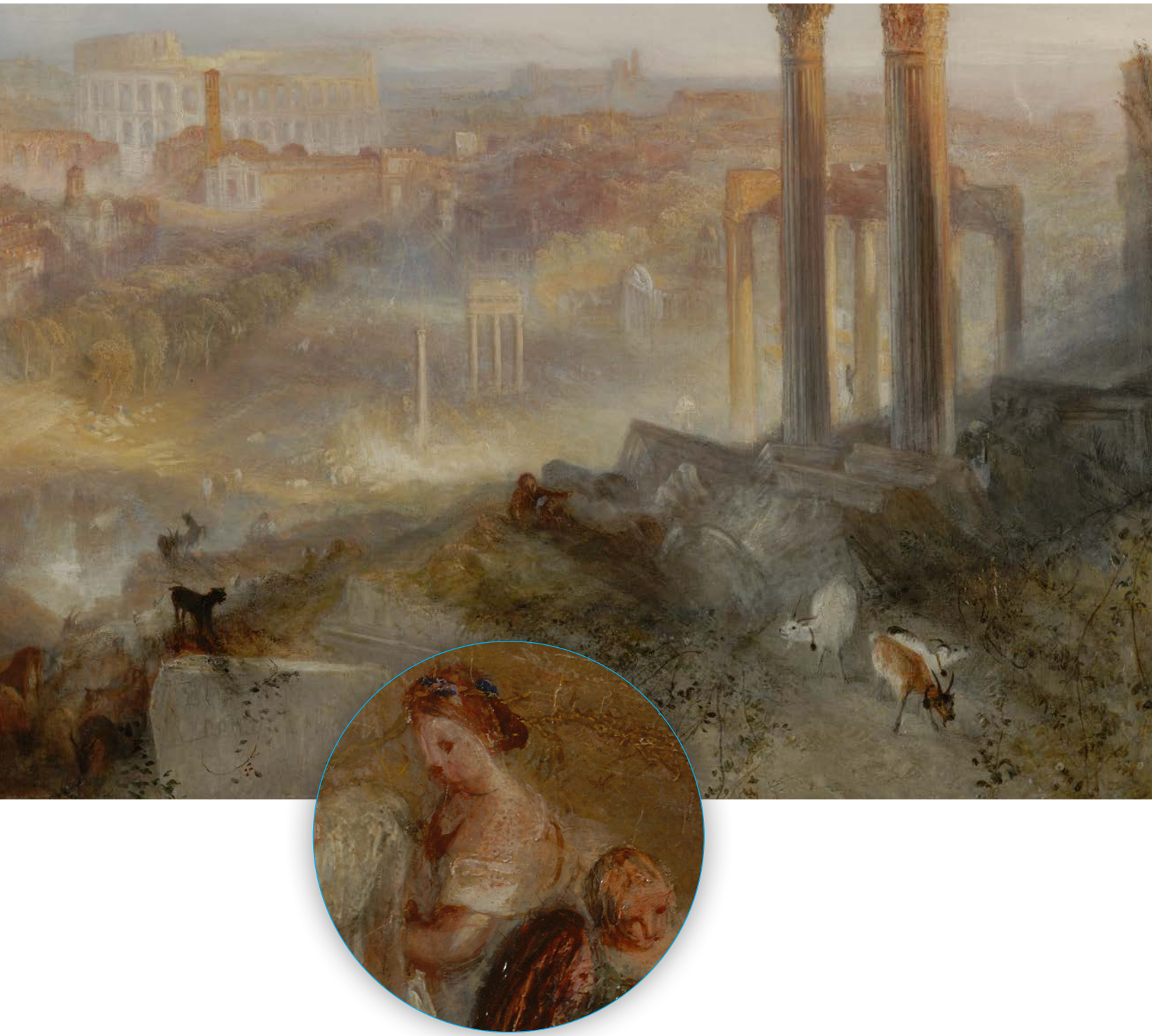
The Phase One iXG, DT RCam, and Phase One XF cameras are designed and tested to withstand the toughest working conditions. They are built with the minimal number of moving parts and industrial-grade leaf shutters, ensuring long life and low maintenance intervals. Modular design allows for quick and easy swapping of components. When it comes to service and support, Digital Transitions ensures continuous uptime and fast turnaround.



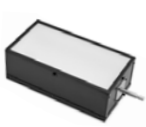
Joseph Mallord William Turner (British, 1775 - 1851)
Modern Rome - Campo Vaccino, 1839, Oil on canvas
Physical size: 92 cm × 123 cm
The J. Paul Getty Museum, Los Angeles
Digital image courtesy of the Getty's Open Content Program

Phase One IQ digital back
40, 50, 60, 80 or 100 megapixel
& beyond.

Phase One iXG Camera System
or Phase One XF Camera with
Schneider / Rodenstock lenses



Integrated Copy Stands
from Digital Transitions

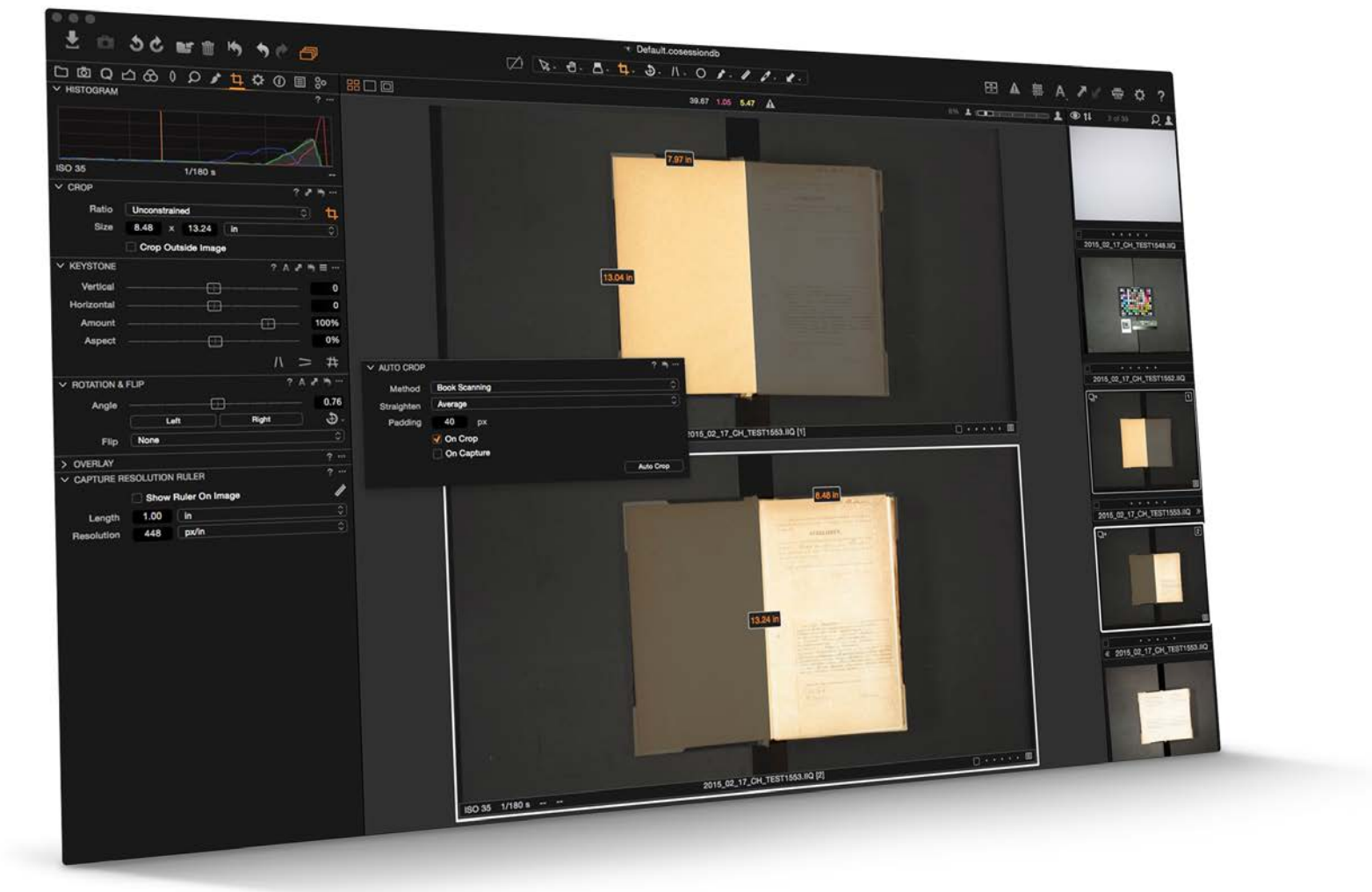


Color Accurate
Lighting

Capture One
Cultural Heritage

Capture One CH for Cultural Heritage

Built on the renowned Capture One Pro software, the Cultural Heritage (CH) edition offers a highly specialized feature set designed to support and enhance Cultural Heritage workflows. Its robust set of tools simplify and automate capture, organization, quality assurance, post-production, and batch processing tasks.



CH

Auto Crop, Auto Deskew, and Multicrop

The AutoCrop and Auto Deskew tools in Capture One CH are unique in the industry. With dedicated modes for flat materials, bound materials, and roll film, they allow corner or edge alignment and positive or negative padding. Best of all they are directly integrated into the RAW workflow, so they are fast and efficient.

The MultiCrop tool increases productivity when scanning more than one area of interest. For instance when scanning batches of stamps.

Hardware Integration

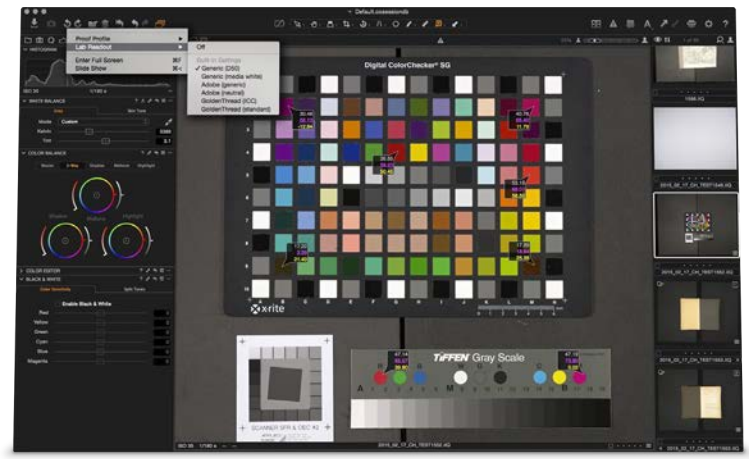
DT systems fully integrate the capture head, work station, and peripherals. Capture One CH is the command center that controls all these components seamlessly.

This is the only system to provide users of any experience level the ability to automatically implement an exact PPI, even when the object's surface height changes. TruePPI is an innovative solution that makes imaging materials whose thickness varies—such as mounted objects, bound materials that can not be placed under glass, and paintings—as easy as clicking a button.

TruePPI requires a Phase One iXG and DT AutoColumn based system such as the DT Versa, DT Element, and DT Atom.

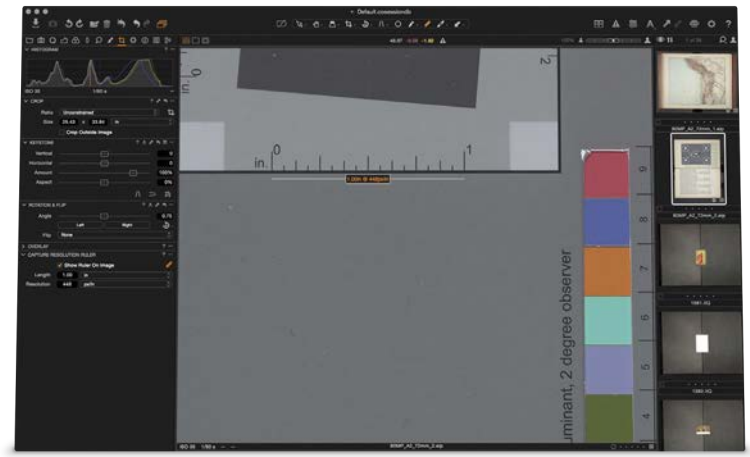
LAB Color Readout

Enables precise verification of colors, in LAB (1976 CIE L*a*b*). Fully compliant with FADGI, Metamorfoze, and ISO 19264 reproduction guidelines. Export methodologies compatible with major CH solutions on the market, such as Golden Thread(TM) and Adobe Photoshop(TM).



Capture Resolution Ruler

Allows marking a known length in inches or centimeters and calculating the exact capture resolution, so that the camera-to-subject distance can be adjusted and the required resolution can be reached.



Ansel Adams (After He Got a Contax Camera), 1936
Photograph by Edward Weston; Collection Center for Creative Photography

Batch Handling; the Key to Productivity

Capture One CH excels at batch image adjustment, batch cropping, batch quality assurance, and batch processing. Its industry-leading RAW processing engine allows precise and faithful reproduction or subjective enhancement of your images. It provides the powerful toolkit required to deliver images fine tuned for reproduction, presentation, digital asset management, archiving, and much more.

Negative Film Reproduction Tool and Styles

An improved workflow allows batch conversion of negative transparent material in both black & white and color. Intuitively use the exposure tools to adjust exposure, contrast, and colors, and get perfect results, ready for print or post-processing – without the need to rescan the original.

A selection of Cultural Heritage styles allows one to quickly choose a set of conversion parameters for different film types.

Metadata

Capture One provides a variety of tools for adding and editing technical metadata, descriptive metadata, and administrative metadata. Such metadata can be manipulated for individual images or groups of images (i.e., batch editing). Presets of metadata can be created to be added to speed entry of repeated fields. External metadata systems can be incorporated with a robust set of metadata scripting commands.

CULTURAL HERITAGE

DT CropControl CH

DT CropControl CH allows customizable cropping behaviors to be applied to a batch of images with a single keystroke.

These tools facilitate a variety of advanced workflows such as asymmetric cropping, gutter handling, and non-centered crops.

ICC Profiles for Cultural Heritage

Capture One CH comes preloaded with high-accuracy ICC color profiles for the DT Photon series and for a studio strobe. While custom in-situ profiling is supported, you'll find the quality of the included CH Profiles built-in profiles match or exceed the most carefully made custom profiles.

CH Workspaces

Logical setup of tools customized to optimize CH workflows during preparation, production and file storage. They can be used by an admin or an operator and include the required capture and processing tools for specific Reflective or Transmissive materials.

Custom Color Editing

The Cultural Heritage color profiles provide extremely accurate color out of the box. However, there are times where the "accurate" color is not desired. For instance, when placing two objects next to one another, the color of one may bounce into the other. In such cases, the Color Editor is a powerful solution, especially when combined with LAB Color Readouts and Overlay tools.


Capture One Session.cosessiondb
92.05 0.02 -0.01
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91.10
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72.05
-1.15
0.25

Slipstream

Digital images courtesy of the Getty's Open Content Program

Radically Simple

Slipstream is a radically simple user interface. With an intuitive minimalist design, even operators with no previous experience or training can use Slipstream. Just tap ‘Capture’ to capture. Left your hand in the frame? No problem. Tap the image and select ‘Retake.’ Simple.

Same Preservation-Grade Image Quality

Under the hood, the captured images are still sharp, color-accurate, true 16-bit files. Only the barriers of complexity have been removed, not the industry’s best image quality — FADGI-4 compliant has never been this easy.

Surprisingly Smart and Scalable

Slipstream integrates seamlessly with barcode scanners, For institutions with multiple digitization stations Slipstream can capture to a network storage pool, effeciently separating the capture and processing stages of digitization.

Material Handling Solutions

Safe. Flexible. Fast. Reliable.

DT Element

The DT Element is a complete digitization platform. The stand, camera, and column tightly integrate with our software for fast and easy preservation-grade digitization.

The DT AutoColumn XL is fully integrated with Capture One CH for control from the computer. The camera mount is natively compatible with the DT RCam and Phase One iXG. For special projects, the column can be remounted facing the rear to use a floor board for materials up to around 40” x 60”. For even larger material, the camera can be rotated (with precision click stops) to face the wall, or removed from the copy stand and used on a tripod.

The hardtop provides a flexible platform for digitization. In addition to loose paper material, other collections such as maps, paintings, film and glass plates (using a DT Film Scanning Solution), and more can be digitized. A standard book wedge can be placed on the hardtop to digitize bound material opened to 100°.

Features & Benefits:

- Made in the USA of aerospace-grade aluminum
- DT AutoColumn XL with SmartPPI integration to C1
- TruePPI functionality when used with iXG capture system
- Image Quality exceeding FADGI 4-Star, Metamorfoze, and ISO 19264 standards.
- Durable design for years of continuous use.
- Capable of shooting bound and loose materials, including works on paper, newspapers, loose manuscripts, photos, drawings, etc.
- Compatible with the DT Film Scanning Kit for digitization of film, glass plate negatives, etc
- Use of book wedge allows < 100° book opening
- Optional DT Photon XL LED lighting (CRI/CQS of 98)
- Delivers preservation-grade TIFFs, JPEGs, and PDFs in RGB, grayscale, and CMYK modes. Open Source RAW and DNG also supported
- Operated by foot and/or hand releases
- Four retractable vibration dampening casters
- Open platform design allows upgrading resolution, there by preventing obsolescence.

Custom Sizes: Need an even larger copy stand? DT makes its copy stands here in the USA, and we can create a custom stand of any dimension (e.g., 40” x 60”).

DT Versa

Originally designed and built for the National Archives Records Administration, The DT Versa is a complete digitization platform. The stand, camera, and column tightly integrate with our software for fast and easy preservation-grade digitization. The Versa allows digitization with or without glass contact.

Developed to achieve preservation-grade reproductions at the fastest rate of capture — while providing reliability, ease of use, and safety of the original materials — the DT Versa is the optimum digitization solution for the rapid capture of rare, bound and loose document collections.

The DT Versa features a built-in pneumatic 180° dual platen book cradle that adjusts to the thickness of bound collections. The system is designed to bring printed materials to optimal focus and accommodates page spreads up to 34" x 25" with up to 4" bindings.

The book cradle platens are self-adjusting platforms that utilize speed-adjustable dual pneumatic pistons for raising and lowering. This allows the operator to bring the book to the glass platen as gently as desired – including making no contact at all.

The DT Versa is operated by foot pedals and can be fine tuned to protect the broadest range of materials. For increased safety and user ergonomics during long-term use, the glass top is hinge mounted to the back of the table, uses lift-assist gas pistons, and is secured with hand locks.

The DT AutoColumn XL is fully integrated with Capture One CH for control from the computer.

To increase versatility, a 30" x 40" hardtop is also included. It can be placed over the glass so that oversized books, foldouts, maps, rare materials, paintings, film and glass negatives (using a DT Film Scanning Solution), and more can be digitized. A standard book wedge can be placed on the hardtop to digitize exceptionally rare bound material which can only be opened 100°.

The productivity and longevity of the DT Versa Capture Cradle lower the per page cost of conservation-safe, preservation-grade digitization to levels usually reserved for low-quality scans. It is truly a proficient system that will protect your investment and enable you to expand the scope of your digitization program.

Features & Benefits:

- Made in the USA of aerospace-grade aluminum
- DT AutoColumn XL with SmartPPI integration to C1 FADGI 4-Star Image Quality
- Durable design for years of continuous use.
- Facing pages captured simultaneously
- Capable of shooting bound and loose materials, including works on paper, newspapers, loose manuscripts, photos, drawings, etc.
- 180° glass platen for digitization of up to 4” bindings and page spreads of 25” x 35”
- Use of book wedge allows < 100° book opening
- Compatible with the DT Film Scanning Kit for digitization of film, glass plate negatives, etc.
- Optional DT Photon XL LED lighting (CRI/CQS of 98)
- Delivers preservation-grade TIFFs, JPEGs, and PDFs in RGB, grayscale, and CMYK modes. Open Source RAW and DNG also supported
- Operated by foot and/or hand releases
- Four retractable vibration dampening casters
- Open platform design allows upgrading resolution, thereby preventing obsolescence.

DT BC100

Redefining the way bound library materials are digitized, the DT BC100 is the only true 48 bit, production-grade, conservation-friendly book digitizing system on the market. It meets the stringent demands of cultural institutions, providing the highest image quality, speed, and reliability needed to capture a wide variety of bound and loose material — all while protecting the originals.

Designed for the mass digitization of books, the 100° V-shaped glass platen with adjustable book cradle secures and holds bound materials with page sizes up to 17" x 24" or A2 size per side. This keeps the focus plane the same while being gentle on the binding of the book.

The glass platen of the BC100 is designed with a user-controlled pneumatic lift system to increase productivity while ensuring material and operator safety; it is incapable of free falling. The optional Rare Book Module gives the operator such minute control over the cradle that material need not even touch the glass.

To ensure the safety of the binding, the mechanism of the book platform slides back and forth to guarantee the glass platen is always in the middle of the book's gutter.

The platform rests on a controllable support system that may be adjusted by the operator for different book types. This system has been designed to address the shortcomings of traditional robotic systems, including lack of quality control, the tendency to skip or damage fragile pages and the need for manual assistance.

The DT BC100 has also been constructed with the comfort of the operator in mind. The operator sits in the station and controls the system with a variety of foot and/or hand releases, thereby preventing repetitive stress injury. All operations are within arm's length, and the lights are at a comfortable level.

To ensure excellent color fidelity the DT BC100 includes high-end DT Photon LED lighting. These LEDs are purpose-built for color critical Cultural Heritage environments. They carry the same industrial build quality and longevity as the BC 100 itself, with stable performance for up to 50,000 hours of continuous use.

The modular design of the DT BC100 allows the camera and capture device to be upgraded when necessary, ensuring that it will not become obsolete. It is fabricated in the USA from airplane-grade extruded aluminum to .005" tolerances, so it will not break down after years of continuous use. The versatile features and reliability of the DT BC100 make it an ideal solution.

An optional Rare Book Module adds a second layer of safety for the material being digitized. With module a separate joystick is provided for the vertical position of the book, allowing complete control over the contact pressure, including zero contact.

Features & Benefits:

- Made in the USA of aerospace-grade aluminum
- FADGI 4-Star Image Quality
- Durable design for years of continuous use.
- Dual cameras capture each page in full resolution
- Capable of shooting bound and loose materials, including works on paper, newspapers, loose manuscripts, photos, drawings, etc.
- 100° glass platen for digitization of up to 6” bindings and page sizes larger than 17” x 24” or A2 size per side
- Includes DT Photon XL LED lighting (CRI/CQS of 98)
- Delivers preservation-grade TIFFs, JPEGs, and PDFs in RGB, grayscale, and CMYK modes. Open Source RAW and DNG also supported
- Operated by foot and/or hand releases
- Four retractable vibration dampening casters
- Open platform design allows upgrading resolution, thereby preventing obsolescence.

DT Atom

Many digitization efforts include collections that are as encyclopedic in scope as they are prodigious in scale. This calls for a platform that is highly flexible. While all of our solutions are flexible and modular, the DT Atom is the ultimate in such flexibility.

The DT Atom is a tabletop digitization platform, featuring the DT AutoColumn, that can be extended and upgraded to accommodate nearly any digitization project. The user can unlock the Standard Hardtop and swap to a variety of accessories to better accommodate different material types. The preservation quality LEDs can be removed and placed inside the Atom's chassis to provide transmissive lighting (much like a lightbox). The camera can be removed and used on a tripod or handheld. In this way, it can be used for architectural, portrait, installation art, and other photography.

Shown with Phase One iXG and Standard Hard Top
with DT Photons in standard position

Magnetic Top

Combined with neodymium magnets this top can hold a variety of material flat.

X-Slide Top

Allows high-precision stitching of material up to 48” x 26” including large format maps and scrolls.

Translucent Sweep

A smooth Plexiglas sweep for photographing objects like jewelry, artifacts, or statuettes.

Film Scanning Top

For transmissives like 8x10 film, 35mm slides, glass plates, lantern slides, and cirkut pano film. See page 24 for more information.

Book Wedge + Strap

The Standard Hardtop is ideal to use with a Book Wedge. This is a low-cost option for rare materials that cannot be opened flat.

Transmissive Top

Provides a transilluminated Plexiglas area for capturing watermarks, glass plates, and other material.

DT Book Cradle

A conservation-friendly cradle that can be used with or without glass contact with book-opening angles of 80°, 100°, or 180°

Glass Top

A hinged-glass top with a one-inch exchangeable foam bed to minimize pressure on the object.

Custom Tops

DT can make-to-order tops for clients’ unique needs.

Shown with DT Book Cradle and DT Photons in standard position with optional hoods

Shown with DT RCam, DT Film Scanning Top, and one DT Photon moved down to translucent position.

Features & Benefits:

- Made in the USA of aerospace-grade aluminum
- DT AutoColumn with TruePPI integration to C1 CH and movement fine enough for film scanning
- TruePPI functionality when used with iXG capture system
- FADGI 4-Star Image Quality
- Easy to operate
- Ships by common courier; one-hour setup
- User-swappable tops for wide range of materials
- Operated by foot and/or hand releases
- Light can be placed underneath for transmissive materials or use of Plexiglas sweep
- Includes DT Photon LED lighting (CRI/CQS of 98)
- Lighting can be removed from the built-in mount points for creative lighting
- Delivers preservation-grade TIFFs, JPEGs, and PDFs in RGB, grayscale, and CMYK modes. Open Source RAW and DNG also supported.
- Open platform design allows upgrading resolution, thereby preventing obsolescence.
- Durable design for years of continuous use

DT Book Cradle

Compatible with the DT Atom, DT Versa, DT Element, and all Digital Transitions work stations, the DT Book Cradle provides conservation-friendly, preservation-grade, fast and efficient digitization of A3 bound material (up to 17” x 12”). Its unique design incorporates a tilt-inward mount for the camera to provide ergonomic digitization without increasing the footprint of the system.

The adjustable cradle itself accommodates three book-opening angles: ~100° (similar to a book held in a reading room, 180° (which allows capture of full page spreads), and 80° for material that is especially rare and fragile. It’s unique design always holds the book at an angle, so that the opposite page isn’t fighting gravity.

The optional glass uses a lift-assist mechanism to improve the ergonomics of the user over long periods of use. The glass can be fully removed in less than a minute when even the minimal operator-controlled contact with the glass is not suitable for a given material.

To ensure the safety of the binding, the mechanism of the book platform freely slides forward and backward to guarantee the gutter is always properly aligned to the captured frame. This also ensures the glass, if used, cannot produce undue pressure on the binding.

Shown with DT Versa

Shown with DT Atom

Shown with DT Element

Features & Benefits:

- Made in the USA of aerospace-grade aluminum
- FADGI 4-Star Image Quality
- Durable design for years of continuous use.
- Integrates with DT Atom, DT Element, and DT Versa
- Allows book opening of 80°, 100°, or 180°
- Allows capture with or without glass
- Glass lift-assist for long-term use ergnomics
- Delivers preservation-grade TIFFs, JPEGs, and PDFs in RGB, grayscale, and CMYK modes. Open Source RAW and DNG also supported
- Open platform design allows upgrading resolution, thereby preventing obsolescence.

Shown with Optional Glass
Glass-Free Scanning also possible

DT Film Scanning Solutions

Nowhere is the benefit of instant capture more evident than film scanning. Our solutions are over 400 times faster than legacy film scanners and provide higher image quality and handling that is more conservation-friendly.

Film scanning and other transmissive digitization is especially demanding. Cultural Heritage institutions often have collections that include common transmissive photographic media such as 35mm slide film, microfilm, and strip film, but also more esoteric transmissive material like glass plate negatives, nitrate films, lantern slides, medical x-rays, hand cut film, and large format film. Digitizing such collections requires a solution that delivers preservation image quality, production speed, and extensive flexibility, while providing conservation handling. Our film scanning solutions integrate seamlessly with the DT Atom, DT Element, and DT Versa to meet these demands.

The unique nature of our solution allows capture of both the reflective and transmissive content. For instance, on a lantern slide, both the captured image and the notes/markings on the label can be captured in a single image. We also uniquely allow either four-edge capture, showing the entire object, or contact-free scanning where the object is not touched inside of the image area.

A. 35mm Slide B. 120mm Strip Film C. 35mm Strip Film D. 4x5 Sheet Film
E. ANR Glass Carrier | up to 8x10 film & glass plates
Not shown are the 5x7 Sheet and 5x7 ANR Glass Carrier

Features & Benefits:

- Made in the USA
- Scan resolution up to 8200 ppi
- Extends function of DT Atom, DT Element, DT Versa
- Production-grade construction ensures absolute planarity, and focus consistency
- FADGI 4-Star Image Quality
- Scans up to 1200 transmissive objects per hour
- Uses DT Photon LED lighting (98 CRI/CQS)
- Allows capture of reflective & transmissive content
- Allows capture of all four edges of the object
- Allows contact-free scanning
- Object exposed to minimal UV / Heat
- Can be operated within a cold storage facility
- Bayer-free Achromatic and multispectral capture possible with some digital backs
- New-gen Anti-Newton ring technology


PHASEONE


99 STREET
ONLY

Joseph Byron (American, born England, 1847 - 1923)
New York Streetcar, 1890s, Albumen silver print
The J. Paul Getty Museum, Los Angeles

Color Accurate Lighting

DT Photon | Cultural Heritage LED Series

We designed the DT Photon LED series specifically for color accuracy in Cultural Heritage imaging.

Its specifications are excellent (98 CRI, 98 CQS, 5500k, low heat/UV) but these only partly describe the engineering behind these lights. The spectral distribution and smoothness, color balance, thermal stability, and industrial design are all painstakingly crafted for color accuracy and lighting consistency above all else.

For more information, please watch our hour-long webinar titled “Lighting for Cultural Heritage” co-hosted by renowned color scientist Robin Myers. (www.dtdch.com/videos)

The DT Photon can be used for reflective or transmissive materials. When digitizing reflective materials, the included Fresnel front panel ensures even light spread and coverage at a distance. When digitizing transmissive material, the included milk white front panel provides texture-free even transillumination.

The DT Photon and DT Photon XL can be used on DT systems such as the DT Atom and DT BC100. An open source mounting bracket system also allows them to be used on standard light stands for compatibility with the DT Element and DT Versa, or wall-mount systems for digitizing oversized materials.

DT Photon XL

DT Photon

Features & Benefits:

- Made in the USA
- Purpose-built for Cultural Heritage imaging
- Very low heat and UV emission
- Mounts to DT Systems or standard light stand
- Light can be placed underneath for transmissive materials or use of plexi sweep
- CRI and CQS of 98. Extremely accurate spectrum.
- 5500k color temperature allows in-situ proofing
- Power Supply allows up to four lights
- Bulb expected lifetime of 25,000 hours
- Custom made-to-order sizes available
- Fresnel and milk plexi front panels available
- Hoods available to eliminate spill
- Polarizer can be placed flushly under panel
- Front panel swaps don’t require tools

Phase One iXG Camera System

Built for the Future of Digitization

Cultural institutions have the staggering task of achieving perfection in the preservation of their collections. The research and development team at the Digital Transitions Division of Cultural Heritage has worked closely with Phase One to develop the iXG Camera System: a system designed with quality, durability, and ease of use in mind.

This all-in-one solution comes with complete software integration into Capture One Cultural Heritage providing virtually no operator contact needed with the system. The iXG Camera System is designed for reliability, flexibility and with phenomenally sharp imaging capabilities to ensure accurate recording of Cultural Heritage items and artifacts.

iXG Camera System Highlights

Color Accuracy & Superior Detail

Both the iXG 100MP and iXG 50MP models use the best possible CMOS sensors to ensure the highest resolution and lowest noise levels. These sensors produce the most accurate colors and minute details, enabling accurate reproduction for all Cultural Heritage applications. The degree of detail, quality and accuracy of color is crucial for the accurate reproduction of precious collections.

Capture One CH Software Integration

The iXG fully integrates with Capture One Cultural Heritage software for an efficient professional workflow. Capture One provides complete camera control, integration with the copy stand, industry-leading RAW conversion algorithms, auto-cropping and deskewing of documents, books, and film. The result is a fast and efficient workflow.

Schneider Kreuznach Optics

The iXG Camera utilizes integrated Flat Field Optics with the 72mm and 120mm Schneider Kreuznach lenses. This addresses the needs of flat copy work, particularly useful for libraries, archives, and universities. The Schneider Kreuznach lens design, in combination with the digital lens correction in Capture One CH, offers the highest quality in terms of resolution, flatness, sharpness, distortion, and color required for preservation-grade digitization.

Industrial Durability

The iXG Camera System is designed for heavy production. It offers industrial build quality, made with aerospace-grade aluminum and the most durable mechanical and electronic components available today. The Reliance Shutter's longevity is guaranteed for one million actuations, and with the iXG 100MP in ES mode, you can achieve an unlimited number of shutter actuations.

Precision Focus and SmartPPI

With the iXG Camera System you get precise, accurate and smooth motor-driven focusing and slip-free operation in a vertical orientation. Position-recording of the lens and camera ensures optimum focus accuracy. Precision focus control with both manual and preset positioning and contrast-based autofocus sets distance and resolution parameters accurately and reliably enabling a fast and repeatable workflow based on PPI presets.

Scientific Tools

The iXG Camera System is an open and extendable platform ready for sequential imaging and computational imaging, multi-spectral, and 3D applications.

Multispectral

The iXG 100MP Achromatic model uses an all-new 16-bit 100MP Bayer-free sensor, combining the highest possible resolution and class-leading wide-spectrum sensitivity needed for multi-spectral and Near Infra-Red imaging. With the addition of accessory lighting and filtering, the iXG can meet the highest multispectral standards.


PHASEONE

Priamus Birdwing, New Guinea 0505DT001
Focus Stacked from 25 seperate images using DT AutoColumn

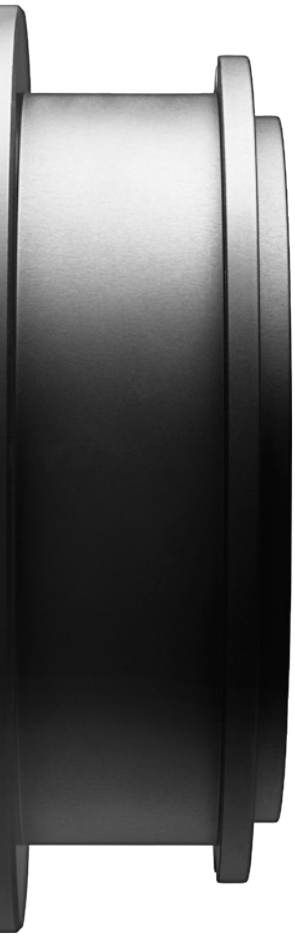
DT RCam

A Proven Digitization Solution for Over a Decade

The DT RCam is purpose-built for programmatic digitization projects. It is made in the USA to the tightest possible tolerances. This high-quality construction ensures durability, precision and quality.

Alignment, critical for high-resolution digitization, is assured by its aerospace-grade aluminum unibody design. The helical is fully self-arresting, even when pointed straight down, to keep focus consistent. The user can orient the digital back left-right or fore-aft on the working surface without remounting or realigning the camera.

Because of its open-platform approach and swappable mount pin system (stud or tripod thread) the RCam is compatible with a vast range of benches including the DT BC100, DT Element, DT Versa, and DT Atom.



Features & Benefits:

- Made in the USA
- Purpose-built for Cultural Heritage imaging
- Built to extremely tight tolerances
- Focus does not slip even when unlocked
- Optional lock prevents accidental changes
- Compatible with a wide variety of digital backs
- Swappable mount provides broad compatibility
- Easy 90° rotation of digital back
- Nearly vibration-free leaf shutter, or entirely vibration-free sensor shutter
- Large format high-resolution optics.
- Open platform design allows upgrading resolution, thereby preventing obsolescence.

Phase One XF Camera System

FADGI 4-Star quality in the studio or in situ

Built on many years of experience in the high-end photographic market, the Phase One XF camera system provides unrivaled quality, accuracy and reliability and sets a new standard for a flexible platform equipped with everything that is needed for digitization at the highest possible level.

In a Cultural Heritage environment, the XF provides a versatile capture platform. It can mount to all DT systems such as the DT Atom, DT Element, DT Versa, or DT BC100. It can also mount to a standard tripod, camera stand, or be used handheld. A Phase One IQ digital back can be moved between an XF and an RCam with ease.

Features & Benefits:

- Robust, solid aluminum-alloy construction
- Advanced, expandable operating system
- Intuitive and easily customizable user interface
- Waist Level and Prism viewfinder available
- Support for all Schneider-Kreuznach leaf shutter lenses from 28-240mm with 1/1600th flash sync
- Support for all Phase One and Mamiya lenses
- Advanced HAP autofocus system with remote focus control from Capture One
- Compatible with all Phase One IQ digital backs with a choice of 40-100 megapixel

Honey Bee AF Platform

HAP-1 is designed with a brand new custom processor, coupled with a one million pixel CMOS AF sensor. Combining a unique floating-point architecture and a fully programmable interface, HAP-1 provides the high-precision focus required for high-resolution digitization.

Sequence Photography

Focus stacking - Select the desired focus plane and the camera will create a series of images with several focusing steps. The series can be repeated at a single click for additional objects of the same size.

Intervalometer - The camera can be programmed to take a series of images at fixed intervals.

Exposure bracketing - When there is a need to record an extremely wide dynamic range, the camera can be programmed to create a series of images with fixed ISO and aperture but with variable exposure times.

Modular Viewfinders

The waist-level finder is convenient for many styles of photography, be it in studio or on location. The waist-level finder allows the photographer to look through the camera while mounted vertically on a copy stand.

With a solid glass prism, the 90° viewfinder is the brightest of its kind and has virtually no loss of light. The prism viewfinder displays a perfect view of the scene and comes standard on all XF Camera Systems.

OneTouch User Interface

OneTouch UI is designed with the goal of making controls so simple that photographers will feel at home within moments of getting started. The 1.6” grip screen is designed for clear visibility in any lighting condition using a transflective capacitive.

In the studio, every function and feature of the XF, including focus, can be controlled from Capture One CH.

Wheatstacks, Snow Effect, Morning, Claude Monet
Digital image courtesy of the Getty's Open Content Program

Cultural Heritage Solution Partners

Digital Transitions, USA

The Digital Transitions Division of Cultural Heritage provides cameras and copy stand solutions to support programmatic digitization efforts of libraries, museums, archives, collectors, service bureaus and other institutions.

Our experience in designing digitization systems comes from executing preservation and commercial imaging programs, giving us first-hand knowledge of the stringent requirements and concerns cultural institutes face when digitizing large and varied collections.

We design our systems with these guiding principles: conservation-friendly handling, preservation-grade image quality, fast & efficient workflow, and long-term partnership with our clients.

Our systems are ideal for long-term programmatic digitization where their high throughput and industrial durability produce a very low per unit digitization cost.

For more information, please visit: www.dtdch.com

Phase One, Denmark

Phase One is the world leader in open-platform medium format digital camera systems and solutions designed to deliver the highest image quality and reliability.

Our products are built by hand using the best materials, highest precision and advanced quality assurance.

Our company was born digital, and we have always strived to deliver the highest image quality possible through innovative solutions. Our strong commitment to serving the needs for Cultural Heritage photography has been reinforced by our partnership with Digital Transitions Division of Cultural Heritage, with long-standing expertise and experience in serving the Cultural Heritage Community.

Well known Cultural Heritage institutions worldwide rely on our combined systems to consistently deliver the highest level of quality, performance and safety for demanding collections of objects.

In addition to camera technology, Phase One develops world-class software for optimized capture and post-production workflow. Our Capture One RAW file converter is known for its quality, flexibility and speed. The complete solution of camera system and software enables the Cultural Heritage photographer to achieve preservation-grade quality without compromise.

Phase One was founded in 1993 and is based in Copenhagen with offices in New York, London, Tokyo, Cologne, Hong Kong and Shanghai. Phase One is proud to work together with the world's leading value-added resellers. In doing so, we ensure the highest level of service and support to our customers.

Fruit Piece; Jan van Huysum

The Getty

Warranties

DT Components

DT 3 Year Warranty

DT benches, cameras, & lighting.

- Free repairs
- Unlimited Support

Warranty covers:

- DT RCam
- DT RCam Ext. Tubes
- DT RCam lenses
- DT BC100
- DT Versa
- DT Element
- DT Atom
- DT Photon
- DT Photon XL

Phase One Components

Phase One 5 Year Warranty

IQ3 XF System Kits

- Free repairs
- Loaner within 24 hours for any service/repair
- Unlimited Support

Uptime Guarantee covers:

- XF Camera Body
- IQ3 Digital Back
- XF Viewfinders
- Phase One Lenses
- Schneider XF Lenses
- Defects in materials and workmanship
- Unlimited actuations

Phase One 3 Year Warranty

iXG VA Kits

- Free repairs
- Unlimited Support

Warranty covers:

- iXG Camera System
- iXG System Lenses
- Defects in materials and workmanship
- 1 million actuations

Phase One 1 Year Warranty

IQ1 & iXG Classic Kits

- Free repairs
- Unlimited Support

Warranty covers:

- XF Camera Body
- IQ1 Digital Back
- XF Viewfinders
- Phase One Lenses
- Schneider XF Lenses
- iXG Camera System
- iXG System Lenses
- Defects in materials and workmanship
- 100k actuations

Support and Training

In addition to on-site visits, support is provided by veteran technicians in our New York and Los Angeles locations using phone, email, screen sharing, and video chat. Support is never outsourced.

We host regional trainings several times a year to help you train new employees, or advance current employees. It's a great chance to meet others using our systems.

Warranty Limitations Warranty does not cover defects caused by fair wear and tear, improper storage or use, non-observance of operating or assembly instructions or interferences or modifications by unauthorized persons. Expendable parts (e.g. lamps, batteries, gas springs) are not covered by this warranty. Schneider/Rodenstock shutters carry a warranty for one year or one million captures (whichever comes first).

References

American Museum of Natural History
New York, NY

Brown University
Providence, RI

California State Library
Sacramento, CA

Center For Creative Photography
Tucson, AZ

The University of Chicago
Chicago, IL

Church of Latter Day Saints
Salt Lake City, UT

Columbia University
New York, NY

Library of Congress
Washington DC

Dallas Museum of Art
Dallas, TX

University of Deleware
Newark, DE

Denver Public Library
Dallas, TX

Duke University
Durham, NC

Florida State University
Tallahassee, FL

The Frick Collection
New York, NY

The Gates Archive
Seattle, WA

The Getty Museum & Research Institute
Los Angeles, CA

Google
Mountain View, CA

Museum of Fine Arts
Houston, TX

The University of Illinois
Urbana-Champaign, IL

The University of Iowa
Iowa City, IA

The University of Michigan
Ann Arbor, MI

Minneapolis Institute of Art
Minneapolis, MN

University of Missouri
Columbia, MO

Morgan Library
New York, NY

Museum of Modern Art
New York, NY

National Gallery of Art
Washington, D.C.

National Geographic
Washington, D.C.

New York Public Library
New York, NY

The Ohio State University
Columbus, OH

Osher Map Library
Portland, ME

University of Pennsylvania
Philadelphia, PA

Philadelphia Museum of Art
Philadelphia, PA

Princeton University
Princeton, NJ

Science History Institute
Philadelphia, PA

Smithsonian Institution
Washington DC

Stanford University
Stanford, CA

The U.S. National Archives
Washington, D.C.

United States Holocaust Museum
Washington, DC

University of Virginia
Charlottesville, VA

Walt Disney Studios Burbank
Glendale, CA

University of Wyoming
Laramie, WY

Yale University
New Haven, CT

This is a partial list. Additional references and customer testimonials, including international clients, can be found at www.dtdch.com/our-clients/

Stag Beetle, Albrecht Dürer

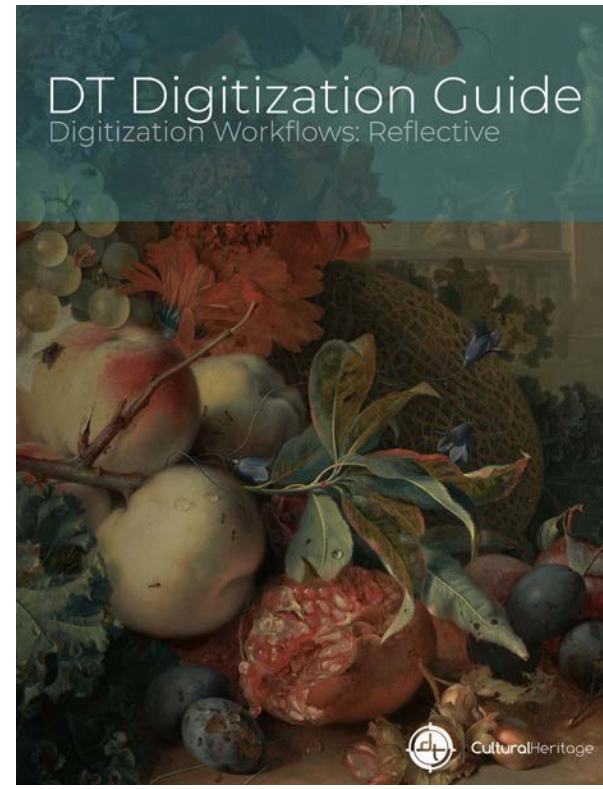
The Getty

The DT CulturalHeritage Resource Library

As part of our mission to bring the most thorough and up-to-date information and knowledge to the digitization industry, we've created a library of guides on digitization best practices and technical details.

For your guide, visit our website www.dtdch.com to purchase a physical copy or download a digital PDF. As the industry continues to evolve and expand, we will also continually update these guides, as well as create new ones on issues we hear the digitization industry asking for, so please email us if there's a topic you're interested in learning more about.

Digitization Workflows: Reflective Material



The goal of digitization is to create Preservation Digital Objects (a TIFF or JPG2000) to serve as a surrogate to the original object, replacing physical access to that original object, aiding its preservation and broadening access to its content. The FADGI, Metamorfoze and ISO imaging guidelines outline those elements of image quality that are required to achieve such surrogacy.

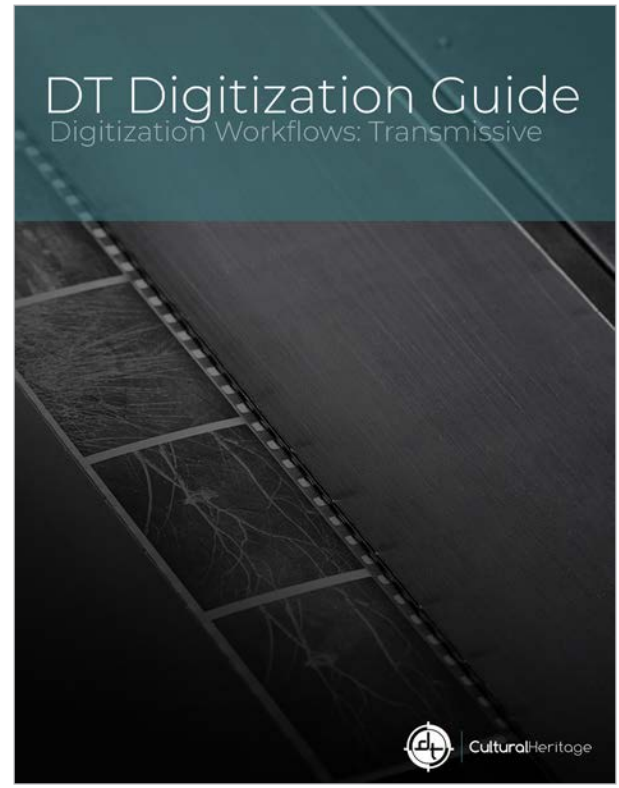
Many institutions focus on the resolution (PPI) and sharpness (sampling efficiency) requirements of the FADGI, Metamorfoze, and ISO guidelines. But the color accuracy and tonal accuracy requirements are just as important.

There are three requirements for achieving preservation-grade color and tone:

– Preservation-grade Hardware
– Preservation-grade Color Profile
– Preservation Workflow

This guide addresses these three requirements in the context of solutions provided by the Digital Transitions Division of Cultural Heritage. Please do not hesitate to contact us with questions, feedback, or to arrange an in person or remote training on the topics covered in this document. It is a corollary to our Digitization Program Planning Guide.

Digitization Workflows: Transmissive Material

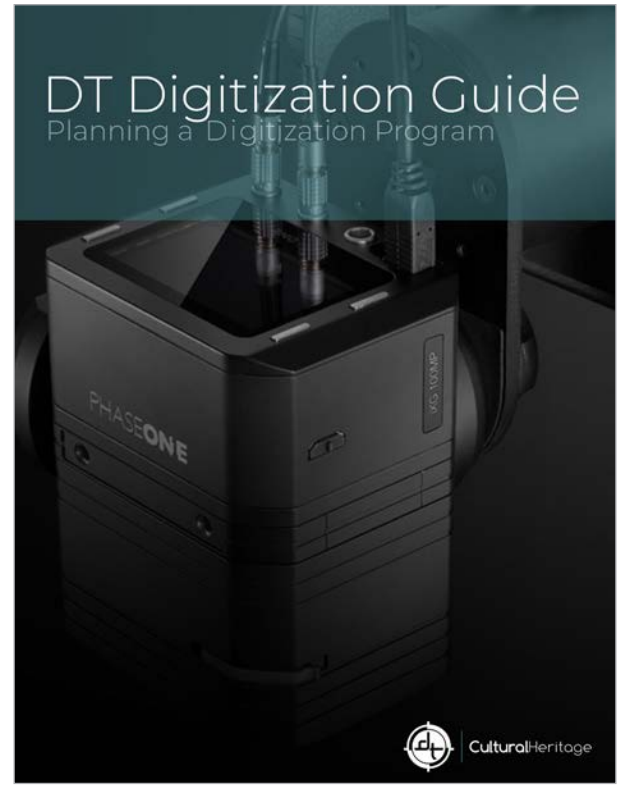


This document discusses the theory and practice of the preservation-grade digitization of transmissive materials. While the discussion of theory is informative regardless of the hardware and software used, the discussion of practice is in the context of solutions provided by the Digital Transitions Division of Cultural Heritage.

The end-product of preservation-grade digitization is a Preservation Digital Object (PDO) that can serve as a surrogate to the original object, replacing most needs for physical access to the physical original, aiding its preservation, broadening access to its content.

Many transmissive material collections are in a precarious physical state. That places great urgency on their digitization. But while the technology available to digitize transmissive materials has radically improved in the last decade, most film-scanning references were written well before the modern era of instant film capture (a.k.a. camera-based digitization). In this void we saw a need for a document that covered both the theory and practice of transmissive digitization written with modern-technology. Therefore, we've undertaken to create this document, in hopes that it can immediately serve as a useful reference for the community.

Digitization Program Planning Guide



This plan is intended for those who are involved with or interact with digitization programs in Cultural Heritage institutions. Specifically the focus of this document is on still imaging of real world objects. It does not cover the related fields of born-digital images, nor does it cover audio or video digitization.

We have made every effort to make sure it is useful and informative regardless of the equipment utilized. However, it is especially helpful for those who are using or are considering DTDCH digitization solutions. Specifically we believe that this document will be useful to Program Directors, and other administrators in charge of digitization based on still-imaging. That said, it is our experience that curators, archivists, program directors, and conservationists can benefit enormously from a deeper understanding of the theory and practice of imaging. However, it is our hope that a broader audience will consider investing the time to digest and provide feedback on this treatise.

CulturalHeritage

$20.00

www.dtculturalheritage.com