



**HEXAGON**

Release guide

---

# **Release guide**

ERDAS APOLLO 2023

Version 16.8.0

13 September 2023

# Contents

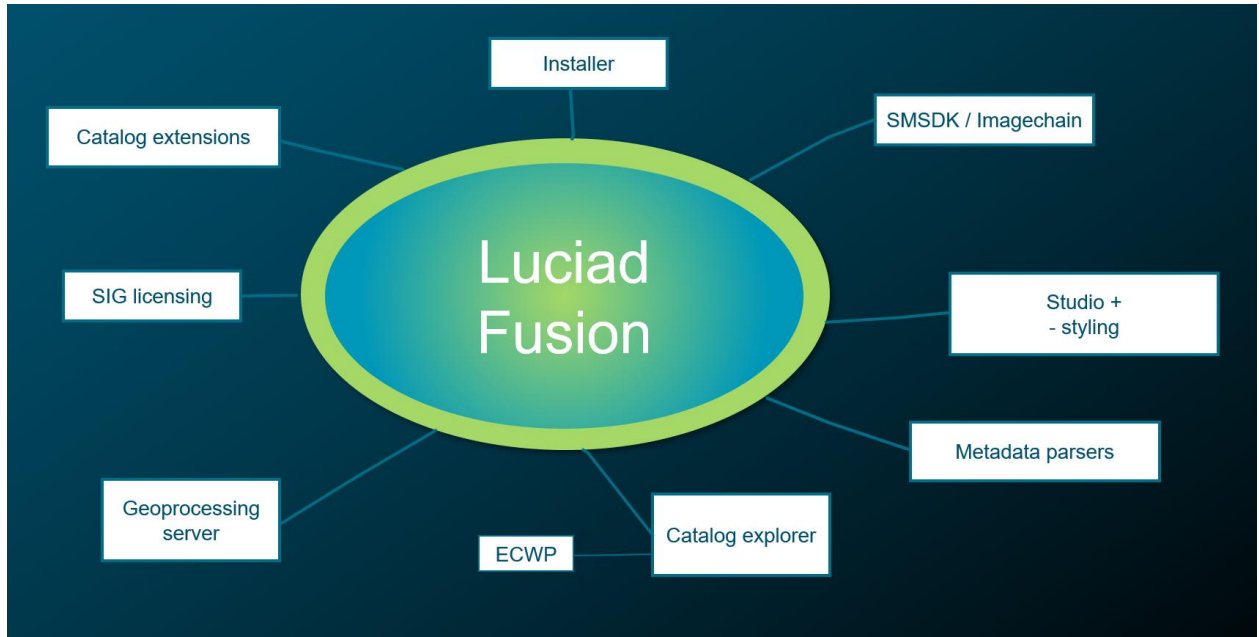
About this release .....	5
<b>ERDAS APOLLO product tiers .....</b>	<b>6</b>
ERDAS APOLLO Essentials .....	6
ERDAS APOLLO Advantage .....	6
ERDAS APOLLO Professional .....	6
<b>New platforms: ERDAS APOLLO 2023 .....</b>	<b>7</b>
Installation packages .....	7
High-level architecture .....	8
Administration .....	8
Web client .....	8
Java .....	8
Databases .....	8
Miscellaneous .....	8
CPU Core inclusions .....	9
Data Extraction Service availability change .....	9
Capability changes .....	10
<b>New technology: ERDAS APOLLO 2023 .....</b>	<b>12</b>
Foundation .....	12
Installer .....	12
Architecture .....	14
Security updates .....	15
By data type .....	16
Raster .....	16
Vector .....	16
Point cloud .....	16
Terrain .....	16
3D mesh .....	16
Panoramics .....	16
BIM .....	16

CAD .....	17
Defense standards and symbology .....	17
Maritime standards.....	17
Aviation standards.....	17
By Service type.....	18
Catalog API.....	18
OGC API Records .....	18
OGC 3D Tiles.....	18
WMS .....	18
WMTS .....	18
WFS.....	19
ECWP .....	19
LTS .....	19
HSPC .....	19
Panoramics .....	19
Download .....	19
File service .....	19
By functional capability .....	20
Data crawlers .....	20
Aggregates now known as Folders .....	20
REST API.....	21
Projection system.....	22
Metadata parsers .....	22
Metadata ISO support .....	22
Raster portrayal engine - Image Chain.....	23
Security model .....	23
Studio .....	23
Raster Styling Editor.....	24
Multiple style sets .....	25
Catalog Explorer .....	25
Availability .....	25
HxDR integration .....	25

OGC compliance .....	26
Feature extrusion .....	26
OGC API features, maps and tiles .....	27
Panoramic photosphere support .....	27
Geoprocessing Server .....	28
Migration to Tomcat.....	28
MongoDB deprecation.....	28
OpenAPI upgrade.....	28
Security updates .....	28
<b>System requirements: ERDAS APOLLO .....</b>	<b>29</b>
<b>Migration guide .....</b>	<b>30</b>
ERDAS APOLLO Core v2022 to ERDAS APOLLO Core v2023 .....	30
ERDAS APOLLO Core v2022 to ERDAS APOLLO v2023.....	30
ERDAS APOLLO Advantage/Professional to ERDAS APOLLO .....	30
<b>Known limitations .....</b>	<b>31</b>
<b>Issues resolved .....</b>	<b>32</b>
<b>About Hexagon.....</b>	<b>34</b>

## About this release

ERDAS APOLLO 2023 is the culmination of the largest product modernization effort in over 10 years. This release introduces a new technical foundation, extending and building upon the LuciadFusion platform while migrating or rebuilding key functionalities from previous ERDAS APOLLO releases.



This release guide highlights key points but should not be considered exhaustive. Existing customers are encouraged to contact their Hexagon representatives to discuss individual platform usage to plan any migration to account for significant release changes.

## ERDAS APOLLO product tiers

ERDAS APOLLO provides a comprehensive data management server solution that helps identify, locate, secure and organize your geospatial and related business data into a searchable, secured repository while enabling simple distribution through interoperable web services.

ERDAS APOLLO also alleviates pressures associated with optimizing spatial data archive storage requirements through the use of Hexagon's industry-leading ECW image compression and HSPC point cloud storage technology. Wherever possible, ERDAS APOLLO aims to read data as-is with no conversion based on other best of breed industry format standards.

### ERDAS APOLLO Essentials

Essentials is the perfect solution for organizations that require an enterprise solution to make sense of their traditional spatial data archive. Building on ERDAS APOLLO Essentials' history of rapid imagery services, beginning with 2023, the Essentials tier will service an expanded target market covering all traditional spatial data types with a robust catalog and security model with matching web service delivery options. The expanded ERDAS APOLLO Studio Web Administrator is now available across all tiers, enabling rapid administration and control. Essentials is an ideal starter solution for customers seeking a catalog with distribution capabilities for traditional 2D raster or vector data sources.

### ERDAS APOLLO Advantage

Advantage takes things to the third dimension by adding point clouds, 3D meshes and BIM/CAD data types to the catalog model. It also expands support from the traditional file-based data types to cover spatial data residing in databases such as Microsoft SQL Server, PostgreSQL and Oracle, among others. Defense industry users also gain support for VPF, MGCP and other defense-aligned formats and visualization standards. Additionally, 360-degree panoramic imagery is now supported from E57 or Hexagon's Leica Pegasus sensors. All these data types inherit the foundational workflow and security model introduced with ERDAS APOLLO Essentials. These data formats are discovered seamlessly through automatic data crawlers to locate, insert and extract metadata.

### ERDAS APOLLO Professional

Professional provides a powerful server-side geoprocessing solution for geospatial data, employing complex algorithms that underpin the engine within ERDAS IMAGINE or GeoMedia. Geospatial analysts create custom models using these desktop expert tools and publish them to the Geoprocessing Server to enable execution on demand by other users. As of v2023, the Data Extraction Service builds on the Geoprocessing execution model to provide expanded capabilities, no longer limited to just the raster domain.

# New platforms: ERDAS APOLLO 2023

## Installation packages

ERDAS APOLLO is available in two installation packages.

ERDAS APOLLO <sup>1</sup>	ERDAS APOLLO Core
The complete package including all components and features	Streamlined installer focused on advanced imagery delivery only
Installer remains Windows only	Windows and Linux versions are supported

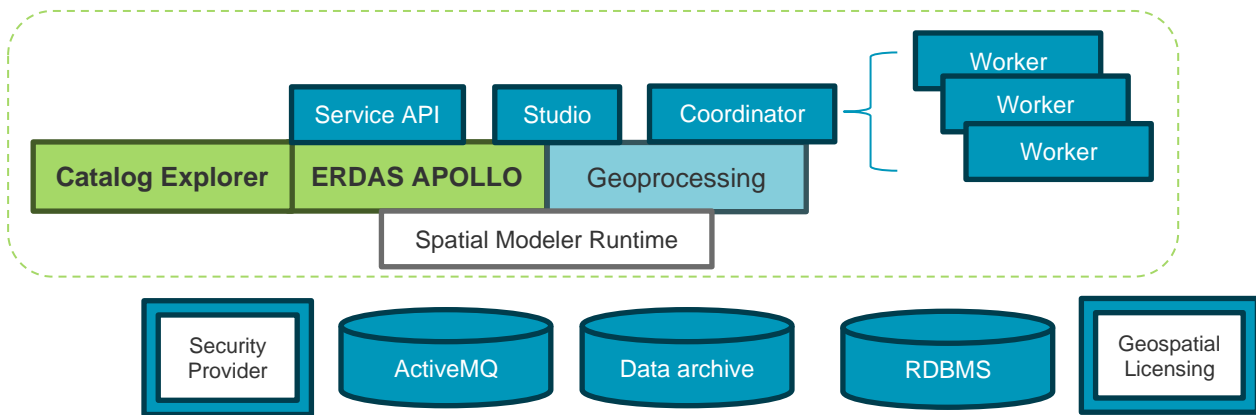
For new customers, the ERDAS APOLLO suite installer is recommended for all functional capabilities unless they have very specific raster delivery needs. ERDAS APOLLO Core is no longer included in the main ERDAS APOLLO package to simplify architecture through various technology integration work completed in v2023.

Starting with this release, we will also provide a separate Data Pack with an assortment of sample data across New York City and Melbourne, Australia, to help onboard new customers and demonstrate key workflows.



<sup>1</sup> Previously known as ERDAS APOLLO Advantage/Professional

## High-level architecture



## Administration

The previous ERDAS APOLLO Data Manager desktop administration tool has been wholly replaced by the web-based Studio interface first introduced with the v2022 release.

## Web client

The Catalog Explorer client interface previously distributed as a separate installer has been integrated into the full installer. It is the preferred and only supported client for the v2023 release.

The previous Geospatial Portal option is no longer available for catalog searching, but remains supported through ERDAS APOLLO OGC services.

## Java

Java remains an external dependency in server and client applications. ERDAS APOLLO 2023 is certified on the latest Long Term Support (LTS) versions 11 and 17 from providers including Oracle, OpenJDK and Amazon Corretto distributions.

**Note:** For APOLLO Core/Essentials installations, Java is only required to run the Administration Console.

## Databases

SQL Server 2022, PostgreSQL 12-15 and Oracle 19c are all certified for this release.

**Note:** The databases listed above are for the core catalog and other functionalities. It is not the list of supported databases for reading vector spatial database types.

## Miscellaneous

The largest platform change is the integration of ERDAS APOLLO with LuciadFusion. This seamlessly intertwines both functional capabilities into a single platform while retaining the features users have come to rely on with ERDAS APOLLO such as security, folders, queryables and custom metadata.

The modernization effort has resulted in a streamlined architecture and enabled the removal of legacy platforms.



## New licensing

To coincide with the substantial platform modernization, additional changes to feature availability and license entitlements have also been made.

### CPU Core inclusions

ERDAS APOLLO ONE or WORKGROUP licensed customers, regardless of License tier (Essentials, Advantage or Professional) will receive an uplift in included CPU Core counts as below.

License type:	ONE		WORKGROUP	
<b>V2022</b> (16.7.x)	8-cores	8 geoprocessing workers <sup>^</sup>	16-cores	16 geoprocessing workers <sup>^</sup>
<b>V2023 <sup>NEW</sup></b> (16.8.x)	16-cores	16 geoprocessing workers <sup>^</sup>	Unlimited	16 geoprocessing workers <sup>^</sup>

<sup>^</sup> for Professional licensed customers only

This licensing change offers a significant benefit for no additional cost. It also clarifies for customers that the CPU counts define the upper threshold. This simplifies estimating and identifying target hardware for deployment, as it will account for virtual or cloud-based scaling without breaching license agreements. It also ensures flexibility to scale with increased adoption or usage.

Existing customers on core-based licensed intervals are unchanged and entitlement remains based on your existing, explicit licensed counts.

### Data Extraction Service availability change

The new Data Extraction Service (DES), previously known as Clip-Zip-Ship (CZS) has been rebuilt and now depends on the Geoprocessing Service to benefit from the improved scaling options and distributed queuing system.

Due to this dependency change, the ability to extract and customize output data stored within ERDAS APOLLO now requires a **Professional** license. Previously it functioned at the **Advantage** level.

To partially mitigate the impact of this change, we have introduced a new generic download service that permits data downloads, without customization options provided by DES. This download service remains available at the Advantage level.

## Capability changes

To accommodate the variety of other technical release changes, important changes to feature availability have been made. In general, outside of the DES change – all other existing capability remains at the previous levels or moved to a lower tier to account for new functionality. Higher tiers incorporate functionality of all lower tiers.

ERDAS APOLLO License tier	V2022	V2023
Professional	Geoprocessing	Geoprocessing Data Extraction Service (DES) <b>NEW</b> Maritime Standards <b>NEW</b> Aviation Standards <b>NEW</b>
Advantage	Clip-Zip-Ship (CZS) Catalog Vector Vector database Raster Point cloud catalog CAD AOI Notification Catalog Explorer Web administration Metadata parsers and Editor OGC WMS, WCS, WMTS, WFS(T), GML and KML REST API	Point cloud catalog and visualization <b>NEW</b> Panoramic imagery <b>NEW</b> 3D Mesh <b>NEW</b> BIM <b>NEW</b> Defense Standards and Symbology <b>NEW</b> CAD Vector database OGC 3DTile <b>NEW</b> HSPC <b>NEW</b> LTS <b>NEW</b> Download Service <b>NEW</b>
Essentials	<i>Features provided by APOLLO Core,            see below</i>	Catalog Vector Raster Security AOI Notification Catalog Explorer Web administration Metadata parsers and Editor Raster and Vector Style Creator <b>NEW</b> OGC WMS, WCS, WMTS, WFS(T), GML and KML ECWP OGC API Records <b>NEW</b> REST API

There have been no changes to the feature matrix for ERDAS APOLLO Core installer.

<b>ERDAS APOLLO Core</b>	<b>V2022</b>	<b>V2023</b>
Professional	Synchronous Geoprocessing	Synchronous Geoprocessing
Advantage	Image Chain rendering	Image Chain rendering
Essentials	OGC WMS, WMTS Hexagon ECWP ISO JPIP Esri Geoservices	OGC WMS, WMTS Hexagon ECWP ISO JPIP Esri Geoservices

This rework of feature availability is intended to drive increased value and meet market expectations for a base platform with all foundational building blocks and base format types.

ERDAS APOLLO Core functionality and performance will continue to be migrated to the unified ERDAS APOLLO in future releases.

# New technology: ERDAS APOLLO 2023

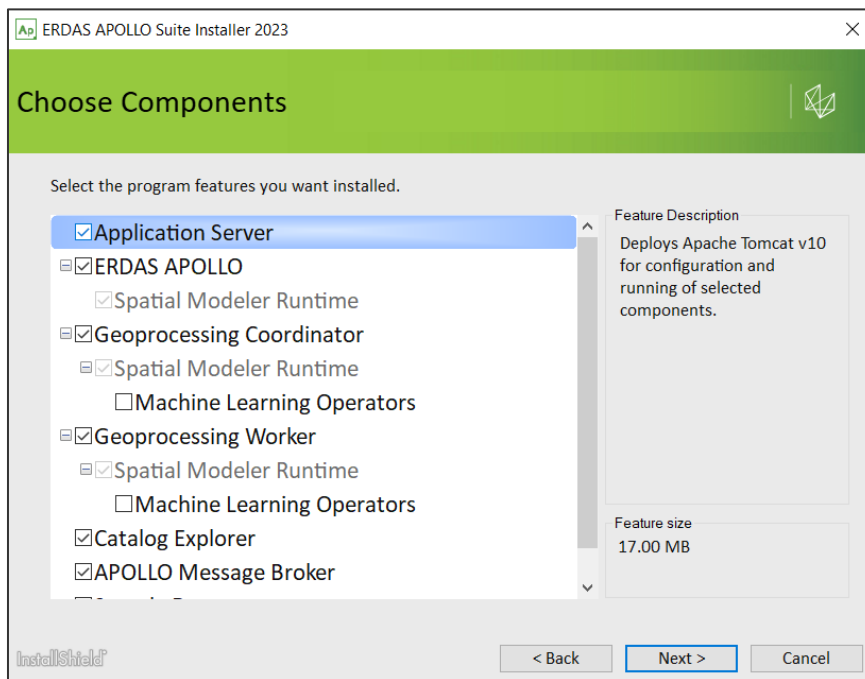
## Foundation

Integration with the LuciadFusion platform has been achieved, providing an assortment of new functional capabilities as well as enabling modernization of existing key functionalities associated with ERDAS APOLLO.

ERDAS APOLLO remains targeted to end users seeking an enterprise deployed geospatial data archive solution. LuciadFusion remains targeted to developers and those seeking specific integration requirements. Both products continue to benefit from this newly shared development approach to enhance our ability to respond to market demands and reduce overlap in technology investments. This relationship does not guarantee functional parity.

## Installer

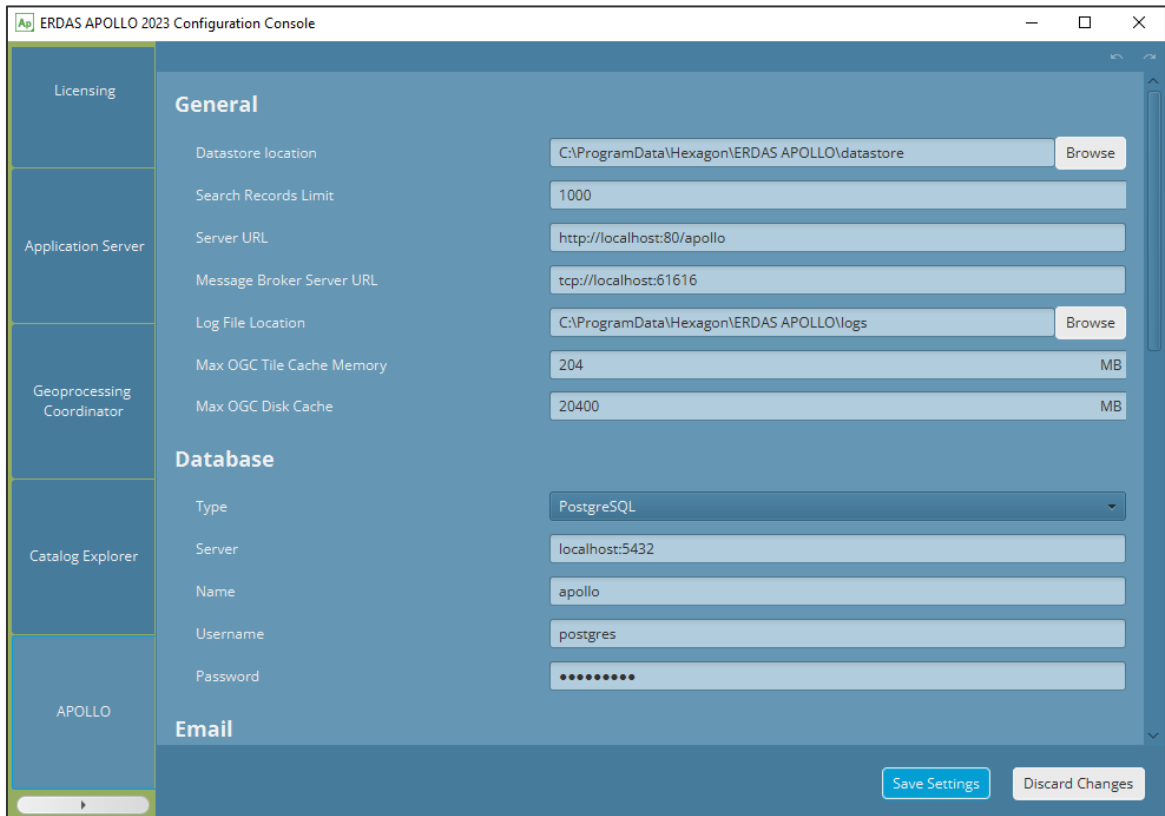
The suite installation package has been rebuilt and redesigned to support a more tailored deployment model with optional components that can be deployed in a distributed fashion, or all collocated on one server instance.



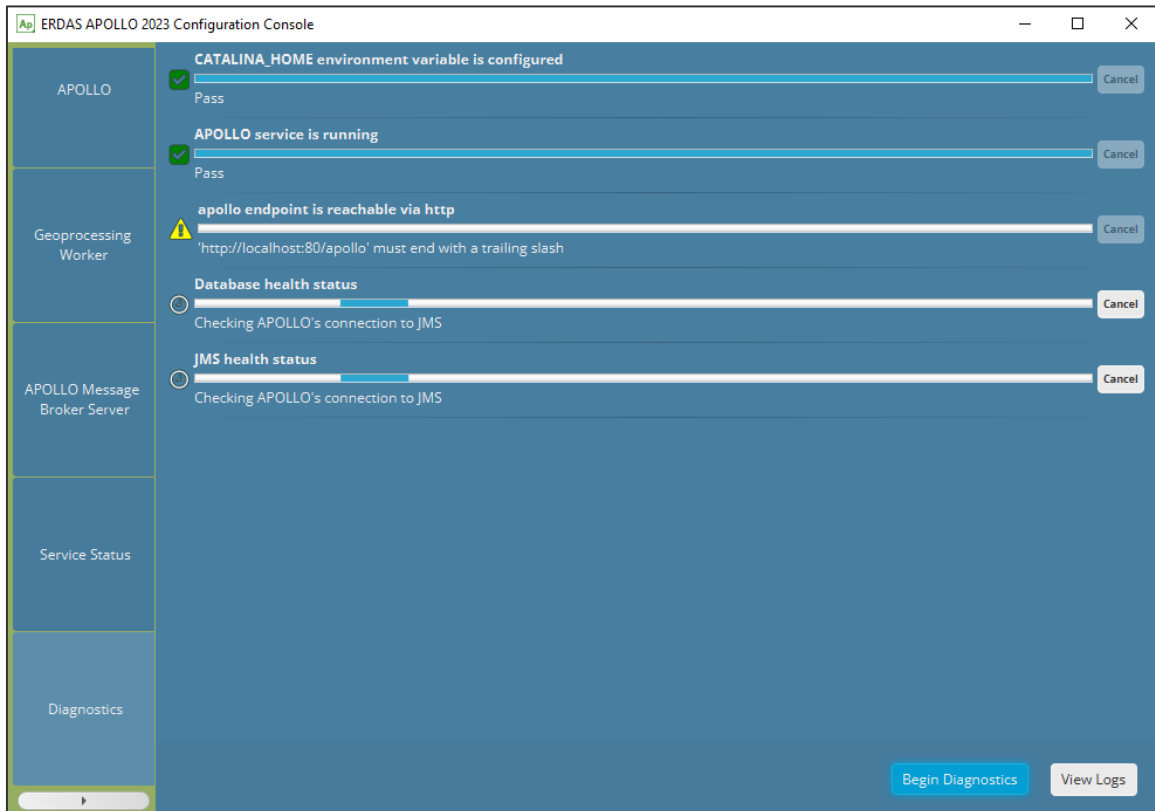
The new installer and configuration remain able to be deployed via command line, although the parameters have changed from previous releases.

The new Spatial Modeler Runtime comprises the core raster and geoprocessing engine shared by the server components.

It also includes a preconfigured installation of Apache Tomcat 10 as the web application server and provides a new Configuration Console to guide users through mandatory configuration steps to initialize the server.



The Configuration Console also provides a new Diagnostics panel to aid an administrator in evaluating the health of the ERDAS APOLLO system.



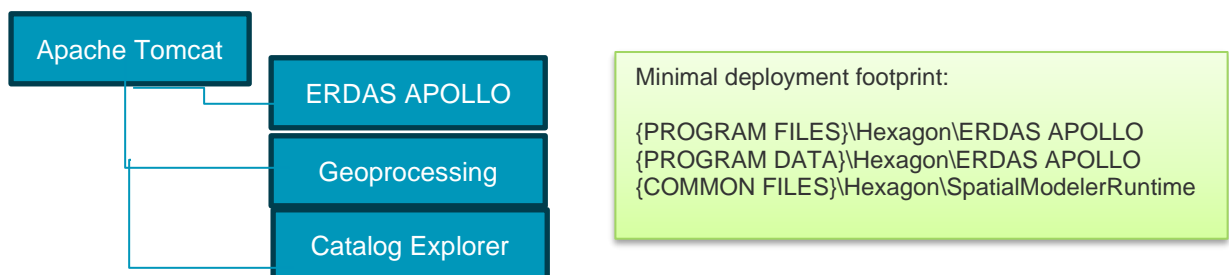
Once operational, settings that can be applied on the fly are easily configured within the Studio web administrator making this release the easiest to deploy.

## Architecture

ERDAS APOLLO now runs exclusively within a single Java Application Server. This removes dependencies on IIS and other .NET components that complicated previous installations.

External dependencies are described below, but ERDAS APOLLO requires ActiveMQ for messaging, an application server (Apache Tomcat) and a supported relational database for cataloging.

ERDAS APOLLO Core is no longer deployed as part of the full ERDAS APOLLO installer and should be sourced separately if required. There is no longer any cross-synchronization option between the Catalog and ERDAS APOLLO Core as it simply is no longer required to provide previous capabilities.



### Security updates

A substantial effort has been made to optimize the deployed footprint of the core server, improving security and startup time and minimizing the footprint of the server application. These efforts are ongoing and constant but have been made substantially easier through the rearchitected server.

## By data type

### Raster

ERDAS APOLLO v2023 continues to leverage the core raster libraries that underpin ERDAS IMAGINE, ensuring equivalent raster format support as in previous releases. Built as our priority decoder, it can seamlessly delegate back to the Luciad engine for additional raster format support coverage.

The raster rendering pipeline utilizes the Image Chain engine for advanced portrayal to yield greater control and enhanced capabilities over previous raster styling options in ERDAS APOLLO. Image Chain was first introduced in ERDAS APOLLO Core v2016 and has now been standardized across all workflows, offering a single display pathway.

### Vector

ERDAS APOLLO now utilizes a new vector rendering pipeline, deprecating the previous usage of GeoMedia libraries while keeping at a general level, equivalent or improved format compatibility.

Vector database support has been extended from PostgreSQL PostGIS, Microsoft SQL Server and Oracle Spatial to also include IBM DB2, Informix Geodetic and Spatial Datablade, Oracle Locator and SQLite.

Styling or portrayal of vector data is done using OGC SLD/SE. An enhanced Vector Style Editor allows for easier styling definitions and previews for vector data.

### Point cloud

ERDAS APOLLO previously supported cataloging and data extraction workflows with primarily LAS/LAZ data. With this release, the new engine is used for expanded format support to include OSGB and OGC 3D Tiles with a new ability to visualize through new service delivery options. Point clouds are supported whether captured airborne or terrestrially.

Point cloud datasets will optionally be converted to OGC 3D Tiles PNTS format for rapid streaming purposes.

### Terrain

Elevation data sources are now extended to support the Luciad Terrain Service (LTS) type for simplified definition and delivery for visualization purposes.

### 3D mesh

Three-dimensional mesh products such as Wavefront OBJ or OGC 3D Tiles can now be cataloged and streamed to visualization clients like Catalog Explorer. Where required, input data will be automatically pre-processed into the 3D Tile format for rapid display.

### Panoramics

Panoramic imagery, also known as photosphere for 360 imagery, is now supported and covers E57 and Leica Pegasus data types.

### BIM

Wavefront OBJ, BuildingSmart IFC or Hexagon ALI BINZ Models are now supported enabling fusion, with other more traditional geospatial data types. IFC is the industry open format supported by all major CAD



solutions, including Hexagon BricsCAD. IFC files generally lack georeferencing and can be positioned manually in Catalog Explorer.

## CAD

Underlying support libraries for reading AutoCAD DWG, DXF or Bentley Microstation DWG have been updated for improved compatibility with all versions of these format files.

## Defense standards and symbology

- Enables visualization of tactical situations and plans compliant with various military symbology standards including MS2525B/C/D and APP-6A/B/C/D
- Defense-focused decoders provided by ERDAS IMAGINE and Luciad-compliant decoders including VPF, MGCP, NITF/NSIF, ASRP/USRP/ADRG, BCI, CADRG/CIB and NVG

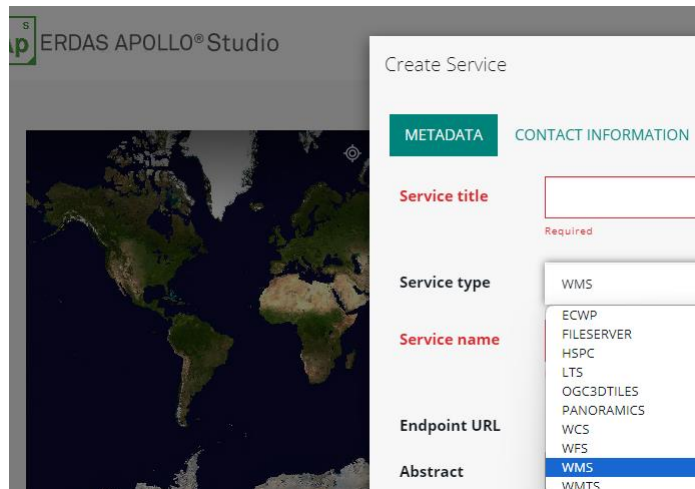
## Maritime standards

This release offers high-performance support for S-57 and UKHO AML data with visualization according to the S-52 standard. Maritime charts can be served via OGC-compliant services provided by Luciad-compliant decoders.

## Aviation standards

This release offers extensive modeling and ICAO-compliant visualization of aeronautical data retaining domain objects including airspaces, routes, procedures and nav aids. AIXM (3.3, 4.0, 4.5, 5.1), ARINC 424, DAFIF(T) provided by Luciad-compliant decoders.

## By Service type



### Catalog API

Consistent with the overall REST API changes, the direct Catalog Search APIs have been changed. Please refer to the OpenAPI Specification document.

The new API has replaced the concept of query-ables with a generic property type that can all be searched. The previous overlap between properties and query-ables have been simplified due to this change.

### OGC API Records

Within OGC, there has been a radical change in the way its standards are defined moving from the older xml-based standards to a more RESTful JSON-based standard. One such example is the creation of the new OGC API – Records standard which will replace the Catalog Service for the Web (CSW). Within this new framework, we have wrapped the Luciad Fusion catalog with an implementation of OGC API – Records. This will allow the catalog to be queried by other standard-enabled clients.

### OGC 3D Tiles

This is a new service type for the delivery of 3D mesh or point cloud data types. Supported data formats will be pre-processed into the 3D Tiles structure automatically as part of publishing of a new 3D Tiles service.

### WMS

The map rendering engine has been consolidated to a single pipeline. Previous complex dependencies on GeoMedia SDI and Ionic-based types have been deprecated. This vastly simplifies all map rendering regardless of type.

There is no longer an option to use ERDAS APOLLO Core for raster rendering delegation as they both share the same raster rendering pathway.

### WMTS

WMTS mirrors the improvements made in WMS, with a single pipeline now being used for raster and vector. The previous usage of WMTS served from ERDAS APOLLO Core has been removed. It is now possible to publish a combined view of all supported data types, not just imagery.

## WFS

New vector engine provides support for WFS v1.1 and v2.0. The latter is new in this release and ensures greater functional capability and integration options with underlying vector data types than in prior releases.

## ECWP

ECWP integration layer is now provided by the consolidated Java-based architecture. Publication of the streaming imagery protocol is done via the same service APIs. ERDAS APOLLO Core is no longer used; however, the technology remains shared.

## LTS

Luciad Terrain Service is a new custom service type built for delivering elevation data in an efficient manner for draping 2D or to complement 3D streams.

## HSPC

A new Hexagon Smart Point Cloud (HSPC) service type enables preprocessing to HSPC via Hexagon GeoCompressor and then cataloging and delivering from ERDAS APOLLO for streaming point-cloud data.

## Panoramics

A new Hexagon service implementation for the support of 360-degree panoramic or spherical imagery types.

## Download

To accommodate the DES availability change, a new download service has been created to enable users with permission to package and download data stored as-is. Related or auxiliary files will also be packaged into a single ZIP file for downloading.

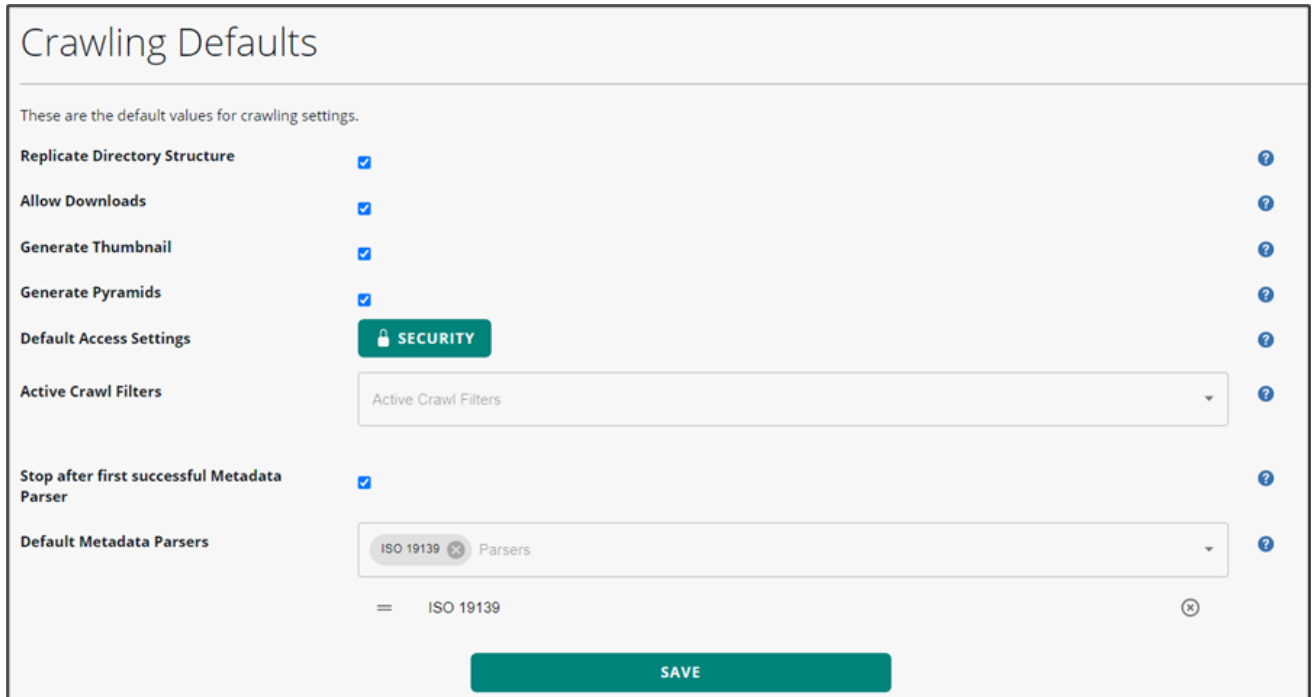
## File service

This is similar to the Download service, although it provides direct access to download the underlying data. Services can be provided based on a single or multiple products.

## By functional capability

### Data crawlers

The ability to seamlessly crawl or iterate over a data archive discovering, replicating directory hierarchy and ingesting support files into the catalog has been rebuilt and is now referred to as “Data roots.” The root locations define one or multiple base paths where ERDAS APOLLO will monitor or recrawl datasets on a configurable basis, making discovered datasets immediately available for discovery via the catalog.



**Crawling Defaults**

These are the default values for crawling settings.

Replicate Directory Structure	<input checked="" type="checkbox"/>	<a href="#">?</a>
Allow Downloads	<input checked="" type="checkbox"/>	<a href="#">?</a>
Generate Thumbnail	<input checked="" type="checkbox"/>	<a href="#">?</a>
Generate Pyramids	<input checked="" type="checkbox"/>	<a href="#">?</a>
Default Access Settings	<a href="#">SECURITY</a>	<a href="#">?</a>
Active Crawl Filters	Active Crawl Filters	<a href="#">?</a>
Stop after first successful Metadata Parser	<input checked="" type="checkbox"/>	<a href="#">?</a>
Default Metadata Parsers	ISO 19139 <a href="#">×</a> Parsers	<a href="#">?</a>

= ISO 19139 [×](#)

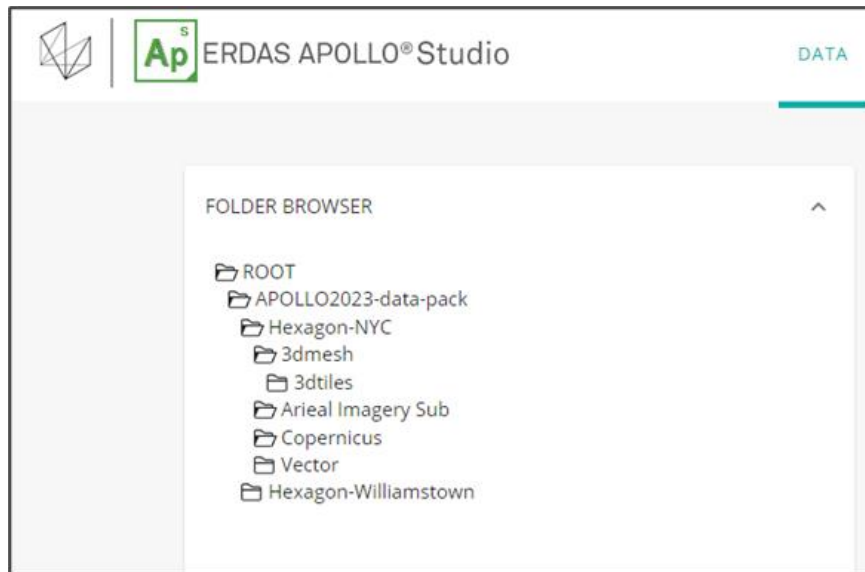
**SAVE**

### Aggregates now known as Folders

The ability to store catalog data references within a hierarchy was previously known as an “aggregate.” This terminology has been replaced by a more generic notion of “folders” starting with this release. Folders can still mirror locations on disk, or represent a virtual path defined by the ERDAS APOLLO Administrator.

Aggregates also previously helped define the ability to group datasets together to form a single layer when published as a service. This capability has been replaced by a new concept known as “Products.”

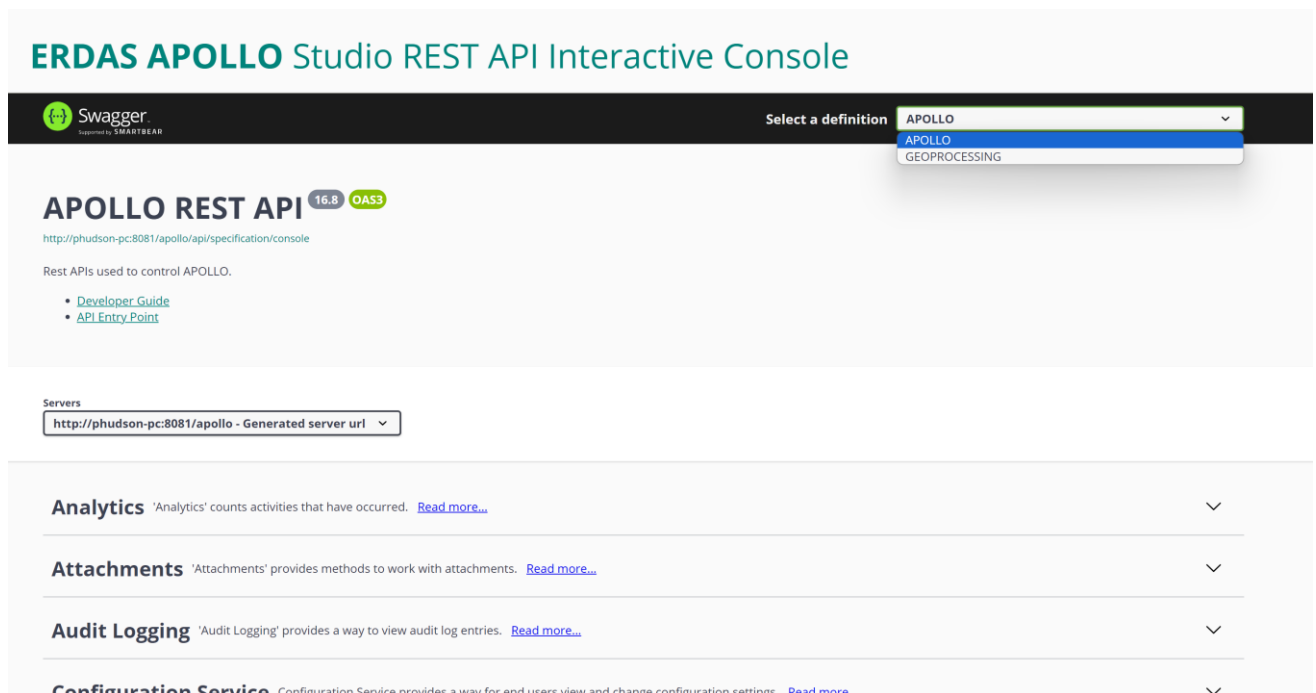
The persistence or location of data inside the catalog is abstract and can be assigned to one or many Products for ultimate flexibility. A Product definition will define the Layer published via a supported service type and the associated styles that are defined to it.



## REST API

ERDAS APOLLO continues to provide an OpenAPI v3 (OAS3)-compliant REST API to support configuration, general server management and service control. Due to architectural changes, the REST API is fundamentally different to previous releases across all workflows.

### ERDAS APOLLO Studio REST API Interactive Console



The screenshot shows the Swagger UI for the ERDAS APOLLO REST API. The interface includes a Swagger logo, a 'Select a definition' dropdown menu with options 'APOLLO' and 'GEOPROCESSING', and a 'Servers' dropdown menu with the URL 'http://phudson-pc:8081/apollo - Generated server url'. The main content area displays the API title 'APOLLO REST API' with version '16.8' and 'OAS3' badge, along with a list of API endpoints:

- Analytics** 'Analytics' counts activities that have occurred. [Read more...](#)
- Attachments** 'Attachments' provides methods to work with attachments. [Read more...](#)
- Audit Logging** 'Audit Logging' provides a way to view audit log entries. [Read more...](#)
- Configuration Service** Configuration Service provides a way for end users view and change configuration settings. [Read more...](#)

While generally an equivalent capability exists in the new version, for existing customers reliant upon direct REST API usage for system integrations, changes will be required in all cases. Please review the OpenAPI specification or contact Hexagon support for further assistance.

## Projection system

The projection system has been migrated to a singular Luciad-based CRS toolkit for all translations and conversions. EPSG overrides are still possible where datasets resolve to unexpected EPSG codes.

This change vastly simplifies complexities with previous releases between three different CRS libraries.

## Metadata parsers

Existing Metadata parsers have been migrated to automatically parse and store into the ISO19139 Metadata record from common industry sensor types. In many cases these parsers have improved accuracy or mapping of elements.

The chart below shows the difference in available Custom Metadata parsers between ERDAS APOLLO 2022 and ERDAS APOLLO 2023. Additional parsers will be added in the ERDAS APOLLO 2023.1 release, and some older types will be deprecated and replaced by newer available sensors and metadata types.

Metadata Parser	APOLLO 2022	APOLLO 2023
ADS40	★	★
DAT	★	
DGAMP	★	
DIMAP	★	
DIMAP-v2	★	★
DMC Archive	★	★
EROS	★	
FGDC	★	
FMK Archive	★	★
FRAME Incoming	★	★
GOKTURK1	★	★
HDF Parsing using EOS Xml stylesheet	★	
HDF Parsing using ISO19139 Parser	★	
IKONOS	★	
IRS 1C-1D (Fast Format)	★	
ISO 19139	★	★
Landsat 7	★	
Landsat5 (Fast format, Rev 8)	★	
MAXAR	★	
QuickBird	★	★
RADARSAT-2	★	★
RMK TOP Archive	★	★
Russian Satellite	★	
SPOT	★	

## Metadata ISO support

One fundamental change that has occurred with the move to the LuciadFusion platform is the underlying metamodel of the catalog. In ERDAS APOLLO 2022, the model was based on ebRIM, whereas ERDAS

APOLLO 2023 is based on ISO. This should be transparent to the user for the most part, apart from some of the property names.

## Raster portrayal engine - Image Chain

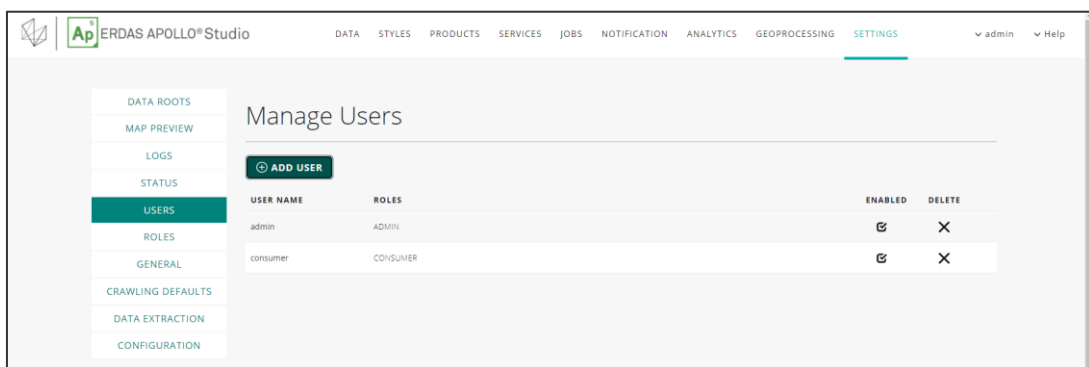
Image Chain is a new core rendering path used for raster data types. Previously available under ERDAS APOLLO Core only, this engine has been migrated and is now the default for all ERDAS APOLLO 2023 raster users and results in identical display output as in ERDAS IMAGINE.

Integration and exposure of the underlying models are done via SLD/SE VendorExtensions and where possible, the base SE RasterSymbolizer support is mapped automatically. This ensures previous styles will still function in the new version and can be uploaded as new SLD documents into the new version. The output will now produce higher quality across all raster bit-depth types due to the advanced Image Chain engine used. Multiple Image Chain models are supplied to support different raster types, and the default simple model will in most cases produce sufficient default options. Greater control can be supplied by assigning a more detailed Image Chain model.

As in previous releases, Image Chain-enabled layers optionally enable client-side control of underlying model parameters. A default implementation is provided by Catalog Explorer.

## Security model

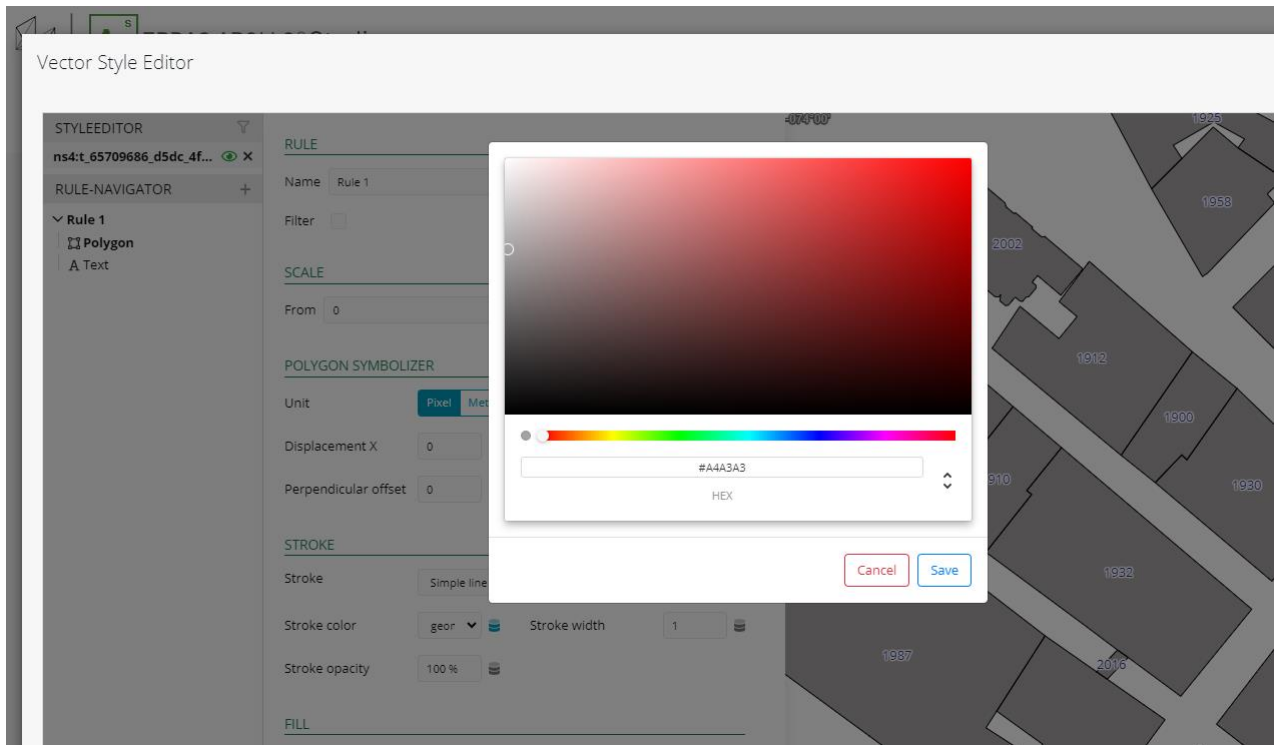
The security model has been reimplemented and redesigned to account for the new foundation. Security can be configured via internal or external (OpenID) providers. The internal provider is based on a definition of users and roles much like ERDAS APOLLO 2022 used. However, the external provider is a modernized and consolidated framework that allows users to build LDAP, Windows Auth or OAuth using the same framework, thus making security more consistently applied across all catalog items.



## Studio

The previously available ERDAS APOLLO Studio has been further enhanced with several additional components to expose the plethora of new capabilities provided in this release, such as folders, security, custom metadata parsers, vector styling editor and geoprocessing.

The new vector rendering engine is based on SLD/SE and the new visual editor enables rapid creation of style definition documents without writing XML. The editor will be familiar to those who have used M.App Enterprise as we are now sharing the same component.



## Raster Styling Editor

The Image Chain Editor now exposes a simplified view of the underlying Image Chain models used to portray raster data types. Defaults provide high-quality scaled output; however, Administrators (and optionally users) can override these values.

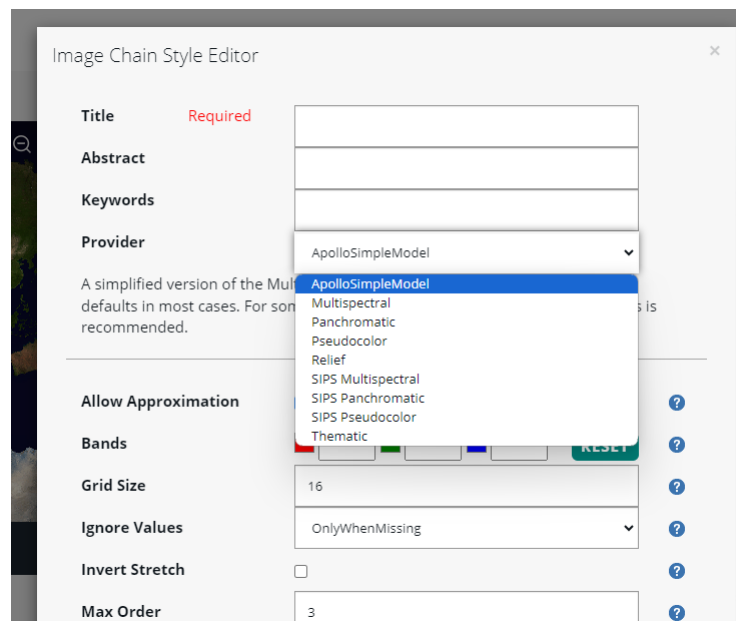
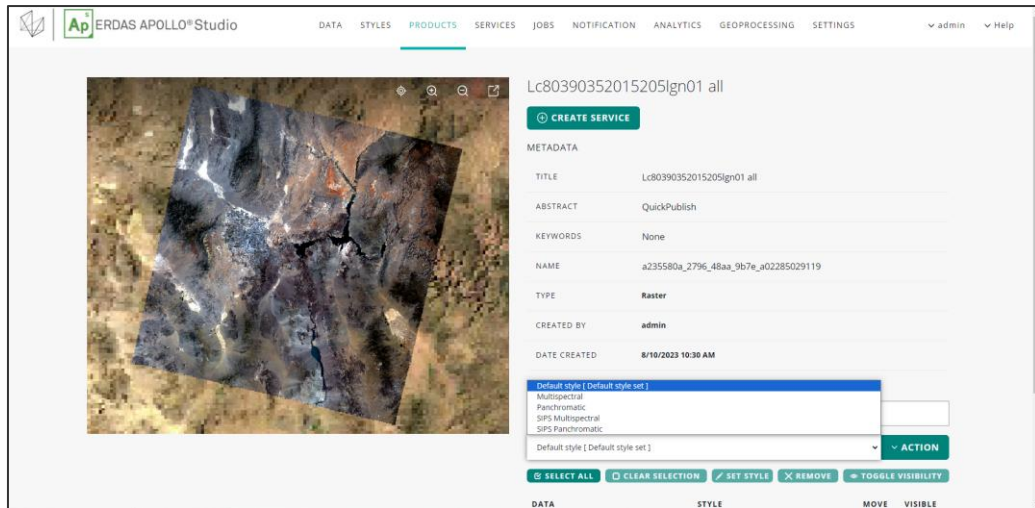


Image Chain portrayal has been integrated via SLD/SE VendorExtensions unique to ERDAS APOLLO.



## Multiple style sets

ERDAS APOLLO Studio now supports the new method of assigning a collection of styles to a collection of datasets known as a Product. Style sets enable the previous ability to define multiple styles via the related mapping service types.



## Catalog Explorer

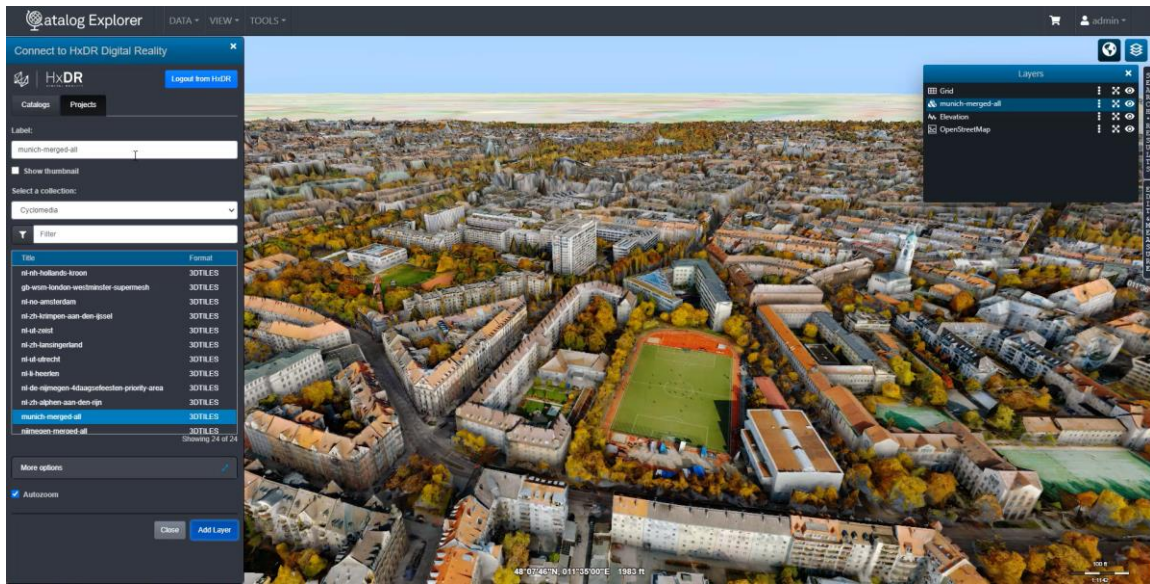
Catalog Explorer continues its position as a robust exhaustive web-based exploitation client based on the LuciadRIA platform. Although Catalog Explorer has been around since version 2020, we have continued to enhance it with capabilities consistent with other ERDAS APOLLO enhancements and other customer requests. The client remains the general purpose end-user client. For users with customer-specific customization needs, evaluating their own custom Hexagon LuciadRIA client is recommended.

## Availability

Catalog Explorer is no longer available as a separate installer and is now a component in the main installer only. The forced dependency on maintaining an ERDAS APOLLO Catalog connection has been removed and the client can now be deployed on a separate machine to the main installation.

## HxDR integration

Hexagon's new [HxDR platform](#) now seamlessly integrates as a new service provider inside Catalog Explorer. Benefit from both cloud-hosted HxDR with on-premises data archives with ERDAS APOLLO for high-quality digital cityscapes and more.



## OGC compliance

In previous releases, Catalog Explorer has been equipped with the capability to execute geospatial processes located in the geoprocessing component of ERDAS APOLLO. This is accomplished by utilizing the exposed OGC API – Processes interface. By utilizing a standard interface, it allows the client to be used to access other third-party geoprocessing services as well.

For this release, we have also updated the query capabilities to search catalogs using the OGC API – Records interface. Not only does this allow us to access the new ERDAS APOLLO 2023 catalog, but it also allows us to query other catalogs that have been exposed as a standard OGC interface.

## Feature extrusion

Utilize feature attributes from various vector data sources to define extrusion heights to define a 2.5-dimensional model. This capability can be done in a way that handles negative heights to show underground depths or as buildings that will always be placed on the ground.



### OGC API features, maps and tiles

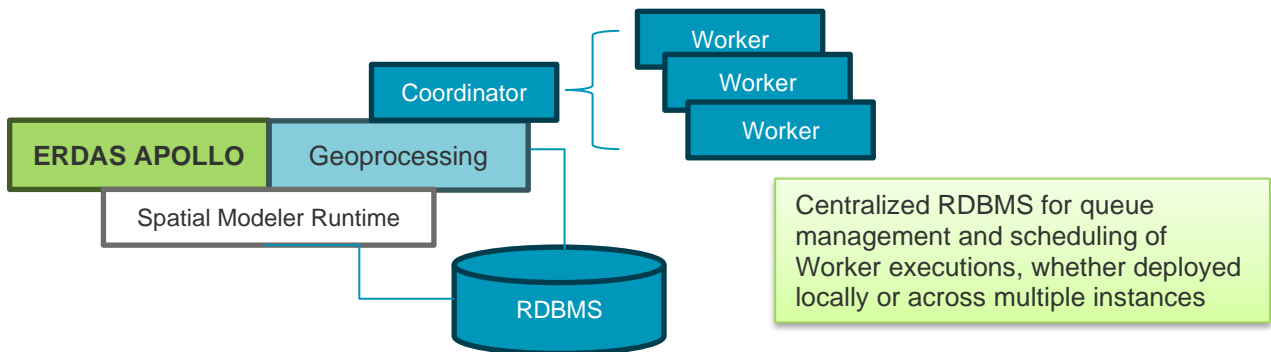
As already mentioned, OGC is in the process of overhauling its standards to expose data as RESTful JSON services. Although the ERDAS APOLLO server has not yet implemented the ability to expose these types of services, the Catalog Explorer client is ready and can already connect to these new JSON-based services for features, maps and tiles.

### Panoramic photosphere support

This release supports the display of spherical imagery captured from terrestrial sensors such as Hexagon's [Leica Geosystems Pegasus](#) sensor type. Full immersion is achieved within an integrated map. Traversal across capture points including zooming, panning and measurement is also supported.



## Geoprocessing Server



The modernized Geoprocessing Server was first introduced in v2022; however, it has undergone further foundational changes including the following:

### Migration to Tomcat

Consistent with the other ERDAS APOLLO platform changes, the Geoprocessing Server is no longer deployed as standalone Windows services for the Coordinator or Worker instances and will now be deployed within the provided, shared Apache Tomcat application container.

This change still provides the ability to deploy across multiple instances for horizontal execution of processes while coordinating the queue remotely from a central instance.

### MongoDB deprecation

The previous release required ERDAS APOLLO Professional customers to deploy a MongoDB instance to service the Geoprocessing capabilities for queue management purposes. This requirement has been removed and Geoprocessing now supports the same RDBMS Database options as ERDAS APOLLO, simplifying deployment.

### OpenAPI upgrade

The REST API has been updated to the OASv3.0.

### Security updates

A substantial effort has been made to optimize the deployed footprint of Geoprocessing Workers, improving security and improving the startup time of each executor.

# System requirements: ERDAS APOLLO

	ERDAS APOLLO Core	ERDAS APOLLO
Computer/processor	Intel or AMD x86 quad-core processor with a clock speed of 2.0 GHz or higher	
Memory (RAM)	16 GB or more strongly recommended	
Server disk space	5 GB for application footprint, 10GB at a minimum for application cache	
Peripherals	Gigabit Ethernet	
Server operating systems	<ul style="list-style-type: none"> <li>Windows Server 2019</li> <li>Windows Server 2022</li> <li>Red Hat Enterprise Linux 8.x (and compatible systems)</li> </ul>	<ul style="list-style-type: none"> <li>Windows Server 2019</li> <li>Windows Server 2022</li> </ul>
Cloud environments	Amazon Elastic Cloud Compute (EC2), Azure Virtual Machines	
Software	Java LTS versions 11 and 17 are supported and recommended	
Licensing	Geospatial Licensing Administrator 2023 with 16.8 feature code versions configured	
Application servers	Microsoft IIS 10 or higher (Windows) Apache 2.4 or higher (Linux)	Tomcat 10.0 (embedded in installer)
Databases	<ul style="list-style-type: none"> <li>Oracle Database 19c, Standard or Enterprise Edition               <ul style="list-style-type: none"> <li>12c and 18c versions are viable</li> </ul> </li> <li>Microsoft SQL Server 2022 Standard or Enterprise Edition               <ul style="list-style-type: none"> <li>2016, 2017, and 2019 versions are viable</li> </ul> </li> <li>PostgreSQL version 13 - 15, with PostGIS 3.2 – 3.4</li> <li>SQLite (ERDAS APOLLO Core only)</li> </ul>	
Admin tools	ERDAS APOLLO Core Console	ERDAS APOLLO Studio
Compatible client applications	<ul style="list-style-type: none"> <li>Catalog Explorer 2023</li> <li>GeoMedia 2023</li> <li>ERDAS IMAGINE 2023</li> <li>GeoCompressor 2023</li> <li>Any OGC-compliant WMS, WFS, WMTS, WCS, CSW, OGC API - Processes compliant client applications</li> </ul>	

# Migration guide

Due to the significant changes, please read carefully.

## ERDAS APOLLO Core v2022 to ERDAS APOLLO Core v2023

Upgrading from v2022 to v2023 with the ERDAS APOLLO Core installer follows previously established upgrade patterns where the previous version should be uninstalled, configuration kept when prompted and the new 2023 version deployed. An in-place upgrade of the configuration and database will be performed.

Please refer to the [user guide](#) for more information and ensure appropriate backups are taken.

## ERDAS APOLLO Core v2022 to ERDAS APOLLO v2023

Existing imagery-based customers who have deployed using the previous ERDAS APOLLO Core/Essentials installer but are interested in the new capabilities must recreate their raster services.

This process is manual; however, in most cases a significant portion of the data archive can be re-added using the new Data Root functionality and then re-mapping to the published service types.

The two offerings can be deployed side by side; however, we recommend a separate installation to enable a simpler comparison and deployment. Due to the number of features now available at the Essentials tier, we expect some customers to explore this option, especially those looking to take advantage of the expanded capabilities outside of just traditional raster at the Essentials level.

## ERDAS APOLLO Advantage/Professional to ERDAS APOLLO

For existing customers using the Advantage/Professional installer, the new 2023 version does not contain a one-click migration tool or upgrade pathway.

This limitation will be addressed through a Migration utility made available shortly after release, but it will not guarantee feature parity. The tool will attempt to bring over folders, catalog records, mappable properties, free metadata, queryables and attachments. Any service will need to be recreated.

Please contact your Hexagon representative regarding availability and requirements for the data migration tool.

## Known limitations

This release has changed the foundations of ERDAS APOLLO through necessary technical modernizations. While this offers significant improvements, it also presents challenges for existing customers to migrate and does not guarantee functional feature parity.

While we are confident this release provides substantial value to all customers, new and existing, the latter group should carefully review the following known limitations and contact Hexagon support to find out more. In many cases these limitations are not permanent and are planned to be reintroduced during the v2023 release cycle.

Limitations in v2023	Comment
AWS S3 crawling not supported	Will be reinstated in a v2023 update
Clustering of multiple ERDAS APOLLO instances in an active-active cluster is not supported.	<p>Will be reinstated in a v2023 update. For most customers with high-performance demands, we are confident the new release already provides performance improvements from previous releases.</p> <p>Geoprocessing, Catalog Explorer can still be deployed separately from ERDAS APOLLO for a distributed deployment option.</p>
The ability to create custom properties on which to search, previously known as queryables	Will be reinstated in a v2023 update
GeoMedia vector styles will no longer function.	GeoMedia vector styles should be exported to SLD and then can be reassigned to existing vector sources. This will not be a lossless conversion, so expect Map output to differ due to the Luciad vector rendering differences.
Previous ERDAS APOLLO raster styles will produce different output.	Due to the Image Chain engine, this is expected even if all SLD contents remain identical.
The ability to crawl third-party OGC services, including other OGC CSW instances, is no longer supported.	Catalog Explorer is designed to support aggregated catalog search results from multiple end points, as well as directly connect to other third-party OGC services.
Metadata parser support is reduced when compared to previous release.	Modernization effort continues to balance previous support with new sensor types and metadata formats. Refer to earlier table for support matrix for details.

## Issues resolved

Support ticket	Summary
00078005	Projection EPSG:3111 not detected on Linux – IW-7407
00076271	Scale hint can cause WMS Exceptions to be thrown when out of range – IW-7400
00076271	Application pool shuts down frequently when insufficient memory assigned – IW-7354
00145864	Recurring logback errors seen in the log – AP-12244
00145864	Failed jobs should contain more information – AP-12238
00145864	Unable to crawl version 2018 DWG files – AP-12235
00125175	Observed server instability when crawling example customer data – AP-12231
00131276	Long folder names are overflowing the Studio UI – AP-12225
00131276	Studio Folder client view can get out of sync with the server hierarchy – AP-12224
00131267	Studio Folder view sometimes show indefinite “loading..” prompt – AP-12223
00131231	Catalog Explorer Oracle DB Schema definition error – AP-12222
00130588	Health check endpoints can perform poorly – AP-12219
00128014	Catalog Explorer is unable to render WFS in native feature geometry in some circumstances – AP-12213
00128561	Crawling file extension filtering can get out of sync with selected option – AP-12208
00128019	Unable to crawl or decode customer NetCDF files – AP-12205
00128019	Unable to set a crawl schedule to monthly without triggering server-side errors – AP-12204
00127234	Job reporting summary in Studio does not report all contextual information – AP-12203
00127234	Projection offset issue seen with EPSG:2039 – AP-12195
00127234	Unable to public a custom GMDX model with dependency on Block Model operators – AP-12191
00117748	Projection accuracy issue with EPSG:3003 from PostgreSQL source – AP-12190
00117748	Catalog Explorer unable to display WFS delivered as EPSG:5678
00113798	Projection accuracy issue with EPSG:2039



00113798	Time required to delete an aggregate with thousands of children files is too slow – AP-12166
00099578	Studio fails to display data details unless acquisitionDate field is entered – AP-12146
00096644	Download requests could include an unexpected number of included results – AP-12143
00086757	Projection support added for EPSG:931901 KUDAMS/KTM
00080682	Unable to publish Gokturk-1 PM_GKT_GGS*.XML data types without error – AP-12087
00077507	ECW files with EPSG:3111 definitions failed to resolve CRS correctly – AP-12069
00077507	Unable to retrieve the expected original Metadata attachments on data entries – AP-12049
00069951	Removing principal/role does not cascade to child entries as expected – AP-12025
00069951	Crawling Pleiades DiMAP-2 XML scenes was erroneously labelling data as the Gokturk format type – AP-12013
00061964	Crawled shapefile data would omit Temporal Extent values from Metadata – AP-11999
00023578	Deleting aggregate with dropbox entries is not removing all entries as expected – AP-11724
00023572	Unable to crawl DTED data covering 90 degrees south – AP-11720
00023513	Changing base onlineResource URI or protocol is not updated all references in the service GetCapabilities – AP-11658

## About Hexagon

Hexagon is the global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon's Safety, Infrastructure & Geospatial division improves the resilience and sustainability of the world's critical services and infrastructure. Our solutions turn complex data about people, places and assets into meaningful information and capabilities for better, faster decision-making in public safety, utilities, defense, transportation and government.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,000 employees in 50 countries and net sales of approximately 5.2bn EUR. Learn more at [hexagon.com](https://hexagon.com) and follow us [@HexagonAB](https://twitter.com/HexagonAB).

## Copyright

© 2023 Hexagon AB and/or its subsidiaries and affiliates. All rights reserved. All other trademarks or service marks used herein are property of their respective owners.

Warning: The product made the subject of this documentation, including the computer program, icons, graphical symbols, file formats, audio-visual displays and documentation (including this documentation) (collectively, the “Subject Product”) may be used only as permitted under the applicable software license agreement, and subject to all limitations and terms applicable to use of the Subject Product therein. The Subject Product contains confidential and proprietary information of Intergraph Corporation, a member of the Hexagon Group of companies (“Hexagon”), its affiliates, and/or third parties. As such, the Subject Product is protected by patent, trademark, copyright and/or trade secret law and may not be transferred, assigned, provided, or otherwise made available to any third party in violation of applicable terms and conditions cited further below.

## Terms of Use

By installing, copying, downloading, accessing, viewing, or otherwise using the Subject Product, you agree to be bound by the terms of the EULA found here: [https://legaldocs.hexagon.com/sig/Licenses/EULA\\_SA\\_SIG-Eng\\_062023.pdf](https://legaldocs.hexagon.com/sig/Licenses/EULA_SA_SIG-Eng_062023.pdf).

## Disclaimers

Hexagon and its suppliers believe the information in this publication is accurate as of its publication date. Hexagon is not responsible for any error that may appear in this document. The information and the software discussed in this document are subject to change without notice.

Language Translation Disclaimer: The official version of the Documentation is in English. Any translation of this document into a language other than English is not an official version and has been provided for convenience only. Some portions of a translation may have been created using machine translation. Any translation is provided “as is.” Any discrepancies or differences occurring in a translation versus the official English version are not binding and have no legal effect for compliance or enforcement purposes. Hexagon disclaims any and all warranties, whether express or implied, as to the accuracy of any translation.

Reasonable efforts have been made to provide an accurate translation; however, no translation, whether automated or provided by human translators is perfect. If any questions arise related to the accuracy of the information contained in a translated version of Documentation, please refer to its official English version. Additionally, some text, graphics, PDF documents, and/or other accompanying material may not have been translated.

## Links To Third Party Websites

This Document may provide links to third party websites for your convenience and information. Third party websites will be governed by their own terms and conditions. Hexagon does not endorse companies or products to which it links.

Third party websites are owned and operated by independent parties over which Hexagon has no control. Hexagon shall not have any liability resulting from your use of the third party website. Any link you make to or from the third party website will be at your own risk and any information you share with the third party website will be subject to the terms of the third party website, including those relating to confidentiality, data privacy, and security.

Hexagon provides access to Hexagon international data and, therefore, may contain references or cross references to Hexagon products, programs and services that are not announced in your country. These references do not imply that Hexagon intends to announce such products, programs or services in your country.

### Revisions

Hexagon reserves the right to revise these Terms at any time. You are responsible for regularly reviewing these Terms. Your continued use of this Document after the effective date of such changes constitutes your acceptance of and agreement to such changes.

### Questions

[Contact us](#) with any questions regarding these Terms.