



Release guide

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## **Release guide**

ERDAS APOLLO 2023 Update 1

Version 16.8.1

13 December 2023

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## About this release

ERDAS APOLLO 2023 was the culmination of the largest product modernization effort in over 10 years, building on the LuciadFusion platform while migrating or rebuilding key functionalities from previous ERDAS APOLLO releases. ERDAS APOLLO 2023 Update 1 builds on the substantial initial release version by making further improvements and bug fixes based on the significant interest in adopting v2023 and feedback already received. The team will continue to aim for quarterly updates, and migrating between v2023 versions will be trivial.

As part of this release cycle, we will also be delivering the Migration Tool that can be used to assist in the migration of ERDAS APOLLO 2022 Update 2 to ERDAS APOLLO 2023 Update 1. This will not be part of the standard installation package but will be made available on request.

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.

This release is a full release and will require the old version of ERDAS APOLLO 2023 (if applicable) to be removed prior to loading the ERDAS APOLLO 2023 Update 1 release. However, you can point the new version to an existing catalog database.

## 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, secure repository while enabling simple distribution through interoperable web services.

ERDAS APOLLO also alleviates pressures associated with optimizing spatial data archive storage requirements using 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. In v2023, the Data Extraction Service builds on the Geoprocessing execution model to provide expanded capabilities and is no longer limited to just the raster domain.

## New platforms: ERDAS APOLLO 2023

### Miscellaneous

Numerous platform and dependency updates to resolve vulnerabilities announced since the initial release

Dependency	v2023	v2023 Update 1	Upgrade addresses/Comments
Apache Tomcat	10.0.27	9.0.83	EOL reached, downgrade required due to dependency requirements. No functional changes for users
JSON-java	20230618	20231013	CVE-2023-5072
Netty Project	4.1.86		CVE-2023-44487
Axios	1.4.0	1.6.1	CVE-2023-45857
Dom4j	2.1.3	2.1.4	CVE-2020-10683
Hibernate-core	5.2.18	<i>Deprecated</i>	CVE-2020-25638
Org.JSON-java	20220924	20231013	CVE-2023-5072
Apache ActiveMQ Client and Server	5.17	5.18.3	CVE-2023-46604
Apache Tomcat Native Library	2.0.1	2.0.6	CVE-2022-3602, CVE-2022-3786
OpenSSL	3.0.5	3.0.11	CVE-2022-3786, CVE-2022-3602
libwebp	1.2.4	1.3.2	CVE-2023-4863
libjpeg-turbo	2.0.0	2.1.91	CVE-2020-17541
libhdf5	1.10.5	1.14.1	CVE-2020-18494, CVE-2022-26061, CVE-2022-25972, CVE-2022-25942
LuciadFusion	2023.0.4	2023.0.11	Miscellaneous platform bug fixes and updates
libcurl	8.1.1.2	8.4.0.1	
ECWJP2 SDK	6.1.0.1084	6.1.0.1206	Miscellaneous platform bug fixes and updates
HDF	4.2.13.33		
NetCDF		4.6.1.38	
Batik XML	1.16	1.17	CVE-2022-44729
Jetty Server	9.4.50.v20221201	<i>Deprecated</i>	CVE-2023-36478, CVE-2023-44487

# New technology: ERDAS APOLLO 2023

## Migration Tool

It's finally here! A new Migration Tool is now available to assist customers in transitioning from ERDAS APOLLO 2022 to ERDAS APOLLO 2023. The tool is designed to allow a user to connect to their existing 2022 version (this version must be ERDAS APOLLO 2022 Update 2) and the new 2023 version (this version must be ERDAS APOLLO 2023 Update 1) and perform a basic migration of all the catalog records. Some limitations will exist such as users, roles and services will not be migrated. Users and Roles must be defined prior to executing the Migration Tool so the proper mapping from old to new can be done as part of the tool guide.

You will not find this tool delivered in the ERDAS APOLLO 2023 installation package as not all users will need the Migration Tool. If you feel this tool would benefit you, please contact your regional Sales or Support teams to understand how to obtain the tool.

## ERDAS APOLLO Server

ERDAS APOLLO 2023 Update 1 builds upon the substantial initial release version by making further improvements and bug fixes based on the significant interest in adopting v2023 and feedback already received.

## Internationalization

As interest in ERDAS APOLLO 2023 has been overwhelming in all parts of the world, the need to provide our interfaces in different languages has become critical. In this release, we have provided language translations for APOLLO Studio. We have used an Azure Cognitive Services translator tool for translations, but we welcome any feedback regarding labels that may not have been translated correctly. Below is a list of languages currently supported. If your customer needs an additional language, please let us know.

- English
- Spanish
- Korean
- Portuguese
- Chinese
- Arabic
- French
- Dutch
- Russian
- German
- Italian
- Polish
- Turkish

As you can see from the image below, there are some labels that have still not been externalized, but these will be reviewed and updated in Update 2.



## Pyramids

Although the setting to inform the server whether to generate pyramids or not was present, ERDAS APOLLO 2023 was not able to create those pyramids. For this Update 1 release, APOLLO can now generate pyramids and will optionally create optimized pyramid files for improved performance.

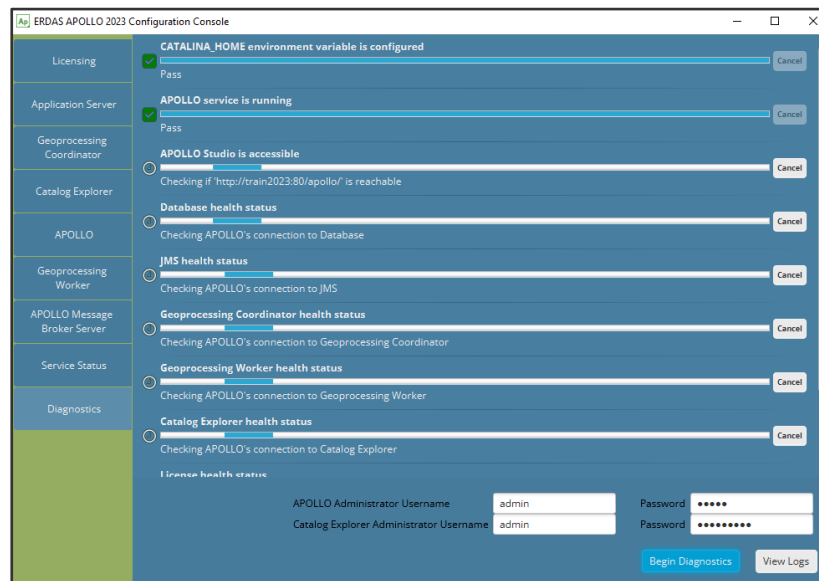
## Attachments

While discussing attachments with one of our regional colleagues, we discovered that some customers maintain many attachments, and some of those attachments can be quite large. In our initial implementation, we decided to store attachments directly in the database with the catalog record; however, with this revelation regarding many attachments and their sizes, only the thumbnail and metadata attachments are stored in the database. All other attachments will be stored by reference through an array of string values stored in a custom property.

## Configuration Console

In the initial release of ERDAS APOLLO 2023, we delivered a Configuration Console that contained a Diagnostics page. The page is used as a sanity check to see if things are configured correctly. In this Update 1 delivery, we have extended and improved diagnostics within the Configuration Console to catch more issues early to help give further clarity to customers when deployment is successful.





## Studio

Studio now enables further customization of the Map preview window to define custom CRS and restricts map bounds.

## New metadata parsers

In addition to the metadata parsers that we included in the initial ERDAS APOLLO 2023 release, we have now added DGAMP, GOKTURK1, Landsat7 and MAXAR. This completes the effort of bringing over existing metadata parsers from the 2022 version. The following table shows all the existing metadata parsers, but now we hope to begin to add new parsers to the product.

- ADS40
- DGAMP
- DiMAP-v2
- DMC Archive
- FMK Archive
- FRAME Incoming
- GOKTURK-1
- ISO 19139
- Landsat 7
- MAXAR
- QuickBird
- RADARSAT-2
- RMK TOP Archive

## Catalog dates

In the initial version ERDAS APOLLO 2023, we did create dates and store them in the catalog; however, there was a lot of inconsistency with what the catalog property represented and where to get the value. In ERDAS

APOLLO 2023 Update 1, we have made the dates much more consistent in both meaning and where they are stored. We can now represent the following date fields:

- Registration/Creation Date: This is the date when the catalog record was created.
- Modification/Modified Date: This is the date when the catalog record was last updated or changed.
- Acquisition Date: This is the date when the data was captured. The following table represents where the Acquisition Date is retrieved for each of the parser types when available.

Metadata parser	Acquisition Date source
DiMap-V2	Acquisition Date is based on dimapv2 metadata field: Top Center Time. Fixed bug where the wrong tag was being used to get the Top Center Time.
QuickBird	Acquisition Date is based on QuickBird metadata field: IMAGE 1.TLCTime
Radarsat-2	Acquisition Date is based on radarsat2 metadata field: rawDataStartTime
ADS40	PHOTO_DATE from sup file; however, flight start date from info file if info file is available
DMC Archive	PHOTO_DATE from sup file; otherwise, defaults to '1970-01-01T00:00:00Z,' which means it's not set
FMK Archive	PHOTO_DATE from sup file; otherwise, defaults to '1970-01-01T00:00:00Z,' which means it's not set
FRAME Incoming	Reads only a REP file, which has no dates in it
RMK TOP Archive	PHOTO_DATE from sup file; otherwise, defaults to '1970-01-01T00:00:00Z,' which means it's not set
ISO19139	In APOLLO 2022, when there is no acquisition date set, the catalog registration date is used to set the value. Will do the same in APOLLO 2023. If there is a metadata file, the identificationInfo → creationDate is used for the Acquisition Date.
Landsat 7	Acquisition Date is based on value of IMAGE_ATTRIBUTES.DATE_ACQUIRED
MAXAR	Acquisition Date is based on value of /isd/IMD/GENERATIONTIME
DGAMP	Acquisition Date is based on the value of /DMFMetadata/Management/RSDATE/date
Gokturk-1	Acquisition Date is based on the value of /ArchiveMetadata/CreationDate

## OGC API – Records

The initial release of ERDAS APOLLO 2023 used the OGC API – Records interface to define its query interface. This standard continues to evolve, and we are evolving with it. Update 1 contains an updated

implementation of the OGC API – Records interface to match the latest schemas defined within OGC. Updates to Catalog Explorer were also made to be compliant on the client side.

### S3 file support

ERDAS APOLLO 2023 Update 1 now provides introductory support for AWS S3 data. Reading datasets via S3 requires specialized format capabilities. The list of supported S3 formats is smaller than the full server support for this reason, so when considering S3 storage, please ensure the required format is listed.

APOLLO S3 Supporting Format Decoder	Type
AIXM	Vector
ARINC	Vector
DWG/DXF	Vector
BCI	Raster
BigTIFF	Raster
BIL	Raster
CGM	Symbology
CSV	Vector
DAFIF	Vector
DMEM/DTED	Raster
ETOPO	Vector
GDF	Vector
GeoJSON	Vector
GeoSPOT	Raster
KML/KMZ	Vector
LAS	Point cloud
Mapinfo MAP	Vector
NITF/NSIF	Raster
NVG	Vector
OGC 3dtiles	3D mesh
GML v2, v3	Vector
Openscenegraph OSGB	3D mesh
Pegasus	Panorama
S-57/S-63	Vector
Swiss DHM	Raster
USGS DEM	Raster

Although there are limitations in this support, we plan to build on this capability in future releases. Known limitations include:

- Restricted number of formats are supported when reading via S3. Refer to table above.

- Data root crawling jobs are not currently supported with S3:// prefix locations – only individual files can be added. This limitation will be addressed in the next update.
- S3 Raster format support bypasses ImageChain styling. This means default display and ImageChain styling is not supported when read from S3 source.
- Geoprocessing Server does not support reading or writing from S3 locations.
- Metadata parsers do not support S3 locations.

### Custom metadata and data decoders

Although the architecture of ERDAS APOLLO 2023 did not prevent the adding of custom metadata and data decoders, it was not possible for customers and partners to drop these into the production system due to obfuscation rules. Also, new documentation is being provided to assist users in creating their own custom parsers. This documentation will describe both how to build the parser, as well as how to drop it into the production system to make it appear as though it is part of the product.

### Miscellaneous

A substantial number of issues have been resolved that include external bugs, internal bugs and enhancements. Many of these items have come through the suggestions of our customers and partners.

- Performance: Various improvements, including caching, enable ingestion of data into the catalog more than two times faster than with the initial release.
- Queryables: In the past, all queryables must have been known at startup of APOLLO. Now we can dynamically create custom properties on which to search, previously known as queryables.
- New default user/role: APOLLO Studio Introduced a new Studio Manager user/role to be functionally equivalent with previous esp\_datamanager role in v2022 and earlier. During initial training of regional colleagues, we discovered some customers rely on a role that allows them to do things within Studio, but does not give them full control. The new Studio Manager user and role will allow the user to log in to Studio and do all activities with the exception of modifying user and role definitions.

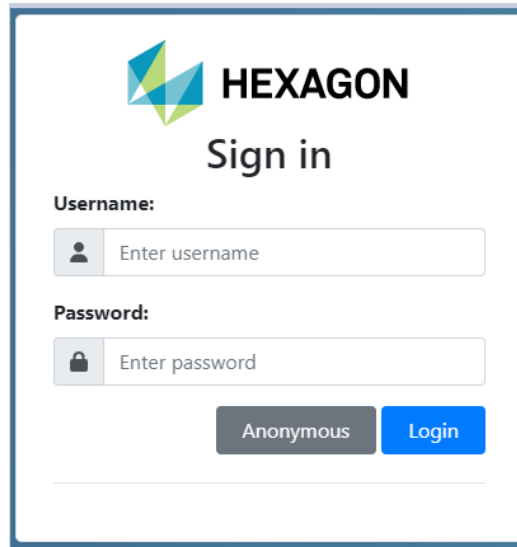
## Catalog Explorer

Catalog Explorer continues as a robust exhaustive web-based exploitation client based on the LuciadRIA platform. We have continued to enhance it with capabilities consistent with other ERDAS APOLLO enhancements and other customer requests.

### Anonymous users

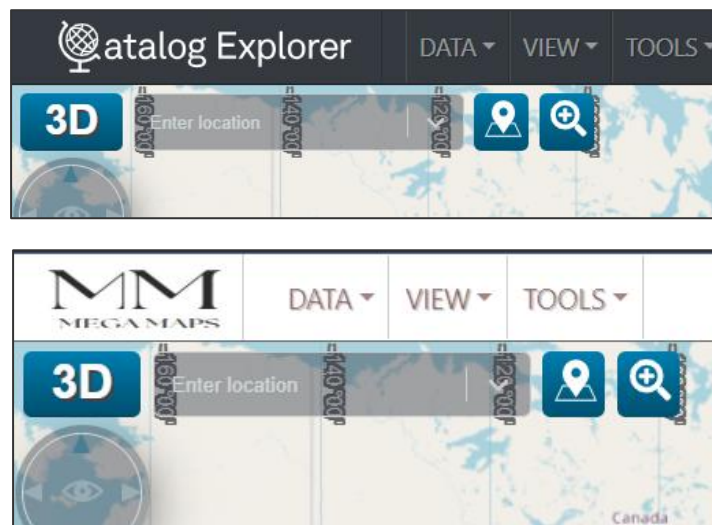
Catalog Explorer now supports an anonymous user, enabling a zero-login feature suited for public access deployments while still enabling access to APOLLO data sources. An anonymous user will be delivered by default, but it will be disabled initially. Once an administrator enables this user, anonymous access can be achieved using one of two options:

- Anonymous endpoint: Provided through the same Catalog Explorer endpoint with the anonymous element appended as `http://<servername>/catalogexplorer/anonymous`.
- Anonymous button: On the login dialog, an “Anonymous” will appear if the anonymous user has been enabled. The user can simply click the “Anonymous” button (without adding any other credentials) to login and begin using Catalog Explorer.



### User branding

Some users have requested the ability to make Catalog Explorer look like it belongs to the customer – especially for public-facing websites. We have not provided a way for the user to configure Catalog Explorer to use a custom logo, as well as changing the color scheme of the title bar. The logo can be changed simply by browsing to logo location and setting the path in the administration panel. Color schemes can be changed by using an example CSS file provided in the Catalog Explorer User Guide and modifying the various color pallets provided.



### Customization Extensions

Catalog Explorer Custom Extensions allow users to customize and extend new functionalities by building on top of the product's existing capabilities. By using Custom Extensions, the user can trigger actions defined by a developer in response to events occurring in Catalog Explorer. To make use of custom extensions, the developer has to create a JavaScript file and CSS file where the custom code is found. The Custom Extension profile can be limited to a set of users by assigning the profile to a user.

Admin Dashboard Users Roles Workspaces Catalogs Settings admin

### Assign Custom Extension to a Profile

Table Filter

ID	Name	Description	Type	OWNER ID	CREATED	MODIFIED	Actions
2673	Sample	abcd	Local	16	1970/01/01 01:00:00	2023/04/27 17:30:42	[Icons]
2674	CDN at mylocalhost	My LocalHost	CDN	16	1970/01/01 01:00:00	2023/04/27 19:13:31	[Icons]
2816	test.cdn	For test	CDN	16	2023/04/27 20:50:35	2023/04/27 20:50:35	[Icons]
3381	test1	test1	Local	16	2023/10/03 15:38:11	2023/10/03 15:39:13	[Icons]
3481	Use NodeJS ServerApp		CDN	16	2023/10/14 17:43:16	2023/10/14 17:43:16	[Icons]

Showing 5 row(s) of a total of 5

There are a number of hooks and events by which to code against. For a complete list of these hooks, please see the Catalog Explorer User Guide, Appendix C.

### ECWP support

Issues found with ECWP within Catalog Explorer have now been resolved. Catalog Explorer will now work when strict browser requirements are met.

### Database updates

Database scripts for Oracle, MS SQL Server and Postgres have been provided to support and correct invalid sequence values for table ID fields. The database scripts are only for customers that have an existing Catalog Explorer database that was created with the initial APOLLO 2023 release. APOLLO 2023 Update 1 upgraded sequence generators for each table instead of using one global sequence generator. Without these scripts, Catalog Explorer (with an existing database) may not start due to a duplicate sequence error. Contact your Support personnel if you need these scripts.

## ERDAS APOLLO Core

ERDAS APOLLO 2023 Update 1 release will also include a new version of the Core product. Although this release of ERDAS APOLLO Core is primarily a fixes release, it also includes several substantial changes. Please see the Issues Resolved section below for details regarding customer tickets addressed.

- Several library upgrades to address security vulnerabilities
  - libjpeg-turbo, libhdf5 and libwebp,
- Documentation on how to configure security and IAM roles when adding buckets using the native S3 ECW decoder
- Ability to add a folder with a mix of ECW and TIFFS using the ECW S3 native decoder and no prefix
- The configuration of S3 credentials is now set in the configuration console and has been simplified. We no longer support environment variables for configuration.
- Fixed an issue where a service could show as corrupt in the console when the path contained non-ascii characters
- Various other bug fixes and optimizations

# 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, 10 GB 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 9.0.83 (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 and 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 readded using the new Data Root functionality and then remapping to the published service types.

The two options 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 on the Essentials tier, we expect some customers to explore this option, especially those looking to take advantage of the expanded capabilities outside the traditional raster at the Essentials level.

## ERDAS APOLLO Advantage/Professional to ERDAS APOLLO

A Migration Tool is now available to assist in the migration from ERDAS APOLLO 2022 to this release. Before beginning the migration, you must be on ERDAS APOLLO 2022 Update 2, and you must be migrating to an instance of ERDAS APOLLO 2023 Update 1. You will need to ensure you have all the necessary roles defined in your 2023 version to properly map your 2022 system. This Migration Tool will not be delivered with the product itself, but rather it is available upon request.

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



## Known limitations

This release continues to change 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 new and existing customers, 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 folder crawling not supported (file crawling is now supported)	This will be reinstated in a v2023 update.
Clustering of multiple ERDAS APOLLO instances in an active-active cluster is not supported	<p>This 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 as a distributed deployment option.</p>
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 connecting to other third-party OGC services. Crawling OGC services other than CSW should be available in Update 2.

## Issues resolved

Support ticket	Summary
00192644	Unable to update JVM location after installing newer (other) JVM version – TR-1649
00186884 00196628	Unable to use SSL/TLS secured SMTP server (smtps) – TR-1581
00186750	XML metadata file missing when downloading business document as zipped package – TR-1580
00186827	Cannot download bundled business documents – TR-1579
00185108	Apollo 2023: No thumbnail shown in Catalog Explorer – TR-1547
00185080	Catalog Explorer: Select all buttons in the shopping cart and select items on the first page only – TR-1545
00187800 00190701	Add coverage for database vectors – TR-1508
00182195	JPG file with JGW world file not being detected as geospatial type – TR-1491
00187684	Implement initial S3 support – TR-1027
00169232	Apply Apollo Essential Lookup Table Style via Web API – IW-7540
00180338 00182481	Issue with corrupted service in Core Console – IW-7539
00175291	Batch update of APOLLO-Catalog is causing frequent Essentials application pool crashes – IW-7537
00166713	Rebuild GDAL with netCDF4 (v4.6.1) support – IW-7529
00146191	Permission issues when using on Amazon S3 – IW-7496
00136114	Intermittent image render error with a specific ECW file requested in high resolution – IW-7489
00123949	Apollo Essential 2022u1 server crashed under load (amazon s3) – IW-7476
00108000	Unable to add imagery using Native S3 decoder – IW-7466
00092254	Documentation incorrectly mentions HSPC support through ECWP – IW-7434

## 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).

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