



**HEXAGON**

Release guide  
LuciadFusion 2023.0

---

# Release guide

LuciadFusion 2023.0

6 June 2023

## Contents

<b>About this release</b> .....	3
<b>Benefits of new features</b> .....	4
Rest assured with LuciadFusion .....	4
Articles to get you started .....	4
Support for WMS and WMTS named styles.....	5
Articles to get you started .....	5
Minimum supported Java version .....	5
Articles to get you started .....	5
Obfuscation of your deployed application is now optional .....	6
Articles to get you started .....	6
Security upgrades.....	7
Improvements for customers in the maritime domain .....	7
Articles to get you started.....	8
Other improvements.....	8
<b>About Hexagon</b> .....	9

# About this release

This 2023.0 release of LuciadFusion features access control for protecting sensitive data. Moreover, it adds support for WMS and WMTS named styles. Additional Military Layers (AML) version 3 data can now also be decoded and correctly visualized according to STANAG 7170. Finally, this release includes important security upgrades and bundles a rich set of smaller enhancements, all based on your feedback.

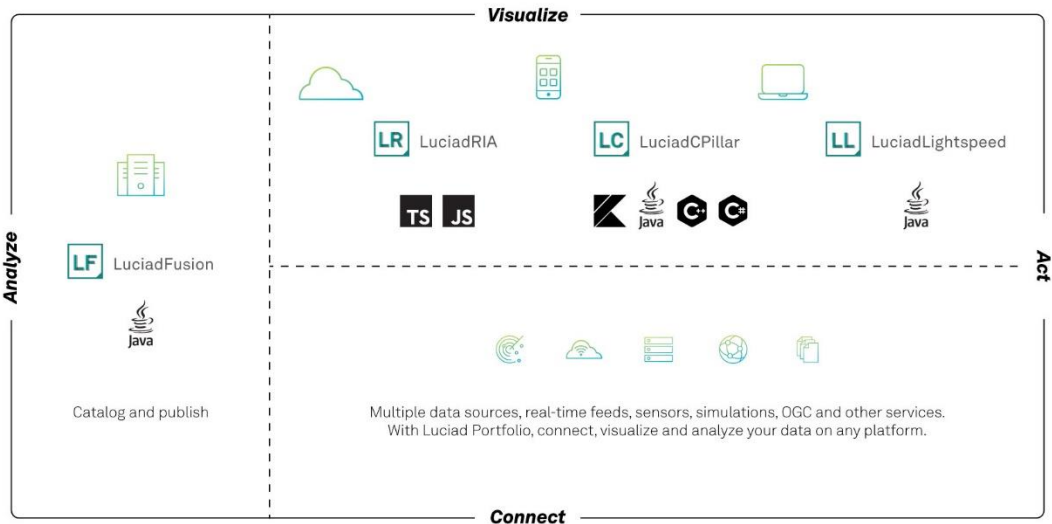


Figure 1: The Luciad portfolio

# Benefits of new features

## Rest assured with LuciadFusion

The main goal of LuciadFusion is to make managing and serving geospatial data easy. End users can easily access and readily visualize data served by LuciadFusion in 2D and 3D on clients running OGC-compatible applications. If your geospatial data is sensitive, you can now use access control to restrict access to geospatial data published by LuciadFusion services.

You can now configure access to data resources by granting permissions to a role for a data resource. Available permissions are read, update, delete and manage. Permissions for products will be derived from the data resources contained in a product. A user can always access a service, but it will only offer products that a user can access. For example, the service capabilities request will only advertise the data layers the requester can access.

Figure 2 illustrates the concepts of data source, product and service and their relationship.



Figure 2: The concepts of data source, product and service and their relationship

## Articles to get you started

The new article “Access Control in LuciadFusion” summarizes the new capability (See Figure 3).

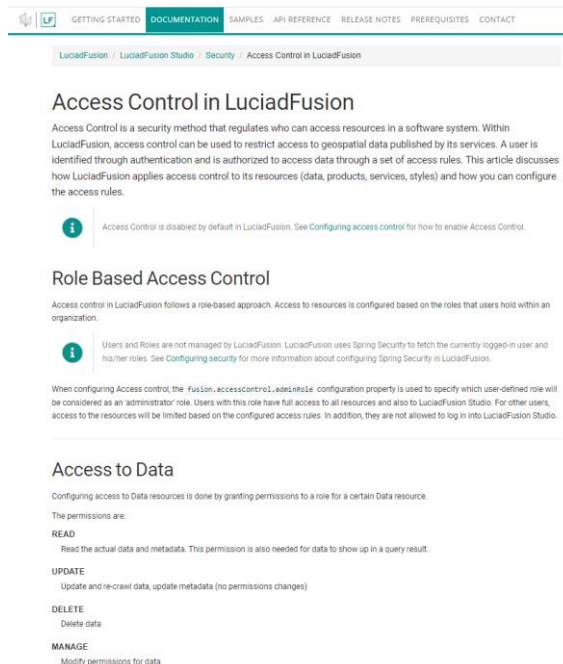


Figure 3: A new article titled “Access Control in LuciadFusion” has been added to the release.

## Support for WMS and WMTS named styles

The OGC specifications for WMS and WMTS allow for “named styles” or “server-advertised styles.” The client can choose to have the requested WMS or WMTS map returned from the service in either style.

The LuciadFusion WMS Java API already offered support for named styles<sup>1</sup>. Now this is supported in the LuciadFusion platform and available via the REST API, for both the WMS and WMTS protocols.

After a style has been added using the REST API (including metadata properties like name, title, abstract, etc.), it will be advertised via the WMS or WMTS capabilities and is available for use within requests to the service.

### Articles to get you started

REST API documentation has been extended to reflect these new capabilities.

## Minimum supported Java version

The LuciadFusion 2023.x releases will be the last releases supporting Java 8. For the LuciadFusion 2024 releases, the minimum version will be Java 17. We will continue to support both the Oracle JDK and OpenJDK.

Going forward we aim to support the latest Java LTS version in our latest releases. The minimum JDK/JRE requirements will never change with a minor upgrade (an upgrade from 2022.0 to 2022.1, for instance) or with a patch release of LuciadFusion.

This also applies to LuciadLightspeed.

If you have any questions or feedback, please contact the Luciad Product Management team at [product.management.luciad.gsp@hexagon.com](mailto:product.management.luciad.gsp@hexagon.com).

### Articles to get you started

“Hardware and software requirements” documentation includes a new section that describes our policy and includes an overview of the supported Java versions for the various LuciadFusion product versions.

#### Java

As a Java API, LuciadLightspeed requires a JDK for development and a JRE for deployment.

Table 1, “Supported Java versions” gives an overview of the supported Java versions.

Luciad aims to support the latest Java LTS version in its latest releases. The minimum JDK/JRE requirements never change with a minor upgrade (an upgrade from 2022.0 to 2022.1, for instance) or a patch release of LuciadLightspeed.

Table 1. Supported Java versions

	OracleJDK	OpenJDK
LuciadLightspeed 2017 and earlier	8	not supported
LuciadLightspeed 2018 <sup>[1]</sup>	8, 11	11
LuciadLightspeed 2019	8, 11	11
LuciadLightspeed 2020	8, 11	11
LuciadLightspeed 2021 <sup>[2]</sup>	8, 11, 17	11, 17
LuciadLightspeed 2022	8, 11, 17	11, 17
LuciadLightspeed 2023	8, 11, 17	11, 17
LuciadLightspeed 2024 <sup>[3]</sup>	17, 21	17, 21

1. As of 2018. 1
2. As of 2021. 1
3. Expected in 2024, actual supported versions can still change



For users of Mac computers with Apple silicon

Even though you're using an ARM-based processor, download and install a JDK for an x86 64-bit architecture instead of an ARM-based JDK.

**Figure 4:** The article “Hardware and software requirements” has been updated to reflect the new policy for Java supported versions.

<sup>1</sup> [https://dev.luciad.com/portal/productDocumentation/LuciadFusion/docs/articles/howto/wms/custom\\_styling.html?subcategory=lls\\_wms](https://dev.luciad.com/portal/productDocumentation/LuciadFusion/docs/articles/howto/wms/custom_styling.html?subcategory=lls_wms)

## Obfuscation of your deployed application is now optional

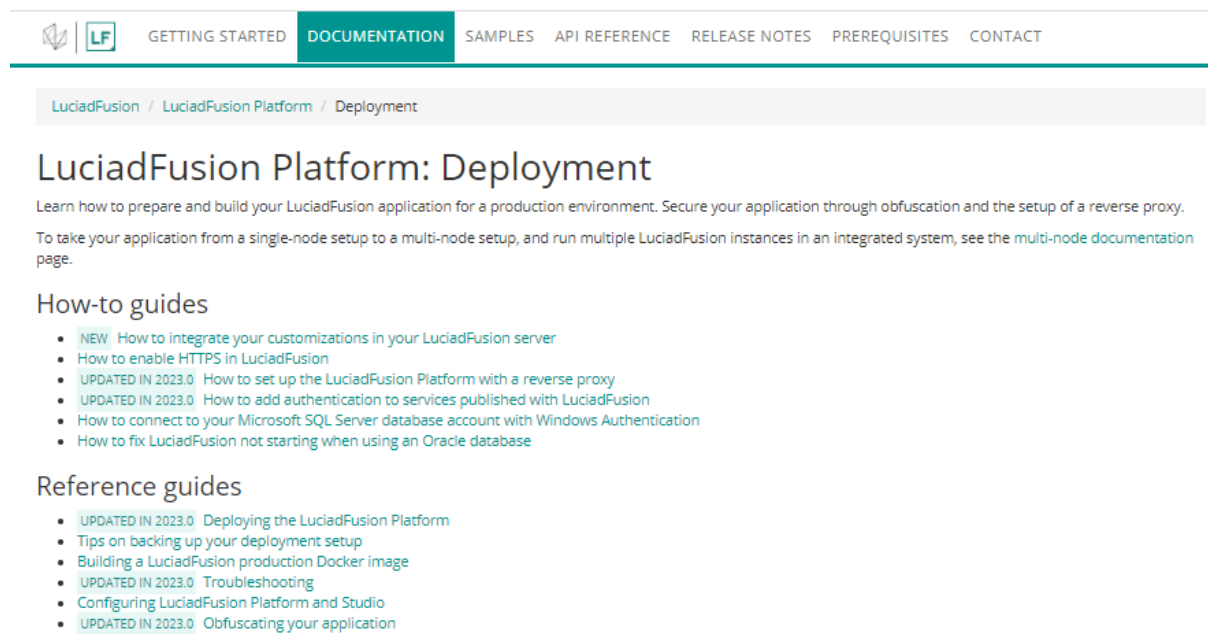
As a final step in developing a LuciadFusion application, you can obfuscate the code. This is an optional step that can bring several benefits for your application:

- Protection of source code from reverse engineering
- Reduction of application footprint. Obfuscated names are shorter and can significantly reduce the application footprint. Obfuscation programs, such as ProGuard, also allow for other optimizations. One example is “shrinking,” which removes unused byte code. This can also drastically reduce the application footprint.

As of June 2023, this obfuscation step is optional.

### Articles to get you started

The deployment instructions for LuciadFusion platform have been updated, as illustrated in Figure 5.



The screenshot shows the LuciadFusion documentation website. The navigation bar includes links for GETTING STARTED, DOCUMENTATION (highlighted), SAMPLES, API REFERENCE, RELEASE NOTES, PREREQUISITES, and CONTACT. The breadcrumb trail reads: LuciadFusion / LuciadFusion Platform / Deployment. The main heading is "LuciadFusion Platform: Deployment". Below the heading, there is introductory text and a link to multi-node documentation. Two sections, "How-to guides" and "Reference guides", each contain a list of links to specific articles, many of which are marked as "NEW" or "UPDATED IN 2023.0".


Figure 5: The deployment instructions for LuciadFusion are updated to reflect the changed obfuscation policy.

## Security upgrades

This 2023.0 release of LuciadFusion includes many security upgrades. The release notes provide full details on the upgraded, removed and added dependencies. This is illustrated in

Figure 66.

The Spring Boot dependencies of LuciadFusion have been upgraded from version 2.1 to version 2.7. This newer version includes numerous new features and fixes. As a result of this upgrade, many dependencies also received an upgrade. Refer to the release notes for the full list of libraries and version numbers.

 Upgrade consideration LuciadFusion

Security updates have been applied to the following dependencies:

Group ID	Artifact ID	Old Version	New Version
com.fasterxml.jackson.core	jackson-databind	2.14.0	2.14.2
com.fasterxml.jackson.core	jackson-core	2.14.0	2.14.2
com.fasterxml.jackson.core	jackson-annotations	2.14.0	2.14.2
org.apache.xmlgraphics	batik-xml	1.11	1.16
org.apache.xmlgraphics	batik-util	1.11	1.16
org.apache.xmlgraphics	batik-transcode	1.11	1.16
org.apache.xmlgraphics	batik-swing	1.11	1.16
org.apache.xmlgraphics	batik-svggen	1.11	1.16
org.apache.xmlgraphics	batik-svg-dom	1.11	1.16
org.apache.xmlgraphics	batik-script	1.11	1.16
org.apache.xmlgraphics	batik-parser	1.11	1.16
org.apache.xmlgraphics	batik-i18n	1.11	1.16
org.apache.xmlgraphics	batik-gvt	1.11	1.16
org.apache.xmlgraphics	batik-gui-util	1.11	1.16
org.apache.xmlgraphics	batik-ext	1.11	1.16
org.apache.xmlgraphics	batik-dom	1.11	1.16
org.apache.xmlgraphics	batik-css	1.11	1.16
org.apache.xmlgraphics	batik-constants	1.11	1.16
org.apache.xmlgraphics	batik-codec	1.11	1.16
org.apache.xmlgraphics	batik-bridge	1.11	1.16
org.apache.xmlgraphics	batik-awt-util	1.11	1.16
org.apache.xmlgraphics	batik-anim	1.11	1.16
org.apache.xmlgraphics	xmlgraphics-commons	2.3	2.7
org.sif4j	sif4j-api	1.7.25	1.7.36
org.postgresql	postgresql	42.3.6	42.5.4
com.github.mreutegg	laszip4j	0.7	0.9
org.jdom	jdom2	2.0.5	2.0.6.1
org.apache.commons	commons-text	1.6	1.10
org.apache.commons	commons-lang3	3.8.1	3.12
org.apache.commons	commons-compress	1.5	1.22

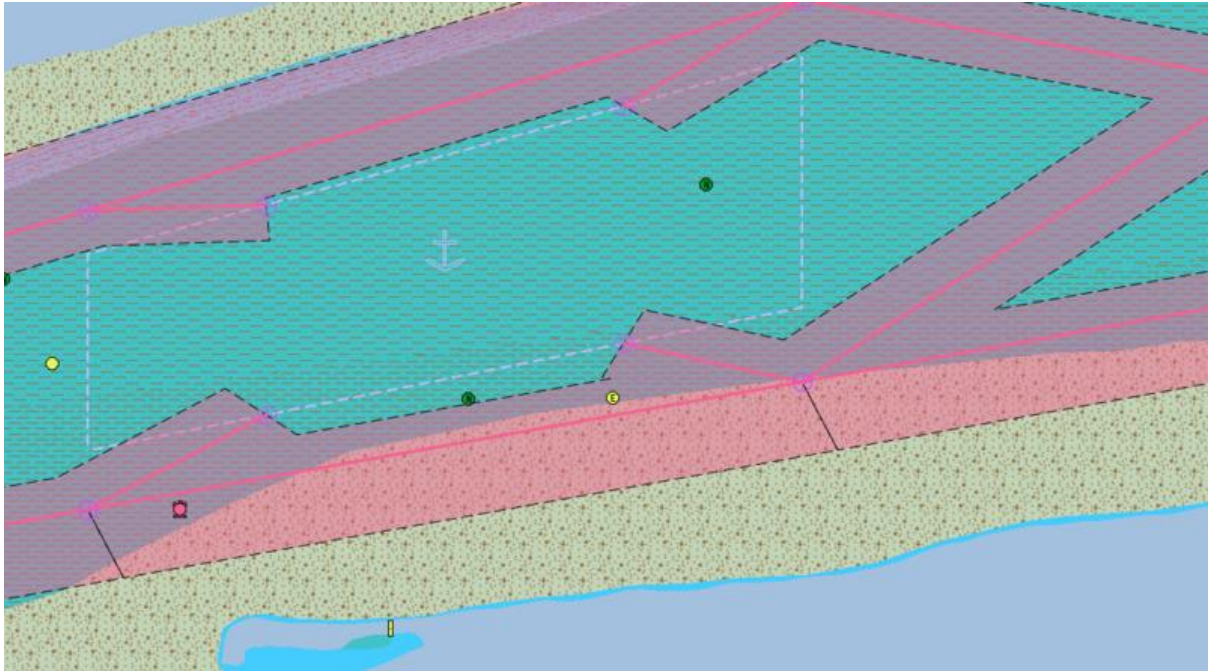
Figure 6: The LuciadFusion release notes provide full details on the upgraded libraries.

## Improvements for customers in the maritime domain

AML is an S-57 product used to encode military nautical data. Typically, this data is combined with the ENC data, also encoded in S-57.

With this 2023.0 release, LuciadFusion extends its support to include AML v3. This includes support for data following the AML v3 domain model and visualization as defined in STANAG 7170.

LuciadFusion now also applies the proper scale ranges for the levels in the AML cell files that are in a CATALOG.031. Before, AML data had no scale range. Usually, these scale ranges are beneficial to your application, both to reduce loading time and reduce visual clutter. For details, see `TLcdS52DisplaySettings#getScaleDenominators`.



*Figure 7: AML is a S-57 product used to encode military nautical data.*

## Articles to get you started.

Because this is an update to an existing feature, the article “What are S52, S57, S63, IENC and AML?” has been updated to reflect the changes.

## Other improvements

- The LuciadFusion capability for querying based on custom metadata properties has been extended. You can now compare custom properties when querying data.
- The TLcdECWModelDecoder has been upgraded to use ERDAS ECW JP2 SDK 6.1.
- AIXM 5.1 holding patterns are now visualized in WMS and WMTS maps, using an oval icon that aligns with the turn direction and inbound course:







# About Hexagon

Hexagon is a 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 23,000 employees in 50 countries and net sales of approximately 4.3bn 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

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\\_062021.pdf](https://legaldocs.hexagon.com/sig/Licenses/EULA_SA_SIG-Eng_062021.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 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.