Mississippi 2024 Orthoimagery - 6 inch GSD

TIFF

Thumbnail Not Available

Tags

State of Mississippi, orthophotography, imagery, raster, Mississippi, USA

Summary

The collection of aerial imagery and production of orthoimagery were executed to capture the existing ground conditions at a specific point in time for the purpose of GIS analysis. Orthoimagery typically provides an accurate base for digitally representing geographic features upon which a GIS is built. The Mississippi Department of Environmental Quality is the lead public agency in the State of Mississippi for spatial data and GIS. The intent of MDEQ is to facilitate the cost-effective development and use of spatial data, GIS, and related technologies in organizations throughout the state.

Description

In the Fall of 2023, the Mississippi Department of Environmental Quality (MDEQ) and Mississippi Geographic Information, LLC (MGI), contracted with SURDEX Corporation to acquire and produce full color (4-band) 6-inch GSD high resolution digital orthoimagery. The aerial imagery was acquired during the acceptable leaf-off flight season of early 2024 (01/13/2024-03/12/2024). The Mississippi 2024 Orthoimagery project is the second year of three to update the orthoimagery for the entire state of Mississippi with 6-inch resolution imagery. The project is divided into three collection phases: In 2023, SURDEX acquired 16,087 square miles in the central third of the state that included 25 counties with 6-inch high resolution imagery. The area included the following Counties: Attala (736), Choctaw (418), Clarke (693), Hinds (877), Holmes (764), Humphreys (431), Issaquena (439), Jasper (678), Kemper (767), Lauderdale (715), Leake (585), Lowndes (517), Madison (742), Neshoba (572), Newton (579), Noxubee (700), Oktibbeha (461), Rankin (806), Scott (610), Sharkey (435), Smith (637), Warren (618), Washington (761), Winston (610), and Yazoo (934) Counties, Mississippi. In 2024, SURDEX acquired 16,081 square miles in the northern third of the state that included 30 counties with 6inch high resolution imagery. The area included the following Counties: Alcorn (400), Benton (407), Bolivar (877), Calhoun (587), Carroll (628), Chickasaw (502), Clay (410), Coahoma (552), DeSoto (476), Grenada (422), Itawamba (533), Lafayette (632), Lee (450), Leflore (593), Marshall (706), Monroe (765), Montgomery (407), Panola (685), Pontotoc (498), Prentiss (415), Quitman (405), Sunflower (698), Tallahatchie (645), Tate (405), Tippah (458), Tishomingo (424), Tunica (455), Union (416), Webster (421), and Yalobusha (467) Counties, Mississippi. In 2025, the remaining southern third of the state that includes 27 counties will be completed with 6-inch high resolution imagery. The Mississippi Orthoimagery Program will encompass the entire land area of the State of Mississippi over 3 years. The State boundary is buffered by 2,500'. Credits

There are no credits for this item.

Use limitations

This Mississippi 2024 Orthoimagery data has been developed using procedures designed to produce data to comply with the Model Mississippi Map Accuracy Standards and is intended for use at 1" = 100' scale.

Extent

There is no extent for this item.

Scale Range

There is no scale range for this item.

ArcGIS Metadata ►

Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE imageryBaseMapsEarthCover

PLACE KEYWORDS State of Mississippi, Mississippi, USA

THEME KEYWORDS orthophotography, imagery, raster

Hide Topics and Keywords

Citation **>**

TITLE Mississippi 2024 Orthoimagery - 6 inch GSD PUBLICATION DATE 2024-11-25

EDITION 2024

PRESENTATION FORMATS digital map FGDC GEOSPATIAL PRESENTATION FORMAT remote-sensing image

SERIES NAME Mississippi 2024 Orthoimagery Project ISSUE 2024

COLLECTION TITLE Mississippi Orthoimagery Program

Hide Citation 🔺

Citation Contacts ►

RESPONSIBLE PARTY ORGANIZATION'S NAME Mississippi Department of Environmental Quality (MDEQ) CONTACT'S ROLE publisher

CONTACT INFORMATION ADDRESS DELIVERY POINT Jackson, Mississippi

Hide Contact information

RESPONSIBLE PARTY ORGANIZATION'S NAME Mississippi 2024 Orthoimagery (30 Counties) CONTACT'S ROLE originator

Hide Citation Contacts

Resource Details ►

DATASET LANGUAGES English

STATUS completed

SUPPLEMENTAL INFORMATION

All digital ortho-imagery development processes for the MDEQ shall conform to the ASPRS Positional Accuracy Standards for Digital Geospatial Data (EDITION 1, VERSION 1.0. - NOVEMBER, 2014) and Model MDEQ Map Accuracy Standards (2009). Accuracy will be tested and reported according to NSSDA Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy Class 1.

PROCESSING ENVIRONMENT Microsoft Windows 7 Enterpise Service Pack 1; ESRI ArcCatalog 10.3.0.4322

Hide Resource Details

Extents **>**

EXTENT GEOGRAPHIC EXTENT BOUNDING RECTANGLE WEST LONGITUDE -91.24080361 EAST LONGITUDE -88.08955271 SOUTH LATITUDE 33.20738044 NORTH LATITUDE 35.00297856

EXTENT DESCRIPTION

ground condition

TEMPORAL EXTENT BEGINNING DATE 2024-01-13 ENDING DATE 2024-03-12

Hide Extents

Resource Points of Contact ►

POINT OF CONTACT INDIVIDUAL'S NAME Stephen Champlin, RPG ORGANIZATION'S NAME Geospatial Resources Division/Flood Mapping Director CONTACT'S POSITION Office of Geology CONTACT'S ROLE point of contact

CONTACT INFORMATION PHONE VOICE 601-961-5506

Address Type both Delivery point 700 North State Street City Jackson Administrative area MS Postal code 39202 E-MAIL Address schamplin@mdeq.ms.gov

Hide Contact information **A**

Hide Resource Points of Contact **A**

Resource Maintenance ►

RESOURCE MAINTENANCE UPDATE FREQUENCY irregular

Hide Resource Maintenance 🔺

Resource Constraints ►

LEGAL CONSTRAINTS LIMITATIONS OF USE ALL DATA IS PROVIDED "AS IS."

OTHER CONSTRAINTS

Contact MDEQ for information about regional and statewide Mississippi datasets.

CONSTRAINTS

LIMITATIONS OF USE

This Mississippi 2024 Orthoimagery data has been developed using procedures designed to produce data to comply with the Model Mississippi Map Accuracy Standards and is intended for use at 1" = 100' scale.

Hide Resource Constraints

Spatial Data Properties

```
GEORECTIFIED GRID
                      NUMBER OF DIMENSIONS 2
     AXIS DIMENSIONS PROPERTIES
      DIMENSION TYPE row (y-axis)
      DIMENSION SIZE 5000
     AXIS DIMENSIONS PROPERTIES
      DIMENSION TYPE column (x-axis)
      DIMENSION SIZE 5000
     CELL GEOMETRY area
      Hide Georectified Grid A
   Hide Spatial Data Properties
Data Quality 

   SCOPE OF QUALITY INFORMATION
     RESOURCE LEVEL dataset
      Hide Scope of quality information ▲
```

DATA QUALITY REPORT - CONCEPTUAL CONSISTENCY MEASURE DESCRIPTION

All image tiles have been checked for proper spatial reference and conformance to the quality acceptance criteria adopted in the Mississippi Department of Environmental Quality Subconsultant Services Agreement between Mississippi Geographic Information, LLC (MGI) and Surdex Corporation (Waggoner Project Number 101.2300226.011).

Hide Data quality report - Conceptual consistency

DATA QUALITY REPORT - COMPLETENESS OMISSION

MEASURE DESCRIPTION

This dataset includes a total of 16,081 square miles in the Central 25 Counties of Mississippi. All data delivered is delivered in NAD 1983, (2011) Mississippi State Plane, West and East Zones, US Feet.

Hide Data quality report - Completeness omission

DATA QUALITY REPORT - ABSOLUTE EXTERNAL POSITIONAL ACCURACY
DIMENSION horizontal

MEASURE DESCRIPTION

These data were compiled to meet the Mississippi Department of Environmental Quality Standard for Class 1 Map Accuracy as of August 31, 2024. For the 1" = 100' scale: RMSEx less than = 1.0 feet, RMSEy less than = 1.0 feet, RMSEr less than = 1.42 feet, Accuracy r less than = 2.5 ft at the 95% confidence level.

Hide Data quality report - Absolute external positional accuracy

Hide Data Quality

Lineage 🕨

PROCESS STEP

WHEN THE PROCESS OCCURRED 2024-03-12 DESCRIPTION

Process descriptions regarding how the orthoimagery was produced can be obtained from Surdex Corporation. The complete processes used by Surdex contains sensitive business procedures that are proprietary to Surdex. Surdex is willing to release this information to interested parties provided a binding Non-Disclosure Agreement has been executed. Hide Process step ▲

Hide Lineage 🔺

Distribution ►

DISTRIBUTOR CONTACT INFORMATION INDIVIDUAL'S NAME Stephen Champlin, RPG ORGANIZATION'S NAME Geospatial Resources Division/Flood Mapping Director CONTACT'S POSITION Office of Geology CONTACT'S ROLE distributor

CONTACT INFORMATION PHONE

VOICE 601-961-5506

ADDRESS

TYPE both DELIVERY POINT 700 North State Street CITY Jackson ADMINISTRATIVE AREA MS POSTAL CODE 39202 E-MAIL ADDRESS schamplin@mdeq.ms.gov

Hide Contact information

AVAILABLE FORMAT NAME TIFF FILE DECOMPRESSION TECHNIQUE no compression applied

ORDERING PROCESS TERMS AND FEES variable

TRANSFER OPTIONS TRANSFER SIZE 95.37

MEDIUM OF DISTRIBUTION *Hide Distributor*

TRANSFER OPTIONS ONLINE SOURCE LOCATION http://geology.deq.ms.gov/floodmaps

Hide Distribution \blacktriangle



DETAILS FOR OBJECT Band 1 Red DEFINITION Red Band - 585-690 nm

DEFINITION SOURCE Phase-One BlackBird Sensor Specification

DETAILS FOR OBJECT Band 2 Green DEFINITION Green Band 570-600 nm

DEFINITION SOURCE Phase-One BlackBird Sensor Specification

DETAILS FOR OBJECT Band 3 Blue DEFINITION Blue Band 425-530 nm

DEFINITION SOURCE Phase-One BlackBird Sensor Specification

DETAILS FOR OBJECT Band 4 NIR DEFINITION NIR Band 680-830 nm

DEFINITION SOURCE Phase-One BlackBird Sensor Specification

OVERVIEW DESCRIPTION

ENTITY AND ATTRIBUTE OVERVIEW

Reflectance values for visible and near infra-red light captured by the Phase-One BlackBird Sensor and expressed as four-band orthorectified imagery.

ENTITY AND ATTRIBUTE DETAIL CITATION

Detailed specifications and acceptance criteria have been followed and quality checked by Atlas Geographic Data (AGD)

Hide Overview Description **A**

Hide Fields 🔺



Aggregate Information Association type larger work citation

AGGREGATE RESOURCE NAME TITLE Mississippi Orthoimagery Program PUBLICATION DATE INDETERMINATE DATE UNKNOWN

RESPONSIBLE PARTY ORGANIZATION'S NAME Mississippi Department of Environmental Quality (MDEQ) CONTACT'S ROLE originator

Hide Aggregate resource name

Hide References

Metadata Details **>**

METADATA LANGUAGE English METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

SCOPE OF THE DATA DESCRIBED BY THE METADATA dataset

LAST UPDATE 2024-11-25

ARCGIS METADATA PROPERTIES METADATA FORMAT ArcGIS 1.0

CREATED IN ARCGIS FOR THE ITEM 2025-01-03 07:34:12

Hide Metadata Details 🔺

Metadata Contacts **>**

METADATA CONTACT INDIVIDUAL'S NAME Stephen Champlin, RPG ORGANIZATION'S NAME Mississippi Department of Environmental Quality (MDEQ) CONTACT'S POSITION Office of Geology CONTACT'S ROLE point of contact

CONTACT INFORMATION PHONE VOICE 604-961-5506 Address Type both

DELIVERY POINT 700 North State Street CITY Jackson ADMINISTRATIVE AREA MS POSTAL CODE 39202 E-MAIL ADDRESS schamplin@mdeq.ms.gov

Hide Contact information **A**

Hide Metadata Contacts 🔺

Thumbnail and Enclosures

ENCLOSURE

ENCLOSURE TYPE File DESCRIPTION OF ENCLOSURE original metadata ORIGINAL METADATA DOCUMENT, WHICH WAS TRANSLATED YES SOURCE METADATA FORMAT fgdc

Hide Thumbnail and Enclosures

FGDC Metadata (read-only) ▼

CITATION CITATION INFORMATION ORIGINATOR Mississippi 2024 Orthoimagery (30 Counties) PUBLICATION DATE 2024-11-25 TITLE Mississippi 2024 Orthoimagery - 6 inch GSD EDITION 2024 GEOSPATIAL DATA PRESENTATION FORM remote-sensing image SERIES INFORMATION SERIES NAME Mississippi 2024 Orthoimagery Project ISSUE IDENTIFICATION 2024 PUBLICATION INFORMATION PUBLICATION PLACE Jackson, Mississippi PUBLISHER Mississippi Department of Environmental Quality (MDEQ) ONLINE LINKAGE http://geology.deg.ms.gov/floodmaps LARGER WORK CITATION CITATION INFORMATION **ORIGINATOR** Mississippi Department of Environmental Quality (MDEQ) PUBLICATION DATE Unknown TITLE Mississippi Orthoimagery Program

DESCRIPTION

Abstract

In the Fall of 2023, the Mississippi Department of Environmental Quality (MDEQ) and Mississippi Geographic Information, LLC (MGI), contracted with SURDEX Corporation to acquire and produce full color (4-band) 6-inch GSD high resolution digital orthoimagery. The aerial imagery was acquired during the acceptable leaf-off flight season of early 2024 (01/13/2024-03/12/2024). The Mississippi 2024 Orthoimagery project is the second year of three to update the orthoimagery for the entire state of Mississippi with 6-inch resolution imagery. The project is divided into three collection phases: In 2023, SURDEX acquired 16,087 square miles in the central third of the state that included 25 counties with 6-inch high resolution imagery. The area included the following Counties: Attala (736), Choctaw (418), Clarke (693), Hinds (877), Holmes (764), Humphreys (431), Issaquena (439), Jasper (678), Kemper (767), Lauderdale (715), Leake (585), Lowndes (517), Madison (742), Neshoba (572),

Newton (579), Noxubee (700), Oktibbeha (461), Rankin (806), Scott (610), Sharkey (435), Smith (637), Warren (618), Washington (761), Winston (610), and Yazoo (934) Counties, Mississippi. In 2024, SURDEX acquired 16,081 square miles in the northern third of the state that included 30 counties with 6-inch high resolution imagery. The area included the following Counties: Alcorn (400), Benton (407), Bolivar (877), Calhoun (587), Carroll (628), Chickasaw (502), Clay (410), Coahoma (552), DeSoto (476), Grenada (422), Itawamba (533), Lafayette (632), Lee (450), Leflore (593), Marshall (706), Monroe (765), Montgomery (407), Panola (685), Pontotoc (498), Prentiss (415), Quitman (405), Sunflower (698), Tallahatchie (645), Tate (405), Tippah (458), Tishomingo (424), Tunica (455), Union (416), Webster (421), and Yalobusha (467) Counties, Mississippi. In 2025, the remaining southern third of the state that includes 27 counties will be completed with 6-inch high resolution imagery. The Mississippi Orthoimagery Program will encompass the entire land area of the State of Mississippi over 3 years. The State boundary is buffered by 2,500'.

PURPOSE

The collection of aerial imagery and production of orthoimagery were executed to capture the existing ground conditions at a specific point in time for the purpose of GIS analysis. Orthoimagery typically provides an accurate base for digitally representing geographic features upon which a GIS is built. The Mississippi Department of Environmental Quality is the lead public agency in the State of Mississippi for spatial data and GIS. The intent of MDEQ is to facilitate the cost-effective development and use of spatial data, GIS, and related technologies in organizations throughout the state.

SUPPLEMENTAL INFORMATION

All digital ortho-imagery development processes for the MDEQ shall conform to the ASPRS Positional Accuracy Standards for Digital Geospatial Data (EDITION 1, VERSION 1.0. - NOVEMBER, 2014) and Model MDEQ Map Accuracy Standards (2009). Accuracy will be tested and reported according to NSSDA Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy Class 1.

TIME PERIOD OF CONTENT TIME PERIOD INFORMATION RANGE OF DATES/TIMES BEGINNING DATE 2024-01-13 ENDING DATE 2024-03-12 CURRENTNESS REFERENCE ground condition STATUS PROGRESS Complete MAINTENANCE AND UPDATE FREQUENCY Irregular

SPATIAL DOMAIN

BOUNDING COORDINATES WEST BOUNDING COORDINATE -91.24080361 EAST BOUNDING COORDINATE -88.08955271 NORTH BOUNDING COORDINATE 35.00297856 SOUTH BOUNDING COORDINATE 33.20738044

Keywords

THEME THEME KEYWORD THESAURUS None THEME KEYWORD orthophotography THEME KEYWORD imagery THEME KEYWORD raster

Place

PLACE KEYWORD THESAURUS NONE PLACE KEYWORD Mississippi PLACE KEYWORD State of Mississippi PLACE KEYWORD USA

ACCESS CONSTRAINTS

Contact MDEO for information about regional and statewide Mississippi datasets. USE CONSTRAINTS This Mississippi 2024 Orthoimagery data has been developed using procedures designed to produce data to comply with the Model Mississippi Map Accuracy Standards and is intended for use at 1'' = 100' scale. POINT OF CONTACT CONTACT INFORMATION **CONTACT PERSON PRIMARY** CONTACT PERSON Stephen Champlin, RPG CONTACT ORGANIZATION Geospatial Resources Division/Flood Mapping Director CONTACT POSITION Office of Geology CONTACT ADDRESS ADDRESS TYPE mailing and physical address ADDRESS 700 North State Street CITY Jackson STATE OR PROVINCE MS POSTAL CODE 39202

CONTACT VOICE TELEPHONE 601-961-5506 CONTACT ELECTRONIC MAIL ADDRESS schamplin@mdeq.ms.gov

NATIVE DATA SET ENVIRONMENT

Microsoft Windows 7 Enterpise Service Pack 1; ESRI ArcCatalog 10.3.0.4322

Hide Identification

LOGICAL CONSISTENCY REPORT

All image tiles have been checked for proper spatial reference and conformance to the quality acceptance criteria adopted in the Mississippi Department of Environmental Quality Subconsultant Services Agreement between Mississippi Geographic Information, LLC (MGI) and Surdex Corporation (Waggoner Project Number 101.2300226.011).

COMPLETENESS REPORT

This dataset includes a total of 16,081 square miles in the Central 25 Counties of Mississippi. All data delivered is delivered in NAD 1983, (2011) Mississippi State Plane, West and East Zones, US Feet.

POSITIONAL ACCURACY

HORIZONTAL POSITIONAL ACCURACY

HORIZONTAL POSITIONAL ACCURACY REPORT

These data were compiled to meet the Mississippi Department of Environmental Quality Standard for Class 1 Map Accuracy as of August 31, 2024. For the 1" = 100' scale: RMSEx less than = 1.0 feet, RMSEy less than = 1.0 feet, RMSEr less than = 1.42 feet, Accuracy r less than = 2.5 ft at the 95% confidence level.

LINEAGE

PROCESS STEP

PROCESS DESCRIPTION

Process descriptions regarding how the orthoimagery was produced can be obtained from Surdex Corporation. The complete processes used by Surdex contains sensitive business procedures that are proprietary to Surdex. Surdex is willing to release this information to interested parties provided a binding Non-Disclosure Agreement has been executed.

PROCESS DATE 2024-03-12

CLOUD COVER 0

Hide Data Quality 🔺

DIRECT SPATIAL REFERENCE METHOD Raster

RASTER OBJECT INFORMATION RASTER OBJECT TYPE Pixel Row Count 5000 Column Count 5000

Hide Spatial Data Organization 🔺

HORIZONTAL COORDINATE SYSTEM DEFINITION PLANAR MAP PROJECTION MAP PROJECTION NAME Lambert Conformal Conic LAMBERT CONFORMAL CONIC STANDARD PARALLEL 38.033333 STANDARD PARALLEL 39.200000 LONGITUDE OF CENTRAL MERIDIAN -78.500000 LATITUDE OF PROJECTION ORIGIN 37.666667 FALSE EASTING 11482916.666667 FALSE NORTHING 6561666.666667

PLANAR COORDINATE INFORMATION PLANAR COORDINATE ENCODING METHOD coordinate pair COORDINATE REPRESENTATION ABSCISSA RESOLUTION 0.000001 ORDINATE RESOLUTION 0.000001 PLANAR DISTANCE UNITS SURVEY feet

GEODETIC MODEL HORIZONTAL DATUM NAME North American Datum of 1983 ELLIPSOID NAME Geodetic Reference System 80 SEMI-MAJOR AXIS 6378137.000000 DENOMINATOR OF FLATTENING RATIO 298.257222

Hide Spatial Reference

DETAILED DESCRIPTION ENTITY TYPE ENTITY TYPE LABEL Band 1 Red ENTITY TYPE DEFINITION Red Band - 585-690 nm ENTITY TYPE DEFINITION SOURCE Phase-One BlackBird Sensor Specification

DETAILED DESCRIPTION ENTITY TYPE ENTITY TYPE LABEL Band 2 Green ENTITY TYPE DEFINITION Green Band 570-600 nm ENTITY TYPE DEFINITION SOURCE Phase-One BlackBird Sensor Specification

DETAILED DESCRIPTION ENTITY TYPE ENTITY TYPE LABEL Band 3 Blue ENTITY TYPE DEFINITION Blue Band 425-530 nm ENTITY TYPE DEFINITION SOURCE Phase-One BlackBird Sensor Specification

DETAILED DESCRIPTION ENTITY TYPE ENTITY TYPE LABEL Band 4 NIR ENTITY TYPE DEFINITION NIR Band 680-830 nm ENTITY TYPE DEFINITION SOURCE Phase-One BlackBird Sensor Specification

OVERVIEW DESCRIPTION ENTITY AND ATTRIBUTE OVERVIEW

Reflectance values for visible and near infra-red light captured by the Phase-One BlackBird Sensor and expressed as four-band orthorectified imagery. ENTITY AND ATTRIBUTE DETAIL CITATION

Detailed specifications and acceptance criteria have been followed and quality checked

by Atlas Geographic Data (AGD)

Hide Entities and Attributes **A**

DISTRIBUTOR CONTACT INFORMATION CONTACT PERSON PRIMARY CONTACT PERSON Stephen Champlin, RPG CONTACT ORGANIZATION Geospatial Resources Division/Flood Mapping Director CONTACT POSITION Office of Geology CONTACT ADDRESS ADDRESS TYPE mailing and physical address ADDRESS 700 North State Street CITY Jackson STATE OR PROVINCE MS POSTAL CODE 39202

CONTACT VOICE TELEPHONE 601-961-5506 CONTACT ELECTRONIC MAIL ADDRESS schamplin@mdeq.ms.gov

DISTRIBUTION LIABILITY

ALL DATA IS PROVIDED "AS IS." STANDARD ORDER PROCESS DIGITAL FORM DIGITAL TRANSFER INFORMATION FORMAT NAME TIFF FILE DECOMPRESSION TECHNIQUE NO COMPRESSION Applied TRANSFER SIZE 95.37

DIGITAL TRANSFER OPTION OFFLINE OPTION OFFLINE MEDIA External drive RECORDING FORMAT NTFS

FEES variable

CUSTOM ORDER PROCESS Contact MDEQ for ordering information.

Hide Distribution Information

METADATA DATE 2024-11-25 METADATA CONTACT CONTACT INFORMATION CONTACT ORGANIZATION PRIMARY CONTACT ORGANIZATION Mississippi Department of Environmental Quality (MDEQ) CONTACT PERSON Stephen Champlin, RPG CONTACT POSITION Office of Geology CONTACT ADDRESS Address Type mailing and physical address Address 700 North State Street CITY Jackson STATE OR PROVINCE MS POSTAL CODE 39202

Contact Voice Telephone 604-961-5506 Contact Electronic Mail Address schamplin@mdeq.ms.gov

METADATA STANDARD NAME FGDC Content Standards for Digital Geospatial Metadata METADATA STANDARD VERSION FGDC-STD-001-1998

METADATA USE CONSTRAINTS None

Hide Metadata Reference 🔺