



Satellite Imagery Product Catalog

May 2nd 2016

Disclaimer & Copyright

Copyright © 2016 DigitalGlobe, Inc. All rights reserved.

The DigitalGlobe's Core Imagery Product Guide is purposely designed as a general guideline for DigitalGlobe customers interested in licensing DigitalGlobe imagery products and services. DigitalGlobe may unilaterally modify or update the Satellite Imagery Product Catalog from time to time and without notice if the company changes its imagery products and service offerings and the terms and conditions associated with such offerings.

Access to DigitalGlobe products and sensors is limited to existing reseller terms and conditions.

THIS PUBLICATION MAY INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THE PUBLICATION. DIGITALGLOBE MAY MAKE IMPROVEMENTS AND/OR CHANGES TO THE PRODUCT(S) AND/OR THE PROGRAM(S) DESCRIBED IN THIS PUBLICATION AT ANY TIME.

CONTENTS

Disclaimer & Copyright.....	2
1. DigitalGlobe Satellite Imagery Products.....	4
1.1 Overview of This Document.....	4
1.2 Satellite Imagery and Product Overview.....	4
2. Area of Interest and Product Imagery Selection.....	4
2.1 Area of Interest (AOI).....	4
2.2 ImageLibrary (Archive).....	5
2.3 New Collection Request (Tasking).....	5
2.4 Mixed ImageLibrary and New Collection Requests.....	7
3. Product Catalog and Ordering.....	7
3.1 Resolution Selection.....	7
3.2 Spectral Band Selection.....	8
3.2.1 3-Band and 4-Band Pan-sharpened Products.....	9
3.2.2 4-Band and 8-Band Bundle Products.....	9
3.2.3 8-Band SWIR Product.....	9
3.3 Product Selection.....	9
3.3.1 System-Ready (Basic).....	10
3.3.2 System-Ready Stereo (Basic).....	11
3.3.3 View-Ready (Standard) OR2A.....	11
3.3.4 View-Ready Stereo (Standard) OR2A.....	11
3.3.5 View-Ready (Standard) 2A.....	12
3.3.6 Map-Ready (Ortho) 1:12,000.....	12
3.3.7 Map-Ready (Ortho) Engineered.....	12
3.4 Additional Product Parameters.....	13
3.4.1 Resampling Kernels.....	13
3.4.2 Bit Depth.....	14
3.4.3 Dynamic Range Adjustment (DRA).....	14
3.4.4 Datum and Projection.....	14
3.4.5 Tiling.....	14
3.4.6 Format.....	15
4. License Information.....	15
5. Delivery Options.....	16
5.1 Delivery Timelines.....	17
6. Comments and Non-Standard Product Requests.....	18

1. DigitalGlobe Satellite Imagery Products

Congratulations! If you are reading this document it means you are about to buy the best satellite imagery available in the market today. DigitalGlobe Satellite Imagery Products have the highest resolution, the highest accuracy, the most spectral diversity, and are backed by the largest ImageLibrary and most agile satellite constellation in the world.

Our commitment to quality has placed DigitalGlobe as the long-standing industry leader and trusted partner in Earth imagery about our changing planet. Based on our high standard of quality, commitment to innovation, and our 15+ year time-lapse image library, DigitalGlobe inspires confidence to make critical decisions now and in the future. Our imagery is integrated into the workflows of the industry's largest customers, the most demanding customers, and the most intelligent customers. Our imagery is foundational to their most consequential challenges where lives, time and resources are at stake every day.

1.1 Overview of This Document

This document provides information about DigitalGlobe's Satellite Imagery Products and product ordering configurations. The document is divided into five sections that are aligned with our Satellite Imagery Order Form:

- Area of Interest and Product Imagery Selection
- Product Catalog and Ordering
- License Information
- Delivery Options
- Comments and Non-Standard Product Requests

1.2 Satellite Imagery and Product Overview

DigitalGlobe's Satellite Imagery products are created from high-resolution satellite images acquired by the DigitalGlobe constellation of satellites. The DigitalGlobe Satellite constellation has already acquired a unique 15+ year time-lapse image library of our planet and adds over 2.5 million new square kilometers of imagery every day.

The raw imagery acquired by the satellite constellation can be processed into multiple products to meet customer needs. Raw images can be delivered in Product levels that are designed for 1) image manipulation and photogrammetric analysis by image processing systems, 2) image viewing and feature analysis in geographic information systems, and 3) image viewing and locational reference by users in any application. DigitalGlobe Satellite Imagery Products and product configurations have been standardized to enable easy ordering for the most common demands in the market. In addition to our standardized Products DigitalGlobe also offers customized services to customers that require non-standard configurations.

2. Area of Interest and Product Imagery Selection

An Area of Interest is the specific area of the Earth that the customer is interested in. Before selecting Imagery for a Product an Area of Interest must be defined. Once the Area of Interest is defined selection of imagery Catalog IDs from the ImageLibrary is required or a New Collection request can be submitted.

2.1 Area of Interest (AOI)

The Area of Interest is a polygon that defines the area that imagery product is required for. An Area of Interest may be as small as individual towns or as large as entire states or countries. The Area of Interest may be as simple as a rectangle or as

complex as a watershed boundary. DigitalGlobe provides basic tools to create an Area of Interest in our online tool called ImageFinder at <https://browse.digitalglobe.com/>. Area of Interests can also be created in numerous online and desktop mapping applications. In order to streamline Area of Interest communication and processing there are basic requirements for the Area of Interest that must be followed. These are:

- An AOI must be a single simple polygon. Donuts and bowties are not accepted.
- An AOI must close (first and last vertices are the same) and not contain more than 1,000 vertices.
- Minimum AOI width is 2km for ImageLibrary orders and 5km for New Collection and Orthorectified orders.
- When submitting g an AOI in a Shapefile one AOI per Shapefile is preferred.

Specific technical information about defining and submitting an Area of Interest can be found in the DigitalGlobe Satellite Imagery Product Guide.

Area of Interest Order Form Requirements

Areas of Interest can be entered on the Imagery Order Form as a list of coordinates or by including a shapefile (WGS84 Geographic) with the form at submittal. There are minimum sizes and other rules that govern the Area of Interest. These items are described in detail in the Commercial Price List and the DigitalGlobe Satellite Imagery Product Guide.

Area of Interest Pricing Considerations

The Area of Interest is used to calculate the number of square kilometers of the product which will be the base unit of measure for product pricing. Pricing AOI minimums may apply. Please see the DigitalGlobe Commercial Price List for exact pricing.

2.2 ImageLibrary (Archive)

The DigitalGlobe ImageLibrary is a global database populated with 15+ years of images collected by DigitalGlobe's high-resolution satellite constellation and is updated constantly with newly collected imagery. This 15+ year ImageLibrary contains over 80-petabytes of imagery, a living library of our changing planet, and is available to anyone.

The advantage of ordering from the ImageLibrary is the immediate availability of our Products for delivery. You can search the DigitalGlobe ImageLibrary using our online tool called ImageFinder at <https://browse.digitalglobe.com/>. ImageFinder provides numerous tools to search, sort, review and select imagery based on metadata and preview browse imagery. ImageFinder can also provide shapefiles of imagery footprints and metadata if imagery selection requires a GIS. Images are uniquely identified by the Catalog ID and this ID must be communicated to DigitalGlobe if ImageLibrary imagery is requested.

There are ordering dependencies between selected Catalog IDs and the Product configuration parameters. An example of this dependency is a 4-Band Image cannot be used to create an 8-Band Product. Be sure to select appropriate Imagery for the intended product and end use of the product. Specific technical information about the ImageLibrary and Product configurations can be found in the DigitalGlobe Satellite Imagery Product Guide.

ImageLibrary Order Form Requirements

When ordering imagery from the ImageLibrary the individual image Catalog IDs must be entered in the Imagery Order Form.

ImageLibrary Pricing Considerations

Imagery less than 90 days old is called "Fresh Archive". Selection of Fresh Archive imagery may result in increased pricing. Specific Pricing information can be found in the DigitalGlobe Commercial Price List.

2.3 New Collection Request (Tasking)

New Collection requests are required when sufficient imagery coverage cannot be found in the ImageLibrary or new imagery is required in a future time period. Fulfillment of New Collection requests is impacted by multiple factors including the product requirements, time of year/sun elevation, weather conditions, and demand from other customers. Demand

from other customers is primarily driven by geo-politics and geo-economics and can have short or long term impacts on the timelines required for DigitalGlobe to complete the New Tasking request. Based on long term high levels of demand in certain regions of the world, DigitalGlobe has divided the world into “High Demand” and “Standard Demand” regions. High Demand regions may have longer collection timelines or higher prices. A list of High Demand regions can be found in the DigitalGlobe Commercial Price List.

All New Collection requests are managed by DigitalGlobe to complete as efficiently as possible using the entire DigitalGlobe Satellite constellation. When New Collection requests are submitted DigitalGlobe performs a collection feasibility analysis to determine the most likely End Collect Date, which is the estimated probability of completing the collection request. The likely end collect date takes into account satellite orbits, product requirements, time of year/sun elevation, weather conditions, and demand from other customers. If required, DigitalGlobe will communicate the calculated End Collect Date to the customer as the Suggested End Collect Date. If the customer defined New Collection Request dates and the Suggested End Collect Date are incompatible the DigitalGlobe Customer Experience team will work with the customer on potential alternatives. All imagery collected for New Collection requests is added to the ImageLibrary and assigned a Catalog ID. The Catalog ID will be used to uniquely identify the New Collect Request image after it has been acquired by DigitalGlobe.

Specific technical information about New Collection requests and the DigitalGlobe Satellite constellation can be found in the DigitalGlobe Satellite Imagery Product Guide.

New Collection Order Form Requirements

There are a number of items required for the Imagery Order Form when requesting New Collection Requests. The required items, standardized defaults, and standardized options are listed in Table 2.

New Collection Pricing Considerations

New Collection requests pricing can be impacted by selecting standardized options or by High Demand Regions. Price impacting items are described in the Table 2 Comments Column. Exact Pricing and High Demand regions can be found in the DigitalGlobe Commercial Price List.

Table 1 New Collection Request Order Options

Required Item	Standardized Default	Advanced Options	Pricing And Comments
Type	Select	Select Plus	Select is DigitalGlobe’s standard prioritization level Select Plus is DigitalGlobe’s elevated prioritization level. Select Plus has an associated price increase.
Start Date	None		Any valid future date
End Date	None		Any valid future date greater than start date and less than 365 days from start date.
Cloud Cover	0% to 15%	0% to 5% 0% to 10% 0% to 20% 0% to 100%	0% to 5% and 0% to 10% have an associated increase price
Max Off Nadir Angle	20 degrees for mono 35 degrees for stereo	15 degrees for mono Custom > Standard	15 degrees for mono has an associated price increase Custom > Standard selection should have the Custom Off Nadir Angle specified in the Comments section.
Partial Delivery	No	Yes (20%)	Imagery will be delivered in 20% increments until 100% of the imagery is delivered.

2.4 Mixed ImageLibrary and New Collection Requests

In some cases an Area of Interest can be partially completed from the ImageLibrary but some part of the Area of Interest must be fulfilled by a New Collection request.

Mixed ImageLibrary and New Collection Requests Order Form Requirements

In cases where the order is mixed ImageLibrary and New Collection then both sections must be filled in on the Order Form. Requests the Imagery Order Form should be filled in for both ImageLibrary Catalog IDs and required New Collection request information.

Mixed ImageLibrary and New Collection Requests Pricing Considerations

When Mixed ImageLibrary and New Collection Requests are submitted the DigitalGlobe Customer Experience team will split the order along the ImageLibrary / New Collection boundaries so that pricing can occur correctly.

3. Product Catalog and Ordering

The imagery selected from the ImageLibrary or requested by a New Collection request can be processed into multiple Product Types to meet customer needs. Understanding the intended use of the imagery product drives the Product Type selection and product configuration parameters. The significant value drivers of the Product Type are resolution, spectral bands, and product processing level and these three selectable items also drive pricing. The remaining Product configuration parameters are generally preferences driven by the customer and do not impact pricing. These include selections in resampling kernel, dynamic range adjustment (DRA), bit depth, datum/projection, tiling, and format.

3.1 Resolution Selection

DigitalGlobe has the highest resolution satellite constellation of Earth Imaging Satellites and Imagery selected from the DigitalGlobe ImageLibrary or collected through New Tasking requests are the sharpest view of the ground available from space.

While the raw imagery is the highest resolution available, Customers can select from a number of resolution options for Product production. Selection of higher resolution products enables higher confidence identification of features on the ground. The quality of imagery and the ability to identify features on the ground can be rated by the National Image Interpretability Rating Scales (NIIRS) and NIIRS is a standardized method to understand how resolution impacts your ability to make confident decisions using imagery. Information about the Civil NIIRS Reference Guide can be found here: http://fas.org/irp/imint/niirs_c/app2.htm

All DigitalGlobe imagery can be down-sampled to a lower resolution but up-sampling to a higher resolution can result in information loss and imagery becoming fuzzy and stretched. DigitalGlobe does not recommend selecting a product resolution more than 10cm greater than the actual imagery “as-collected” resolution or ground sample distance (20cm for stereo products). This is in the customer’s control when selecting imagery from the ImageLibrary and in DigitalGlobe’s control when collecting new imagery for a New Collection request.

The most commonly ordered Resolution is 50cm and this is the default resolution for ordering. 50cm is the STANDARD option in the Order Form (STANDARD will default to 60cm if a Quickbird Catalog ID is selected). Specific technical information about resolution and ground sample distance can be found in the DigitalGlobe Satellite Imagery Product Guide.

Table 2 Resolution Options

Resolution	Estimated NIIRS Rating	NIIRS Examples
STANDARD	See Below	See Below
30cm	5.7	Rating Level 5 <ul style="list-style-type: none"> Identify individual 55 gallon drums in an open storage facility. (NIIRS 5.7) Identify individual telephone/electric poles in residential neighborhoods. (NIIRS 5.4) Identify large construction equipment by type (e.g., bulldozer, backhoe, road grader). (NIIRS 5.2) Identify raw materials (e.g., lumber, sand, gravel, bricks) in a residential construction area. (NIIRS 5.0)
40cm	5.4	
50cm	5.2	
60cm	5.0	
70cm	4.6	Rating Level 4 <ul style="list-style-type: none"> Distinguish between locomotives and railcars. (NIIRS 4.6) Detect fallen trees obstructing two-lane roads. (NIIRS 4.4) Detect groups of cargo (e.g., crates, pallets) on piers and quays. (NIIRS 4.2) Detect active plowing of fields. (NIIRS 4.1)
80cm	4.4	
1.5m	4.2	
2m	4.0	
7.5m (Shortwave Infrared only)	3.0	Rating Level 3 <ul style="list-style-type: none"> Detect two-lane unimproved roads. (NIIRS 3.0)

Resolution Order Form Requirements

If Catalog IDs are being supplied ensure the GSD of the Catalog ID is appropriate for the selected resolution. When Resolution is selected for New Collection Requests the DigitalGlobe constellation will be programed to collect so the collected GSD is not more than 10cm greater than the requested resolution (20cm for stereo).

Resolution Pricing Considerations

Pricing is impacted by the resolution selection and can also be impacted by specific resolutions in High Demand Regions. Exact Pricing and High Demand regions can be found in the DigitalGlobe Commercial Price List.

3.2 Spectral Band Selection

DigitalGlobe offers the most high resolution spectral bands in the commercial marketplace. More spectral bands means more information about the Area of Interest which provides higher levels of interpretability and certainty in the decisions making. Spectral bands collected by DigitalGlobe’s constellation include 1-Band Panchromatic (Black and White), 3-Band Visible (Red, Green, and Blue), 3-Band Near Infrared (Near Infrared, Red, Green), 4-Band Visible and Near Infrared, 8-Band Color and Near Infrared (two additional Color Bands and 2 additional Infrared Bands), and 8-Band Shortwave Infrared.

The spectral bands available from DigitalGlobe are designed for a multitude of use cases and spectral band selections are standardized based on these use cases. All DigitalGlobe raw images are corrected for radiometric, sensor, and geometric distortions before product production. Specific technical information about spectral bands can be found in the DigitalGlobe Satellite Imagery Product Guide.

Spectral Band Order Form Requirements

If Catalog IDs are being supplied from the ImageLibrary ensure the Spectral Bands of each Catalog ID is appropriate for the selected resolution. When Spectral Bands are selected for New Collection Requests the DigitalGlobe constellation will be programed to collect the required Bands.

Spectral Band Pricing Considerations

Pricing is impacted by the Spectral Band selection. In general the panchromatic band contains less information and is less expensive and 8-Band products contain more information and are more expensive. Exact Pricing can be found in the DigitalGlobe Commercial Price List.

Table 3 Spectral Band Options, Use Cases and Pricing Considerations

Spectral Bands	Example Use Cases
Panchromatic (Black and White)	Feature identification where color is not important
Natural Color (3-Band Pan-sharpened Red, Green, Blue)	Backdrop for mapping and location applications Feature identification using color
Color Infrared (3-Band Pan-sharpened Near Infrared, Red, Green)	Feature identification using near infrared (agricultural and forestry applications)
4-Band Pan-sharpened (Near Infrared, Red, Green, Blue)	Feature identification using color and near infrared
4-Band Bundle (Panchromatic, Near Infrared, Red, Green, Blue)	Fine grained control over image processing for feature identification
8-Band Bundle (Panchromatic plus 8-Bands Color and Near Infrared)	Fine grained control over image processing for feature identification with higher confidence based on additional spectral information
8-Band SWIR (8-Bands Shortwave Infrared)	Fine grained control over image processing for geologic and man-made material identification

3.2.1 3-Band and 4-Band Pan-sharpened Products

Pan-sharpening is a type of data fusion that refers to the process of combining the lower-resolution color or near infrared pixels with higher resolution panchromatic pixels to produce a high resolution color or near infrared image. For example if a 4-Band Pan-sharpened product is requested at 50cm then the 50cm panchromatic band will be used to create four new 50cm color/infrared bands from the native 2m multispectral bands.

3.2.2 4-Band and 8-Band Bundle Products

Bundled products retain the resolution of the pan and the multispectral bands. For example if a 4-Band Bundle product is requested at 50cm then the 50cm panchromatic band is delivered at 50cm and the color and near infrared bands are delivered at 2m.

3.2.3 8-Band SWIR Product

There is no panchromatic band in the shortwave infrared spectral bands. The SWIR product is offered as an 8-band product which contains the SWIR bands 1-8. SWIR is collected at 3.7m resolution and resampled to 7.5m resolution for commercial products.

3.3 Product Selection

Product levels offered by DigitalGlobe are designed for multiple end uses. DigitalGlobe Products and product configurations have been standardized to meet the most common demands in the market. Raw images can be delivered in Product levels that are designed for:

- 1) Image manipulation and photogrammetric analysis by image processing systems,
- 2) Image viewing and feature analysis in geographic information systems, or
- 3) Image viewing and locational reference in any application.

Product Order Form Requirements

Products are standardized with defaults for resampling kernels, bit depth, dynamic range adjustment, datum/projection, tiling, and format. Changing the product defaults may impact the quality or accuracy.

Product Pricing Considerations

The Map-Ready (Ortho) 1:12,000 product has an associated pricing uplift. The other product levels so not. Exact Pricing can be found in the DigitalGlobe Commercial Price List.

Table 4 Product Catalog Overview

PRODUCT NAME	PROCESSING LEVEL	DESCRIPTION	BENEFITS
System-Ready (Basic) System-Ready Stereo (Basic)	1B	DigitalGlobe’s most basic product. Sensor corrected, un-projected (raw) product.	Ideal for 1) image manipulation and photogrammetric analysis by image processing systems. Only DigitalGlobe offers this raw level of product with rigorous model for orthorectification
View-Ready (Standard) OR2A View-Ready Stereo (Standard) OR2A	OR2A	Projected and resampled, projected to average base elevation. .	Ideal for 1) image manipulation and photogrammetric analysis by image processing systems, and 2) image viewing and feature analysis in geographic information systems
View-Ready (Standard) 2A	2A	Projected and resampled, coarse DEM applied.	Ideal for 2) image viewing and feature analysis in geographic information systems, and 3) image viewing by users in applications where location accuracy is NOT important.
Map-Ready (Ortho) 1:12,000	3D	High quality standardized orthorectified imagery Not available using Quickbird Catalog IDs	Ideal for 3) image viewing and locational reference by users in applications where location accuracy is important.
Map-Ready (Ortho) Engineered	3A – 3X	Highest quality built to order orthorectified imagery.	Ideal for 3) image viewing and locational reference by users requiring the highest degree of geo-positional accuracy or higher levels of aesthetics. Requires a custom feasibility analysis and additional price uplifts.

3.3.1 System-Ready (Basic)

System-Ready (Basic) Imagery Products are designed for customers with advanced image processing capabilities. System-Ready (Basic) products have the least amount of processing by DigitalGlobe and provide the maximum processing control to the customer. System-Ready (Basic) products include satellite attitude, ephemeris, and camera model information to enable advanced photogrammetric processing.

System-Ready (Basic) Imagery products are radiometrically corrected and sensor corrected, but not projected to a plane using a map projection or datum. The sensor correction blends all pixels from all detectors into the synthetic array to form a single image. Basic Imagery products have an ‘as-collected’ Ground Sample Distance (GSD) which means the product resolution varies over the entire product because the satellite look angle slowly changes during the image collection process.

The System-Ready (Basic) Imagery product is delivered in the satellite frame of reference; it is not tied to ground location, and is therefore a geometrically raw product with no implied accuracy. However, when the data is processed with the supplied refined Image Support Data (ISD), a horizontal geolocation accuracy of 5 m CE90¹, excluding terrain and off-nadir effects, can be achieved at less than 30° off-nadir.

Specific technical information about the System-Ready (Basic) products can be found in the DigitalGlobe Satellite Imagery Product Guide.

3.3.2 System-Ready Stereo (Basic)

System-Ready Stereo (Basic) Imagery products are suitable for customers with a high level of image expertise and who have software that is capable of ingesting, processing, and/or displaying stereo imagery. System-Ready Stereo (Basic) Imagery products are typically used to create Digital Elevation Models or for three-dimensional feature extraction. Customers ordering stereo products who require a small Area of Interest (AOI), less than 300 sqkm, should order the View-Ready Stereo (Standard) OR2A product while customers requiring large area coverage should opt for the System-Ready Stereo (Basic) Imagery product.

System-Ready Stereo (Basic) Imagery products are comprised of one or more pairs of System-Ready (Basic) Images with 100% overlap over the Area of Interest (AOI). Stereo mates are collected on the same satellite orbit and with specific look angles in order to attain imagery appropriate for stereo viewing. System-Ready Stereo (Basic) Imagery is available in Panchromatic, and 4-Band Bundles. System-Ready Stereo (Basic) Imagery products have an 'as-collected' ground sample distance.

Specific technical information about the System-Ready Stereo (Basic) products can be found in the DigitalGlobe Satellite Imagery Product Guide.

3.3.3 View-Ready (Standard) OR2A

View-Ready (Standard) OR2A Imagery products are suitable for users requiring first order image projections onto a plane using a map projection and datum. This first-order projection sets the stage for orthorectification by customer. View-Ready (Standard) OR2A is a suitable product for large area coverage. Users of View-Ready (Standard) OR2A Imagery products usually possess sufficient image processing tools and knowledge to manipulate and exploit the imagery for a wide variety of applications.

The radiometric corrections applied to View-Ready (Standard) OR2A product include: relative radiometric response between detectors, nonresponsive detector fill, and a conversion for absolute radiometry. The sensor corrections account for internal detector geometry, optical distortion, scan distortion, any line-rate variations, and registration of the panchromatic and multispectral bands. Geometric corrections remove spacecraft orbit position and attitude uncertainty, Earth rotation and curvature, and panoramic distortion.

View-Ready (Standard) OR2A Imagery is map projected but has no topographic relief applied with respect to the reference ellipsoid, making it suitable for orthorectification. View-Ready (Standard) OR2A Imagery is projected to a constant base elevation, which is calculated on the average terrain elevation per order polygon.

Specific technical information about the View-Ready (Standard) OR2A products can be found in the DigitalGlobe Satellite Imagery Product Guide.

3.3.4 View-Ready Stereo (Standard) OR2A

View-Ready Stereo (Standard) OR2A Imagery products are suitable for customers with a high level of image expertise and software that is capable of ingesting, processing and/or displaying stereo imagery. View-Ready Stereo (Standard) OR2A

¹ For Panchromatic + 8-band multispectral products (excluding QuickBird)

Imagery products are typically used to create Digital Elevation Models or for three dimensional feature extraction. View-Ready Stereo (Standard) OR2A Imagery products offer 100% stereo coverage over the Area of Interest (AOI). Customers ordering stereo products who require a small Area of Interest (AOI) should order the View-Ready Stereo (Standard) OR2A product while customers requiring large area coverage should opt for the System-Ready Stereo (Basic) Imagery product.

View-Ready Stereo (Standard) OR2A Imagery is map projected but has no topographic relief applied with respect to the reference ellipsoid, making it suitable for orthorectification. View-Ready Stereo (Standard) OR2A Imagery is projected to a constant base elevation, which is calculated on the average terrain elevation per order polygon.

Specific technical information about the View-Ready Stereo (Standard) OR2A products can be found in the DigitalGlobe Satellite Imagery Product Guide.

3.3.5 View-Ready (Standard) 2A

View-Ready (Standard) 2A Imagery products are identical to the View-Ready (Standard) OR2A products with the additional processing step of applying a coarse Digital Elevation Model (DEM) which is used to normalize for topographic relief with respect to the reference projection and datum. The degree of DEM normalization is relatively small, so while this product has terrain corrections, it is not considered orthorectified.

Specific technical information about the View-Ready (Standard) 2A products can be found in the DigitalGlobe Satellite Imagery Product Guide.

3.3.6 Map-Ready (Ortho) 1:12,000

Map-Ready (Ortho) 1:12,000 products are designed for users that need coverage, consistency, and accuracy for applications and use cases for a map scale of 1:12,000 (1 inch equals 1000 feet). This includes something as simple as providing an accurate imagery backdrop for location context in a mapping application or more complex use cases like creating and revising GIS databases, conflating vector feature layers, change detection, other analytical applications that require a high degree of absolute accuracy.

Map-Ready (Ortho) 1:12,000 products are radiometrically-corrected, sensor-corrected, and orthorectified with a fine Digital Elevation Model (DEM). The resulting accuracy of the Map-Ready (Ortho) 1:12,000 product is 10.2m CE90. Ground Control Points (GCPs) are not required to achieve the Map-Ready (Ortho) 1:12,000 accuracy level (excluding QuickBird). If a higher level of accuracy is required please see the Map-Ready (Ortho) Engineered description.

Map-Ready (Ortho) 1:12,000 products are delivered as individual strips. If block-adjusted strips or orthomosaics are required please order the Map-Ready (Ortho) Engineered product.

Specific technical information about the Map-Ready (Ortho) 1:12,000 products can be found in the DigitalGlobe Satellite Imagery Product Guide.

3.3.7 Map-Ready (Ortho) Engineered

Map-Ready (Ortho) Engineered products require additional datasets like ground control points or high touch processing, like block adjustment, mosaicking, or color balancing to achieve the desired accuracy and aesthetic requirements. When ordering Map-Ready (Ortho) Engineered products Customers may provide their own Digital Elevation Models (DEMs) or Ground Control Points (GCPs). There is no stated accuracy associated with Custom Orthorectified products because the quality and accuracy of the finished product is directly dependent upon the quality and accuracy of the support data. Map-Ready (Ortho) Engineered Products should be ordered using the comments field.

3.4 Additional Product Parameters

Imagery Products have a number of additional parameters which enable them to be optimized for their intended use case or delivered in a way that speeds usage by the customer. DigitalGlobe has standardized the defaults for these parameters based on the most common ordering configurations. These defaults may be changed by the customer on the Imagery Order Form. Product parameters standardized by defaults are; resampling kernels, bit depth, dynamic range adjustment (DRA), datum/projection, tiling, and format.

Additional Product Parameters Order Form Requirements

Changing the recommended defaults for resampling kernels, bit depth, dynamic range adjustment, datum/projection, tiling, and format may change the usability of the product. If changing these defaults please understand the impact to the product.

Additional Product Parameters Pricing Considerations

Additional Product Parameters do not affect pricing

Table 5 Recommended Product Parameters Overview

PRODUCT NAME	Resampling Kernel	Bit Depth	DRA	Datum/Projection	Tiling	Format
System-Ready (Basic)	Resampling kernel recommendation changes based on band selection: Panchromatic: NN,CC, MTF, ENH 3- and 4-Band Pansharpened: CC, PS, ENH 4- and 8-Band Bundle: NN, CC, MTF SWIR: BL	16-bit	Off	N/A	Not Available	GeoTIFF
System-Ready Stereo (Basic)		16-bit	Off	N/A	Not Available	GeoTIFF
View-Ready (Standard) OR2A		16-bit	Off	WGS84 Geographic	None or 16k x 16x Pixel Based if required	GeoTIFF
View-Ready Stereo (Standard) OR2A		16-bit	Off	WGS84 Geographic	None or 16k x 16x Pixel Based if required	GeoTIFF
View-Ready (Standard) 2A		8-bit	On	WGS84 Geographic	None or 16k x 16x Pixel Based if required	GeoTIFF
Map-Ready (Ortho) 1:12,000		8-bit	On	WGS84 Geographic	None or 16k x 16x Pixel Based if required	GeoTIFF

3.4.1 Resampling Kernels

Resampling is necessary to align individual imagery pixels to a regularly spaced coordinate grid. It is used to create regularly sized pixel resolutions from varying ground sample distances within an image, in pansharpening, in projections, and in up-sampling or down-sampling. Specific technical information about the Resampling Kernels can be found in the DigitalGlobe Satellite Imagery Product Guide. DigitalGlobe offers the following resampling options:

Table 6 Resampling Kernels and observed results (see Band recommendations in Table 5)

Resampling Kernel	Observed results
4x4 Cubic Convolution (CC)	This is the most popular resampling kernel. It provides a good balance between smoothness and sharpness.
Enhanced (E)	Produces very fine detail and is recommended for any user doing feature extraction or delineation. As with all sharpening kernels, it may introduce artifacts.
Modulation transfer function (MTF)	This method provides for sharpness in detail but can result in an over-sharpening effect introducing artifacts in homogenous areas such as water bodies.

Resampling Kernel	Observed results
Nearest Neighbor (NN)	This method provides the most spectral fidelity. It is the best option for scientific applications and spectral classification where the user may want the 'purist' pixel.
Pansharpener (PS)	This option has been tuned for pan-sharpened products.
2x2 Bilinear	Appropriate for 7.5m pixel size. Allowed for SWIR Only.

3.4.2 Bit Depth

Bit Depth determines how much data is contained within each pixel. Each option has different strengths for various use cases.

Table 7 Bit Depth and Recommended Uses

Bit Depth	Recommended Uses
16-Bit	Larger overall product file sizes due to more data. Ideal for advanced image processing including feature extraction, change detection and other spectral analysis. Better penetration of shadows and low light conditions. Only available with DRA Off.
8-Bit	Smaller overall product file sizes due to less data. Ideal for display and visualization in GIS and mapping applications. Usually selected with DRA On.

3.4.3 Dynamic Range Adjustment (DRA)

Dynamic Range Adjustment is an On/Off option that automatically adjusts histograms of color, contrast and brightness to create a more vibrant and aesthetic image. DRA On must be selected together with 8-bit and DRA Off is usually selected with 16-bit.

3.4.4 Datum and Projection

Datums and Projections are used throughout the mapping industry to create alignment within a common geographic framework. DigitalGlobe supports the most commonly used global datums and projections. There are many commercial software applications that can be used to transform these standardized projections from DigitalGlobe into the hundreds of datum/projection combinations used locally around the world. The datum/projection combinations supported in DigitalGlobe's standard products are:

- WGS84 Geographic – Decimal Degrees
- WGS84 UTM – Meters
- NAD83 UTM – Meters

3.4.5 Tiling

Satellite Imagery products can result in large file sizes and a single image can easily exceed available media sizes and commercial software capabilities. Satellite Image files sizes are a function of the number of square kilometers, the resolution, the number of bands, bit depth, and the Product type. Because some Core Imagery products cannot fit in their entirety on all available media types or may be cumbersome to work with due to their large size, DigitalGlobe offers the option to break up imagery into smaller pieces called tiles. In some cases DigitalGlobe will determine that a product must be Tiled after Order submittal and the Customer Service team will inform the customer if this is required.

Tiles are defined by pixel based grids that enable large imagery files to fit on standard media or be used easier in commercial software. Specific technical information about the Tiling can be found in the DigitalGlobe Satellite Imagery Product Guide. Pixel based tiles supported in DigitalGlobe's standard products are:

- None – No Tiling applied
- 8k x 8k Pixel Based - 8,192 pixels by 8,192 pixels
- 14k x14k Pixel Based - 14,336 pixels by 14,336 pixels
- 16k x 16k Pixel Based - 16,384 by 16,384 pixels

3.4.6 Format

DigitalGlobe provides its Satellite Imagery products to customers in a variety of industry standard image formats. The imagery formats supported for DigitalGlobe’s standard products are:

- GeoTIFF 1.0
- NITF 2.0
- NITF 2.1

4. License Information

DigitalGlobe licenses its products to end users or authorized resellers and is required by US law to collect accurate information about our licensees. In order to meet this requirement, the End User (Licensed Entity) section must be completely and accurately filled in.. It is important that the following rules are followed when filling out this section:

- Full First Name and Last Name must be used. Initials are not allowed.
- The complete legal name of the company, if applicable, must be used.
- Address must be a physical address. PO Boxes are not allowed.
- City and Country are required. State and Postal Code are also required if applicable.

DigitalGlobe provides a number of licensing options so the selected Imagery Product can be used and shared by the end customer. Our standard Imagery Product licenses are for the end user’s Internal Purposes only. “Internal Purposes” means that the end user will use the product solely for its internal business purposes and not for any commercial purpose such as providing services to a third party or including the imagery in a product that the customer licenses to third parties.

The primary license driver is the number of entities or agencies that will have access to and the right to use the Imagery Product, and the available options are: Internal Use License, Group 1-5 License, and Group >5 License. Regardless of which license is selected, an unlimited number of employees and contractors of the entities or agencies covered by the purchased license are permitted to use the Imagery Products in accordance with the terms and conditions of the license.

The term of the license is the secondary driver of license selection, and the available options are: Perpetual or 12 months.

The market segment that the Imagery Product is being used within can provide a licensing discount. The available options for market segment are: All/Commercial, Education, FedGov (US Only), and NGO/GDO. Finally, in order to comply with export controls, DigitalGlobe collects information on vertical markets where licensed Imagery Products are being used, and this selection is made in the Product Usage section.

If one of our standard license options does not meet your needs, you will need a CUSTOM LICENSE. Please contact your Sales Representative to discuss the license rights that you need. Specific License information can be found on the DigitalGlobe website <https://www.digitalglobe.com/pages/terms-of-use> or on the partner portal.

Table 8 License Type Selections

Option	Description
Internal Use License	A single individual, single legal entity or single government agency can use products for internal purposes.
Group 1-5 License	A group of 1 to 5 affiliated entities or a group of 1 to 5 agencies that are a part of the same

Option	Description
	government can use products for internal purposes.
Group >5 License	A group of more than 5 affiliated entities or a group of more than 5 agencies that are a part of the same government can use products for internal purposes.

Table 9 License Term Selections

Option	Description
Perpetual	License Type selection is valid in perpetuity
12 months	License Type selection is valid for 1-year term (will auto renew upon expiration)

Table 10 Segment Selections

Option	Description
All/Commercial	A customer that is a single individual, legal entity or or government agency.
Education	A customer that is a university, college, technical training institute or school utilizing the product solely for educational purposes.
FedGov	A customer that is an agency in the U.S. Federal government or a prime contractor that proves it is working on a project for the U.S. Federal government by providing a contractual document showing a U.S. Federal agency Contract Order No. or Task Order No., a USG research grant document or a letter (on U.S. government agency letterhead) from the U.S. government funding agency sponsor directing the academic institution or contractor to conduct the project activity and/or license Products using U.S. government funding.
GDO/NGO	A customer that is a non-governmental, non-profit organization or a global development organization, each that contributes to or participates in cooperation projects, education, training or other humanitarian, progressive or watchdog activities.

5. Delivery Options

DigitalGlobe supports electronic and physical media delivery options for delivering Imagery Products to customers.

Physical media delivery is accomplished via DVD and when shipped by courier, DigitalGlobe selects the most reliable and quickest service based upon customer location. As a custom option Customers may request hard drive delivery for very large orders.

Electronic delivery is accomplished via an FTP Pull. When FTP Pull is selected DigitalGlobe will setup a temporary onetime FTP location and provide access to the customer to pull the ordered products to their network.

If required the customer may request additional media delivery in addition to the first media selection. The customer may also select an option for Rush Archive to prioritize the product production and delivery.

Table 11 Delivery Option Selections

Option	Selections
Delivery Media	FTP Pull – Recommended DVD
Additional Media	None – Default FTP Pull DVD
Rush Archive	No – Default Yes

Delivery Options Order Form Requirements

If a delivery requirement is not covered by our standard delivery options please use the comments field to enter the custom request

Delivery Options Pricing Considerations

Shipping charges will be added to the order for Media shipments. Additional Pricing applies to dual delivery and customer requests. Exact Pricing can be found in the DigitalGlobe Commercial Price List.

5.1 Delivery Timelines

Delivery time for products depends on the product and product options that a customer selects. Table 12 outlines the average timetables for product delivery. Times in this table indicate the number of business days to shipment, after DigitalGlobe receives all of the necessary data to process an order. For ImageLibrary products, this time is number of days after order confirmation. Your product is delivered immediately upon completion of processing. For System-Ready (Basic) and View-Ready (Standard) New Collection Imagery, this is after imagery acquisition. For Map-Ready (Ortho) New Collection Imagery, this is after imagery acquisition, and the collection of appropriate Digital Elevation Models (DEMs) and Ground Control Points (GCPs).

Processing time for System-Ready (Basic) and View-Ready (Standard) level products is 1-3 days; for Map-Ready (Ortho) products, the processing time depends on the area of the order.

If you need your ImageLibrary imagery as soon as possible, a Rush ImageLibrary option is available for System-Ready (Basic) and View-Ready (Standard) level products. With the Rush option, the processing time is 24-48 hours, depending on the level of processing selected.

Table 12 Expected Delivery Times, By Product Type and New Collection Type

Product Level ²	Select/ Select Plus	ImageLibrary	Rush ImageLibrary
System-Ready (Basic) Products	3 days	1-3 days	24 hours
View-Ready (Standard) Products	3 days	1-3 days	24 hours

² All timelines based on business days (Monday-Friday). Processing assumes one image. Additional contiguous images in a single order will add a nominal number of days.

Product Level ²	Select/ Select Plus	ImageLibrary	Rush ImageLibrary
View-Ready (Standard) Products – pan-sharpened	3 days	1-3 days	48 hours
Map-Ready (Ortho) 1:12,000 – less than 1500 km ²	3 days	3 days	N/A
Map-Ready (Ortho) 1:12,000 – more than 1500 km ²	5 days	5 days	N/A
Map-Ready (Ortho) Engineered	Custom	Custom	Custom

6. Comments and Non-Standard Product Requests

DigitalGlobe recognizes that our customers are often trying to solve complex problems in unique ways and that flexibility in Product Ordering may be required to achieve their mission. While, our standardized products are designed to meet the largest number of use cases in the market today, DigitalGlobe provides the flexibility to handle non-standard and custom product requests from our customers. Non-standard product requests can generally be handled within our business processes but may incur longer timelines or additional costs. Custom requests will engage a sales engineer to fully understand the requirements and facilitate the development of potential solutions.

Comment and Non-Standard Product Requests Order Form Requirements

If a product requirement is not covered by our standardized product options please use the comments field to enter the custom request.

Comment and Non-Standard Product Requests Pricing Considerations

Additional Pricing may apply to non-standard or custom requests. Pricing determination for these request occurs manually.