



# DAP Hyper Datasets

Technical Note



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# Creating Hyper Datasets

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## Hyper Datasets

You may choose to publish certain performance-sensitive data as a “hyper-store”, which is optimized to support high-performance windowing and extraction for very large datasets. A good example of such a dataset is the global SRTM topography data hosted on Geosoft DAP Server. This is an extremely large dataset sampled on a 3 second interval, which results in more than 60,000,000,000 points. This data is stored in the Geosoft DAP HyperGrid (hyper-store for grids and images), which makes browsing the world in the Geosoft web portal very fast.

Geosoft DAP supports three types of hyper-stores:

- ▶ HyperGrid (HGD) – Optimized read-only grid format for the Geosoft DAP servers that supports compression and extremely fast windowing and multi-threading. We recommend that very large grids or images that require frequent windowing to support client requests be provided to Geosoft DAP servers in the HyperGrid format. HyperGrids can be created from single grids or images, or from a mosaic constructed from a set of grids or images.
- ▶ HyperXYZ (HXYZ) – Optimized point-data format used to store very large “table” datasets, such as point geochemistry or mineral occurrence data. The data is stored in a quad-tree search structure to support very fast windowing of small sets of data from a very large database. HyperXYZ datasets can be created from Geosoft GDB files or from any database using SQL queries.
- ▶ HyperMAP (HMAP) – Vector drawing format for very large vector data to be windowed and rendered at a wide range of scales. The vector data is stored at multiple resolutions in a quad-tree search structure, which enables this data to be efficiently retrieved for any map scale. For example, a drainage vector layer is an ideal candidate to be stored as a HyperMAP. Some dataset types automatically create HyperMAPs as redirect images. To create a HyperMAP, you can draw the data in a Geosoft map group the way you would like the data to appear in a client application.

All hyper formats should be created in the coordinate system of the browser map to achieve optimum performance.

GXs to create Hyper Datasets can be accessed in Oasis montaj. These options will create HyperGrids, HyperGrid Mosaic, HyperMap and HyperXYZ. Hyper Datasets are often used for redirect image preview and serving very large point or raster datasets.

## Creating a Geosoft HyperGrid

The **Geosoft HyperGrid** option enables you to create a Geosoft HyperGrid (\*.hgd) from a grid or image file. A Geosoft HyperGrid is an optimized read-only grid format for DAP servers and supports

compression, extremely fast windowing and multithreading. We recommend that very large grids or images that require frequent windowing to support client requests be provided to a DAP server in HyperGrid format.

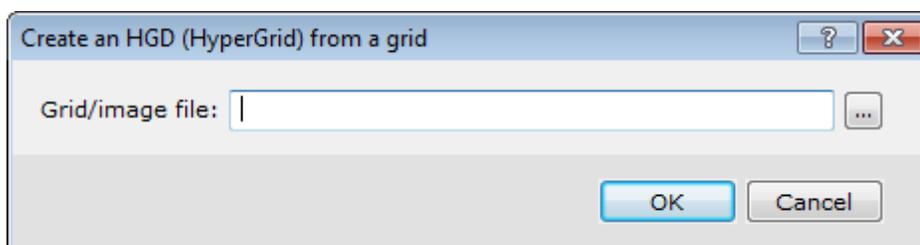
The actual HyperGrid is made up of a set of compressed files as follows:

- (\*.hgd) the base grid index file.
- (\*.hgd.gi) contains the georeferencing information.
- (\*.hgd#) where '#' is 0, 1, 2, 3, etc. These are individual compressed grids of the original data at resolutions that are factors of two different in size.

**To Create a Geosoft Hyper Grid file:**

1. In Oasis montaj, run the HGDIMG.GX to **create an HGD (HyperGrid) from a grid**.

The *Create an HGD (HyperGrid) from a grid* dialog will be displayed.



2. Click the  button and browse to the location of the input *Grid/image file*. A Hypergrid with this same name will be automatically created in the same folder as the input grid or image.
3. Upload the Hypergrid dataset to the incoming folder.

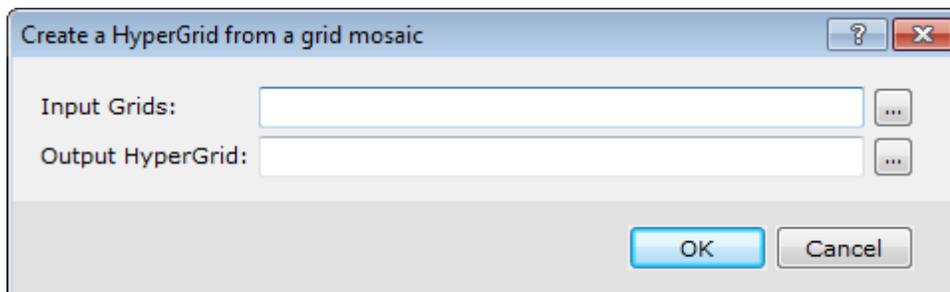
## Creating a Geosoft HyperGrid Mosaic

The **Geosoft HyperGrid Mosaic** option enables you to create a Geosoft HyperGrid file (\*.hgd) from a set of grid or image files that together make up a mosaic of a larger area.

**To Create a Geosoft HyperGrid Mosaic file:**

1. In Oasis montaj, run the HGDMOSAIC.GX to **create a HyperGrid from a grid mosaic**.

The *Create a HyperGrid from a grid mosaic* dialog will be displayed.



2. Click the  button and use the **Ctrl** key to select the *Input Grids* to include in the HyperGrid Mosaic, then in the *Output HyperGrid* box, specify a new file name.

3. Click **OK** and the Geosoft HyperGrid Mosaic with the specified Output filename is created in the same folder as the Input grids.

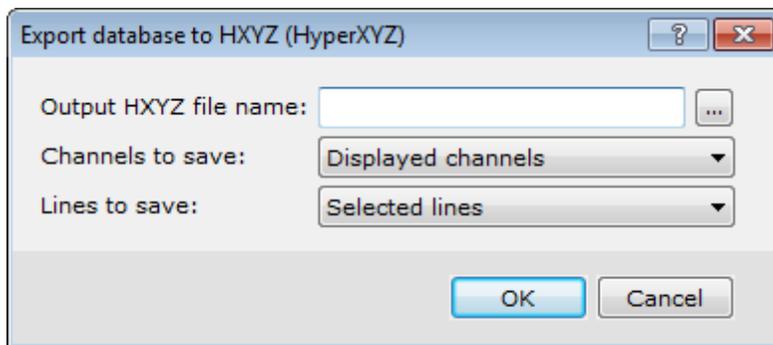
## Creating a Geosoft HyperXYZ from a Geosoft Database

The **Geosoft HyperXYZ from GDB** option enables you to create a Geosoft HyperXYZ (\*.hxyz) from a Geosoft random point database (\*.gdb) file.

This point format was designed as an optimized read-only format for DAP servers and supports compression, fast windowing and multithreading. It is recommended that all point data stored on a DAP server use this format to ensure the server functions efficiently.

### To Create a Geosoft HyperXYZ:

1. In Oasis montaj, run HXYZGDB.GX to **create a HyperXYZ from a GDB**.
2. The *Export database to HXYZ (HyperXYZ)* dialog will be displayed.



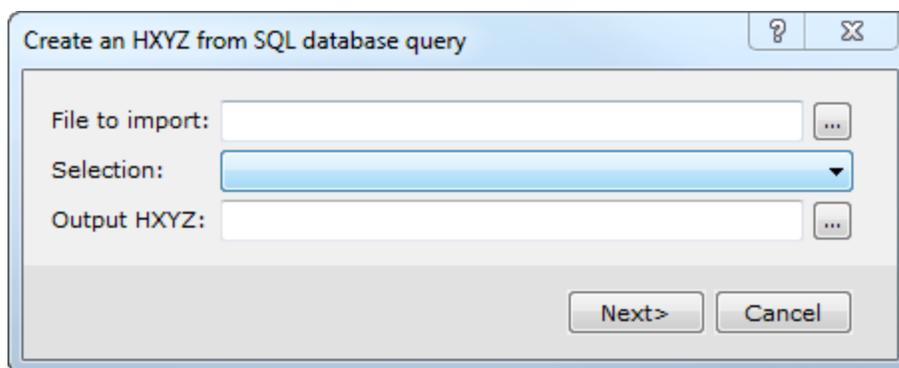
3. Enter a name or click the  button to browse to the location for the *Output HXYZ file name*. The current GDB will be used, or a prompt to open a GDB will appear. The *Channel to save* and *Lines to save* parameters will be populated with the selected database information.
4. Click **OK**. Multiple files are created with the same name and extensions: hxyz, .hxyzd, .hxyzzi, etc. They must all be uploaded together for the HXYZ to work correctly.

## Creating a Geosoft HyperXYZ from a SQL database query

The **Geosoft HyperXYZ from SQL** option enables you to create a Geosoft HyperXYZ (\*.hxyz) from any SQL database.

### To Create a Geosoft HyperXYZ:

1. In Oasis montaj, run HXYZSQL.GX to **create a HyperXYZ from SQL**.  
The *Create an HXYZ from SQL database query* dialog will be displayed.



2. Click the  button to browse for the database file name. Access \*.mdb and several other database formats are supported. Choose **Selected table & fields** or **SQL Selection** from the *Selection* option.
3. Enter a name or click the button to browse to the location for the *Output HXYZ name*.
4. Click **Next**. The *Import Database* dialog will be displayed. Enter the data selection criteria.
5. Click **OK**. Multiple files are created with the same name and extensions: hxyz, .hxyzd, .hxyzi, etc. They must all be uploaded together for the HXYZ to work correctly.

## Creating a Geosoft HyperMap

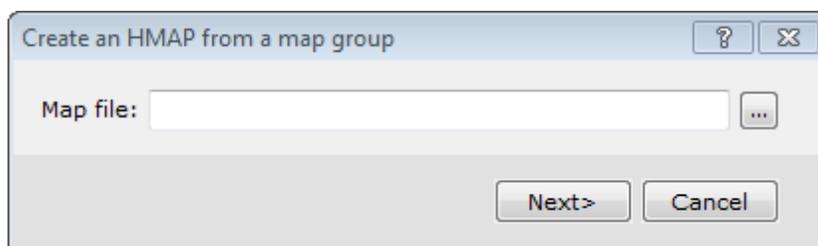
HyperMaps are optimized vector map drawings created from a Geosoft map group. They are intended for very large and frequently accessed vector datasets to be viewed at a variety of scales and windowed to smaller areas. HyperMaps are naturally de-aliased, and provide optimum DAP performance in these cases. A regional, but detailed drainage map is a good example of a vector layer that is ideal for a HyperMap. It is recommended that HyperMaps should only be used as redirect image previews, and not as published datasets. HyperMap redirect images are automatically created for MapInfo TAB files.

 *Note: HMAP creation is not supported in Oasis montaj 7.5 and higher.*

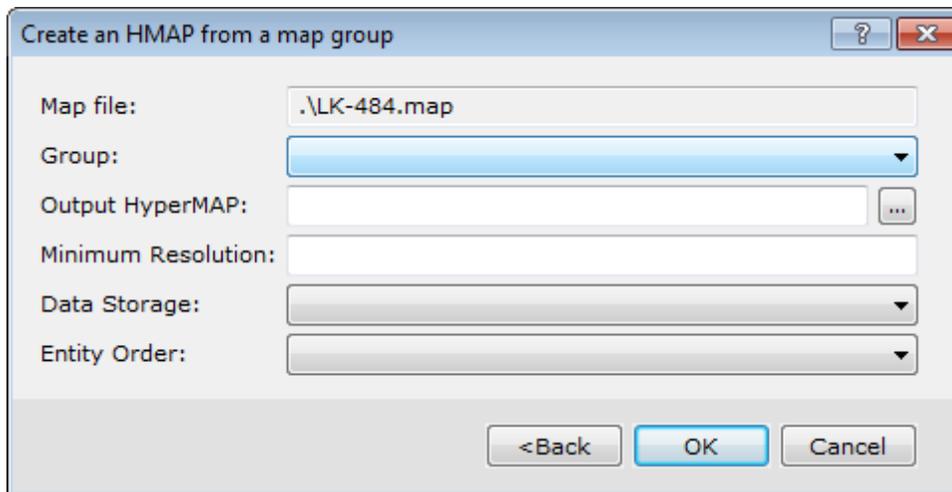
### To Create a Geosoft HyperMap file:

1. In Oasis montaj, run the HMAPMAP.gx to Create an HMAP from a map group.

The *Create an HMAP from a map group* dialog will be displayed.



2. Click the  button and browse to the location of the input *Map file* and click **Next >**.
3. Using the *Group* dropdown list, select the name of the Group you will be creating the HyperMAP from.



4. In the *Output HyperMAP* box, specify the name of the HyperMap to create. All the data for this store will be in a single file with the (\*.hmap) extension.
5. In the *Min Resolution* box, specify the minimum resolution to store the HyperMap file.



*The HyperMAP will always store all entities in their initial resolution. The dataset will be processed and thinned to a specific resolution. This parameter specifies the resolution for the first thinning operation. This resolution will then be doubled and the process will be done again until a standard cut-off resolution is reached. It is important to specify a resolution that is an approximation of the actual resolution of the dataset.*

6. Using the *Data storage* dropdown list, select **Multiple** or **Single** storage. This parameter enables you to choose between smaller HyperMAP files and better performance during the extraction process. You can configure multiple data stores, one for each rendering level or a single shared data store. The performance penalties occur with large HyperMAPs when the higher level layers are used.
7. Using the *Entity Order* dropdown list, select **Tree optimized order (fast)** or **Original render order (slow)**.



*The Entity Order parameter controls the ordering of entities in the HyperMAP. If the HyperMAP contain filled entities (polygons) and the order of the rendering is important, then the "Original Render Order" should be chosen. This will decrease performance but will ensure that the render order of the entities does not change. If the HyperMAP is primarily composed of line entities or the render order is not important then choosing "Tree Optimized Order" will result in more efficient extraction.*

8. Click **OK** and the Geosoft HyperMap with the specified parameters is created in the same folder as the Input map.