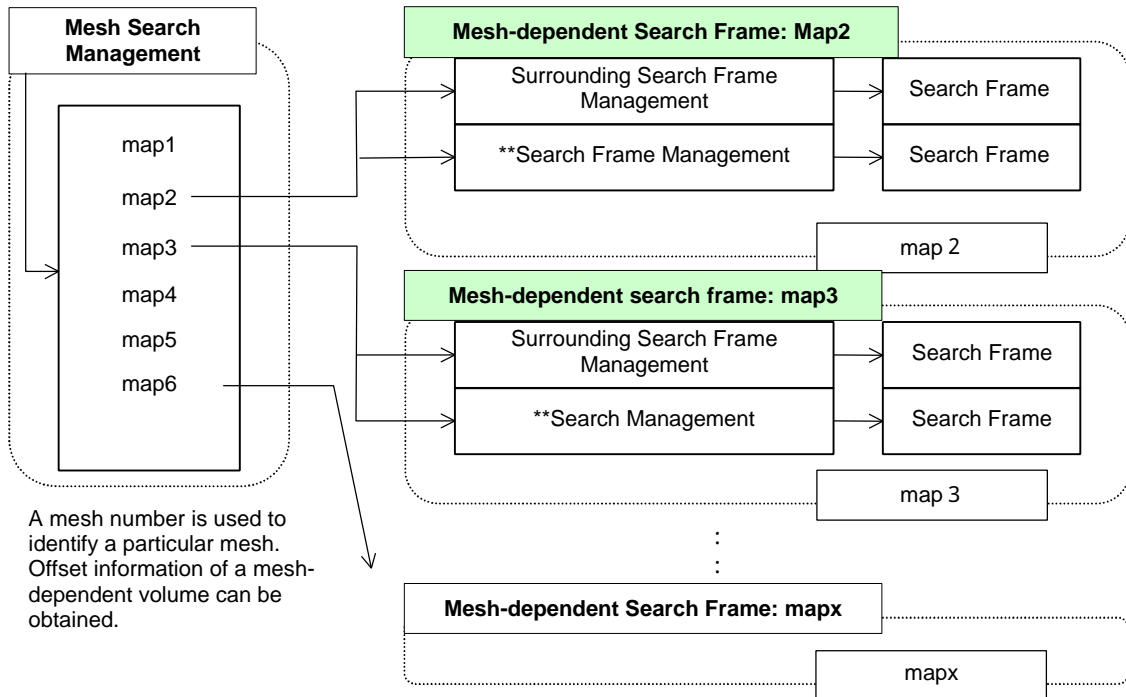


11.9 Overall Structure of Search Meshes

After the mesh search (management frame) identifies a target mesh for the data to be processed by search mesh, it requests the management of the volumes (search frames) constituting the mesh to execute the search processing.

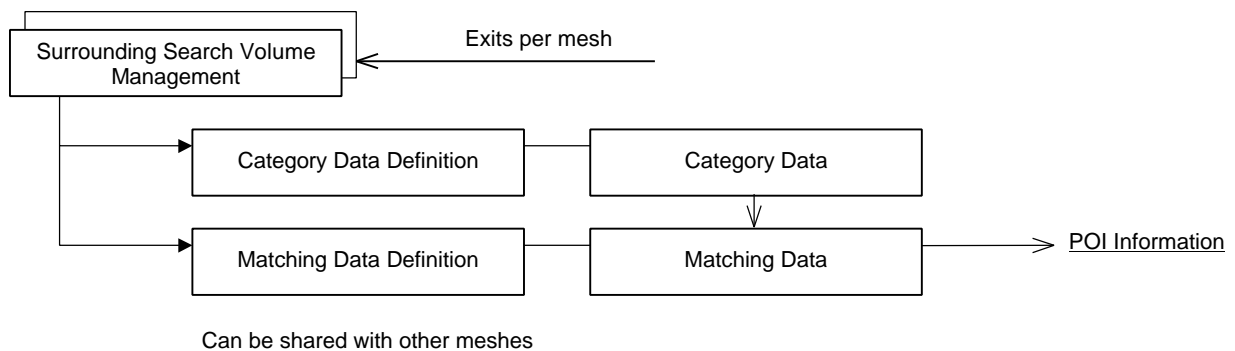
Data that is remarkably dependent on map/area, such as those to be processed by nearby search, can be held as additional information A or B, whereas, the search range can be limited by the use of mesh search. (Mesh search is effective particularly when index data is supplied from the external.)



Management of Mesh-dependent Volumes

Mesh-dependent data search frame structure

Search frames of mesh-dependent data are the same as general search frames. For example, a search through the Japanese syllabary can be executed, limited to the target mesh.



Mesh-dependent Data Search Frame Structure

POI information data can also be stored per mesh. POI information data can be stored in the location close to the surrounding information data per a mesh. Thus, the efficiency of data acquisition is enhanced when acquiring the information of multiple neighboring facilities from the POI information.

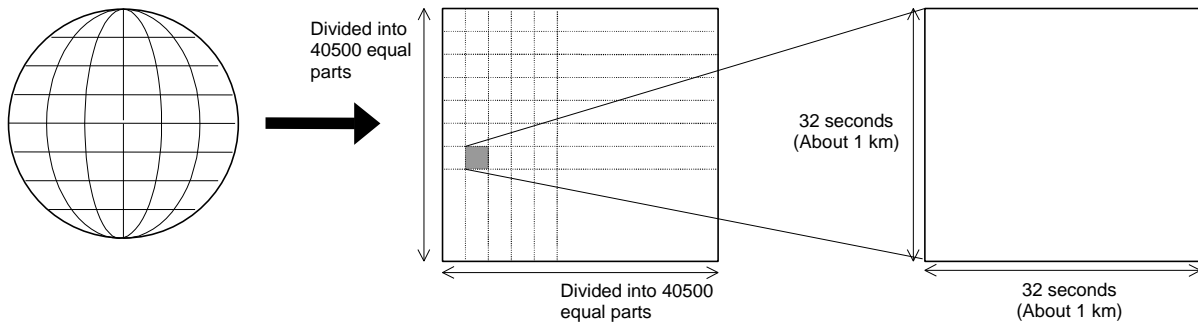
If there is an index frame beyond the range of a mesh (such as in case of a telephone number index throughout the country), 'POI offset' allows access without using a mesh, just as in the conventional way.

11.9.1 Search Meshes

To improve the efficiency of access to the data to be searched and to enable nearby search on disks dedicated to POI, the data for POI information, nearby search, etc. shall be stored in units of map meshes.

11.9.1.1 Definition of Search Meshes

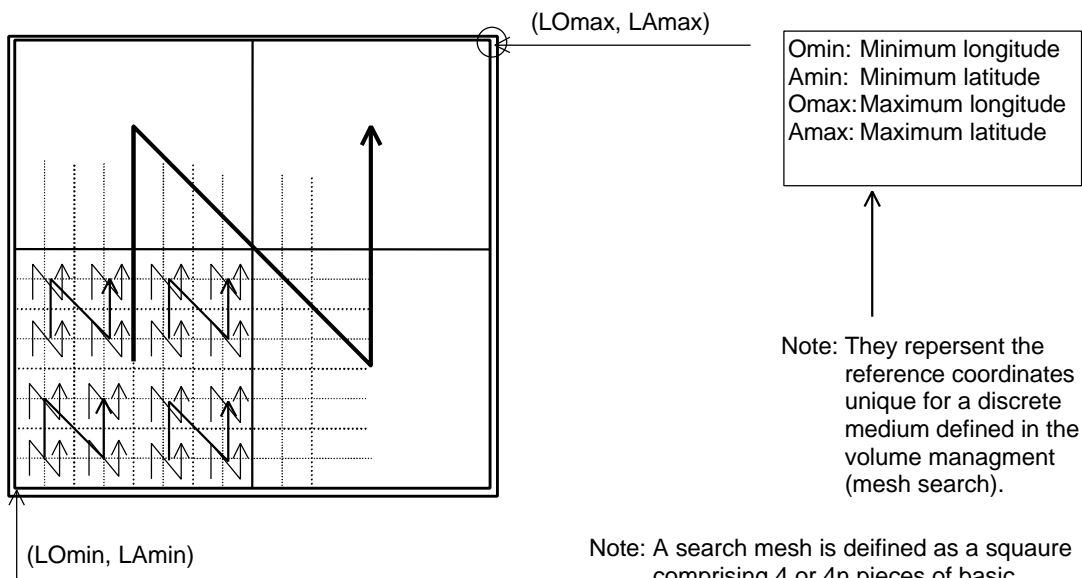
Search meshes are unique around the world, normalized by longitudes and latitudes.



Meshes represented by 4-byte notation can cover the earth

Definition of Search Meshes

11.9.1.2 Search Mesh Storing Order



Sequence in which search meshes are stored

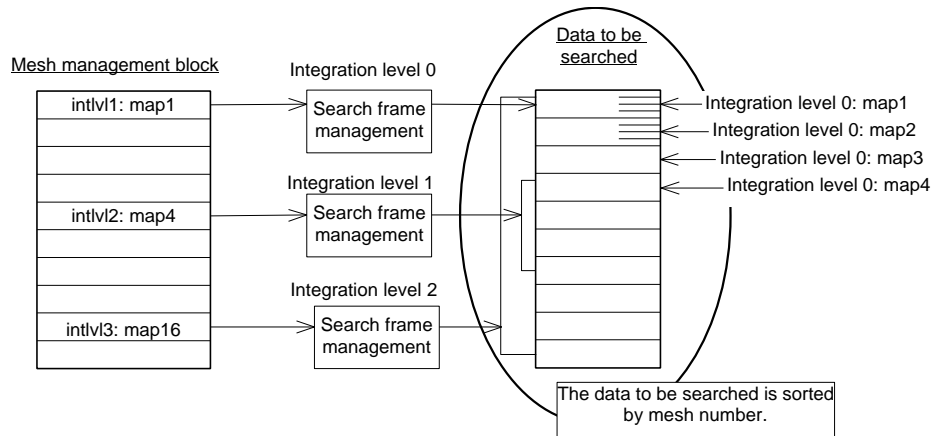
Search mesh-dependent data is stored in the sequence marked by letter N as above.

As the data is stored in order as above, adjacent maps will be placed successively and even higher level meshes (squares, each comprising four meshes) will be placed one after another.

11.9.1.3 Sharing Data with Integrated Meshes for Mesh Search

A data creator can divide all mesh-dependent data into meshes and store them. If, for example, nearby search is performed in a 10 square km area, a maximum of 100 meshes must be searched, which may decrease the data acquisition efficiency.

For volumes of the contents as above for which search is performed, a method can be applied in which the data frames are integrated to improve the data acquisition efficiency. (Nearby search data will be stored in the integrated data structure.)



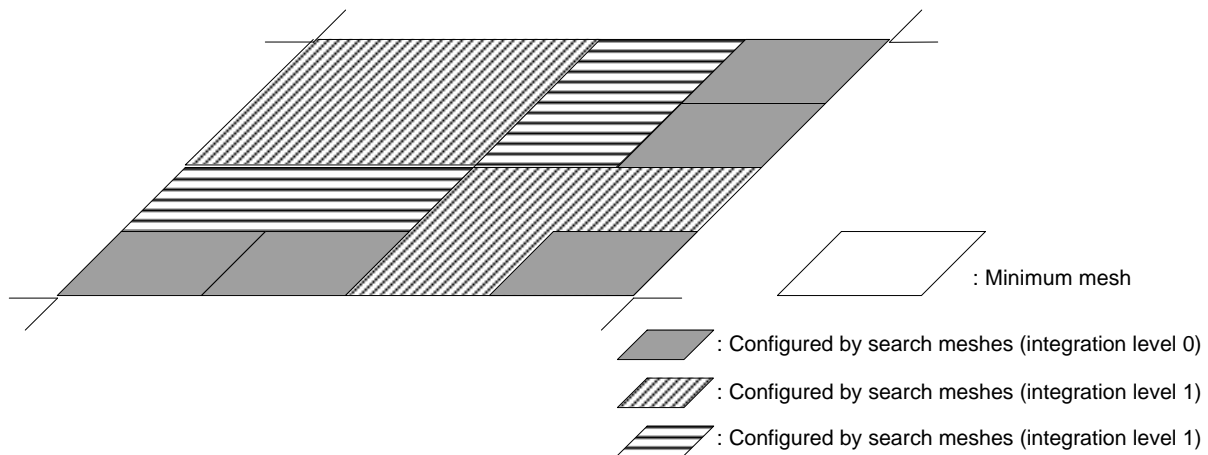
Sharing data with integrated meshes

1. By providing a discrete management of volumes for each integrated mesh, the volumes to be searched can be configured per integrated mesh.

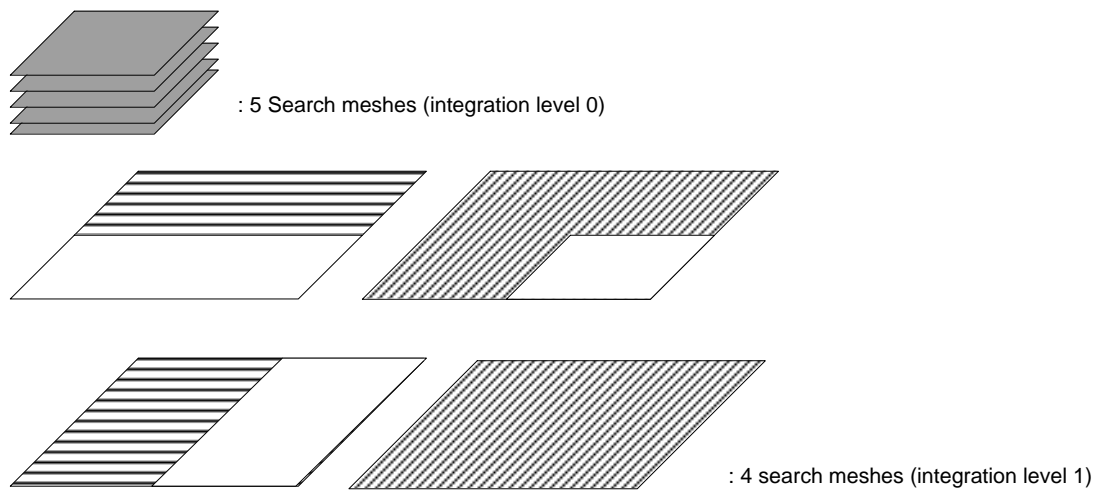
The thus configured data appropriate to the levels (category codes, coordinates, and for nearby search) can be shared.

2. Meshes with a small number of data can be integrated on purpose by mesh search.

11.9.1.4 Conceptual View of Integrated Meshes



Configuration of search meshes



11.9.1.5 Search Mesh Numbers

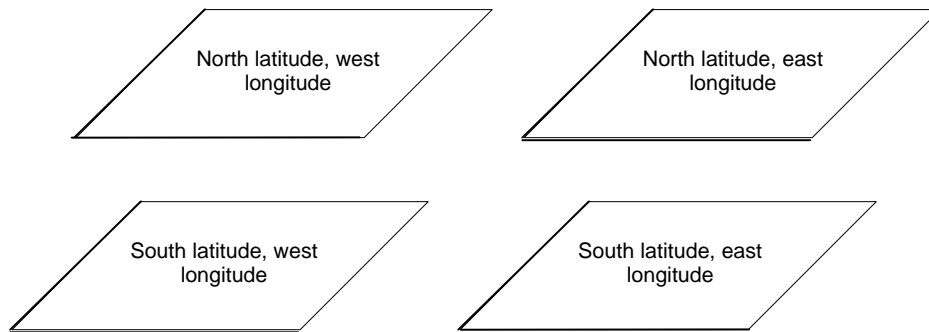
Search mesh numbers shall be serial numbers from 0. The numbering sequence shall be coincident with the sequence described in Subsection 11.9.1.2, "Sequence in which search meshes are stored."

11.9.1.6 Integration Level of Search Meshes

Expansion of integration of basic meshes is expressed in levels. Sequentially increasing levels 0 to 15 can be set. The number of basic meshes corresponding to integration level n shall be $4n$.

11.9.1.7 Search Meshes Boundary Definition

The basic longitude and latitude shall be defined as being greater than or equal to the minimum longitude and latitude (PID) of the defined mesh area and less than the maximum longitude and latitude.



Bold lines form a basic mesh.

11.9.2 Nearby Facility Search

The additional frame A and B (and mesh-dependent volumes) is used to determine by referring to volume management record whether the data should be written in the map unit or outside the map unit.

The data to be stored in the map unit is a matching data including the type code and store code. The type codes and store codes are narrowed down using the category and the retrieved data are retained.

The normalized coordinates of the unit are stored together in the matching table since the data must be stored in the map unit.

When a name defined by the category code in the matching table is selected, it is displayed. When the name selection is fixed by CR or other means, the relevant POI information is recalled and its text is displayed.

Management data defines either additional data frame A or B of the map unit to be used. (See Section 7.5.)