

Instructions for USGS authors submitting geologic map databases to the National Geologic Map Database

The National Geologic Map Database (NGMDB) is mandated in the National Geologic Mapping Act of 1992 and its Reauthorizations to serve as the national archive of geologic maps and related geoscience maps, reports, and data. This document provides USGS authors of geologic map databases with instructions necessary to reposit those products in the NGMDB. It addresses steps to be taken when concurrently releasing the cartographic product and map database. For the release of just a map database, please follow those steps found to be relevant.

It is herein assumed that USGS authors are familiar with the USGS publications process. However, the following points warrant explanation:

- This document addresses the repositing of GeMS-compliant Esri file geodatabases for geologic and related maps (e.g., structure contour maps) but also can apply to GIS files in other schemas and formats.
- The term “geospatial database,” also commonly known as “map database” is herein abbreviated to “GDB.”
- The term “GeMS package” refers to the set of files (including the GDB) and the directory structure required for submission to the NGMDB.
- According to current USGS policy, the GDB is tracked, reviewed, and approved separately from the geologic map’s cartographic product and is made public in a “data release” whereas the cartographic product is separately released. It is assumed that authors are aware of all steps that must be taken to fulfill policy pertaining to release of GDBs and cartographic products, with the exception of steps that specifically apply to repositing in the NGMDB as described in this document.
- The geologic names review (GNR) is not part of the GeMS submission process. However, because Geolex is managed by the NGMDB, guidance on when, and how, the GNR is conducted is included in these instructions.

Before submission of the cartographic product to SPN:

- If the author intends for the map and(or) GDB to be updated, replaced, or versioned, then for the benefit of end users it is recommended that the product title and metadata address that intent. Content suggestions for the title and metadata are provided in the Appendix. It is anticipated that this set of suggestions will evolve in response to author input.
- When preparing the GDB for review, the USGS author follows the instructions for preparing the GeMS package for submittal and QC that are posted to the GeMS Webpage (<https://ngmdb.usgs.gov/Info/standards/GeMS/> -- see the Resources/Delivery section).
- Prior to the peer review of the map and review of the GDB and metadata, the author executes the GeMS geologic names and validation checking scripts. These scripts aid in the reviews by providing: (1) a comparison of formal geologic names on the map and in Geolex that can serve as a resource for the GNR; and (2) a topologic and schema check to

identify any issues related to the GDB that need to be resolved before submission of the GeMS package.

- Although the GNR can be conducted at any stage in the map publication workflow, it is recommended to be conducted as part of a thorough peer review by an expert in the region's geology. As a reminder, that person could be in a different cost center from the author, or in another agency. If a GNR is not conducted before the manuscript is submitted for SPN edit, then the servicing Publishing Service Center (PSC) can arrange for a GNR to be done. The GNR should address the content in the draft cartographic product, the GDB, the metadata, and any accompanying pamphlet or report, because separate reviews of these components of the geologic map product might result in inconsistent usage of geologic names.
- After peer review of the map, GDB, and metadata, the author submits the GeMS package to the NGMDB Connect site (<https://ngmdb.usgs.gov/connect/>). That submittal enables the QC team to identify any issues with the topology, schema, directory structure, or filenames that should be corrected before the GDB is finalized. When uploading the GeMS package, indicate in the Webform that the GDB is not yet deemed acceptable for public download. The QC team will evaluate the submission and convey to the author any errors or modifications (for example, in topology, metadata, or directory structure) that must be addressed before final submission. The GeMS QC evaluation does not address the science.

During technical editing by SPN:

- To ensure that the map's cartographic product and GDB are identical in content, any issues identified during editorial review must be addressed in both. The author and servicing PSC will work together to determine who incorporates the changes. The GeMS geologic names and validation checking scripts should be executed again after changes are made, to ensure compliance.

After Bureau Approval of map and GDB:

- At the time deemed appropriate by the author and(or) the geologic map editor (GME), the author contacts the NGMDB to initiate creation of the DOI and the PID (Persistent Identifier) for the data release. In that request, the author should provide:
 - Title
 - List of authors (indicate any non-USGS authors)
 - IPDS number (also provide the IPDS number for the map, if the GDB is intended to accompany it)
 - Name of the GME
 - Abstract.
- NGMDB staff creates the DOI and PID and sends that information to the author and GME. The author inserts the DOI and PID into the metadata. The DOI is included in the suggested citation for the data release.
- To insert the PID in the metadata, follow the instructions at <https://doimsp.sharepoint.com/sites/usgs-sdm-apps/ais/SitePages/Where-is-the-generated-PID-inserted-in-the-XML-metadata-file.aspx>.
- When cartographic production has been completed, the GME sends to the NGMDB: (a) the final PDFs of the map and any accompanying files (for example, the pamphlet, report,

other plates); (b) the Publications Warehouse’s DOI for the map publication; and (c) the suggested citations for the map publication and for the data release (see example citations at https://ngmdb.usgs.gov/Prodesc/proddesc_114652.htm).

- The NGMDB creates the PDP (“Product Description Page,” which is the NGMDB landing page) for the data release but does not yet make it public.
- The NGMDB informs author of the NGMDB publication ID, for author’s use when submitting the final GeMS package.
- Author rechecks details in the GeMS Requirements document and submits the finalized GeMS package to the NGMDB Connect site. In the submission form, the author specifies that the GDB is now deemed acceptable for public download.
- The GeMS QC team evaluates the GeMS package and communicates to the author any necessary changes to the organization of that package. As noted above, this evaluation does not address the scientific content. If the GeMS Requirements were followed in the author’s initial submittal, then any changes should be minimal.
- Author revises contents of the GeMS package as needed and resubmits to the NGMDB for QC review. The QC team will notify the author and the NCGMP Senior Program Scientist for the NGMDB when the GeMS package has passed the review.

Final steps, by NGMDB, SPN, and Publications Warehouse (PW):

- The NGMDB reposit the submitted GeMS package and creates the downloadable version.
- The NGMDB makes the PDP publicly accessible, with a live link to the GeMS package, and notifies the GME that it is ready for review.
- The GME reviews the PDP and tests the links, then sends any corrections to the NGMDB. Corrections are made, and NGMDB notifies the GME.
- The GME notifies the PW that the publication is ready to be released. USGS releases the PW landing page and sends the official online publication notice to the NGMDB.
- The NGMDB adds PW DOI to the PDP, and makes the metadata record available to the USGS Science Data Catalog.

Appendix

If the author intends for the map and(or) GDB to be updated, replaced, or versioned, then for the benefit of end users it is recommended that the intent be indicated in the product title and(or) metadata. Content suggestions for the title and metadata are provided here. Please note that these suggestions likely will evolve, in response to author input.

(1) Suggestions for Titles:

Two options are included here – “**preliminary**” and “**version.**” Please consider using one of these terms, or a similar term of your choosing, to indicate to the end user that the product is not necessarily the “final word” on geologic mapping of that area by the authors or their project.

- (a) “**Preliminary**” -- Throughout USGS history, the term “preliminary” has been used to indicate a publication that is intended to be superseded by a more refined and updated publication. When that superseding occurs, the new publication is given a new Series Number and, in many cases, is assigned to a different Series Type. There are many definitions of “preliminary” and “superseded.” This document uses the definitions

created for NGMDB communication with State and Federal colleagues (see https://ngmdb.usgs.gov/Info/docs/TermsAndDefinitions_NGMDB-usage.pdf).

For data releases that are released prior to publication of the accompanying map, the term “Preliminary” might be most appropriate. For example, “Preliminary digital data for the Portola 30' X 60' geologic and geophysical map compilation, northern Sierra Nevada, California” (https://ngmdb.usgs.gov/Prodesc/proddesc_118645.htm).

For maps and GDBs that are released simultaneously, the term “Preliminary” also might be appropriate, if the intention is to eventually supersede these products. For example, “Preliminary geologic map of the Hedges 7.5' Quadrangle, Chocolate Mountains, Imperial County, California” (https://ngmdb.usgs.gov/Prodesc/proddesc_117800.htm) is published in the California Geological Survey Preliminary Geologic Map series, eventually to be finalized and published in their Regional Geologic Map series.

- (a) **“Version”** – This term is commonly applied when errors in cartography or science are detected. It also is used for GDBs, notably for map compilations to which new information is added. For versioning, the Series Type and Series Number do not change, but the Title can be updated to reflect the new version (for example, “Geologic map and report for the Theodore Roosevelt Dam area, Gila and Maricopa Counties, Arizona, v. 2.0,” at https://ngmdb.usgs.gov/Prodesc/proddesc_118357.htm).

(2) Suggestions for metadata:

If there are plans to update, replace, or version a map and(or) GDB, then it is strongly recommended that the metadata record indicate this plan. As an example, in the publication “Preliminary digital data for the Portola 30' X 60' geologic and geophysical map compilation, northern Sierra Nevada, California” (https://ngmdb.usgs.gov/Prodesc/proddesc_118645.htm), the following text is prominently positioned in the first paragraph of the <abstract> tag:

“This preliminary database will be superseded by an updated database that will accompany a USGS Scientific Investigation Map (SIM), which has been scientifically reviewed and is in the final editing stages prior to its publication. When that process concludes, the content of the database will be updated to reflect any changes to the map manuscript that occurred during final editing.”

The following example is for a GDB that will be versioned, and for which the initial version will be associated with a published map:

“The geologic data in this data release will be published through a USGS publication series, for example Open-file report, as a static, cartographic representation of the surficial geology and will include a more detailed description of mapping methods. The cartographic map published through the USGS publication series will reflect a single visualization of the data and will be associated with a specific version of this data release, whereas this data release may be versioned as the state of geologic knowledge throughout the region evolves. This data release and subsequent versions will be the most current and authoritative source of the geologic information.”

As noted above, these suggestions (and examples to support them) likely will evolve in response to author input.