

Vermont Enterprise GIS Consortium



EGC GEOSPATIAL DATA-EXCHANGE PROTOCOL

Version 6.3.1

Revision History

Version	Date	Note
4a	11/26/2008	Approved by EGC.
5a	05/31/2011	Approved by EGC via E-vote (email).
5b	11/05/2012	Adjusted naming convention for "secure". Approved by EGC.
6.0 (DRAFT)	05/12/2017	Revised for modernization.
6.1 (DRAFT)	09/19/2017	Revised per additional input from stakeholders.
6.2 (DRAFT)	09/25/2018	Revised per supporting DataRail software—which is in development.
6.3 (DRAFT)	08/08/2019	Improved document's articulation and included more details on environments and network requirements.
6.3.1 (DRAFT)	09/27/2019	Minor improvements, including small changes to descriptions of tables that are required for data exchange.
6.3.1	02/12/2020	Approved by EGC.

History

Much progress has been made toward the goal of realizing efficient and effective use of GIS resources in the State of Vermont since the Vermont Enterprise GIS Strategic Plan was first endorsed by the Enterprise GIS Task Force in 2008. The plan identifies several strategic objectives oriented toward the sharing and exchange of geospatial data. Exchange of geospatial data in the State of Vermont has become more efficient and effective, despite the challenge of exchanging GIS data across an enterprise.

The EGC Geospatial Data Exchange Protocol, which was spurred from the Vermont Enterprise GIS Strategic Plan, is one of multiple factors in improved exchange of GIS data in the State of Vermont. The protocol brought order to sharing and exchanging GIS data in a heterogeneous environment. It was instantiated greatly with use of Esri's¹ enterprise-geodatabase (ArcSDE) technology, which enables the storage of geospatial data within an RDBMS (relational database management system).

The EGC Geospatial Data Exchange Protocol's specifications on data exchange through enterprise (ArcSDE) geodatabases is rooted in the [ArcSDE Configuration and Management Guidelines](#). The ArcSDE Configuration and Management Guidelines were first adopted by the VCGI Technical Advisory Committee in 2006. One of the primary goals of the guidelines was to facilitate the exchange of data between enterprise geodatabase servers. Some state organizations actively share and exchange GIS data through enterprise geodatabases, while others use file-based approaches.

During 2015, per a request from the Secretary of Administration for an analysis of GIS in state government and recommendations on how to structure GIS in state government for the future, ACCD (Agency of Commerce and Community Development) asked Esri to collect information from stakeholders through a 3-day workshop. Esri used the information to produce a report that provides recommendations for optimization and deployment of GIS technology. ACCD asked the EGC to review and respond to Esri's report; this resulted in the GIS Action Plan (2016), which the EGC endorsed.

The need for guidelines for sharing GIS data across state agencies continued to be emphasized in the GIS Action Plan (2016). As of 2016, the EGC Enterprise Geospatial Data Exchange Protocol had not been revised since 2012; the protocol was due for a revision to reflect the current environment and needs. Therefore, an EGC workgroup was created in 2016 to modernize the protocol, yielding this version.

¹ [Environmental Systems Research Institute](#)

Scope

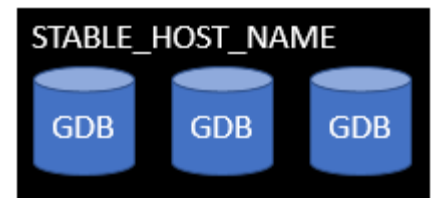
This data-exchange protocol addresses the sharing and exchange of geospatial data between Enterprise GIS Consortium (EGC) member organizations. The protocol can be applied to public-record data and data with access constraints (confidential or sensitive data exempt from federal and state public record law²). The protocol primarily focuses on internal organization-to-organization data-exchange in the context of internal application needs. While the protocol influences and aids the [Vermont Open Geodata Portal](#), the open-data aspect of Vermont’s GIS implementation is out of scope.

Purpose and Benefits

The EGC Geospatial Data Exchange Protocol is a framework of data-exchange specifications that yield efficient and effective sharing and exchange of geospatial data resources between EGC-member organizations. The protocol brings clarity, consistency, and reliability to data exchange processes. It is based on adopted standards and best data-management practices.

Examples of protocol benefits:

- In order to respond to an urgent need for data from multiple agencies, a GIS Professional can connect to **just one** RDBMS server—with a stable host name—to retrieve latest-published data.
- .mxd’s and .aprx’s can directly read latest-published data from multiple agencies over GovNet.
- A department that is very active during disaster response and recovery can store copies of all non-confidential vector GIS data sets from other agencies on a server in its bunker. Emergency-management applications, .mxd files, and .aprx files can be configured for immediate use of those data sets—supporting continuity of operations when portions of communication infrastructure are down.
- 2 agencies can establish an MOU (Memorandum of Understanding) for provision of a confidential data set from one agency to the other. The MOU can be composed by using the EGC Geospatial Data Exchange Protocol’s MOU template—provided in Appendix A. The in-place deployable MOU can be immediately used during an emergency event.



Guiding Principles

The EGC Geospatial Data Exchange Protocol:

- is a framework that supports efficient exchange of GIS data assets between organizations.
- specifies requirements that are not burdensome and yields benefits that outweigh efforts of protocol execution.
- is based on established standards and best practices.

² Vermont public record law specifies that GIS data is a public record. State public record law defines specific exemptions; most GIS data is not exempt. However, state law requires that the state makes sure that all GIS data “are stored and distributed in a manner which will limit the disclosure of data containing individual identifiers to disclosure consented to by the individuals in the data.” (Vermont Statute (Title 10 VSA - Chapter 8 § 121)).

- fosters consistency and predictability.
- supports exchange of data between heterogeneous environments.
- supports data integrity through use of appropriate data-management practices and exchange mechanisms.
- proactively provides parameters for provision, identification, protection, and use of secure and confidential data.

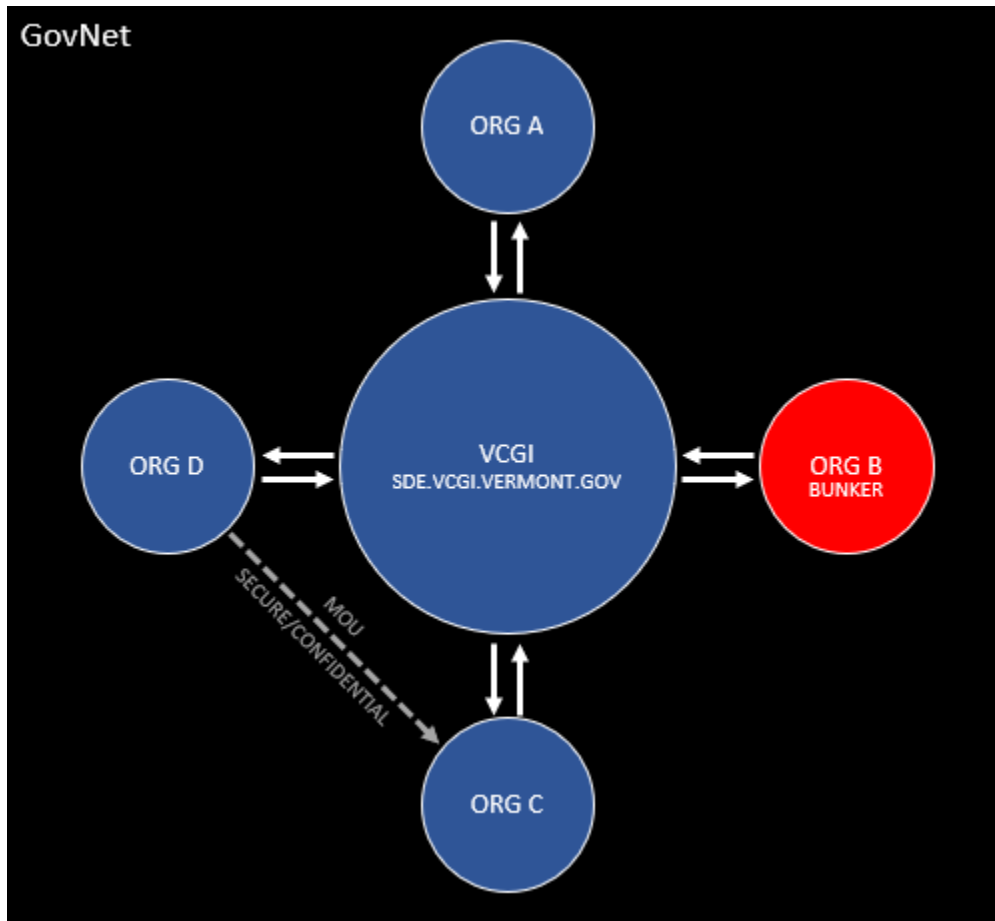
Conceptual Framework

The Hub and Spoke Model

The EGC Geospatial Data Exchange Protocol’s technical approach is based on a **hub-and-spoke / push-and-pull** model. VCGI provides a centralized RDBMS instance—with a stable host name—as a hub to which EGC organizations can push geodatabase data (or have VCGI pull geodatabase data) to be exchanged. State EGC organizations can read and pull published data from other organizations from the hub—via GovNet. Protocol-participating geodatabases located in VCGI’s instance are **hub** geodatabases; protocol-participating geodatabases located outside of the hub are **spoke** geodatabases.

In addition to data pushes and pulls between spoke geodatabases and the hub, data pushes and pulls are also possible between spoke geodatabases—most likely when **secure and confidential** data is exchanged per an MOU. Data is **secure and confidential** if it meets any of the following criteria:

- The data contains PII (personally identifiable information) as [defined by the State of Vermont](#).
- Public-record exemptions are applicable to the data as defined by federal and/or state public record laws.³
- Agencies or departments consider the data to be secure and confidential.



³ Vermont Public Records Law for all public agencies, Archives and Records Management Handbook, Vermont State Archives & Records Administration: <https://www.sec.state.vt.us/media/27740/PublicRecordsLaw.pdf>

Roles


An organization participating in the EGC Geospatial Data Exchange Protocol can have one or more of the following roles: **subscriber**, **publisher**, and **coordinator**.

Role	Description
Subscriber	Reads or pulls publisher-provided GIS data from the hub— SDE.VCGI.VERMONT.GOV —or directly from a spoke-geodatabase.
Publisher	Specifies, stages, and pushes (or has VCGI pull) GIS data to the hub or directly provides GIS data to another publisher or subscriber.
Coordinator	VCGI. Manages the hub that hosts and serves data shared through the protocol. Optionally, pulls GIS data to the hub from publisher per request/agreement.

Responsibilities

- **Publisher**
 - Provides data that meets the data requirements that are articulated in the EGC Geospatial Data Exchange Protocol.
 - For subscribers, makes a life-cycle policy pertaining to data pushed/pulled through the EGC Geospatial Data Exchange Protocol available.

- **Coordinator (VCGI)**

- Maintains an RDBMS instance—the hub—that stores and serves data that is pushed/pulled from publishers per the EGC Geospatial Data Exchange Protocol. Makes sure that the instance has a stable host name and is available through GovNet. Provides each publisher with:
 - name of the hub RDBMS instance.
 - an enterprise geodatabase to which the publisher pushes data (or to which data is pulled).
 - name of the enterprise geodatabase(es) to which the publisher pushes data (or to which data is pulled).
 - login(s) that the publisher uses to push data.
 - login(s) that subscribers use to read or pull data.
 - version of hub-RDBMS instance software (SQL Server).
 - version of hub ArcGIS geodatabase release.
 - maximum-size setting of the enterprise geodatabase(es).
 - hub enterprise-geodatabase services that are on accord with VCGI’s [Enterprise Geodatabase \(ArcSDE\) Services Life Cycle Support Policy](#).
 - 16 hours of business-hour notice—when possible—to publishers before taking the hub geodatabases offline for system work.
- Using RDBMS security options, configures secure/confidential hub geodatabases to limit access to certain user-logins as requested by publishers. 
- Twice per year, exports all non-confidential hub geodatabases to a collection of file geodatabases; posts the file geodatabases, in compressed format, to the Vermont Open Geodata Portal’s **VT Data - Bulk Exports of Geospatial Data in File-Geodatabase Format** item.

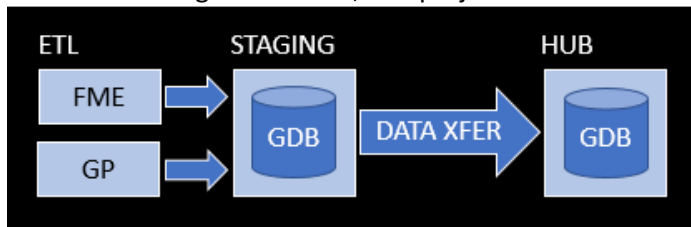
The collections of file geodatabases provide users in areas such as academia and emergency management an opportunity to quickly acquire and use sets of well-documented data in geodatabase format. For example, an emergency-management unit can, during “blue-sky” time, proactively acquire the collection and load the collection to a bunker server; then, if a drill or disaster occurs, a vast amount of quintessential data resources are available, regardless of the status of communication infrastructure between the unit and other organizations.

Staging Data for Publishing

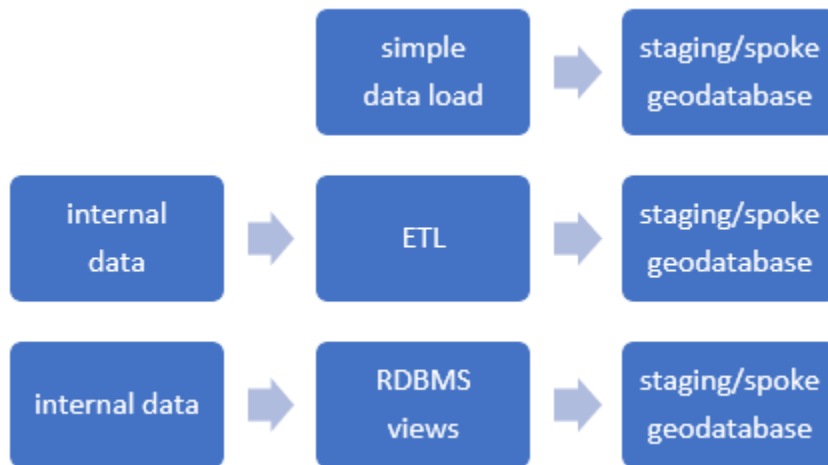
Data that a publisher pushes (or has pulled) to the hub (or directly to another publisher or subscriber) via the EGC Geospatial Data Exchange Protocol must meet the protocol’s requirements. Sometimes, in order to meet those requirements (or to simply spatially enable data to be published), an ETL tool—such as FME or geoprocessing—is needed to get data staged in a spoke geodatabase for pushing/pulling to the hub (or directly to another publisher or subscriber).

The scope of the EGC Geospatial Data Exchange Protocol begins with data that is staged and ready for publishing.

For example, an organization might set up a spoke geodatabase in which data is received and assembled from various ETL processes (such as a process that extracts data from a non-spatial geodatabase, spatially enables the data by reading latitude and longitude values, and projects the data to a Vermont State Plane spatial reference).



Some possible data-staging workflows:



Frequency of Exchange

Frequencies of EGC Geospatial Data Exchange Protocol execution generally fall into three categories: **temporal**, **on-the-spot**, and **data feed**. If an organization releases a certain set of data through the protocol to other organizations on a specific interval (annual, semi-annual, etc.), the protocol execution is temporal. If a set of data is provided through the protocol to address an immediate need—such as during an emergency event—or on a sporadic basis, the protocol execution is on-the-spot. If frequently-changing data is provided and often refreshed through the protocol, the protocol execution is a data feed.

Data Source, Data-Type Scope, and Database-Size Requirements

Data Source

A publisher only exchanges data via the EGC Geospatial Data Exchange Protocol that is sourced from their organization. Data sourced from another publisher shouldn't be re-published—unless it is a value-added derivative.

Data-Type Scope

Data that is exchanged via the EGC Geospatial Data Exchange Protocol is exchanged in Esri geodatabase format (enterprise geodatabase or file geodatabase). Data is usually loaded/refreshed from one geodatabase to a counterpart geodatabase (e.g., spoke to hub). Types of data that can be exchanged:

- Feature class (can be within a feature dataset).



Integrity-assertion objects—such as a topologies and network datasets—might not function when in the target location, depending on the target-location’s [geodatabase release](#). Also, some license levels might not be able to use them. Leave these objects out of data exchanges unless necessary and feasible.

- Non-spatial table.
- View-based data—vector or non-spatial. When view-based data is transferred, it is in non-view form in its target location. For example, if a publisher publishes a point layer of service requests as a view so that only a subset is published (non-completed requests), the view is transferred into a regular feature-class in the target location.
- Raster data. Although most data that is expected to be exchanged via the protocol is expected to be vector data, raster data can be exchanged.

Database-Size Requirements

Most vector data can be exchanged without a lot of consideration around disk-space capacity in the data’s destination. However, exceptionally large vector datasets (e.g., a layer, such as standardized parcels, which consumes over 0.5 GB in SQL Server) require some disk-space planning before being pushed to or pulled into an enterprise geodatabase.

The amount of disk space consumed by a dataset can vary significantly between a file geodatabase and an enterprise geodatabase. For example, a complex vector layer can consume about 3 times more space in SQL Server than when in a file geodatabase. Large differences in disk-space consumption between database platforms is common.



In SQL Server—out-of-the-box, the [sp_spaceused](#) stored procedure can be used to see the amount of disk space a particular table (layer) consumes.

By default, hub geodatabases are started with a maximum database data-file size of 3 GB. The maximum data-file size can be increased—with very little ordeal—if appropriate and necessary.

Geodatabase-Environment Requirements

RDBMS / Geodatabase-Release

All geodatabases that exchange data via the EGC Geospatial Data Exchange Protocol must be in a geodatabase release that is [supported by Esri](#) for both ArcGIS Desktop and ArcGIS Pro—this means that currently, data exchanged via the protocol must be in a geodatabase release of **10.3.1 or higher**.

Currently, hub geodatabases are in geodatabase release **10.5.1**. They are located in an instance of Microsoft SQL Server 2016 (64-bit); a SQL Server client of 2012 or higher is required for connecting.

Geodatabase Names

Geodatabases are named with this pattern:

GDB_<ORG ACRONYM>{_SECURE}

The optional **_SECURE** portion indicates that the geodatabase contains secure/confidential data.

For examples:

GDB_VDH

GDB_VDH_SECURE

Geodatabase User-Logins and Roles

Hub geodatabases use database authentication.

Hub geodatabases have a user-login named **<organization>_Admin**—a member of dbo—that owns all data objects. These user-logins are only for modifying schemas and conducting data loads. VCGI provides this user-login to a publisher when creating its hub-geodatabase counterpart.

Hub geodatabases (e.g., GDB_<organization>) that serve non-secure/non-confidential data have a user-login named **EGC_User** that is used for read-only access from EGC partners within **GovNet**.

If a spoke geodatabase that serves non-secure/non-confidential data is an enterprise geodatabase, the spoke geodatabase must data have a user-login named **EGC_User** that is used for read-only access via **GovNet**.

Geodatabases that serve secure/confidential data have additional user-logins as needed to protect the data. The naming pattern for such logins is **<organization>_<x>**—e.g., ORG_User.

VT DataRail Tools

[VT DataRail Tools](#) is a toolset that can be used to conduct (and in some cases even automate) data exchange per the EGC Geospatial Data Exchange Protocol. It includes tools for creating metadata, verifying that certain required metadata elements are populated, and pushing/pulling data per the protocol.

Geodatabase-Content Requirements

Data-Exchange-Info Tables

Geodatabases that participate in the EGC Geospatial Data Exchange Protocol must have certain exchange-info tables (non-spatial geodatabase-tables). All participating geodatabases must have an **A_README** table:

Table Name: A_README	
Purpose: High-level description of the geodatabase.	
Field Name	Description
PROTOCOL	Text, Length = 40. Enter EGC Geospatial Data Exchange Protocol .
DB_TYPE	Text, Length = 5. If geodatabase is a hub geodatabase, enter Hub . Otherwise, enter Spoke .
CONSTRAINTS	Text, Length = 254. If the geodatabase contains secure and confidential data, describe constraints and reference the corresponding MOU.
NOTE	Text, Length = 254. Free-form field for other helpful information.




Why is a table needed to indicate if a geodatabase is a hub geodatabase or spoke geodatabase, when the user can identify a geodatabase's location simply by looking at connection parameters?

If a geodatabase is exported from its location (i.e., a spoke geodatabase is exported to file-geodatabase format for provision to another organization), the A_README table—which can be carried along into the export—identifies the export's source location. Such info can help someone determine if the export came directly from a publisher or if the data was triangulated into the export from the hub; also, it gives a user a lead on where to go for newer data.

Furthermore, if data exchange is conducted with VT DataRail Tools, the A_README table provides the tools with necessary info.

If VT DataRails Tools are used to push/pull data from a **spoke** geodatabase, the spoke geodatabase must have an **A_XCHANGE_PARAMETERS** table:

Table Name: A_XCHANGE_PARAMETERS	
<p>Purpose: For spoke geodatabases only. Used when pushing/pulling data using VT DataRail Tools. Provides optional special directives for controlling which data objects get pushed/pulled to the geodatabase’s hub-counterpart or to another publisher or subscriber.</p> <p>When this table isn’t empty, only data objects entered in this table are processed; all other data objects are ignored.</p>	
Field Name	Description
OBJECT_NAME	<p>Text, Length = 150. Name of data object—a feature dataset, feature class, table, or raster—to which the special directive applies. Not case-sensitive.</p> <p>Just enter the data-object’s name. If the data object is within a feature dataset, just enter the feature class’s name.</p> <p>If the data object has a schema prefix in the spoke geodatabase—e.g., GDB_ORG.Admin., that prefix must be included in the name. For examples: GDB_ORG.Admin.Boundary_PROJECTS_poly GDB_ORG.Admin.Boundary_TAXDISTRICTS_poly</p>
IS_FDATASET	<p>A short-integer field. Set default to 0.</p> <p>To apply a special directive to a feature dataset and all of its participating feature classes, set to 1 to indicate that the OBJECT_NAME entry is a feature dataset.</p> <p>Note: It is possible for a feature dataset and a feature class to have the same name in a geodatabase; this field differentiates between the two.</p>
DIRECTIVE	<p>Text, Length = 20. The directive.</p> <p>Valid entries are DETECT_CHANGES, empty quote, and <Null>.</p> <p>If the data object is a feature class or table to be pushed/pulled only if changes (geometry and/or attribute) are detected between it and a pre-existing target counterpart, enter DETECT_CHANGES. Otherwise, leave as Null or enter an empty quote.</p> <p> A sort field is required for using DETECT_CHANGES. The sort field must exist in both the source data and pre-existing target data. It must contain unique values. It’s sorted in ascending order and is used to compare source features to target features.</p> <p>The Feature Compare (Data Management) GP tool is used to conduct change detection. A limitation to change detection on multi-part features is known. Multi-part features that are the same (including attributes) in both data objects have been reported as different by the GP tool.</p> <p>ILLUSTRATION OF CHANGE-DETECTION LOGIC ON NEXT PAGE...</p>

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SORT_FIELD	Only applicable if DIRECTIVE is DETECT_CHANGES . Enter the sort field's name.																				
NOTE	Text, Length = 254. Free-form field for other helpful information.																				



Is an **A_XCHANGE_PARAMETERS** table required if VT DataRail Tools aren't used to push/pull data?

Yes. Even if VT DataRail Tools aren't used and no special directives are needed, include an empty **A_XCHANGE_PARAMETERS** table—to reserve the table name and serve as a table placeholder for potential future use.

Also, **A_XCHANGE_PARAMETERS** might be used to help inform a manual push/pull process (e.g., provide a list of static data-objects to process).

Hub geodatabases must have an **A_XCHANGE_LOG** table:

Table Name: A_XCHANGE_LOG	
Purpose: Records info on data-exchange activities. VT DataRail Tools write info into this table. Don't register this table as versioned.	
Field Name	Description
DATE	A Date-type field. Date on which record is entered.
NOTE	Text, Length = 254. Free-form field for helpful information. For examples: Refreshed feature-class Boundary_TAXDISTRICTS_poly Added new raster dataset EcologicHabitat_POLLIWOGPONDS

Data-Object Requirements and Recommendations

- Stand-alone feature classes are allowed. For an ideal data-consumer experience, tightly-related feature classes—such as a polygon feature class that models voting districts and a point feature class that models voting locations—can be bundled into 1 feature dataset.
- Enterprise-geodatabase views are allowed in spoke geodatabases. When view-based data is transferred, it is in non-view form in its target location. For example, if a publisher publishes a point layer of service requests as a view so that only a subset is published (non-completed requests), the view is transferred into a regular feature-class in the target location.
- Stand-alone feature classes, feature datasets, and non-spatial tables must be thematically named per the specifications and theme categories that are described and listed in [ArcSDE Configuration and Management Guidelines](#) **EXCEPT** for the character limits that are currently stated (32 characters). While existence of data objects with name lengths that exceed 100 characters are highly unlikely, data object names must not have lengths greater than 128—the SQL Server limit.

- While the EGC Geospatial Data Exchange Protocol doesn't have a field-name-length limit requirement, a limit of 10 characters is recommended because feature classes and tables are often exported to the shapefile and .dbf formats—i.e., in open data platforms, which have a field-name length limit of 10.
- If a spoke geodatabase is an enterprise geodatabase, pushing/pulling from its SDE.DEFAULT version is recommended.
- Hub-geodatabase data is always read via the SDE.DEFAULT version. Hub-geodatabase data-objects aren't registered as versioned.
- Spoke geodatabases can have multi-versioned data sets. Multi-versioned data sets are transferred to non-versioned non-editable data sets in the target location.

Metadata Requirement

All data objects that are exchanged via the the EGC Geospatial Data Exchange Protocol must have **hardwired** metadata that is populated for at least the **ISO-Core** elements of the [VT GIS Metadata Standard](#). **Hardwired** means that the metadata can be read directly from the data object in ArcGIS Desktop and ArcGIS Pro. Metadata must be kept current in both spoke and hub geodatabases.



How is metadata hardwired into a data object?

There are multiple ways to hardwire metadata into a data object. Here are a couple of ways:

- In ArcGIS, set metadata style to **ISO 19115 NAP**. Then edit metadata directly in ArcGIS.
- In ArcGIS, import a metadata XML-file (an **ISO 19139** XML-file, which is an XML container for **ISO 19115 NAP** metadata) into the data object.



When a data object is copied-pasted from one geodatabase to another, its hardwired metadata is automatically carried along. If data exchange doesn't involve a copy-paste operation—e.g., a tool deletes rows from the target location and then loads new rows from the source location to the target, a time may come when metadata in the target location needs to be reloaded from the source location (to keep metadata current).



VT DataRail Tools have tools for validating that data objects have metadata that is populated for the ISO-Core elements and for writing metadata-XML files that are populated for the ISO-Core elements.

Transfer Methods

Methods for transferring data include:

- **Copy and paste...** Transfer via copy and paste is made when a hub geodatabase is initially established or when a data object has a schema change—which is often done via deletion and replacement.



An exclusive lock is needed to conduct a schema change. A publisher can coordinate ahead of time with VCGI for help with deleting and replacing a pre-existing data object in a hub geodatabase—VCGI can help make an exclusive lock possible. VCGI usually conducts operations that require an exclusive lock on a pre-existing data object after hours.

- **Delete Rows and Append...** This method deletes records of a target data object using the [Delete Rows \(Management\)](#) GP tool and then loads records from a source data object to the target data object using the [Append \(Management\)](#) GP tool.



This method doesn't require an exclusive lock!



VT DataRails Tools uses the **Delete Rows and Append** method to push or pull data to a pre-existing data object.

- **File Transfer (e.g., email, FTP, cloud drive)...** Data is transferred as a file transfer such as a zipped geodatabase attached to an email or a cloud-drive path. Likely to be used mostly with transfer of secure/confidential data.

Network Requirements

Depending on where geodatabases involved in a data exchange exist and how data is transferred, some network configuration (e.g., firewall) might be needed. Quintessential scenario-based requirements:

- **Pushing data from an enterprise or .gdb spoke-geodatabase to the hub...** The spoke-organization computer on which the push runs must have access to VCGI's enterprise-geodatabase instance—which is **SDE.VCGI.VERMONT.GOV**.
- **Pulling data from an enterprise spoke-geodatabase to the hub...** The VCGI computer that pulls the data needs access to the spoke-geodatabase instance.
- **Pulling data from a .gdb spoke-geodatabase located on a shared folder to the hub...** The VCGI computer that pulls the data needs read access on the shared folder.
- **Reading data from hub geodatabases...** The client computer needs access to VCGI's enterprise-geodatabase instance—which is **SDE.VCGI.VERMONT.GOV**.

Appendix A

Data Exchange Memorandum of Understanding (MOU) Template

Memorandum of Understanding (MOU)

Between

Vermont Agency A (VAA)

And

Vermont Agency B (VAB)

A. PURPOSE

The purpose of this MOU is to articulate requirements for transferring, protecting, storing, and using certain secure/confidential Geographic Information System data (hereinafter “GIS data”) that is shared from VAA to VAB.

B. OBJECTIVES

This MOU shall define:

1. The set of GIS data to which this MOU applies.
2. The course of action by which the set of GIS data is transferred from VAA to VAB.
3. How VAB shall protect, store, and limit access to the set of GIS data.
4. Limitations of VAB’s use of the set of GIS data.
5. Primary and secondary contacts at VAA and VAB for inquiries regarding operations conducted through this MOU.

C. THE SET OF GIS DATA TO WHICH THIS MOU APPLIES

This MOU applies to GIS data that VAA packages, for data sharing purpose, into an Esri file geodatabase named GDB_VAA_SECURE and provides to VAB. That file geodatabase contains personally identifiable information as defined by the State of Vermont per 9 V.S.A. § 2430. VAA is the data owner and steward of data which is packaged into the geodatabase.

D. DATA PROVISION

The GDB_VAA_SECURE file geodatabase shall be packaged and transferred through the following sequence:

1. VAA copies the GIS data into a file geodatabase named GDB_VAA_SECURE which contains no pre-existing GIS data.
2. VAA includes a non-spatial table in GDB_VAA_SECURE named A_README; VAA makes sure that the A_README table has the following content.

Field Name	Description
PROTOCOL	Enter EGC Geospatial Data Exchange Protocol .
DB_TYPE	Geodatabase type per EGC Geospatial Data Exchange Protocol. If geodatabase is a hub geodatabase, enter Hub . Otherwise, enter Spoke .
CONSTRAINTS	Describe constraints and reference the corresponding MOU.
NOTE	Free-form field for other helpful information.

3. VAA compresses the GDB_VAA_SECURE geodatabase into a single compressed file, in .zip format, which is also named GDB_VAA_SECURE.
4. VAA posts the GDB_VAA_SECURE .zip file to VAA’s FTP site, which is located at ftp://xxxxxxxxxxx; the FTP site requires a login and password in order to access its folders and files.
5. VAA staff contacts a primary or secondary contact at VAB, as specified in section G, to inform her or him of the FTP address of the .zip file and the login and password for downloading the .zip file. The password shall only be communicated via secure email—secured by including [SECURE] in the subject line—or telephone.

6. A primary or secondary contact at VAB, as specified in section G, logs into the FTP site and downloads the GDB_VAA_SECURE .zip file.

E. DATA STORAGE AT VAB

VAB shall store and configure its copy of the GDB_VAA_SECURE geodatabase so that access to GIS data of that geodatabase is limited to staff whom have been briefed on its use constraints; login and password shall be required for accessing the GIS data. Authentication and authorization, which facilitate logging in, shall either be implemented through restricting access to a folder on a shared server drive (using Active Directory authentication and authorization) or by using the security features of a relational database management system (RDBMS) such as Microsoft SQL Server. The GDB_VAA_SECURE geodatabase shall remain a separate database and retain its name (GDB_VAA_SECURE) and A_README table regardless of whether it is stored on a shared server drive or within an RDBMS instance.

F. DATA USE CONSTRAINTS AT VAB

VAB shall only use its copy of the GDB_VAA_SECURE geodatabase and data derivatives of the GDB_VAA_SECURE geodatabase for internal business processes; neither data of the GDB_VAA_SECURE geodatabase nor derivative data of the GDB_VAA_SECURE geodatabase which retains personally identifiable information shall be disclosed to any entity which is extraneous to VAB. The use of GDB_VAA_SECURE data and derivatives of GDB_VAA_SECURE data which retain personally identifiable information shall be confined to VAB's LAN.

VAB staff may produce hard-copy prints or digital map image files of GDB_VAA_SECURE data or derivatives of GDB_AGR_SECURE data to support VAB's internal business processes; when such hard-copy prints and digital map image files retain personally identifiable information, those prints and files shall only be used internally within VAB and shall not be distributed to entities which are extraneous to VAB. All hard-copy prints and digital map image files that are produced with GDB_VAA_SECURE data and retain personally identifiable information must include a notation that states "CONFIDENTIAL. FOR INTERNAL USE ONLY."

G. CONTACTS

Primary and secondary contacts regarding operations (data transfer, data storage, etc.) of GDB_VAA_SECURE data are listed below for each party.

VAA

PRIMARY CONTACT

<primary contact name>

<primary contact email>

SECONDARY CONTACT

<primary contact name>

<primary contact email>

VAB

PRIMARY CONTACT

<secondary contact name>

<primary contact email>

SECONDARY CONTACT

<secondary contact name>

<primary contact email>

By _____

Vermont Agency of A

Title _____

Date _____

By _____

Vermont Agency of B

Title _____

Date _____