**Validation Tools**

Description: The data validation tools perform a variety of basic verification checks against the NG911 Data Model template to determine if the data is ready for submission. The scripts are organized to validate data by specific layers or groups of layers, and multiple, optional tests are included for each set. Any issues found with the data will be reported in tables added to the geodatabase. The scripts can be run multiple times as necessary so users can correct basic issues prior to submitting their NG911 updates. Currently, these data validation tools do not provide complete quality assurance (QA) of the data. The included data validation tools check for the following errors:

* Checks if required layers exist
* Checks if required fields are present
* Checks if required fields have values for all records
* Checks number of records for submission
* Checks for invalid geometry
* Checks field values against template domains where appropriate
* Checks if all features are inside authoritative boundary
* Checks if road features have any geometry cutbacks
* Checks road address range directionality
* Checks road alias and centerline correspondence
* Checks road alias highway names
* Checks if road segments have duplicate address ranges on dual carriageways
* Checks if road segments are addressed outside of the PSAP (typically across a county boundary)
* Geocodes addresses against the road centerline data
* Finds duplicate features in road centerlines and addresses
* Finds duplicate unique IDs
* Makes sure address point ESN numbers are correctly attributed
* Verifies topology exceptions (optional)

The validation tools require:

* Python scripts called:
  + Validation\_CheckAddressPointsLaunch
  + Validation \_CheckAdminBndLaunch
  + Validation \_CheckAll
  + Validation\_CheckBoundariesLaunch
  + Validation\_CheckOtherLayers
  + Validation \_CheckRoadsLaunch
  + Validation \_CheckTemplateLaunch
  + Validation \_ClearOldResults
  + Validation\_UpdateDomains
  + Validation\_VerifyTopologyExceptions
  + NG911\_arcpy\_shortcuts
  + NG911\_DataCheck
  + NG911\_GDB\_Objects
* One folder called “Domains” that contains text files of resource information

Running validation scripts.

1. Open ArcCatalog and navigate to the toolbox called “Kansas NG911 GIS Tools”, expand the toolbox, then expand the toolset called “Validation Tools.” Use the tools in the numerical order presented with the following guidelines.
2. In the “Geodatabase” parameter, select the geodatabase of data to be checked.
3. Check which data checks you want to run. When running each tool for the first time, we recommend choosing all options.
4. Run the tool.
5. Alternatively, to run all checks, open and run “9 Optional Check All Required”.
6. The basic results of the data checks are shared in the ArcGIS dialog box. The detailed results of the data checks will appear in two tables that are added to your geodatabase: TemplateCheckResults & FieldValuesCheckResults. The results reported in these tables will accumulate until you run the script titled “6 Optional Clear Results Table”.
7. Based on the results of the data check, you can edit your data as necessary.
8. After data is edited, the necessary data checks can be rerun.
9. The script called “7 Optional Update Domains” will sync your domains with the master copy on GitHub. This tool requires internet access to <https://raw.githubusercontent.com/kansasgis>
10. The script called “8 Optional Verify Topology Exceptions” will double check that all road centerline topology error are recorded as exceptions in the data and the topology.

Support Contact:

For issues or questions, please contact Kristen Jordan Koenig with the Kansas Data Access and Support Center. Email Kristen at [Kristen@kgs.ku.edu](mailto:Kristen@kgs.ku.edu) and please include in the email which script you were running, any error messages, and a zipped copy of your geodatabase (change the file extension from zip to piz so it gets through the email server).

If you have a domain issue to report, please email Kristen Jordan Koenig at [kristen@kgs.ku.edu](mailto:kristen@kgs.ku.edu). Please indicate what type of domain the issue is with and the values needing corrections. If you're feeling fancy, you can also fork the GitHub repository at <https://github.com/kansasgis/NG911>. Make your changes and submit a pull request.

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