

VertNet Migrator Toolkit Report Explanation

During processing, the VertNet Migrator Toolkit transforms data from its original fields and their content into fields, formats, and vocabularies consistent with the Darwin Core, with the purpose of facilitating data discovery. In many cases, the changes made during processing reveal data that could be improved at the source. Following is a list of reports generated during processing of the Migrator showing how to interpret their contents. The square brackets indicate that the name of the data set to which the report applies, such as "Audio", "Aves", "Eggs", "Ent", "Fish", "Fossils", "Fungi"", "Herps", "Inverts", "Mammals", or "Verts" (e.g., "Report - [Collection] - missing catalogNumber" could be "Report - Mammals-missing catalogNumber").

It is important to note that all reports are generated every time a Migrator is run, even if no errors were found in the corresponding tests. In these cases, the reports will appear as files without content in the corresponding fields.

In this document, to facilitate reading, when the names of fields are specified as columns, those that correspond to terms in the Darwin Core standard are written in blue.

IDENTIFIERS

Report - [Collection] - missing catalogNumber.csv

This report contains a list of complete source records that do not have a record identifier that can serve as a persistent catalog number. If the catalogNumber is meant to uniquely identify records within a collection or data set, then missing catalog numbers are errors and should be resolved at the source. Records without catalog numbers are not included in the processed results. The columns in this report are the same as in the source data set.

Report - [Collection] - duplicate catalogNumber.csv

This report contains a list of catalog numbers that appear more than once within a given collection. If the catalogNumber is meant to uniquely identify records within a collection or data set, then duplicates are errors and should be resolved at the source. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the duplicated catalogNumber.
- NumberOfDups the number of records that have the given catalogNumber.





Report - [Collection] - duplicate occurrenceIDs.csv

This report contains a list of occurrenceIDs that appear more than once within a data set. An occurrenceID is meant to uniquely identify an Occurrence record globally. Duplicates are detected with a data set and should be resolved at the source. The columns in this report are:

- *occurrenceID* the duplicated occurrenceID.
- NumberOfDups the number of records that have the given occurrenceID.

GEOGRAPHY

Report - [Collection] - decimalLatLong both 0.csv

This report contains a list of records for which the original decimalLatitude and decimalLongitude are both 0. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimDecimalLatitude* the original value given for the decimalLatitude.
- *verbatimDecimalLongitude* the original value given for the decimalLongitude.

Report - [Collection] - decimalLatLong not numeric.csv

This report contains a list of records for which either or both of the original decimalLatitude and decimalLongitude are non-numeric. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- verbatimDecimalLatitude the original value given for the decimalLatitude.
- verbatimDecimalLongitude the original value given for the decimalLongitude.

Report - [Collection] - decimalLatLong out of range.csv

This report contains a list of records for which the original coordinates are numeric decimalLatitude>90 or decimalLatitude<-90 or decimalLongitude>180 or decimalLongitude<-180. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimDecimalLatitude* the original value given for the decimalLatitude.
- *verbatimDecimalLongitude* the original value given for the decimalLongitude.

Report - [Collection] - missing coordinate.csv

This report contains a list of records for which, after processing is done, either decimalLatitude or decimalLongitude is missing, while the other one is not. This could be because coordinates in any format for one of them were not provided in the original or because after processing they were not valid. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.





- catalogNumber the catalog number for the record.
- decimalLatitude the value given for the decimalLatitude after processing.
- decimalLongitude the value given for the decimalLongitude after processing.
- error an indicator of which coordinate value is missing after processing.

Report - [Collection] - coordinateUncertainties not numeric.csv

This report contains a list of records for which the original coordinateUncertaintyInMeters is non-numeric. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- verbatimCoordinateUncertaintyInMeters the original value given for coordinateUncertaintyInMeters.

Report - [Collection] - coordinateUncertainties out of range.csv

This report contains a list of records for which the original coordinateUncertaintyInMeters is less than 1 or greater than 20020000. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- verbatimCoordinateUncertaintyInMeters the original value given for coordinateUncertaintyInMeters.
- error an indicator of why the coordinateUncertainty is out of range.

Report - [Collection] - coordinatePrecision not numeric.csv

This report contains a list of records for which the original coordinatePrecision is non-numeric. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCoordinatePrecision* the original value given for coordinatePrecision.

Report - [Collection] - coordinatePrecision out of range.csv

This report contains a list of records for which the original coordinatePrecision is either less than or equal to 0, or greater than 1. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCoordinatePrecision* the original value given for coordinatePrecision.
- error an indicator of why the coordinatePrecision is out of range.

Report - [Collection] - indeterminate Geography.csv

This report contains a list of records for which the verbatim original contents of the geography result in an ambiguity that cannot be resolved with the information in the geographic fields alone. During data processing, the Migrator attempts to provide standardized geography using the Darwin Core geographic terms (continent, country,





stateProvince, county, municipality, island, islandGroup, waterBody) based on the originally provided higher geographic data - fields less specific than the locality field (http://rs.tdwg.org/dwc/terms/index.htm#locality). If the original geography could be interpreted as more than one distinct region, or if the original geography is self-inconsistent, the record will appear in the report. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimMunicipality* the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- verbatimCounty the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- verbatimCountry the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- *verbatimContinent* the contents of the original data that were mapped to the Darwin Core continent field for the given catalogNumber.
- *verbatimWaterBody* the contents of the original data that were mapped to the Darwin Core waterBody field for the given catalogNumber.
- *verbatimIslandGroup* the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- *error* a description of why the geography of the record is indeterminate, ambiguous, or self-inconsistent.

Report - [Collection] - non-standard Continent.csv

This report contains the list of records for which the verbatim original continent does not match the standard value determined from geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The verbatim and standardized continent and waterBody are included because these concepts are often conflated in original data. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimContinent* the contents of the original data that were mapped to the Darwin Core continent field for the given catalogNumber.
- *continent* the standardized value of the continent for the record.
- *verbatimWaterBody* the contents of the original data that were mapped to the Darwin Core waterBody field for the given catalogNumber.
- waterBody the standardized value of the waterBody for the record.





Report - [Collection] - non-standard Country.csv

This report contains the list of records for which the verbatim original country does not match the standard value determined from the geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCountry* the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- *country* the standardized value of the country for the record.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- stateProvince the standardized value of the stateProvince for the record.
- *verbatimCounty* the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- *county* the standardized value of the county for the record.
- *verbatimMunicipality* the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- *municipality* the standardized value of the municipality for the record.
- *verbatimIslandGroup* the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *islandGroup* the standardized value of the islandGroup for the record.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- *island* the standardized value of the island for the record.

Report - [Collection] - non-standard StateProvince.csv

This report contains the list of records for which the verbatim original stateProvince does not match the standard value determined from the geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The verbatim and standardized country, stateProvince, county, islandGroup, and island are included because these concepts may be needed to determine the reason why the original value is not standard. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCountry* the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- *country* the standardized value of the country for the record.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- stateProvince the standardized value of the stateProvince for the record.





- *verbatimCounty* the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- county the standardized value of the county for the record.
- *verbatimMunicipality* the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- *municipality* the standardized value of the municipality for the record.
- *verbatimIslandGroup* the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *islandGroup* the standardized value of the islandGroup for the record.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- *island* the standardized value of the island for the record.

Report - [Collection] - non-standard County.csv

This report contains the list of records for which the verbatim original county does not match the standard value determined from the geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCountry* the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- *country* the standardized value of the country for the record.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- *stateProvince* the standardized value of the stateProvince for the record.
- *verbatimCounty* the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- county the standardized value of the county for the record.
- *verbatimMunicipality* the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- *municipality* the standardized value of the municipality for the record.
- *verbatimIslandGroup* the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *islandGroup* the standardized value of the islandGroup for the record.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- island the standardized value of the island for the record.

Report - [Collection] - non-standard Municipality.csv

This report contains the list of records for which the verbatim original municipality does not match the standard value determined from the geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The verbatim





and standardized country, stateProvince, county, and municipality are included because these concepts may be needed to determine the reason why the original value is not standard. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCountry* the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- *country* the standardized value of the country for the record.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- stateProvince the standardized value of the stateProvince for the record.
- *verbatimCounty* the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- county the standardized value of the county for the record.
- *verbatimMunicipality* the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- municipality the standardized value of the municipality for the record.
- *verbatimIslandGroup* the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *islandGroup* the standardized value of the islandGroup for the record.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- *island* the standardized value of the island for the record.

Report - [Collection] - non-standard Island.csv

This report contains the list of records for which the verbatim original island does not match the standard value determined from the geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The verbatim and standardized island, islandGroup, waterBody, and county are included because these concepts may be needed to determine the reason why the original value is not standard. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCountry* the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- country the standardized value of the country for the record.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- stateProvince the standardized value of the stateProvince for the record.
- *verbatimCounty* the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- county the standardized value of the county for the record.





- verbatimMunicipality the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- *municipality* the standardized value of the municipality for the record.
- verbatimIslandGroup the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *islandGroup* the standardized value of the islandGroup for the record.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- *island* the standardized value of the island for the record.

Report - [Collection] - non-standard IslandGroup.csv

This report contains the list of records for which the verbatim original islandGroup does not match the standard value determined from the geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The verbatim and standardized island, islandGroup, and waterBody are included because these concepts may be needed to determine the reason why the original value is not standard. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimCountry* the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- *country* the standardized value of the country for the record.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- *stateProvince* the standardized value of the stateProvince for the record.
- *verbatimCounty* the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- county the standardized value of the county for the record.
- *verbatimMunicipality* the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- municipality the standardized value of the municipality for the record.
- *verbatimIslandGroup* the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *islandGroup* the standardized value of the islandGroup for the record.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- *island* the standardized value of the island for the record.

Report - [Collection] - non-standard WaterBody.csv

This report contains the list of records for which the verbatim original waterBody does not match the standard value determined from the geographic authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Geography.csv. The verbatim





and standardized waterBody and continent are included because these concepts are often conflated in original data. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimContinent* the contents of the original data that were mapped to the Darwin Core continent field for the given catalogNumber.
- continent the standardized value of the continent for the record.
- verbatimWaterBody the contents of the original data that were mapped to the Darwin Core waterBody field for the given catalogNumber.
- waterBody the standardized value of the waterBody for the record.

Report - [Collection] - not higherGeography.csv

This report contains a list of records for which the verbatim original contents of the geography contain information that does not fit within the standard Darwin Core geography fields. During data processing, the Migrator attempts to provide standardized geography using the Darwin Core geographic terms (continent, country, stateProvince, county, municipality, island, islandGroup, waterBody) based on the originally provided higher geographic data - fields less specific than the locality field (http://rs.tdwg.org/dwc/terms/index.htm#locality). If the original geography contains information that does not correspond with any of these fields, the record will appear in the report. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimMunicipality* the contents of the original data that were mapped to the Darwin Core municipality field for the given catalogNumber.
- *verbatimCounty* the contents of the original data that were mapped to the Darwin Core county field for the given catalogNumber.
- *verbatimStateProvince* the contents of the original data that were mapped to the Darwin Core stateProvince field for the given catalogNumber.
- *verbatimCountry* the contents of the original data that were mapped to the Darwin Core country field for the given catalogNumber.
- *verbatimContinent* the contents of the original data that were mapped to the Darwin Core continent field for the given catalogNumber.
- verbatimWaterBody the contents of the original data that were mapped to the Darwin Core waterBody field for the given catalogNumber.
- *verbatimIslandGroup* the contents of the original data that were mapped to the Darwin Core islandGroup field for the given catalogNumber.
- *verbatimIsland* the contents of the original data that were mapped to the Darwin Core island field for the given catalogNumber.
- notHigherGeography the values in the original data that are captured in a higher geography field (more specific than locality) that do not correspond to higher geography as defined by the Darwin Core standard.





DATES

Report - [Collection] - Day out of range.csv

This report contains a list of records for which the day field is less than 1 or greater than the number of days in the given month or month and year. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalogNumber for the record.
- day the value of the day field that is outside the valid range.
- month the value of the month field that helps to determine if the day value is out of range.
- year the value of the year field that helps to determine if the day value is out of range (for leap years, for example).
- *verbatimEventDate* the original event date data provided.

Report - [Collection] - Month out of range.csv

This report contains a list of records for which the month field is less than 1 or greater than 12. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- month the value of the month field that is outside the valid range.
- verbatimEventDate the original event date data provided.

Report - [Collection] - Year out of range.csv

This report contains a list of records for which the year field is less than 1750 or greater than the year at the time the Migrator was run. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- year the value of the year field that is outside the valid range.
- verbatimEventDate the original event date data provided.

TAXONOMY

Report - [Collection] - non-standard Order.csv

This report contains the list of records for which the verbatim original taxonomic order does not match the standard value determined from the taxonomic classification authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Classification.csv. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.





- *verbatimOrder* the contents of the original data that were mapped to the Darwin Core order field for the given catalogNumber.
- *order* the currently accepted order according to the taxonomic authority provided in the authority field in this report.
- *authority* the authority in which this classification for the accepted genus was found.
- *verbatimGenus* the contents of the original data that were mapped to the Darwin Core genus field for the given catalogNumber.
- *genus* the currently accepted genus according to the taxonomic authority provided in the authority field in this report.
- *verbatimFamily* the contents of the original data that were mapped to the Darwin Core family field for the given catalogNumber.
- *family* the currently accepted family according to the taxonomic authority provided in the authority field in this report.

Report - [Collection] - non-standard Family.csv

This report contains the list of records for which the verbatim original family does not match the standard value determined from the taxonomic classification authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Classification.csv. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimGenus* the contents of the original data that were mapped to the Darwin Core genus field for the given catalogNumber.
- *genus* the currently accepted genus according to the taxonomic authority provided in the authority field in this report.
- *verbatimFamily* the contents of the original data that were mapped to the Darwin Core family field for the given catalogNumber.
- *family* the currently accepted family according to the taxonomic authority provided in the authority field in this report.
- authority the authority in which this classification for the accepted genus was found.

Report - [Collection] - non-standard Genus.csv

This report contains the list of records for which the verbatim original genus does not match the standard value determined from the taxonomic classification authority used by the Migrator, the latest version of which can be found at

https://raw.github.com/tucotuco/DwCVocabs/master/vocabs/Classification.csv. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalog number for the record.
- *verbatimGenus* the contents of the original data that were mapped to the Darwin Core genus field for the given catalogNumber.





- *genus* the currently accepted genus according to the taxonomic authority provided in the authority field in this report.
- *authority* the authority in which this classification for the accepted genus was found.
- *error* The reason why the original genus is not accepted.

OTHER

Report - [Collection] - individualCount out of range.csv

This report contains a list of records for which the individualCount field is not numeric or is less than 0. The columns in this report are:

- *institutionCode* the code for the institution the record belongs to.
- collectionCode the code for the collection the record belongs in.
- catalogNumber the catalogNumber for the record.
- *individualCount* the value of the individualCount field that is outside the valid range.

Report-LinesWithNonprintingCharacters.csv

This report contains a list of full records for which non-printing characters (e.g., tab, vertical tab, new line) were found in any field. It provides records in pairs, as found before and after non-printing characters were removed. The report is a result of the execution of the Unix diff command on the files before and after removing the non-printing characters. To understand the report, refer to documentation on the diff command.

