Iowa Department of Transportation
Office of Design

Creating XML Machine Guidance Files

Overview

This section focuses on describing the process of producing LandXML files for the Final Turn-In of Electronic Files (Section 20B-71). LandXML files generated by the Office of Design for Final Turn-in include the following:

1. hv_dsn_*parennumber*.xml
2. prop_suf_*description_parennumber*.xml
3. existing_surface_*parennumber*.xml
4. control_points_*parennumber*.xml

Creating an Input File

After a project has been completed, the "**job***parennumber***.gpk"** file must be converted to a LandXML file for turn-in. At this time, all extraneous information in the *.gpk* file, (not pertinent to the project), is to be stored in an input file. An input file can be created by browsing to **Geopak > Applications > Road > Geometry > Coordinate Geometry**. Refer to the **Coordinate Geometry** dialog example, shown below, that creates an input file for two side roads that are not relevant to the current project.

In the COGO Key-in window, type the following:

Key-In Command	make input file *file-name element–list*
File-Name	Name of the input file where the Geopak commands are to be written
Element-List	List of Geopak elements
	Chains
	Profiles
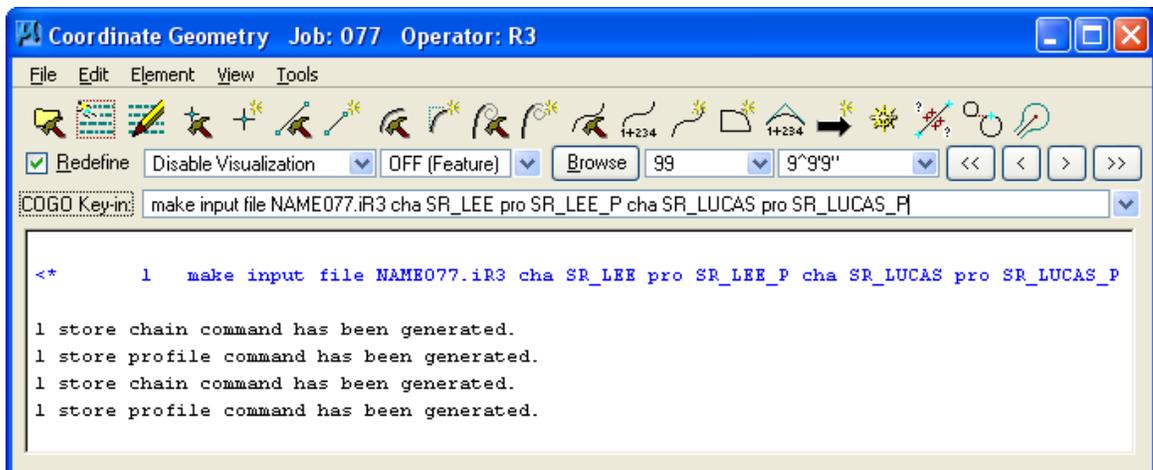
The command line in the dialog shown above was created using the following information:

Key-In Command   *make input NAME077.iR3 cha SR_LEE cha SR_LUCAS pro SR_LEE_P pro SR_LUCAS_P*

File-name: *NAME*
Job Number: *077*
Input File: *.i_ _*
Operator Code: *R3*

Element-List   cha SR_LEE pro SR_LEE_P cha SR_LUCAS pro SR_LUCAS_P

After the appropriate input file(s) have been created, the information that is not specific to the project is to be removed from the *.gpk* file, leaving only information specific to the current project.

hv_dsn_*parennumber*.xml

To export a *.gpk* file to a **LandXML** format:
    In the **Coordinate Geometry** dialog, browse to *File > Export > LandXML 1.2 Geometry*. This will display the **Export LandXML** dialog, as shown at the right. This single **LandXML** file should contain all project **Chains** and **Profiles**, including returns and ramp tapers. When selecting the **Output Mode**, select **Create** for the first export. To include additional alignments/profiles, select **Append**. For a description of the "**hv_dsn_***parennumber***.xml**" file, refer to Section 20B-71. The alignments should be grouped with the **Chain** first, then all associated **Profiles**, including ditch grades. This process should be repeated for each alignment within the project.


> **NOTE:** In the **Export LandXML** dialog, do not *select* the "☐ **Export All Chains"** check box, as this will include existing ground profiles, which are unnecessary. Exporting the **Chains** and **Profiles** incrementally allows for better organization by grouping **Chains** with their respective **Profiles**.

Exporting .tin Files to .xml Files

The process for exporting .tin files to .xml files is detailed in the following video file (contains no audio) and is explained below.

Play video: TIN to XML Conversion

After creating a proposed surface using **Corridor Modeler**, it is to be exported to a **LandXML** file format. To do so, access the **DTM Tools** icon menu, as shown at the right, from **Applications > Geopak > Road > DTM Tools**. *Select* the **Menu Bar: DTM Menu** *option*, as shown by the arrow.
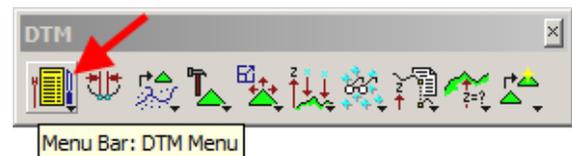
From the **DTM Tools Menu**, (shown at the right), *select* **Utilities > Export LandXML**, as located by the arrow.

NOTE: Due to the length of the project or due to excessive processing time, more than one DTM may be necessary during the development phase. If possible, all DTM's should be merged into one final DTM when the project is complete.

The **Utilities > ExportLandXML** option, shown above, will display the **DTM Export LandXML** dialog, as shown at the right.

Browse to *select* the **TIN File** to be exported. This can be either existing ground or proposed surfaces created through Corridor Modeler / Roadway Designer. Enter the **Project Name** and **Description**. From the **English Unit** pull-down, *select* US Survey Feet. *Browse* to *select* the location to store the **LandXML File** and name the LandXML file to be exported. *Select* **Export**.

prop_surf_*description_parennumber*.xml

To export a proposed surface to a **LandXML** format, follow the procedure described above. The **TIN File** to be exported is the proposed surface created through Corridor Modeler/Roadway Designer. The **LandXML File** created should be named "**prop_surf**_*description_parennumber*.**xml**". Examples of the file **Description** items include Subgrade, Pavement Top, Borrow, etc. For example, the proposed surface of Ramp C would be called *prop_surf_RampC_156.xml.*

For an explanation of the "**prop_surf**_*description_parennumber*.**xml"** file, refer to Section 20B-71.

existing_surface_*parennumber*.xml

To export the existing ground surface to a **LandXML** format, follow the same procedure as described above for the proposed surface, while replacing the **proposed surface tin** with the **existing ground tin**. The existing surface LandXML file should be named **existing_surface**_*parennumber*.**xml.**

For an explanation of the **existing_surface**_*parennumber*.**xml** file, refer to Section 20B-71.

control_points_*parennumber*.xml

The **control_points_***parennumber***.xml** file is created by the Preliminary Survey section and contains all the horizontal and vertical control points for a project. For a description of the **control_points_***parennumber***.xml** file, refer to Section 20B-71.

Chronology of Changes to Design Manual Section:

020H-010   Creating XML Machine Guidance Files

3/23/2011   NEW

New Section