



FEMA

DFIRM Database Exporter User Guide FEMA DFIRM Production Tools Version 4.0

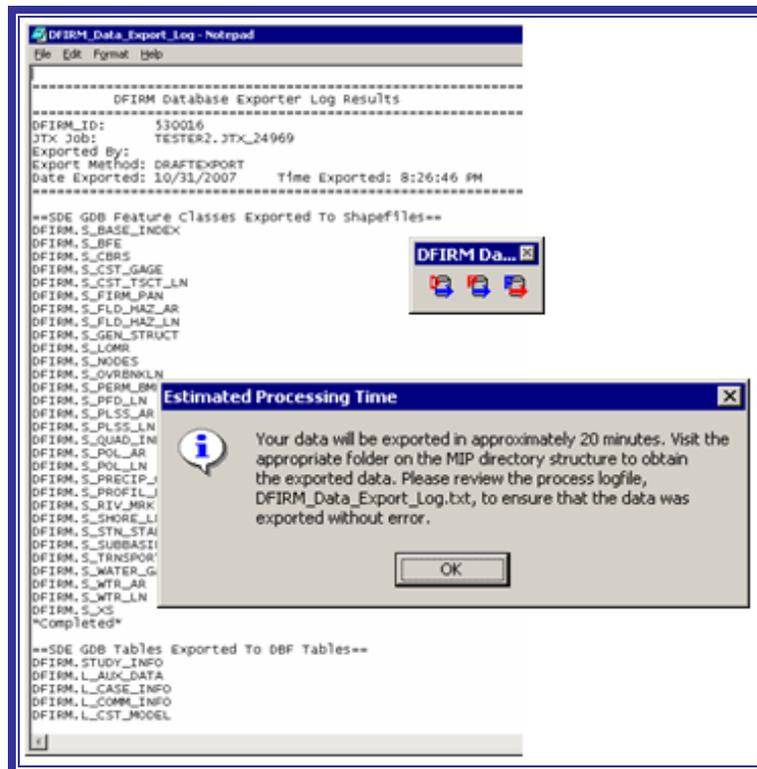


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What is the DFIRM Database Exporter?

The **DFIRM Database Exporter** is a set of tools which export your DFIRM Database data according to the requirements defined by FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Database* (hereby referred to as *Appendix L*). The tools generate the three required file formats (ESRI shapefile, ESRI ArcInfo interchange file, and MapInfo interchange format). In addition, the tools perform the necessary transformations so that the data meet the Preliminary and Final Digital Flood Insurance Rate Map Database schema defined in *Appendix L*. The exported data files and logfile are saved to the MIP directory structure.

Throughout a DFIRM study's life cycle, the DFIRM Database must be submitted to the MIP directory structure three times – once for each of major DFIRM Database milestones defined in the MIP Workflow. For historical purposes, each of these submissions is stored in its own folder in the MIP directory structure. So that you may easily export your data to the correct folder, the **DFIRM Database Exporter** toolbar contains 3 tools: *Submit Draft*, *Submit Preliminary*, and *Submit Final*. All three tools create the same output; the tools differ only on the folder to which they write.



DFIRM Database Exporter toolbar

Quick Reference Guide

The following is a quick reference guide to all of the components on the **DFIRM Database Exporter** toolbar.



Submit Draft

Exports the data to the Draft folder on the MIP Directory structure



Submit Preliminary

Exports the data to the Preliminary folder on the MIP Directory structure



Submit Final

Exports the data to the Final folder on the MIP Directory structure

Tool Controls

This section describes the functionality of each of the tools available on the **DFIRM Database Exporter** toolbar and provides instructions for their use.



Submit Draft

The **Submit Draft** tool exports the study data in the DFIRM ArcSDE geodatabase to the Draft DFIRM Database folder on the MIP directory structure. The data is exported in the following formats: ESRI shapefile, ESRI ArcInfo interchange file (E00), and MapInfo interchange file (MIF). The **Submit Draft** tool requires very little interaction with the user. However, behind the scenes

the tool is performing quite a few functions to ensure that the exported data meets *Appendix L's* database schema and file format requirements.

To export your data to the Draft DFIRM Database folder on the MIP directory structure, perform the following steps:

1. Click the **Submit Draft** button.

Note: You may only export data while in a parent JTX job step. If you wish to export data from your child JTX job for local editing or archiving purposes, you should use the *DFIRM Export to PGDB* tool on the **DFIRM Layer Loader** toolbar.

2. The shapefile/DBF table, E00, and MIF files are created on a designated processing server. You will receive a message that provides an estimated processing time.



An example of the *Estimated Processing Time* message.

Note: Once the processing has been transferred to the designated server, you have full control over your ArcMap session, and you may continue working. With that being said, do not export the data again until the current process is complete.

3. The shapefile/DBF table, E00, and MIF files are created in the appropriate folder. The files meet the requirements defined in Section L.7 Database Table Structure Requirements for Preliminary and Final Digital Flood Insurance Rate Map Databases of *Appendix L*. Additionally, a logfile reports the progress and success of the export. For a sample output logfile, please refer to Appendix A of this document.

Specifically, the files are exported to the J:\FEMA\

As mentioned earlier, the export process is composed of many steps. In the following sections, the major components are described in greater detail and are, in general, stated in the order in which they are performed.

Creating the Export Logfile

The first step in the export process is the creation of the administrator and user logfiles. The administrator logfile is created behind the scenes and is designed to capture the processing status and health of the designated processing server. This logfile is only accessible to DFIRM Production Tools Administrators and is generally only consulted when you report an error via a MIPHelp ticket. The user logfile is designed to record the progress of the export and to report any errors in the features and process. The user logfile identifies features or situations which require investigation (e.g., features with empty geometry) and assists you in troubleshooting if the export fails (e.g.,

geodatabase version not found). The user logfile is stored in the Draft DFIRM Database folder and is named "DFIRM_Data_Export_Log.txt". Unless specifically stated, all references to the logfile in this document refer to the user logfile.

The logfile begins by tracking the following information about the export process: the DFIRM_ID, the JTX job ID, the user who performed the export, the export method (e.g., Draft, Preliminary, Final), and the date and time the export was performed. An example of this heading populated with export information is as follows:

```
=====
      DFIRM Database Exporter Log Results
=====
DFIRM_ID:    42017C
JTX Job:     STUDENT40.JTX_1420345
Exported By: STUDENT40
Export Method: DRAFTEXPORT
Date Exported: 1/26/2007    Time Exported: 8:47:28 AM
=====
```

The logfile contains multiple sections which specifically track progress. These headings are as follows and are discussed in greater detail later in the document:

- SDE GDB Feature Classes Exported to Shapefiles
- SDE GDB Tables Exported to DBF Tables
- SDE GDB Annotation Exported to S_LABEL_PT
- SDE GDB Annotation Exported to S_LABEL_LD
- Shapefiles Exported To Coverage
- Check Shapefile and Coverage Records for 500 Vertices
- Coverages Exported To Interchange Files
- Shapefiles Exported to MIFs

Other sections track the result of the export. These headings are as follows and are discussed in greater detail later in the document:

- Layers/Tables Successfully Exported
- Layers/Tables Not Exported due to zero records
- Layers/Tables Not Exported due to Study_Info's DISTRIBUTE TRANSPORTATION = F
- Features failed to export due to empty geometry in the SDE Geodatabase
- Features Not Exported to S_Label_Pt due to invalid feature type
- Features Not Exported to S_Label_Pt due to 0 area/length
- Features Not Exported to S_Label_Ld due to 0 area/length

The logfile ends by recording if the export process was a success and reporting any additional messages. Once the export is complete, you should review the logfile carefully to ensure that the results are what you expected. If necessary you should correct any errors within the data in your JTX job and re-export the data. If your process failed, you should review the text under the progress-related headings. Where the text stops being reported indicates in which component the process failed. Additionally, the closing message could contain details on the failure. If you are unable to determine what caused the export failure, please contact MIPHelp via miphelp@mapmodteam.com. When you submit a help request, please always provide your DFIRM_ID, JTX job ID, server number, the **DFIRM Database Exporter** tool you were using, and a

description of the issue. In addition, you should either attach your logfile or ensure that it remains in the appropriate folder so that the MIPHelp support staff may review it.

Determining Which Data to Export

Once the logfile is created, the first step in the export process is to determine which spatial layers and look-up tables should be exported. The tool looks to the data in the ArcSDE geodatabase version for the current JTX job. Your ArcSDE geodatabase version for your JTX job contains a reference to all of the data in the database (your study data and effective study data). While in the DFIRM Production Tools environment, you often only see the data associated with your study because DFIRM_ID-based definition queries on the layers and tables automatically filter out adjacent study data. The **Submit Draft** tool will consider only the data in your ArcSDE geodatabase version which is associated with your DFIRM_ID. You cannot export data that is related to adjacent studies.

Only spatial layers and look-up tables that contain data will be exported. For instance, if the *Subbasins* (S_Subbasins) layer does not contain any features for your study, the shapefile, E00, and MIF files will not be created. The table below contains a list of the spatial layers and look-up tables which may be exported (if the layer/table contains features/records).

Spatial Layer	Look-Up Table
<i>Base Index</i> (S_Base_Index)	L_Aux_Data
<i>BFE</i> (S_BFE)	L_Case_Info
<i>CBRS</i> (S_CBRS)	L_Comm_Info
<i>Coastal Gage</i> (S_Cst_Gage)	L_Cst_Model
<i>Coastal Transect Line</i> (S_Cst_Tsct_Ln)	L_Hydra_Model
<i>FIRM Panel Index</i> (S_FIRM_Pan)	L_Hydro_Model
<i>Flood Hazard Area</i> (S_Fld_Haz_Ar)	L_Media
<i>Flood Hazard Line</i> (S_Fld_Haz_Ln)	L_MT1_LOMC
<i>General Structure</i> (S_Gen_Struct)	L_Node_Disch
<i>Label Lead</i> (S_Label_Ld)*	L_Pan_Revis
<i>Label Point</i> (S_Label_Pt)*	L_Pol_FHBM
<i>LOMR</i> (S_LOMR)	L_Regression
<i>Nodes</i> (S_Nodes)	L_Stn_Start
<i>Overbank Line</i> (S_Ovrbnkln)	L_Storm_Curve
<i>Permanent Benchmark</i> (S_Perm_Bmk)	L_Storm_Info
<i>Primary Frontal Dune</i> (S_PFD_Ln)	L_Subbas_Disch
<i>PLSS Area</i> (S_PLSS_Ar)	L_XS_Ratings
<i>PLSS Line</i> (S_PLSS_Ln)	Study_Info
<i>Political Area</i> (S_Pol_Ar)	
<i>Political Line</i> (S_Pol_Ln)	
<i>Precipitation Gage</i> (S_Precip_Gage)	
<i>Profile Baseline</i> (S_Profil_Basln)	
<i>Quad Index</i> (S_Quad_Index)	
<i>River Mark</i> (S_Riv_Mrk)	
<i>Shoreline</i> (S_Shore_Ln)	
<i>Station Start Point</i> (S_Stn_Start)	
<i>Subbasins</i> (S_Subbasins)	
<i>Transportation</i> (S_Trnsport_Ln)	

<i>Water Gage (S_Water_Gage)</i>	
<i>Water Area (S_Wtr_Ar)</i>	
<i>Water Line (S_Wtr_Ln)</i>	
<i>Cross Section (S_XS)</i>	

*Layers are created upon export based on the features in the annotation feature classes.

The layers/tables which are not exported because they contains no features/records associated with your study (i.e., DFIRM_ID) are listed beneath the *Layer/Tables Not Exported due to zero records* heading. An example of how this section appears in the logfile is as follows:

```

=====
== Layers/Tables Not Exported due to zero records ==
=====
DFIRM.S_CBRS
DFIRM.S_CST_GAGE
DFIRM.S_CST_TSCT_LN
DFIRM.S_WTR_AR
DFIRM.L_AUX_DATA
DFIRM.L_CASE_INFO

```

A special rule exists for the Transportation (S_Trnsport_Ln) layer. If the *DISTRIBUTE TRANSPORTATION* (DIST_TRANS) field value in Study_Info equals "F" then the shapefile, E00, and MIF files for the layer are not created. If this situation occurs, the layer name is recorded under the *Layers/Tables Not Exported due to Study_Info's DISTRIBUTE TRANSPORTATION = F* heading. An example of how this section appears in the logfile is as follows:

```

=====
== Layers/Tables Not Exported due to ==
== Study_Info 's DISTRIBUTE TRANSPORTATION = F ==
=====
S_TRANSPORT_LN

```

Creating the Shapefile and DBF Table Shell

Shapefile/DBF Table Filename and Field Names

For the spatial layers the shapefile retains the same name as the feature class in the ArcSDE geodatabase. In the DFIRM Production Tools environment, the feature classes are named according to the *Appendix L* requirements, although it may not appear as so since alias names are also employed for ease of use. For instance, for the S_FIRM_Pan layer, in the DFIRM Production Tools environment, the feature class's name is "S_FIRM_Pan" and its alias name is "FIRM Panel Index". When the shapefile is created, it is named "S_FIRM_Pan". Similarly, the shapefile attribute fields will contain the same field names as the feature class in the DFIRM Production Tools environment; these field names match the specifications defined by *Appendix L*. In the environment, most fields also possess an alias for easy recognition. For instance, in the S_FIRM_Pan layer the field which stores the 4-digit panel number is named "PANEL"; its alias name is "PANEL NUMBER". In the exported shapefile, the field name is "PANEL".

For the look-up tables, the DBF (DataBase File) table retains the same name as the table in the ArcSDE geodatabase. These table names meet *Appendix L* requirements. For instance, the ArcSDE geodatabase table L_Comm_Info is exported to a DBF file named "L_Comm_Info". Additionally, the

table's field names in the DBF are the same as those stored in the DFIRM Production Tools environment.

Non-Included Attribute Fields

In the DFIRM Production Tools environment, additional fields were added to all of the spatial layers and tables to assist with edit tracking and map production. These fields do not meet *Appendix L* requirements and, are, therefore, stripped out of the layer/table upon export. The following fields are removed from every spatial layer:

- DFIRM_ID
- CREATE_DATE
- CREATE_USER
- UPDATE_DATE
- UPDATE_USER
- GFID
- FC_SUBTYPE

The following fields are removed from every look-up table:

- DFIRM_ID
- CREATE_DATE
- CREATE_USER
- UPDATE_DATE
- UPDATE_USER
- GFID

The following fields are removed from the specified layer/table:

- INDEXSHEET in S_FIRM_Pan
- GUTTER in S_Fld_Haz_Ln
- SHOWN_FIRM in S_LOMR, S_PLSS_Ar, S_PLSS_Ln, and S_Trnsport_Ln
- SHOWN_INDX in S_Trnsport_Ln, S_Wtr_Ar, S_Wtr_Ln

Attribute Field Order

The attribute fields in the shapefiles/DBF tables follow the same order in which they exist in the ArcSDE geodatabase. This order meets the requirements defined in *Appendix L*.

Attribute Field Length

In the DFIRM Production Tools environment, to accommodate a longer field value, the unique ID attributes (e.g., XS_LN_ID, START_ID) were extended from a field length of 11 to 21. Upon export, the field lengths are returned to the 11 width defined in *Appendix L*.

Spatial Reference

The ArcSDE geodatabase stores data in a Geographic coordinate system. This common system allows for nationwide data layers to be developed. So that you may edit and view your data in a projected system, when ArcMap is launched by JTX, the Layers data frame is projected on-the-fly to the projection defined in the *PROJECTION_ZONE* (PROJ_ZONE) field in Study_Info. Upon export, the data is converted to this projection. Any necessary datum conversions are included in the re-projection process. For instance, if your study's *PROJECTION_ZONE* (PROJ_ZONE) field value represents NAD 1983 UTM Zone 17, when the shapefile is created, its defined projection is NAD 1983 UTM Zone 17. If the *PROJECTION_ZONE* (PROJ_ZONE) field contains a <Null> or invalid

value, the tool will generate an error and the export process will stop. This error will be recorded under the *Export Status* heading.

This step is just one example where the Study_Info record is consulted during the export process. It is important that before you export, you verify that your Study_Info record is correctly populated. In addition, you should ensure that the table contains only one record. If the tool locates more than one record or no records, you will receive an error and the export process will stop. This error is reported on-screen in the ArcMap session.

Populating the Shapefile and DBF Table Shell

Once the shapefile and DBF table shells are created, the tool's next step is to add the appropriate data to the shell. The majority of the attribute fields do not require any additional processing and appear in the shapefile/DBF table exactly as they are in the ArcSDE geodatabase. For instance, in the Political Area (S_Pol_Ar) feature class for your study, the POLITICAL NAME 1 (POL_NM1) field value for a feature is "WHITE COUNTY". In the exported shapefile, the POL_NM1 field value for that feature is "WHITE COUNTY". However, some of the field values need to be transformed during the export process so that the value meets *Appendix L* specifications.

Translation for Domain Tables

The ArcSDE geodatabase utilizes domain tables. In standard ArcMap, when a geodatabase layer with links to domain tables is converted to a shapefile, the shapefile fields store the domain code (e.g., 1010) rather than the domain description (e.g., FEET). To meet the requirements defined in *Appendix L*, the exported shapefile and DBF table fields must store the domain description not the domain code. Therefore, for any ArcSDE geodatabase layer/table which links to a domain table(s), a translation is needed during the export process. During the population step, the tool translates the domain code to the domain description and stores the domain description value in the shapefile/DBF table. For instance, in the ArcSDE layer *Flood Hazard Area* (S_Fld_Haz_Ar), the field *FLOOD ZONE* (FLD_ZONE) is linked to the D_Zone domain table. For the record whose *FLOOD ZONE* (FLD_ZONE) value is "1001", upon copying the record to the shapefile, the tool converts the "1001" domain code value to the corresponding domain description "AE".

If the domain code is "NSPNULL", upon export the value in the shapefile/DBF table becomes <Null>. For instance, in the following example the fields *FLOODWAY*, *VERTICAL DATUM* (V_DATUM), and *LENGTH UNIT* (LEN_UNIT) are all linked to domain tables. For features whose zone designation is "X", these fields would all be populated with the value "NSPNULL". Upon export the shapefile value for the *FLOODWAY*, *V_DATUM*, and *LEN_UNIT* fields is <Null>.

FLOOD_ZONE	FLOODWAY	SFHA	STATIC	VERTICAL DATUM	DEPTH	LENGTH UNIT
0.2 PCT ANNUAL CHAN	NSPNULL	F	-9999	NSPNULL	-9999	NSPNULL
0.2 PCT ANNUAL CHAN	NSPNULL	F	-9999	NSPNULL	-9999	NSPNULL

An example of the use of NSPNULL as the domain value in the ArcSDE geodatabase.

FLD_ZONE	FLOODWAY	SFHA_TF	STATIC_BFE	V_DATUM	DEPTH	LEN_UNIT
0.2 PCT ANNUAL CHANC		F	-9999		-9999	
0.2 PCT ANNUAL CHANC		F	-9999		-9999	

An example of how the NSPNULL value is converted to <Null> in the shapefile.

Translation for Domain-Like Look-Up Tables

In the DFIRM Production Tools environment, several look-up tables act like domain tables. Like domain tables, the ArcSDE geodatabase layer/table stores the look-up table ID rather than the look-up table description. Unlike domain tables, these look-up tables are not static; their records vary as they are populated by the user (other than L_Projection_Zone which is static). In the export process, those ArcSDE layers/tables that are linked to domain-like look-up tables require specific translation. The following is a list of domain-like look-up tables in the ArcSDE environment that require translation:

- L_Frequency
- L_PNP_Reason
- L_Projection_Zone
- L_Wtr_Nm

The L_Frequency table's FREQ_LID field has a relationship with the FREQUENCY field in the L_Node_Disch table, the L_Subbas_Disch table, and the L_XS_Ratings table. In the ArcSDE geodatabase, the FREQUENCY field in L_Node_Disch table, the L_Subbas_Disch table, and the L_XS_Ratings table stores the same value as the FREQ_LID field in the L_Frequency table. During the export process, the FREQUENCY field value in the L_Node_Disch table, the L_Subbas_Disch table, and the L_XS_Ratings table is converted from the FREQ_LID value to the FREQUENCY value in L_Frequency. For instance, a record in the ArcSDE geodatabase L_Frequency table has the FREQ_LID value of "1234_56", and the FREQUENCY value is "1 PCT". The ArcSDE geodatabase FREQUENCY field value in L_XS_Ratings is "1234_56". Upon export the tool stores the FREQUENCY field value in the L_XS_Ratings table as "1 PCT".

The L_PNP_Reason table's PNP_LID field has a relationship with the PNP_REASON field in the S_FIRM_Pan layer. In the ArcSDE geodatabase, the PNP_REASON field in S_FIRM_Pan layer stores the same value as the PNP_LID field in the L_PNP_Reason table. During the export process, the PNP_REASON field value in the S_FIRM_Pan layer is transformed from the PNP_LID value to the PNP_REASON value in L_PNP_Reason. For instance, a record in the ArcSDE geodatabase L_PNP_Reason table has the PNP_LID value of "9876_56", and the PNP_REASON value is "OPEN WATER". The ArcSDE geodatabase PNP_REASON field value in S_FIRM_Pan is "9876_56". Upon export the tool stores the PNP_REASON field value in the S_FIRM_Pan table as "OPEN WATER".

The L_Projection_Zone table's PZONE_LID field has a relationship with the PROJ_ZONE field in the Study_Info table. In the ArcSDE geodatabase, the PROJ_ZONE field in Study_Info table stores the same value as the PROJ_LID field in the L_Projection_Zone table. During the export process, the PROJ_ZONE field value in the Study_Info layer is converted from the PZONE_LID value to the PROJ_ZONE value in L_Projection_Zone. For instance, a record in the ArcSDE geodatabase

L_Projection_Zone table has the PZONE_LID value of "95746_56", and the PROJ_ZONE value is "17". The ArcSDE geodatabase PROJ_ZONE field value in Study_Info is "95746_56". Upon export the tool stores the PROJ_ZONE field value in the S_FIRM_Pan table as "17".

The L_Wtr_Nm table's WTR_NM_LID field has a relationship with the WTR_NM field in the following layers/tables:

- L_Cst_Model
- S_Gen_Struct
- S_OvrbnkLn
- S_Profil_BasLn
- S_Wtr_Ar
- S_Wtr_Ln

For each of these layers/tables in the ArcSDE geodatabase, the WTR_NM field stores the same value as the WTR_NM_LID field in the L_Wtr_Nm table. During the copying process, the WTR_NM field value in the layer/table is transformed from the WTR_NM_LID value to the WTR_NM value in L_Wtr_Nm. For instance, a record in the ArcSDE geodatabase L_Wtr_Nm table has the WTR_NM_LID value of "1246_56", and the WTR_NM value is "BIG RIVER". The ArcSDE geodatabase WTR_NM field value in the S_WTR_AR layer is "1246_56". Upon export the tool stores the WTR_NM field value in the S_Wtr_Ar table as "BIG RIVER".

WTR_NM_LID	WATER NAME*
43616_9	CHATTAHOOCHEE RIVER
43616_17	SAUTEE CREEK
43616_13	DUKES CREEK

An example of WTR_NM_LID values in the ArcSDE geodatabase L_Wtr_Nm table.

WATER LINE ID	WATER TYPE	CHANNEL RE	WATER NAME*
43616_33	PERENNIAL RIVER / STREAM	SINGLE	43616_13
43616_106	PERENNIAL RIVER / STREAM	SINGLE	43616_17
43616_85	PERENNIAL RIVER / STREAM	SINGLE	43616_9
43616_86	PERENNIAL RIVER / STREAM	SINGLE	43616_9

An example of WTR_NM values in the ArcSDE geodatabase S_Wtr_Ln layer. The layer links to the L_Wtr_Nm table.

WTR_LN_ID	WATER_TYP	CHAN_REP	WTR_NM
40	PERENNIAL RIVER / STREAM	SINGLE	DUKES CREEK
78	PERENNIAL RIVER / STREAM	SINGLE	SAUTEE CREEK
106	PERENNIAL RIVER / STREAM	SINGLE	CHATTAHOOCHEE RIVER
107	PERENNIAL RIVER / STREAM	SINGLE	CHATTAHOOCHEE RIVER

An example of WTR_NM values in the shapefile S_Wtr_Ln layer.

Note that there are several domain-like look-up tables in the ArcSDE geodatabase that require no translation during the export process because the ArcSDE geodatabase layer/table already stores the value that is required by *Appendix L*. A good example of this situation is the L_Zipcode table. All of the fields that link to this table store the actual zip code value (e.g., 22304) rather than an arbitrary unique ID value (e.g., 1234_85).

Translation for ID Fields

Each of the spatial layers and tables in the ArcSDE geodatabase contain the *Appendix L* -required unique ID field. In the DFIRM Production Tools environment, the ID field value may store a value longer than the length dictated by *Appendix L*. Therefore, the unique ID value is recalculated upon export. When the data is exported, the records in the layer/table are recalculated starting at "1" and advanced by 1 per record. For instance, the first record has the value of "1", the second record has the value of "2", the third record has the value of "3" etc.

For a couple of tables the unique ID field does not contain a random/user-assigned value. For these tables, the unique ID field value is not recalculated. These tables and field names are as follows:

- L_Case_Info (CASE_NO)
- L_Comm_Info (COM_NFO_ID)

Caution is taken when recalculating the unique ID value because the layer's/table's unique ID may also act as a secondary key to another layer/table. When the unique ID value is updated in the layer/table, the secondary key value is also updated. For instance, the unique ID for the L_Stn_Start table is the START_ID (Station Start ID) field. This field links to the START_ID field in S_XS. For a particular record the ArcSDE geodatabase START_ID field value is "43616_6".

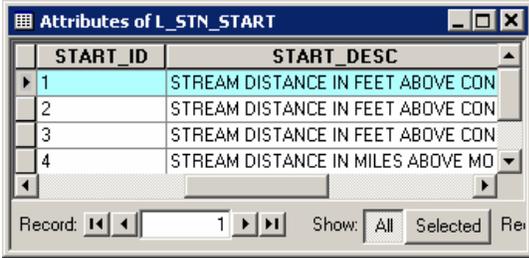
STATION START ID*	STATION START DESCR
43616_6	STREAM DISTANCE IN FEET AI
43616_1	STREAM DISTANCE IN FEET AI
43616_4	STREAM DISTANCE IN FEET AI

An example of the unique ID values in the ArcSDE geodatabase L_Stn_Start table.

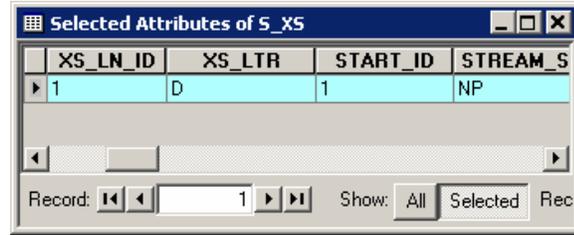
XS ID*	XS LETTER	STATION START ID	STREAM
43616_245	D	43616_6	NP

An example of the secondary key in the ArcSDE geodatabase S_XS layer.

In the shapefile/DBF table files, the START_ID field value in L_Stn_Start table is recalculated to "1" and the corresponding START_ID field value in S_XS is recalculated to "1".



An example of the unique ID values in the DBF L_Stn_Start table.



An example of the secondary key in the shapefile S_XS layer.

The following table contains the layers/tables with unique IDs/primary keys that link to secondary keys:

Linking Field Name	Unique ID Layer/Table	Secondary Key Layer/Table
CST_MDL_ID	L_Cst_Model	S_Cst_Tsct_Ln
CST_MDL_ID	L_Cst_Model	S_Fld_Haz_Ar
CST_MDL_ID	L_Cst_Model	S_Cst_Gage
HYDRO_ID	L_Hydro_Model	S_Fld_Haz_Ar
HYDRO_ID	L_Hydro_Model	L_Node_Disch
HYDRO_ID	L_Hydro_Model	L_XS_Ratings
HYDRA_ID	L_Hydra_Model	L_XS_Ratings
STD_NFO_ID	S_XS	L_Case_Info
XS_LN_ID	S_XS	L_XS_Ratings
START_ID	L_Stn_Start	S_XS
START_ID	L_Stn_Start	S_Riv_Mrk
START_ID	L_Stn_Start	S_Stn_Start
NODE_ID	S_Nodes	L_Node_Disch
NODE_ID	S_Nodes	S_Subbasins
NODE_ID/UP_NODE*	S_Nodes	S_Profil_Basln
NODE_ID/DN_NODE*	S_Nodes	S_Profil_Basln
SUBBAS_ID	S_Subbasins	L_Subbas_Disch
SUBBAS_ID	S_Subbasins	L_Storm_Info
SUBBAS_ID	S_Subbasins	L_Regression
STORM_ID	L_Storm_Curve	L_Storm_Info

* The secondary key field name is different than the unique ID field name.

Translation for the SOURCE_CIT Fields

In the DFIRM Production Tools environment, to avoid duplicate values in the L_Source_Cit table, the JTX job ID value is added onto the SOURCE_CIT value (e.g., BASE1 becomes 1234_BASE1). The SOURCE_CIT value in L_Source_Cit links to nearly every S_* layer in the ArcSDE geodatabase. When the data is exported, the JTX job ID portion of the SOURCE_CIT in the S_* layers is trimmed off. For instance, in the S_BFE layer in the ArcSDE geodatabase, the SOURCE_CIT value is "44567_STUDY1". Upon export the SOURCE_CIT value in the shapefile is "STUDY1".

Performing a Geometry Check

During the export process the tool looks for spatial features which have 0 area and/or length. If the tool encounters a feature with this geometry error, the individual feature is not skipped, and the export process continues. When a problem feature is identified, the feature's layer name and Object

ID is recorded in the logfile under the *Features failed to export due to empty geometry in the SDE geodatabase* heading. An example of this occurrence in the logfile is as follows:

```
=====
== Features failed to export due to empty ==
== geometry in the SDE Geodatabase ==
=====
DFIRM.S_TRANSPORT_LN - OBJECTID: 6922009
DFIRM.S_TRANSPORT_LN - OBJECTID: 6922174
DFIRM.S_TRANSPORT_LN - OBJECTID: 6922288
```

When this situation occurs, you should return to the ArcSDE geodatabase and resolve these errors before continuing in the map production process.

Recording the Exported Shapefiles/DBF Tables

Once the shapefile is successfully created and populated, the layer name is captured under the *SDE GDB Feature Classes Exported to Shapefiles* heading. After the shapefile process has ended, the text ***Completed*** is added to the bottom of the layer list. Similarly, once the DBF table is successfully created and populated, the table name is captured under the *SDE GDB Tables Exported to DBF Tables* heading. When the shapefile/DBF table creation process has concluded, the text ***Completed*** is added to the bottom of the table list. An example of these sections populated in the logfile is as follows:

```
==SDE GDB Feature Classes Exported To Shapefiles==
DFIRM.S_BASE_INDEX
DFIRM.S_BFE
DFIRM.S_CBRS
DFIRM.S_CST_GAGE
DFIRM.S_CST_TSCT_LN
DFIRM.S_FIRM_PAN
DFIRM.S_FLD_HAZ_AR
DFIRM.S_FLD_HAZ_LN
DFIRM.S_GEN_STRUCT
DFIRM.S_LOMR
DFIRM.S_NODES
DFIRM.S_OVRBNKLN
DFIRM.S_PERM_BMK
DFIRM.S_PFD_LN
DFIRM.S_PLSS_AR
DFIRM.S_PLSS_LN
DFIRM.S_QUAD_INDEX
DFIRM.S_POL_AR
DFIRM.S_POL_LN
DFIRM.S_PRECIP_GAGE
DFIRM.S_PROFIL_BASLN
DFIRM.S_RIV_MRK
DFIRM.S_SHORE_LN
DFIRM.S_STN_START
DFIRM.S_SUBBASINS
DFIRM.S_TRANSPORT_LN
DFIRM.S_WATER_GAGE
```

DFIRM.S_WTR_AR
DFIRM.S_WTR_LN
DFIRM.S_XS
Completed

==SDE GDB Tables Exported To DBF Tables==

DFIRM.STUDY_INFO
DFIRM.L_AUX_DATA
DFIRM.L_CASE_INFO
DFIRM.L_COMM_INFO
DFIRM.L_CST_MODEL
DFIRM.L_HYDRA_MODEL
DFIRM.L_HYDRO_MODEL
DFIRM.L_MEDIA
DFIRM.L_MT1_LOMC
DFIRM.L_NODE_DISCH
DFIRM.L_PAN_REVIS
DFIRM.L_POL_FHBM
DFIRM.L_REGRESSION
DFIRM.L_STN_START
DFIRM.L_STORM_CURVE
DFIRM.L_STORM_INFO
DFIRM.L_SUBBAS_DISCH
DFIRM.L_XS_RATINGS
Completed

If the “*Completed*” text is not listed underneath the heading, it indicates that the process failed. Generally the layer/tables are exported alphabetically. The last listed layer/table is the last layer/table that was successfully processed. Knowing which layer/table was last listed helps you determine which layer/table would have been processed next; it is likely that the process failed due to an error in that layer/table.

Generating S_Label_Pt

After the populated ArcSDE layers and tables are exported as shapefiles/DBF tables, the tool's next step is to create the S_Label_Pt shapefile. The S_Label_Pt layer features are built from the features in the Anno_6000_TXT, Anno_12000_TXT, and Anno_24000_TXT ArcSDE geodatabase annotation feature classes. The first step in the process is to determine whether the study is vector- or orthophoto-based. The type of base impacts how the label type is reported in the S_Label_Pt layer. The tool determines the base type via the *DOQ BASED* (DOQ_BASED) field in the Study_Info table. If the value equals “T”, the tool identifies the study as being orthophoto-based and will use the label types “DOQ-TRANSPORTATION” and “DOQ-WATER” in the reference point creation process. If the value equals “F”, the tool identifies the study as being vector-based and will use the label types “S_TRANSPORT_LN”, “S_WTR_AR”, and “S_WTR_LN” in the reference point creation process. If the value is something other than “T” or “F”, the tool will generate an error under the *Export Status* heading and cancel the export process. If you receive this error, you should correct the Study_Info record before attempting to export again.

If the *DOQ BASED* (DOQ_BASED) field is populated correctly, the tool locates all *_TXT features whose LAYERNAME field value equals “TRANSPORTATION”, “WATER AREA”, or “WATER LINE”. Once these annotation features are identified, the tool verifies that the features are text elements.

Any feature which is not a text element is recorded under the *Features Not Exported to S_Label_Pt due to invalid feature type* heading. These features are skipped and the export processing continues. If these features are found, even though the export continues to process, it is important for you to go back to the ArcSDE geodatabase and investigate the problem. An example of this occurrence in the logfile is as follows:

```

=====
== Features Not Exported to S_Label_Pt ==
== due to invalid feature type ==
=====
OBJECTID: 4886885 -- DFIRM.Anno_12000_TXT_S_LABEL_PT
OBJECTID: 4886884 -- DFIRM.Anno_12000_TXT_S_LABEL_PT
OBJECTID: 4886882 -- DFIRM.Anno_12000_TXT_S_LABEL_PT
OBJECTID: 2562602 -- DFIRM.Anno_24000_TXT_S_LABEL_PT
OBJECTID: 2562601 -- DFIRM.Anno_24000_TXT_S_LABEL_PT

```

If no features are found that meet the LAYERNAME and text element criteria, the S_Label_Pt layer is not created, and the status is reported under the *SDE GDB Annotation Exported to S_LABEL_PT* heading. In this situation the tool progresses to the next step in the export process. An example of this status in the logfile is as follows:

```

==SDE GDB Annotation Exported To S_LABEL_PT==
No annotation features found that meet the export criteria

```

If the tool locates annotation features which meet the LAYERNAME and text element criteria, the tool verifies that the feature does not have an area or length of 0. If the feature's geometry is empty, the feature is skipped in the export process, and the feature's OID is captured in the logfile under the *Features Not Exported to S_Label_Pt due to 0 area/length* heading. If these features are found, even though the export continues to process, it is important for you to go back to the ArcSDE geodatabase and investigate the problem. An example of this occurrence in the logfile is as follows:

```

=====
== Features Not Exported to S_Label_Pt ==
== due to 0 area/length ==
=====
OBJECTID: 474575 -- DFIRM.Anno_6000_TXT_S_LABEL_PT
OBJECTID: 489744 -- DFIRM.Anno_12000_TXT_S_LABEL_PT

```

If the annotation feature is valid, the tool creates a spatial point to represent the location of the annotation feature. The tool populates the LABEL_ID field as "1" for the first record and then adds one to the value for each additional record (i.e., so the LABEL_ID field values for the first four records are "1", "2", "3", and "4"). The tool populates the LABEL field by pulling the inherent text value from the annotation. For instance, if the annotation feature text is "Main Street", the LABEL field value in S_Label_Pt is "Main Street". The tool also calculates the rotation of the annotation feature and captures it in the DEGREES field. The LABEL_TYPE field value is dependent upon the *DOQ BASED* (DOQ_BASED) value and the LAYERNAME field value. The following table lists the LABEL_TYPE field value based on the *DOQ BASED* (DOQ_BASED) value and the LAYERNAME value:

LAYERNAME Value	DOQ_BASED Value	LABEL_TYPE Value
TRANSPORTATION	T	DOQ-TRANSPORTATION
TRANSPORTATION	F	S_TRANSPORT_LN
WATER AREA	T	DOQ-WATER
WATER AREA	F	S_WTR_AR
WATER LINE	T	DOQ-WATER
WATER LINE	F	S_WTR_LN

Even though there are three annotation *TXT feature classes, it is important to note that all features which meet the criteria are converted to reference points and stored in the same S_Label_Pt layer.

When the tool identifies that there are annotation features that meet the criteria, the creation status text "Generating layer S_Label_Pt" is captured in the logfile under the *SDE GDB Annotation Exported to S_LABEL_PT* heading. Once the S_Label_Pt shapefile creation process is finished, the status text *"*Completed*"* is placed under the *SDE GDB Annotation Exported to S_LABEL_PT* heading. An example in the logfile of a successful creation is as follows:

```
==SDE GDB Annotation Exported To S_LABEL_PT==
Generating layer S_LABEL_PT
*Completed*
```

Generating S_Label_Ld

Once the S_Label_Pt shapefile is created, the tool begins to create the S_Label_Ld shapefile. This process is very similar to the S_Label_Pt creation process. The S_Label_Ld layer features are built from the features in the Anno_6000_LDR, Anno_12000_LDR, and Anno_24000_LDR ArcSDE geodatabase annotation feature classes.

The tool locates all *_LDR features whose LAYERNAME field value equals "TRANSPORTATION", "WATER AREA", or "WATER LINE". Once these annotation features are identified, the tool verifies that the feature does not have an area or length of 0. If the feature's geometry is empty, the feature is skipped in the export process, and the feature's Object ID is captured in the logfile under the *Features Not Exported to S_Label_Ld due to 0 area/length* heading. If these features are found, even though the export continues to process, it is important for you to go back to the ArcSDE geodatabase and investigate the problem. An example of this occurrence in the logfile is as follows:

```
=====
== Features Not Exported to S_Label_Ld ==
== due to 0 area/length ==
=====
OBJECTID: 94755 -- DFIRM.Anno_6000_LDR_S_LABEL_LD
OBJECTID: 84744 -- DFIRM.Anno_24000_LDR_S_LABEL_LD
```

If no features are found that meet the LAYERNAME and valid geometry criteria, the S_Label_Ld layer is not created, and the status is reported under the *SDE GDB Annotation Exported to S_LABEL_LD* heading. In this situation the tool progresses to the next step in the export process. An example of this status in the logfile is as follows:

```
==SDE GDB Annotation Exported To S_LABEL_LD==
No annotation features found that meet the export criteria
```

If the tool locates features which meet the LAYERNAME and valid geometry criteria, the tool creates a spatial line for each annotation feature to represent the location of the annotation feature. The tool populates the LEADER_ID field as "1" for the first record and then adds one to the value for each additional record (i.e., so the LEADER_ID field values for the first four records are "1", "2", "3", and "4"). Just like the S_Label_Pt layer, the tool populates the LABEL_TYP field by considering the *DOQ BASED* (DOQ_BASED) value and the LAYERNAME value.

Even though there are three annotation *LDR feature classes, it is important to note that all features which meet the criteria are converted to reference points and stored in the same S_Label_Ld layer.

When the tool identifies that there are annotation features that meet the criteria, the creation status text "Generating layer S_Label_Ld" is captured in the logfile under the *SDE GDB Annotation Exported to S_LABEL_LD* heading. Once the S_Label_Ld shapefile creation process is finished, the status text "*Completed*" is placed under the *SDE GDB Annotation Exported to S_LABEL_LD* heading. An example in the logfile of a successful creation is as follows:

```
==SDE GDB Annotation Exported To S_LABEL_LD==  
Generating layer S_LABEL_LD  
*Completed*
```

Creating the E00 Files

Creating the Coverage/INFO Tables

For each shapefile that was created, the layer is converted into an ArcInfo coverage. After the coverages are created, the tool creates an ArcInfo INFO table from each DBF table. All of the layers/tables coverages/INFO tables are created with the same layer name as the shapefile/DBF table, with the exception of the S_Profil_BasIn layer. S_Profil_BasIn's layer name is too long for the ESRI coverage requirement. Therefore, when the coverage is created from the S_Profil_BasIn shapefile, the coverage name is "S_Profil_BsIn". When the layer/table is successfully converted to a coverage/INFO table, the layer/table name is added to the logfile under the *Shapefiles Exported To Coverage* heading.

Redefining the Numeric Fields

The field types and widths for each file format are defined in *Appendix L*. In general, the transition from shapefile to coverage is smooth. For instance date fields in the shapefiles are date fields in the coverage. However, in the case of fields which store numeric values, the conversion from a shapefile/DBF table does not create the correct field definition in the coverage/INFO table. The tool mitigates this issue by redefining the incorrect fields. The following fields are adjusted to ensure that their definition meets *Appendix L* requirements:

- ELEV (S_BFE)
- SETUP_DPTH (S_Cst_Tsct_Ln)
- SIG_HT (S_Cst_Tsct_Ln)
- SIG_PD (S_Cst_Tsct_Ln)
- CON_HT (S_Cst_Tsct_Ln)
- CON_PD (S_Cst_Tsct_Ln)
- MEAN_HT (S_Cst_Tsct_Ln)
- MEAN_PD (S_Cst_Tsct_Ln)
- L_RANGE (S_Cst_Tsct_Ln)
- L_DIRECT (S_Cst_Tsct_Ln)
- R_RANGE (S_Cst_Tsct_Ln)
- R_DIRECT (S_Cst_Tsct_Ln)

- STATIC_BFE (S_Fld_Haz_Ar)
- DEPTH (S_Fld_Haz_Ar)
- VELOCITY (S_Fld_Haz_Ar)
- BFE_REVERT (S_Fld_Haz_Ar)
- DEP_REVERT (S_Fld_Haz_Ar)
- WSEL_REG (S_XS)
- BED_ELEV (S_XS)
- TOP_WIDTH (S_XS)
- XS_AREA (S_XS)
- VELOCITY (S_XS)
- DEPTH (L_Storm_Curve)
- INTENSITY (L_Storm_Curve)
- DISCHARGE (L_Subbas_Disch)
- FREQ_WSEL (L_XS_Ratings)
- FREQ_Q (L_XS_Ratings)

As the field is being redefined, its status is added to the logfile under the *Shapefiles Exported To Coverages* heading. Once the coverages and INFO tables are created and the necessary fields are redefined, the text *"*Completed*"* is placed under the *Shapefiles Exported To Coverages* heading. An example of the *Shapefiles Exported To Coverages* section is as follows:

```

==Shapefiles Exported To Coverage==
S_BASE_INDEX
S_BFE
S_FIRM_PAN
S_FLD_HAZ_AR
S_FLD_HAZ_LN
S_GEN_STRUCT
S_LABEL_LD
S_LABEL_PT
S_POL_AR
S_POL_LN
S_QUAD_INDEX
S_WTR_LN
S_XS
L_COMM_INFO
L_STN_START
L_STORM_CURVE
STUDY_INFO
Redefining field ELEV in S_BFE
Redefining field STATIC_BFE in S_FLD_HAZ_AR
Redefining field DEPTH in S_FLD_HAZ_AR
Redefining field VELOCITY in S_FLD_HAZ_AR
Redefining field BFE_REVERT in S_FLD_HAZ_AR
Redefining field DEP_REVERT in S_FLD_HAZ_AR
Redefining field WSEL_REG in S_XS
Redefining field BED_ELEV in S_XS
Redefining field TOP_WIDTH in S_XS
Redefining field XS_AREA in S_XS
Redefining field VELOCITY in S_XS

```

Redefining field DEPTH in L_STORM_CURVE
Redefining field INTENSITY in L_STORM_CURVE
Completed

Accounting for the 500 Vertices Rule

When a coverage is created from an existing shapefile, ArcInfo does not allow a line segment to contain more than 500 vertices. If a line segment does contain more than 500 vertices, ArcInfo breaks the line segment into multiple lines. In doing so, all of the line segments involved in the break are given the field values of the original segment. As a result the *Appendix L*-defined unique ID value is duplicated, thus violating the requirement of having unique ID values.

To work-around this potential duplication, for each line layer that has been exported, the tool compares the number of line features in the shapefile with the number of line features in the coverage. As the comparison is being conducted, a status of the layer is recorded in the logfile under the *Check Shapefile and Coverage Records for 500 Vertices* heading. If the count is different, the tool recalculates the unique ID field in the coverage. Once the unique IDs are recalculated, the existing corresponding shapefile is deleted and recreated to ensure that the two files match. If the shapefile needs to be re-created, its status is captured in the logfile under the *Check Shapefile and Coverage Records for 500 Vertices* heading. Once the tool has reviewed each line layer and has recreated any necessary shapefiles, the text *"*Completed*"* is placed under the heading. An example of this section in the logfile is as follows:

```
==Check Shapefile and Coverage Records for 500 Vertices==  
Checking S_BFE  
Checking S_FLD_HAZ_LN  
Exporting Coverage To Shapefile due to 500 vertices: S_FLD_HAZ_LN  
Checking S_GEN_STRUCT  
Checking S_LABEL_LD  
Checking S_POL_LN  
Exporting Coverage To Shapefile due to 500 vertices: S_POL_LN  
Checking S_WTR_LN  
Exporting Coverage To Shapefile due to 500 vertices: S_WTR_LN  
Checking S_XS  
*Completed*
```

Converting Coverages/INFO Tables to E00 Files

Once the coverages and INFO tables have all been created, redefined, and checked for the 500 vertices rule, each layer/table is exported as an ESRI E00 file (the ESRI coverage compression format). The E00 file has the same name as the coverage/INFO table (e.g., Study_Info.e00). As the coverage/INFO table is converted to the E00 file, the layer name/table name is recorded in the logfile under the *Coverages Exported To Interchange Files* heading. Once the process is complete, the text *"*Completed*"* is captured under the heading. An example of this populated section of the logfile is as follows:

```
==Coverages Exported To Interchange Files==  
S_BASE_INDEX  
S_POL_AR  
S_FLD_HAZ_AR  
S_POL_LN  
S_FLD_HAZ_LN  
S_XS
```

S_LABEL_PT
S_FIRM_PAN
S_GEN_STRUCT
S_WTR_LN
S_BFE
S_LABEL_LD
S_QUAD_INDEX
L_COMM_INFO
L_STN_START
L_STORM_CURVE
STUDY_INFO
Completed

Creating the MIF Files

Once the E00 files are created, the shapefiles/DBF table files are used to create the MapInfo MIF files (the MapInfo compression format). The majority of the layers/tables are directly translated to the MIF format. The majority of the fields convert according to the specifications defined in *Appendix L*. However, a few do not. To correct the inconsistency, the tool updates the fields (essentially the same fields that were affected in the coverage/INFO table creation) to meet *Appendix L*. As the shapefile/DBF table is converted to a MIF file, the layer/table name is captured under the Shapefiles Exported to MIF heading. Once all of the MIF files have been created, the text ****Completed**** is placed under the heading. An example of how this section of the logfile appears once these files are created is as follows:

```
==Shapefiles Exported To MIFs==  
S_BFE  
S_CBRS  
S_FIRM_PAN  
S_FLD_HAZ_AR  
S_FLD_HAZ_LN  
S_GEN_STRUCT  
S_PERM_BMK  
S_POL_AR  
S_POL_LN  
S_QUAD_INDEX  
S_TRANSPORT_LN  
S_WTR_AR  
s_wtr_ln  
S_XS  
L_COMM_INFO  
L_STN_START  
STUDY_INFO  
*Completed*
```

Recording the Exported Layers and Tables

Once the shapefiles/DBF tables, E00 files, and MIF files are created, the layer/table name is recorded under the Layer/Tables Successfully Exported heading in the logfile. If the layer/table name is listed it means that all file formats for the layer/table were created. For instance, if the S_Fld_Haz_Ar E00 file failed to create, the layer would not be included under the heading. An example of how this section of the logfile appears during a successful export is as follows:

```

=====
== Layers/Tables Successfully Exported ==
=====
DFIRM.S_BASE_INDEX
DFIRM.S_BFE
DFIRM.S_FIRM_PAN
DFIRM.S_FLD_HAZ_AR
DFIRM.S_FLD_HAZ_LN
DFIRM.S_GEN_STRUCT
DFIRM.S_QUAD_INDEX
DFIRM.S_POL_AR
DFIRM.S_POL_LN
DFIRM.S_WTR_LN
DFIRM.S_XS
DFIRM.STUDY_INFO
DFIRM.L_COMM_INFO
DFIRM.L_STN_START
DFIRM.L_STORM_CURVE
DFIRM.S_LABEL_PT
DFIRM.S_LABEL_LD

```

Moving the Output to the Appropriate Folders

The tool creates all of the files in a temporary processing space. Once all of the layers/tables are exported, the tool mass moves the output files to the appropriate folder. The shapefiles/DBF tables, E00 files, and MIF files are stored in the J:\FEMA\

Note: If you wish to keep a historic record of your logfile results, you should rename the logfile before exporting the data again.

Some of the file formats consist of more than one physical file. Shapefiles are composed of the *.shp, *.shx, *.dbf, and *.prj files. For instance, for the S_BFE layer, the shapefile-related output files are S_BFE.shp, S_BFE.shx, S_BFE.dbf, and S_BFE.prj. The DBF table files consist of a single *.dbf file (e.g., L_Comm_Info.dbf). The E00 file consists of a single file with an .e00 extension (e.g., S-BFE.e00, L_Comm_Info.e00). The MIF files are composed of both the *.mif and *.mid files. For instance, for the S_BFE layer, the MIF-related output files are S_BFE.mif and S_BFE.mid.

The coverages and INFO tables that were created from the shapefiles/DBF tables and were used to generate the E00 files are retained for your reference. These files are stored in the J:\FEMA\



Submit Preliminary

The **Submit Preliminary** tool is nearly identical to the *Submit Draft* tool. The only major difference between the two tools is the output folder destination for the shapefiles/DBF tables, E00 files, and MIF files. For detailed information about this tool's export process and outputs, please refer to the *Submit Draft* section of this document.

To export your data to the Preliminary DFIRM Database folder on the MIP directory structure, perform the following steps:

1. Click the **Submit Preliminary** button.

Note: You may only export data while in a parent JTX job step. If you wish to export data from your child JTX job for local editing or archiving purposes, you should use the *DFIRM Export to PGDB* tool on the **DFIRM Layer Loader** toolbar.

2. The shapefile/DBF table, E00, and MIF files are created on a designated processing server. You will receive a message that provides an estimated processing time.



An example of the *Estimated Processing Time* message.

Note: Once the processing has been transferred to the designated server, you have full control over your ArcMap session, and you may continue working. With that being said, do not export the data again until the current process is complete. In addition, if you are exporting from a child JTX job, do not close or delete the job in JTX until the process is complete.

3. The shapefile/DBF table, E00, and MIF files are created in the appropriate folder. The files meet the requirements defined in Section L.7 Database Table Structure Requirements for Preliminary and Final Digital Flood Insurance Rate Map Databases of *Appendix L*. Additionally, a logfile reports the progress and success of the export. For a sample output logfile, please refer to Appendix A of this document.

Specifically, the files are exported to the J:\FEMA\



Submit Final

The **Submit Final** tool is nearly identical to the *Submit Draft* tool. The only major difference between the two tools is the output folder destination for the shapefiles/DBF tables, E00 files, and MIF files. For detailed information about this tool's export process and outputs, please refer to the *Submit Draft* section of this document.

To export your data to the Final DFIRM Database folder on the MIP directory structure, perform the following steps:

1. Click the **Submit Final** button.

Note: You may only export data while in a parent JTX job step. If you wish to export data from your child JTX job for local editing or archiving purposes, you should use the *DFIRM Export to PGDB* tool on the **DFIRM Layer Loader** toolbar.

2. The shapefile/DBF table, E00, and MIF files are created on a designated processing server. You will receive a message that provides an estimated processing time.



An example of the *Estimated Processing Time* message.

Note: Once the processing has been transferred to the designated server, you have full control over your ArcMap session, and you may continue working. With that being said, do not export the data again until the current process is complete. In addition, if you are exporting from a child JTX job, do not close or delete the job in JTX until the process is complete.

3. The shapefile/DBF table, E00, and MIF files are created in the appropriate folder. The files meet the requirements defined in Section L.7 Database Table Structure Requirements for Preliminary and Final Digital Flood Insurance Rate Map Databases of *Appendix L*. Additionally, a logfile reports the progress and success of the export. For a sample output logfile, please refer to Appendix A of this document.

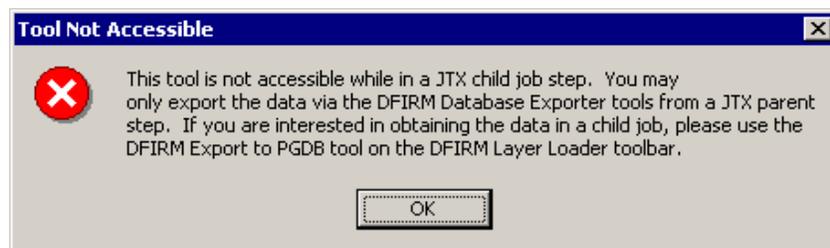
Specifically, the files are exported to the J:\FEMA\

Troubleshooting

Problem: I received the Estimated Processing Time message but my data and logfile were never created.

Solution: An error with the designated processing server may have occurred. Please contact MIPHelp@mapmodteam.com with your JTX job ID, your FEMA Case Number, your DFIRM_ID, and the time you attempted to export.

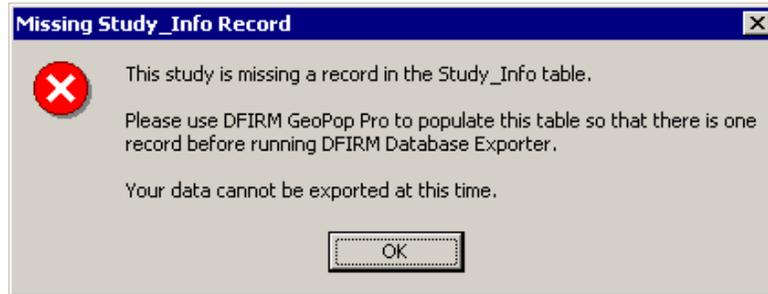
Problem: I received the following error when I attempted to export my data from a child JTX job.



Error message – Cannot export from child job

Solution: Since the parent JTX job contains the data that will become part of the National Flood Hazard Layer, it is important that the data that is approved via independent QC process and the data in the parent JTX job match. To eliminate potential discrepancies, you are not allowed to export your data with the tools on the **DFIRM Database Exporter** toolbar while in a child JTX job. If you wish to have a copy of the child data for historic record or local editing, you should use the *DFIRM Export to PGDB* tool on the **DFIRM Layer Loader** toolbar.

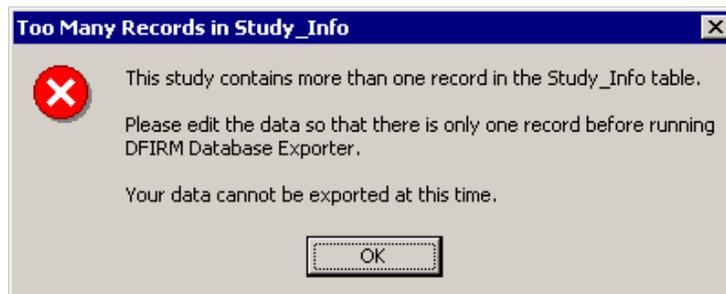
Problem: I received the following error telling me that my Study_Info table has no records. No data was exported.



Error message – No records in the Study_Info table

Solution: The tools on the **DFIRM Database Exporter** toolbar consult your Study_Info record to obtain necessary information, such as the study projection. Without this information the data cannot be exported. You should create the Study_Info record with the *Create New Feature* tool on the **DFIRM GeoPop Pro** toolbar and then proceed with the export.

Problem: I received the following error telling me that my Study_Info table has too many records. No data was exported



Error message – Too many records in the Study_Info table

Solution: The tools on the **DFIRM Database Exporter** toolbar consult your Study_Info record to obtain necessary information, such as the study projection. When the Study_Info table contains more than one record, the tool is unable to recognize which record contains the correct information. You should delete the unnecessary record and then proceed with the export.

Problem: In my logfile the Export Status contains the following error: "The PROJECTION_ZONE (PROJ_ZONE) field in the Study_Info table must be populated. Please use DFIRM GeoPop Pro to populate this field with a valid projection before running DFIRM Database Exporter". I have a value in the *PROJECTION* (PROJ_ZONE) field. Why am I receiving this error?

Solution: In the DFIRM Tools environment, the data is stored in a Geographic coordinate system so that all states and territories may be stored in a single nationwide layer. So that your study is in your desired projection, when ArcMap is launched, the Layers data frame is automatically projected-on-the-fly according to the *PROJECTION_ZONE* (PROJ_ZONE) field value in the Study_Info table. Upon export the data is re-projected to the specified projection. The *PROJECTION_ZONE* (PROJ_ZONE) field is linked to an internal look-up table which contains a list of projection zones. The unique ID of the projection from the internal look-up table must be stored in the *PROJECTION_ZONE* (PROJ_ZONE) field. For instance the formal projection zone code for the projection NAD 1983 UTM Zone 17 is "17". Yet, the unique ID value "2007" (from the internal look-up table), must be stored in the *PROJECTION_ZONE* (PROJ_ZONE) field.

If your record contains the formal projection zone code value rather than the unique ID from the internal look-up table, when the data is exported, the correct projection zone will not be able to be located in the internal projection zone look-up table, and your data will not be able to be exported. To ensure that you have the proper value in the *PROJECTION_ZONE* (PROJ_ZONE) field, you should use the **Add New Row** tool on the **DFIRM GeoPop Pro** toolbar to define the study's projection.

Appendix A: Sample DFIRM Database Exporter Logfile

```
=====
DFIRM Database Exporter Log Results
=====
DFIRM_ID: 42017C
JTX Job: STUDENT40.JTX_1420345
Exported By: STUDENT40
Export Method: DRAFTEXPORT
Date Exported: 1/26/2007 Time Exported: 8:47:28 AM
=====
```

==Feature Classes Exported To Shapefiles==

```
DFIRM.S_BASE_INDEX
DFIRM.S_BFE
DFIRM.S_CBRS
DFIRM.S_CST_GAGE
DFIRM.S_CST_TSCT_LN
DFIRM.S_FIRM_PAN
DFIRM.S_FLD_HAZ_AR
DFIRM.S_FLD_HAZ_LN
DFIRM.S_GEN_STRUCT
DFIRM.S_LOMR
DFIRM.S_NODES
DFIRM.S_OVRBNKLN
DFIRM.S_PERM_BMK
DFIRM.S_PFD_LN
DFIRM.S_PLSS_AR
DFIRM.S_PLSS_LN
DFIRM.S_QUAD_INDEX
DFIRM.S_POL_AR
DFIRM.S_POL_LN
DFIRM.S_PRECIP_GAGE
DFIRM.S_PROFIL_BASLN
DFIRM.S_RIV_MRK
DFIRM.S_SHORE_LN
DFIRM.S_STN_START
DFIRM.S_SUBBASINS
DFIRM.S_TRANSPORT_LN
DFIRM.S_WATER_GAGE
DFIRM.S_WTR_AR
DFIRM.S_WTR_LN
DFIRM.S_XS
```

Completed

==Info Tables Exported To DBase Tables==

```
DFIRM.STUDY_INFO
DFIRM.L_AUX_DATA
DFIRM.L_CASE_INFO
DFIRM.L_COMM_INFO
```

DFIRM.L_CST_MODEL
DFIRM.L_HYDRA_MODEL
DFIRM.L_HYDRO_MODEL
DFIRM.L_MEDIA
DFIRM.L_MT1_LOMC
DFIRM.L_NODE_DISCH
DFIRM.L_PAN_REVIS
DFIRM.L_POL_FHBM
DFIRM.L_REGRESSION
DFIRM.L_STN_START
DFIRM.L_STORM_CURVE
DFIRM.L_STORM_INFO
DFIRM.L_SUBBAS_DISCH
DFIRM.L_XS_RATINGS
Completed

==Annotations Exported To DFIRM.S_LABEL_PT==
Generating layer DFIRM.S_LABEL_PT
Completed

==Annotations Exported To DFIRM.S_LABEL_LD==
Generating layer DFIRM.S_LABEL_LD
Completed

==Shapefiles Exported To Coverage==

S_BFE
S_CBRS
S_FIRM_PAN
S_FLD_HAZ_AR
S_FLD_HAZ_LN
S_GEN_STRUCT
S_PERM_BMK
S_POL_AR
S_POL_LN
S_QUAD_INDEX
S_TRANSPORT_LN
S_WTR_AR
S_WTR_LN
S_XS
L_COMM_INFO
L_STN_START
STUDY_INFO
Redefining field ELEV in S_BFE
Redefining field STATIC_BFE in S_FLD_HAZ_AR
Redefining field DEPTH in S_FLD_HAZ_AR
Redefining field VELOCITY in S_FLD_HAZ_AR
Redefining field BFE_REVERT in S_FLD_HAZ_AR
Redefining field DEP_REVERT in S_FLD_HAZ_AR
Redefining field WSEL_REG in S_XS
Redefining field BED_ELEV in S_XS
Redefining field TOP_WIDTH in S_XS

Redefining field XS_AREA in S_XS
Redefining field VELOCITY in S_XS
Completed

==Check Shapefile and Coverage Records for 500 vertices==
Checking S_BFE
Checking S_FLD_HAZ_LN
Checking S_GEN_STRUCT
Checking S_POL_LN
Checking S_TRANSPORT_LN
Checking S_WTR_LN
Exporting Coverage To Shapefile due to 500 vertices: S_WTR_LN
Checking S_XS
Completed

==Coverages Exported To Interchange Files==
s_pol_ar
s_fld_haz_ar
s_pol_ln
s_fld_haz_ln
s_perm_bmk
s_xs
s_transport_ln
s_firm_pan
s_wtr_ar
s_cbrs
s_gen_struct
s_wtr_ln
s_bfe
s_quad_index
l_comm_info
l_stn_start
study_info
Completed

==Shapefiles Exported To MIF==
S_BFE
S_CBRS
S_FIRM_PAN
S_FLD_HAZ_AR
S_FLD_HAZ_LN
S_GEN_STRUCT
S_PERM_BMK
S_POL_AR
S_POL_LN
S_QUAD_INDEX
S_TRANSPORT_LN
S_WTR_AR
s_wtr_ln
S_XS
L_COMM_INFO

L_STN_START
STUDY_INFO
Completed

=====
== Layers/Tables Successfully Exported ==

=====
DFIRM.S_BFE
DFIRM.S_CBRS
DFIRM.S_FIRM_PAN
DFIRM.S_FLD_HAZ_AR
DFIRM.S_FLD_HAZ_LN
DFIRM.S_GEN_STRUCT
DFIRM.S_PERM_BMK
DFIRM.S_QUAD_INDEX
DFIRM.S_POL_AR
DFIRM.S_POL_LN
DFIRM.S_TRANSPORT_LN
DFIRM.S_WTR_AR
DFIRM.S_WTR_LN
DFIRM.S_XS
DFIRM.STUDY_INFO
DFIRM.L_COMM_INFO
DFIRM.L_STN_START

=====
== Layers/Tables Not Exported due to zero records ==

=====
DFIRM.S_BASE_INDEX
DFIRM.S_CST_GAGE
DFIRM.S_CST_TSCT_LN
DFIRM.S_LOMR
DFIRM.S_NODES
DFIRM.S_OVRBNKLN
DFIRM.S_PFD_LN
DFIRM.S_PLSS_AR
DFIRM.S_PLSS_LN
DFIRM.S_PRECIP_GAGE
DFIRM.S_PROFIL_BASLN
DFIRM.S_RIV_MRK
DFIRM.S_SHORE_LN
DFIRM.S_STN_START
DFIRM.S_SUBBASINS
DFIRM.S_WATER_GAGE
DFIRM.L_AUX_DATA
DFIRM.L_CASE_INFO
DFIRM.L_CST_MODEL
DFIRM.L_HYDRA_MODEL
DFIRM.L_HYDRO_MODEL
DFIRM.L_MEDIA
DFIRM.L_MT1_LOMC

DFIRM.L_NODE_DISCH
DFIRM.L_PAN_REVIS
DFIRM.L_POL_FHBM
DFIRM.L_REGRESSION
DFIRM.L_STORM_CURVE
DFIRM.L_STORM_INFO
DFIRM.L_SUBBAS_DISCH
DFIRM.L_XS_RATINGS
DFIRM.S_LABEL_PT
DFIRM.S_LABEL_LD

=====
== Layers / Tables Not Exported due to ==
== Study_Info 's DISTRIBUTE TRANSPORTATION = F: ==
=====

=====
== Features failed to export due to empty ==
== geometry in the SDE Geodatabase ==
=====

DFIRM.S_TRANSPORT_LN - OBJECTID: 6922009
DFIRM.S_TRANSPORT_LN - OBJECTID: 6922174
DFIRM.S_TRANSPORT_LN - OBJECTID: 6922288
DFIRM.S_TRANSPORT_LN - OBJECTID: 6922387
DFIRM.S_TRANSPORT_LN - OBJECTID: 6922716
DFIRM.S_TRANSPORT_LN - OBJECTID: 6923087
DFIRM.S_TRANSPORT_LN - OBJECTID: 6923810
DFIRM.S_TRANSPORT_LN - OBJECTID: 6923836
DFIRM.S_TRANSPORT_LN - OBJECTID: 6923906
DFIRM.S_TRANSPORT_LN - OBJECTID: 6924135

=====
== Features Not Exported to S_Label_Pt ==
== due to 0 area/length ==
=====

=====
== Features Not Exported to S_Label_Ld ==
== due to 0 area/length ==
=====

=====
===== EXPORT STATUS =====
=====
Export Status: Ok!
Message: Database successfully exported.
=====