

Autodesk VISION* GINA Reader/Writer

FORMAT NOTES:

This format is not supported by FME Base Edition.

The Autodesk GIS Design Server (VISION) GINA (General INterchange and Archive) file format is an open standard format used by VISION*® products. Graphic, tabular, and coordinate system data are stored in VISION* GINA files. GINA is an ASCII file format that is used to

- transfer data between VISION* and other systems
- archive databases
- copy data between VISION* databases

One GINA file defines one database or a portion of a database.

GINA Quick Facts

| | |
|-------------------------------|---|
| Format Type Identifier | GINA |
| Reader/Writer | Both |
| Licensing Level | Professional |
| Dependencies | None |
| Dataset Type | File |
| Feature Type | Feature code + Type + Layer # + Network # |
| Typical File Extensions | .gia, .gina |
| Automated Translation Support | Yes |
| User-Defined Attributes | Yes |
| Coordinate System Support | No |
| Generic Color Support | No |
| Spatial Index | Never |
| Schema Required | No |
| Transaction Support | No |
| Geometry Type Attribute | gina_feat_type |

| Geometry Support | | | |
|------------------|------------|----------|------------|
| Geometry | Supported? | Geometry | Supported? |
| aggregate | no | point | yes |
| circles | yes | polygon | yes |
| circular arc | yes | raster | no |
| donut polygon | yes | solid | no |
| elliptical arc | yes | surface | no |
| ellipses | yes | text | yes |

| Geometry Support | | | |
|------------------|------------|----------|------------|
| Geometry | Supported? | Geometry | Supported? |
| line | yes | z values | yes |
| none | no | | |

Overview

In a VISION* system, spatial features such as roads and utility poles are essentially data units. Each feature can have both geometry and associated attribute data. Features are organized into VISION* layers and networks. Different feature codes are used for further grouping.

A feature's coordinates are meaningful in a certain plan. Each plan has its own coordinate system (plan 0 is the main database). FME should deal with each plan separately (i.e., one at a time). FME may convert several plans together only if those plans have the same coordinate system.

A feature's associated attribute data includes its system attributes and primary attributes. A feature's system attributes are always associated with it, representing its identification, grouping, and characteristics, while a feature's primary attributes, which may or may not exist, are stored in a VISION* primary table, so their names, types, and ordering must match a certain schema.

A feature's data can be conditional or permanent. This can be recognized from the feature's version (version 0 means permanent).

The FME GINA reader and writer use symbolic names for the different feature types stored in a GINA file. The table below gives a brief description of each of the different GINA feature types currently supported by the reader and writer. The features are described in more detail in the subsequent sections.

| FME GINA Feature | Description |
|------------------|---|
| gina_arc | Circular arc features |
| gina_c_point | Point features that are, or can be, centroids of polygons |
| gina_c_text | Point features each with an associated text string that are, or can be, centroids of polygons |
| gina_circle | Closed circle features |
| gina_line | Line features |
| gina_polygon | Polygon, donut, or point-in-polygon features |
| gina_point | Point features |
| gina_text | Point features each with an associated text string |

Reader Overview

Reader Feature Grouping

GINA features are grouped in the mapping file according to their feature code, layer number, network number, and type.

gina_line and gina_point

The `gina_point` and `gina_line` feature types have a grouping name consisting of a feature code (up to 12 characters), a layer number (5 digits), and a network number (5 digits).

For example, a feature code road in layer 3 and network 311 is represented as

```
road0000300311
```

gina_arc and gina_circle

The `gina_arc` and `gina_circle` feature types have their types inserted into the grouping name with the feature code, layer number, and network number.

For example, an arc feature group with a feature code rainbow in layer 5 and network 501 is represented as

```
rainbow_A_0000500501
```

A circle feature group with a feature code policechecks in layer 0 and network 22 is represented as

```
policechecks_C_0000000022
```

gina_text

A `gina_text` feature is generated if a point feature has an associated text string. The feature type is inserted into the grouping name.

For example, the point feature with a feature code Post in layer 3 and network 312 is represented as

```
Post_T_0000300312
```

gina_c_point and gina_c_text

The `gina_c_point` and `gina_c_text` feature types are treated the same as `gina_point` and `gina_text` respectively. These two types are used to indicate that the original features are GINA polygon centroids.

gina_polygon

A `gina_polygon` feature is generated only by the VISION* GINA reader using FME factories. The feature type is inserted into the grouping name. For example, the GINA polygon feature with a feature code yard in layer 4010 and network 4013 is represented as

```
yard_P_0401004013
```

Reader Directives

The suffixes listed are prefixed by the current <ReaderKeyword> in a mapping file. By default, the <ReaderKeyword> for the VISION* GINA reader is GINA.

GET_LINE_TEXT

If the GET_LINE_TEXT directive is set to Yes in the mapping file (i.e., by default), the text associated with linear features is separated as gina_text.

For example:

```
springbrook_T_0010100233
```

The grouping name for the linear feature may be one of the following:

```
springbrook0010100233  
springbrook_A_0010100233  
springbrook_C_0010100233
```

In this case, the text feature and the linear feature have the same gina_feat_number attribute. Otherwise, those text strings are lost in the conversion because in most other formats, a linear feature does not support an associated text string.

Workbench Parameter: <WorkbenchParameter>

PLAN_CHOICE

Since coordinate system transformation may be performed during translation, it is suggested that each translation convert data in a single plan.

The PLAN_CHOICE directive can be set to any positive number or All, which is the default value. The user can use All when all plans have the same coordinate system or, more importantly, to enable the use of the gina_feat_plan attribute.

Users should check their data carefully, specify gina_feat_plan to convert the desired plan, and set the VISION* GINA reader coordinate system accordingly. For information on FME coordinate system support, see the FME on-line help files.

Workbench Parameter: <WorkbenchParameter>

FORM_POLYGON

The FORM_POLYGON directive is used to provide the user with a choice to form polygon features.

In a GINA file, polygons are defined as relationships between polygon edges and centroids. If the user sets this directive to No, polygons are not formed, all edges are translated as linear features, and all centroids are translated as point features.

If the user sets this directive to Yes, polygons are formed and significantly more time may be required by the translation as it adopts a FME factory chain consisting of a PolygonFactory and a DonutFactory to form polygons.

If polygons are formed without modification of a mapping file (generated by FME with the GINA plug-in), the default FME factory chain contained in the mapping file is used.

In this case, all formed polygon features are entered into a group named GINA_POLYGON.

The user can modify a mapping file to regroup formed polygon features. The method for grouping according to feature code, layer, and network is provided in the mapping file generated.

Workbench Parameter: [<WorkbenchParameter>](#)

Modifying a Mapping File

To modify a mapping file for polygon regrouping:

1. Remove the default FME factory definitions (i.e., remove the uncommented PolygonFactory and DonutFactory definitions in the mapping file generated).
2. Uncomment the remaining PolygonFactory and DonutFactory definitions and treat those as a definition set.
3. Search for groups with a name like *_P_* (e.g. yard_P_0401004013) in the mapping file.
4. Make a set of the factory definitions for each of these groups by replacing the *** with the *_P_* in the definitions.

Writer Overview

Writer Directives

The directives processed by the VISION* GINA Writer are listed below. The suffixes shown are prefixed by the current <WriterKeyword> in a mapping file. By default, the <WriterKeyword> for the VISION* GINA writer is GINA.

CLASS

Required/Optional: *Required, if a non-zero gina_feat_class is specified in the mapping file*

The correct GINA class must be defined using the CLASS directive if the user specifies any of the translation destination definitions with non-zero gina_feat_class.

Workbench Parameter: [<WorkbenchParameter>](#)

FEATURE_CODE

Required/Optional: *Required, if a primary table is defined*

This directive specifies the VISION* feature code.

Workbench Parameter: [<WorkbenchParameter>](#)

FIELD

Required/Optional: *Optional*

This directive specifies the name, description, type, length, and precision for a VISION table field.

[Workbench Parameter: <WorkbenchParameter>](#)

PRIMARY_TABLE

Required/Optional: *Required, if a primary table is defined*

The PRIMARY_TABLE, FIELD, and FEATURE_CODE directives are used to define GINA primary tables. If a primary table is defined for a certain feature code in the mapping file using those directives, any attribute field name of the table can be used as attribute name in the definitions for the feature groups with the feature code.

[Workbench Parameter: <WorkbenchParameter>](#)

FILE_CSYS_NAME

Required/Optional: *Optional*

The FILE_CSYS_NAME directive can be used to specify a coordinate system name to be written into the resulting GINA file. This is useful when the VISION* system adopts a different coordinate system name from that used by FME.

[Workbench Parameter: <WorkbenchParameter>](#)

LAYER and NETWORK

Required/Optional: *Optional (but Required if a non-zero gina_feat_class is specified in the mapping file)*

The correct GINA layer and network should be defined using the LAYER and NETWORK directives if the user specifies any of the translation destination definitions with a non-zero gina_feat_layer and a non-zero gina_feat_network. These two directives are always used together.

LAYER specifies the number, name, and description for a VISION* layer; NETWORK specifies the number, name, description, type, and layer number for a VISION* network.

[Workbench Parameter: <WorkbenchParameter>](#)

PLAN

Required/Optional: *Required, if a primary table is defined*

The correct GINA plan should be defined using the PLAN directive if the user specifies any of the translation destination definitions with a non-zero gina_feat_plan.

FME can only support a single output coordinate system. The user should make translation for a single plan each time or ensure that all plans translated have the same coordinate system.

[Workbench Parameter: <WorkbenchParameter>](#)

VERSION

The correct GINA version should be defined using the VERSION directive if the user specifies any of the translation destination definitions with non-zero gina_feat_version.

[Workbench Parameter: <WorkbenchParameter>](#)

GINA_DEFAULT_PLAN

If the directive is specified in the mapping file, the resulting features from translation destination definitions without the `gina_feat_plan` specified carries their `gina_feat_plan` attribute as `GINA_DEFAULT_PLAN`.

GINA_DEFAULT_VERSION

If the directive is specified in the mapping file, the resulting features from translation destination definitions without the `gina_feat_version` specified carries their `gina_feat_version` attribute as `GINA_DEFAULT_VERSION`.

[Workbench Parameter: <WorkbenchParameter>](#)

Feature Representation

In addition to the generic FME feature attributes that FME Workbench adds to all features (see *About Feature Attributes* on page 7), this format adds the format-specific attributes described in this section.

Special FME attributes are used to store GINA feature attributes. The VISION* GINA writer uses these attribute values as it fills in a feature structure during output. The VISION* GINA reader sets these attributes in each FME feature it creates for each GINA feature it reads.

The FME considers the grouping according to GINA feature code, layer, and network to be the FME feature type of a GINA feature. Each GINA feature, regardless of its feature type, shares a number of other attributes, as described in the table below. Subsequent sections describe attributes specific to each supported feature types. Those attributes' names, starting with `gina_feat_`, are called system attributes, which are different from primary attributes.

System Attributes:

| FME GINA Feature | Range | Description |
|-------------------------------|------------|--|
| <code>gina_feat_number</code> | Num(11, 0) | VISION* feature number. There is no default. It is strongly suggested that this attribute not be specified when GINA is the destination format. In that case, the VISION* GINA writer automatically assigns the correct feature number for the resulting features. |

| FME GINA Feature | Range | Description |
|-------------------------|--|--|
| gina_feat_type | See <i>The FME GINA reader and writer use symbolic names for the different feature types stored in a GINA file. The table below gives a brief description of each of the different GINA feature types currently supported by the reader and writer. The features are described in more detail in the subsequent sections.</i> on page 218. | FME name for the type of GINA feature this feature represents. There is no default. |
| gina_feat_code | Char(12) | VISION* feature code. There is no default. |
| gina_feat_layer | Num(11, 0) | VISION* layer number; default is 0 |
| gina_feat_network | Num(11, 0) | VISION* network number; default is 0 |
| gina_feat_plan | Num(11, 0) | VISION* plan number; default is 0 |
| gina_feat_version | Num(11, 0) | VISION* version number; default is 0 |
| gina_feat_class | Num(11, 0) | VISION* class number; default is 0 if there are any classes defined using the CLASS keyword; otherwise, no default |
| gina_feat_gp1 | Num(31, 15) | VISION* feature graphic parameter 1; default is 0 |
| gina_feat_gp2 | Num(31, 15) | VISION* feature graphic parameter 2; default is 0 |
| gina_feat_constz | Num(31, 15) | VISION* feature Z coordinate; default is 0 |
| gina_feat_text | Char(256) | VISION* feature text string; default is NULL |

Primary Attributes

Each GINA feature may have associated primary attributes used to store non-spatial and non-system information associated with the feature. All primary attributes are supported. The corresponding primary table field names are used as attribute names in the mapping file group attribute listing. For example:

```
GINA photograph0000310003 \
    gina_feat_type          gina_point          \
    gina_feat_code          %gina_feat_code     \
    FILE_NAME                %file_name         \
    gina_feat_plan          %gina_feat_plan     \
    gina_feat_network       %gina_feat_network  \
    DESCRIPTION              %description      \
```

| | | |
|-------------------|--------------------|---|
| BITS_PER_PIXEL | %bits_per_pixel | \ |
| IMAGE_TYPE | %image_type | \ |
| gina_feat_number | %gina_feat_number | \ |
| gina_feat_version | %gina_feat_version | \ |
| PIXELS_PER_LINE | %pixels_per_line | \ |
| gina_feat_gp1 | %gina_feat_gp1 | \ |
| gina_feat_class | %gina_feat_class | \ |
| gina_feat_gp2 | %gina_feat_gp2 | \ |
| gina_feat_layer | %gina_feat_layer | \ |
| NO_OF_LINES | %no_of_lines | \ |

In this example, FILE_NAME, DESCRIPTION, BITS_PER_PIXEL, IMAGE_TYPE, PIXELS_PER_LINE, and NO_OF_LINES are primary attribute names (i.e., their corresponding primary table's field names). When creating a mapping file from the GINA format to another format, the VISION* GINA reader automatically extracts those names for each feature group and lists them in the group's attribute listing (as shown in the above example). The VISION* GINA reader also puts those attributes into the corresponding definition line. For example:

```
DWG_DEF photograph0000310003 \
  autocad_color $(AUTOCAD_BrightRed) \
  autocad_linetype CONTINUOUS \
  gina_feat_code char(13) \
  FILE_NAME char(14) \
  gina_feat_plan number(11,0) \
  gina_feat_network number(11,0) \
  DESCRIPTION char(60) \
  BITS_PER_PIXEL number(11,0) \
  IMAGE_TYPE char(1) \
  gina_feat_number number(11,0) \
  gina_feat_version number(11,0) \
  PIXELS_PER_LINE number(11,0) \
  gina_feat_gp1 number(31,15) \
  gina_feat_class number(11,0) \
  gina_feat_gp2 number(31,15) \
  gina_feat_layer number(11,0) \
  NO_OF_LINES number(11,0)
```

The VISION* GINA writer can also use primary attributes to accommodate desired information from the source dataset. However, the user must create a primary table using the primary table keywords (PRIMARY_TABLE, FIELD, and FEATURE_CODE) in the mapping file. For example:

```
GINA_PRIMARY_TABLE road
GINA_FIELD DXF_LAYER "" CHAR 33 0
GINA_FIELD LINE_TYPE "" CHAR 33 0
GINA_FIELD COLOR "" NUM 6 0
GINA_FIELD THICKNESS "" NUM 31 15
GINA_FEATURE_CODE new_road
```

The GINA field names defined in the table can then be used as attributes names for features with gina_feat_code as new_road. For example:

| | | | |
|-------------------|--------------------|--|---|
| GINA lines | | | \ |
| gina_feat_type | gina_line | | \ |
| gina_feat_code | new_road | | \ |
| gina_feat_layer | 303 | | \ |
| gina_feat_network | 30304 | | \ |
| autocad_elevation | %autocad_elevation | | \ |
| THICKNESS | %autocad_thickness | | \ |
| COLOR | %autocad_color | | \ |
| DXF_LAYER | %autocad_layer | | \ |
| LINE_TYPE | %autocad_linetype | | \ |

TEXT

gina_feat_type: gina_text, gina_c_text

The `gina_c_text` type is treated like the `gina_text` type. The name is used only to indicate to the user that the feature is created from or can be used as a centroid point for a polygon.

The feature is basically a point feature with an associated text string. It is created to fit TEXT features of FME and other formats. In GINA formats, all types of features can have associated text strings.

The feature is created from a GINA point feature or a GINA polygon feature (which actually means a centroid point of a polygon) when it has an associated text string. Alternatively, the feature can be separated from a GINA linear feature when it has an associated text string and the `GET_LINE_TEXT` keyword is set to Yes. The feature supports the following the system attributes.

Text Attributes:

| System Attribute | Range | Description |
|---------------------------------|-------------|---|
| <code>gina_feat_rotation</code> | Num(31, 15) | The rotation angle in degrees for the VISION* feature text direction; default is 0 (horizontal) |
| <code>gina_feat_text</code> | Char(256) | VISION* feature text string; default is NULL |

POINTS

gina_feat_type: gina_point, gina_c_point

The `gina_c_point` type is treated like the `gina_point` type. The name is used only to indicate to the user that the feature is created from or can be used as a centroid point for a polygon.

When created from a GINA point or polygon feature, the feature has only one coordinate point as FME does not accept the second point for a point feature. In this case, the feature may have a `gina_feat_rotation` to keep the information about the second GINA point coordinate.

When created to put into a GINA file, the feature has two coordinate points as required by the GINA format. If the source feature does not provide the second point, it is created at a horizontal direction to the first point or at a direction indicated by the

`gina_feat_rotation` system attribute (if the attribute exists). The feature supports the following system attribute.

Point Attributes:

| System Attribute | Range | Description |
|---------------------------------|-------------|---|
| <code>gina_feat_rotation</code> | Num(31, 15) | The rotation angle in degrees for the VISION* feature text direction; default is 0 (horizontal) |

The VISION* GINA writer can accept a `gina_feat_text` attribute for the feature.

ARC

`gina_feat_type: gina_arc`

The GINA format adopts a three-points definition for arc and circle features. The VISION* GINA reader/writer converts the definition into, or creates it from, the one supported by the FME.

The feature has only one coordinate point, which is the center point of the arc. The feature supports the following system attributes.

Arc Attributes:

| System Attribute | Range | Description |
|-----------------------------------|-------------|---|
| <code>gina_feat_radius</code> | Num(31, 15) | The arc feature's radius (primary axis). There is no default. |
| <code>gina_feat_radius2</code> | Num(31, 15) | The arc feature's second radius (secondary axis); in the case of the GINA circular arc, the VISION* GINA reader makes it the same as the <code>gina_feat_radius</code> while the VISION* GINA writer ignores it. There is no default. |
| <code>gina_feat_startAngle</code> | Num(31, 15) | The arc feature's start angle in degrees. There is no default. |
| <code>gina_feat_sweepAngle</code> | Num(31, 15) | The arc feature's sweep angle in degrees. There is no default. |

The VISION* GINA writer can accept a `gina_feat_text` attribute for the feature.

CIRCLE

`gina_feat_type: gina_circle`

The GINA format adopts a three-points definition for arc and circle features. The VISION* GINA reader/writer converts the definition into, or creates it from, the one supported by the FME.

The feature has only one coordinate point, which is the center point of the circle. The feature supports the following system attributes.

Circle Attributes:

| System Attribute | Range | Description |
|--------------------------------|--------------|---|
| <code>gina_feat_radius</code> | Num(31, 15) | The arc feature's radius (primary axis). There is no default. |
| <code>gina_feat_radius2</code> | Num(31, 15) | The arc feature's second radius (secondary axis). In the case of the GINA circular arc, the VISION* GINA reader makes it the same as the <code>gina_feat_radius</code> while the VISION* GINA writer ignores it. There is no default. |

The VISION* GINA writer can accept a `gina_feat_text` attribute for the feature.

LINE**gina_feat_type: gina_line**

The feature is created from or put into a GINA linear feature, which is not an arc or circle.

The feature must have at least two coordinate points.

The VISION* GINA writer can accept a `gina_feat_text` attribute for the feature.

POLYGON**gina_feat_type: gina_polygon**

The feature is created only by the VISION* GINA reader with the `FORM_POLYGON` keyword set to Yes.

The feature can be a FME point-in-polygon feature created from a GINA polygon (centroid) feature and one or more GINA linear (edge) features, or an FME DONUT or POLYGON feature from one or more GINA linear features.

FME may or may not bring the associated attributes over during the conversion due to the factories used; however, the following system attribute is always present and can be used to identify the polygons.

Polygon Attribute:

| System Attribute | Range | Description |
|-----------------------------|--------------|---|
| <code>polygon_number</code> | Num(11, 0) | The arc feature's radius (primary axis). There is no default. |

Translation Examples

This section provides two worked examples of FME translation mapping files with typical data and comments that explain the various settings. The first example shows how the GINA Reader handles a DWG file; the second shows how the GINA Writer translates a GINA file to VML format.

Example of a DWG to GINA Mapping File

The following example shows an FME mapping file used to translate an AutoCAD® DWG file into a VISION* GINA file. This file has been slightly modified from its original format; some grammatical errors have been corrected and some introductory comments have been removed.

```
# =====
GUI TITLE DWG to GINA Translation
READER_TYPE DWG
WRITER_TYPE GINA
GUI FILENAME SourceDataset
      DWG_FILES (*.dwg) | *.dwg | DXF_FILES (*.dxf) | *.dxf | All_files (*.*) | *.*
      Original AutoCAD File:

# =====
# Indicate whether or not to expand the blocks
GUI CHOICE _EXPAND_BLOCKS yes%no Explode Blocks:

# By default, we'll just expand the blocks
DEFAULT_MACRO _EXPAND_BLOCKS yes
DWG_RESOLVE_BLOCKS $_EXPAND_BLOCKS

# As well, if any attributes were visible, we will turn them into
# text entities so they will be visible in the output system
DWG_VISIBLE_ATTRIBUTES_AS_TEXT yes

# =====
# Now define a TestFactory which deletes any Insert entities that do
# not have any attributes following. If you want to save these,
# perhaps to record the location of block insert points, remove this
# factory

FACTORY_DEF DWG TestFactory                                     \
      INPUT FEATURE_TYPE * autocad_entity autocad_insert      \
      TEST &autocad_attributes_follow = false                 \
      OUTPUT FAILED FEATURE_TYPE *                             \

# =====
# This factory makes the feature type be the entity type -- after it
# is looked up in a table
Lookup EntityTypeToGroupLUT                                     \
      autocad_line      lines                                   \
      autocad_point     points                                 \
      autocad_ellipse   ellipses                              \
      autocad_spline    splines                               \
      autocad_shape     shapes                                 \
      autocad_text      text                                   \
      autocad_arc       arcs                                  \
      autocad_trace     traces                                 \
      autocad_solid     solids                                 \
      autocad_insert    inserts                               \
      autocad_polygon   polygons                              \
      autocad_face      faces                                 \
      autocad_ray       rays                                  \
      autocad_xline     xlines                                \
```

```

    "" "Untranslated autocad type: KEY"

FACTORY_DEF DWG SamplingFactory
    SAMPLE_RATE 1
    INPUT FEATURE_TYPE *
    @FeatureType("@Lookup(EntityTypeToGroupLUT,&autocad_entity)")

DWG_DATASET "$(SourceDataset)"

# =====
# The following GUI lines prompt for a destination file which is used
# as the output when the destination of the translation is GINA

GUI_FILENAME DestDataset GINA_FILES(*.gia)|*.gia|All_files(*.*)|*.*
    Output GINA File:

# =====
# Setting GINA_FILE_CSYS_NAME
# FME uses GINA_COORDINATE_SYSTEM to determine if coordinate system
# conversion is necessary. However, the coordinate system names
# adopted by FME may differ from those used by VISION* database. This
# keyword is provided to specify a coordinate system name to be
# output to the resulting GINA file. It is up to the user to choose a
# correct coordinate system name.
# Only one GINA_FILE_CSYS_NAME is allowed in a mapping file.
#
# GINA_FILE_CSYS_NAME coordinate_system_name
#
# Examples:
# GINA_FILE_CSYS_NAME "Transverse Mercator"
# =====
# Setting GINA_DEFAULT_PLAN and GINA_DEFAULT_VERSION
# Otherwise, they are zero. The default values are used when
# gina_feat_plan and/or gina_feat_version are not specified in
# translation destination.
# Only one GINA_DEFAULT_PLAN and one GINA_DEFAULT_VERSION are allowed
# in a mapping file.

GINA_DEFAULT_PLAN 45
GINA_DEFAULT_VERSION 0

# =====
# The following lines indicate how to define GINA layers and networks
# using keywords GINA_LAYER and GINA_NETWORK. Correct GINA layer and
# network should be defined if you specify any of the translation
# destination with non-zero gina_feat_layer and gina_feat_network.
# GINA_LAYER layer_number layer_name layer_description
# ...(OtherGINA_LAYERdefinitions)
# GINA_NETWORK network_number network_name network_description
# network_type layer_number
# ...(OtherGINA_NETWORKdefinitions)
# Examples:
# GINA_LAYER 3 test_layer3 "used for testing"
# GINA_NETWORK 301 test_network3 "" linear 3
# =====
# The following lines indicate how to define GINA classes using
# keywords GINA_Class.

```

```

# Correct GINA class MUST(!) be defined if you specify any of the
# translation destination with non-zero gina_feat_class.
# The information that should be provided here includes class number,
# class name, class table name, class description and class column
# name.
# GINA_CLASS class_number class_name class_table_name
# class_description class_column_name
# ...(OtherGINA_CLASSdefinitions)
# Examples:
# GINA_CLASS 102 class102 street_names "" object_num
# =====
# The following lines indicate how to define GINA plans using
# keywords GINA_PLAN.
# Correct GINA plan should be defined if you specify any of the
# translation destination with non-zero gina_feat_plan or you adopt a
# non-zero GINA_DEFAULT_PLAN.
# The information that should be provided here includes plan number,
# plan name and plan description. The coordinate system name is
# provided by the translation as FME can only support a single output
# coordinate system. User should make translation for a single plan
# each time or be sure all plans translated have the same coordinate
# system
# GINA_PLAN plan_number plan_name plan_description plan_resolution
# ...(OtherGINA_PLANdefinitions)
#
# Examples:
# GINA_PLAN 1000000309 fuss4490 "fuss4490 Detail" 0.001
# =====
# The following lines indicate how to define GINA versions using
# keywords GINA_VERSION.
#
# Correct GINA version should be defined if you specify any of the
# translation destination with non-zero gina_feat_version or you
# adopt a non-zero GINA_DEFAULT_VERSION.
# The information that should be provided here includes version
# number, version name and version description.
#
# GINA_VERSION version_number version_name version_description
# ...(OtherGINA_VERSIONdefinitions)
#
# Examples:
# GINA_VERSION 678910 running "Running 678910"
# =====
# The following lines indicate how to define GINA primary tables
# using keywords
# GINA_PRIMARY_TABLE, GINA_FIELD and GINA_EATURE_CODE.
# A GINA primary table must be defined with certain feature codes so
# that the features with such feature codes can get their associated
# attributes output. Only those attributes which have corresponding
# field definition in the table will be output. All primary table
# definitions should stay together here.
# GINA_PRIMARY_TABLE table_name
# GINA_FIELD field_name field_description field_type field_width1
# field_width2
# ...(OtherGINA_FIELDdefinitions)
# GINA_EATURE_CODE feature_code
# ...(OtherGINA_EATURE_CODEdefinitions)

```

```

#
# Examples:
# GINA_PRIMARY_TABLE property
# GINA_FIELD DXF_LAYER "" CHAR 33 0
# GINA_FIELD COLOR "" NUM 6 0
# GINA_FIELD LINE_TYPE "" CHAR 33 0
# GINA_FIELD THICKNESS "" NUM 31 15
# GINA_FEATURE_CODE property
# GINA_DATASET "$(DestDataset)"
# =====
# The main body of the mapping file starts here. Each of the _DEF
# lines describes the data model of the particular feature type, and
# the correlation lines describe how the feature is transformed from
# the source type to the destination type.
# You may edit the following lines to add or remove attributes,
# change attribute definitions, or invoke other FME functions as the
# features are translated.
# =====

DWG_DEF lines
    autocad_color          $(AUTOCAD_BrightRed) \
    autocad_linetype       CONTINUOUS          \
    autocad_elevation      number(31,15)      \
    autocad_thickness      number(31,15)      \
    autocad_color          number(6,0)        \
    autocad_layer          char(33)           \
    autocad_linetype       char(33)

DWG lines
    autocad_entity         autocad_line       \
    autocad_elevation      %autocad_elevation \
    autocad_thickness      %autocad_thickness \
    autocad_color          %autocad_color     \
    autocad_layer          %autocad_layer     \
    autocad_linetype       %autocad_linetype

GINA lines
    gina_feat_type         gina_line          \
    gina_feat_code         road_cl           \
    gina_feat_layer        3                 \
    gina_feat_network      301              \
    gina_feat_class        102              \
    autocad_elevation      %autocad_elevation \
    autocad_thickness      %autocad_thickness \
    autocad_color          %autocad_color     \
    autocad_layer          %autocad_layer     \
    autocad_linetype       %autocad_linetype

# =====
DWG_DEF points
    autocad_color          $(AUTOCAD_BrightRed) \
    autocad_linetype       CONTINUOUS          \
    autocad_thickness      number(31,15)      \
    autocad_color          number(6,0)        \
    autocad_layer          char(33)           \
    autocad_linetype       char(33)

```

```

DWG points
  autocad_entity      autocad_point
  autocad_thickness   %autocad_thickness
  autocad_color        %autocad_color
  autocad_layer        %autocad_layer
  autocad_linetype     %autocad_linetype

GINA points
  gina_feat_type      gina_point
  gina_feat_code       check_pooint
  autocad_thickness   %autocad_thickness
  autocad_color        %autocad_color
  autocad_layer        %autocad_layer
  autocad_linetype     %autocad_linetype

# =====
DWG_DEF ellipses
  autocad_color        $(AUTOCAD_BrightRed)
  autocad_linetype     CONTINUOUS
  autocad_thickness    number(31,15)
  autocad_color        number(6,0)
  autocad_layer        char(33)
  autocad_linetype     char(33)

DWG ellipses
  autocad_entity      autocad_ellipse
  autocad_thickness   %autocad_thickness
  autocad_color        %autocad_color
  autocad_layer        %autocad_layer
  autocad_linetype     %autocad_linetype
  autocad_secondary_axis %autocad_secondary_axis
  autocad_primary_axis %autocad_primary_axis
  autocad_rotation    %autocad_rotation

GINA ellipses
  gina_feat_type      gina_circle
  gina_feat_code       check_station
  autocad_thickness   %autocad_thickness
  autocad_color        %autocad_color
  autocad_layer        %autocad_layer
  autocad_linetype     %autocad_linetype
  gina_feat_radius2    %autocad_secondary_axis
  gina_feat_radius     %autocad_primary_axis
  gina_feat_rotation   %autocad_rotation

# =====
DWG_DEF text
  autocad_color        $(AUTOCAD_BrightRed)
  autocad_linetype     CONTINUOUS
  autocad_thickness    number(31,15)
  autocad_generation   char(30)
  autocad_color        number(6,0)
  autocad_shape_filename char(65)
  autocad_layer        char(33)
  autocad_big_fontname char(65)
  autocad_shape_width  number(31,15)
  autocad_shape_name   char(33)
  autocad_shape_rotation number(31,15)
  autocad_linetype     char(33)

```

```

autocad_oblique          number(31,15)          \
autocad_shape_height n  umber(31,15)          \

DWG text
autocad_entity          autocad_text           \
autocad_thickness       %autocad_thickness   \
autocad_generation      %autocad_generation  \
autocad_color           %autocad_color        \
autocad_shape_filename  %autocad_shape_filename \
autocad_layer           %autocad_layer        \
autocad_big_fontname    %autocad_big_fontname \
autocad_shape_width     %autocad_shape_width  \
autocad_shape_name      %autocad_shape_name   \
autocad_shape_rotation  %autocad_shape_rotation \
autocad_linetype        %autocad_linetype     \
autocad_oblique         %autocad_oblique      \
autocad_shape_height    %autocad_shape_height \
autocad_text_string     %autocad_text_string  \
autocad_text_size       %autocad_text_size    \
autocad_rotation        %autocad_rotation     \

GINA text
gina_feat_type          gina_text             \
gina_feat_code          map_text              \
autocad_thickness       %autocad_thickness   \
autocad_generation      %autocad_generation  \
autocad_color           %autocad_color        \
autocad_shape_filename  %autocad_shape_filename \
autocad_layer           %autocad_layer        \
autocad_big_fontname    %autocad_big_fontname \
autocad_shape_width     %autocad_shape_width  \
autocad_shape_name      %autocad_shape_name   \
autocad_shape_rotation  %autocad_shape_rotation \
autocad_linetype        %autocad_linetype     \
autocad_oblique         %autocad_oblique      \
autocad_shape_height    %autocad_shape_height \
gina_feat_text          %autocad_text_string  \
autocad_text_size       %autocad_text_size    \
gina_feat_rotation      %autocad_rotation     \

# =====
DWG_DEF arcs
autocad_color           $(AUTOCAD_BrightRed)  \
autocad_linetype        CONTINUOUS          \
autocad_thickness       number(31,15)          \
autocad_color           number(6,0)             \
autocad_layer           char(33)              \
autocad_linetype        char(33)              \

DWG arcs
autocad_entity          autocad_arc           \
autocad_thickness       %autocad_thickness   \
autocad_color           %autocad_color        \
autocad_layer           %autocad_layer        \
autocad_linetype        %autocad_linetype     \
autocad_secondary_axis  %autocad_secondary_axis \
autocad_sweep_angle     %autocad_sweep_angle  \

```

```

autocad_primary_axis    %autocad_primary_axis    \
autocad_start_angle    %autocad_start_angle    \
autocad_rotation       %autocad_rotation       \

GINA arcs                \
  gina_feat_type        gina_arc                \
  gina_feat_code        road_rd                \
  autocad_thickness     %autocad_thickness     \
  autocad_color         %autocad_color         \
  autocad_layer         %autocad_layer         \
  autocad_linetype      %autocad_linetype      \
  gina_feat_radius2     %autocad_secondary_axis \
  gina_feat_sweepAngle  %autocad_sweep_angle  \
  gina_feat_radius      %autocad_primary_axis  \
  gina_feat_startAngle  %autocad_start_angle  \
  gina_feat_rotation    %autocad_rotation    \

# =====
DWG_DEF polygons        \
  autocad_color         $(AUTOCAD_BrightRed)  \
  autocad_linetype      CONTINUOUS            \
  autocad_thickness     number(31,15)         \
  autocad_color         number(6,0)           \
  autocad_layer         char(33)              \
  autocad_linetype      char(33)              \

DWG polygons           \
  autocad_entity        autocad_polygon       \
  autocad_thickness     %autocad_thickness    \
  autocad_color         %autocad_color        \
  autocad_layer         %autocad_layer        \
  autocad_linetype      %autocad_linetype     \

GINA polygons          \
  gina_feat_type        gina_line            \
  gina_feat_code        property             \
  THICKNESS             %autocad_thickness    \
  COLOR                 %autocad_color        \
  DXF_LAYER             %autocad_layer        \
  LINE_TYPE             %autocad_linetype     \

# =====

```

EXAMPLE OF A GINA TO VML MAPPING FILE

The following example shows an FME mapping file used to translate a VISION* GINA file to a VML (Vector Markup Language) dataset. This file has been slightly modified

from its original format; some grammatical errors have been corrected and some introductory comments have been removed.

```

# =====
GINA to VML Translation
# =====
# The following line names the log file to which useful statistics
# about the translation will be written. This line can be
# uncommented and updated if you do wish to keep these statistics.

# LOG_FILENAME translation.log
# LOG_APPEND NO

```

```

# =====
# The following line instructs the FME to log any features that do
# not match any of the source feature patterns listed further down in
# this file. If you are modifying this mapping file, this will be
# useful to describe exactly which features you are losing
# during translation, if statistics indicate that features are
# not being correlated or grouped. Uncorrelated features do not
# match any source specification; ungrouped features do not have
# any corresponding _DEF line.

# FME_DEBUG UNGROUPED UNCORRELATED

# =====
# The following two lines define the type of reader and writer to be
# used for this translation. If you want to translate your data
# back into its original format, you can make a copy of this file
# and reverse the reader and writer types. If you rerun the FME, you
# will get your original data back again (together with any
# modifications you made in the meantime). Note that several formats
# writer) so a reverse translation is not always possible.# are NOT bi-directional
# (for example, GIF can only be used as a

READER_TYPE GINA
WRITER_TYPE VML

# The dataset this mapping file was generated from was:
DEFAULT_MACRO SourceDataset D:\tmp\geotest.gia

GUI_FILENAME SourceDataset
GINA_FILES(*.gia)|*.gia|All_files(*.*)|*.* Original GINA File:

# =====
# To ask if user wants text associated with a line feature to be
# an additional text feature:

GUI_TEXT _SEPARATE_LINE_TEXT Separate Line Text? (Yes/No):

# By default, we'll just separate text from line features
DEFAULT_MACRO _SEPARATE_LINE_TEXT YES
GINA_GET_LINE_TEXT $_SEPARATE_LINE_TEXT

# =====
# To ask if the user wants to form GINA polygons to be output as
# polygons. If yes, translation may take significantly more time.
# Otherwise, GINA polygons will be output as connected lines

GUI_TEXT _FORM_POLYGON Forming Polygon? (Yes/No):

# By default, we won't form polygons
DEFAULT_MACRO _FORM_POLYGON NO
GINA_FORM_POLYGON $_FORM_POLYGON

# =====
# Setting GINA_PLAN_CHOICE
# As FME supports a single input coordinate system, when input GINA
# file contains data in different plans, user should do translation

```

```
# separately for each plan and specify a corresponding coordinate
# system for it in a mapping file. This can be done by specifying
# gina_feat_plan attribute in translation specifications. For user's
# convenience, GINA_PLAN_CHOICE can also be used to specify the plan
# to convert. It can be specified as any plan number like
# GINA_PLAN_CHOICE 54188
# GINA_PLAN_CHOICE can be set to 0 to translate features in
# main database only.
# If all plans adopt the same coordinate system, user can specify
# GINA_PLAN_CHOICE to ALL. ALL is the default value to allow user to
# use FME translation specifications for plan choice. Only one
# GINA_PLAN_CHOICE is allowed in a mapping file.
```

```
GINA_PLAN_CHOICE ALL
```

```
# =====
# The following FME Factory definition lines are used to support GINA
# Polygon formation. The default factories are uncommented. Those are
# used when a user doesn't change the mapping file generated. In this
# case, all polygons will be put in one group called GINA_POLYGON.
# The better way for polygon formation is to remove default
# factories(!) and use the definition set below (uncomment it before
# using). The method is to find a group in the mapping file with a
# name like XXX_P_XXXXXXXXXX (e.g.yard_P_0401004013) and use the name
# to replace *** in the following definitions to make a set of
# factories for the group. A set should be made for each
# XXX_P_XXXXXXXXXX group.
# As some formats do not support point-in-polygon type, all GINA
# polygon centroid features are output separately as point or text
# features by default. If your destination format supports point-in
# -polygon type or you simply don't need the centroid features,
# remove all groups with their gina_feat_type as either gina_c_point
# or gina_c_text.
```

```
# For a format that does not support point-in-polygon type:
```

```
#FACTORY_DEF GINA PolygonFactory \
# INPUT FEATURE_TYPE ***E \
# INPUT FEATURE_TYPE ***EL \
# FLUSH_AFTER_CURRENT_WHEN FEATURE_TYPE = ***EL \
# GROUP_BY polygon_number \
# END_NODED \
# OUTPUT POLYGON FEATURE_TYPE ***P
```

```
#FACTORY_DEF GINA DonutFactory \
# INPUT FEATURE_TYPE ***P \
# GROUP_BY polygon_number \
# OUTPUT DONUT FEATURE_TYPE *** \
# gina_feat_type gina_polygon \
# OUTPUT POLYGON FEATURE_TYPE *** \
# gina_feat_type gina_polygon
```

```
# For a format that supports point-in-polygon type:
```

```
#FACTORY_DEF GINA PolygonFactory \
# INPUT FEATURE_TYPE ***E \
# INPUT FEATURE_TYPE ***EL \
```

```

# FLUSH_AFTER_CURRENT_WHEN FEATURE_TYPE = ***EL \
# GROUP_BY polygon_number \
# END_NODED \
# OUTPUT POLYGON FEATURE_TYPE ***P

#FACTORY_DEF GINA DonutFactory \
# INPUT FEATURE_TYPE ***P \
# INPUT FEATURE_TYPE ***C \
# FLUSH_BEFORE_CURRENT_WHEN FEATURE_TYPE = ***C \
# GROUP_BY polygon_number \
# OUTPUT PIP FEATURE_TYPE *** \
# gina_feat_type gina_polygon \
# OUTPUT DONUT FEATURE_TYPE *** \
# gina_feat_type gina_polygon \
# OUTPUT POLYGON FEATURE_TYPE *** \
# gina_feat_type gina_polygon

# For example, for a group named yard_P_0401004013, a set of
# above definitions should be made as follows:

# For a format that does not support point-in-polygon type:

#FACTORY_DEF GINA PolygonFactory \
# INPUT FEATURE_TYPE yard_P_0401004013E \
# INPUT FEATURE_TYPE yard_P_0401004013EL \
# FLUSH_AFTER_CURRENT_WHEN FEATURE_TYPE = yard_P_0401004013EL \
# GROUP_BY polygon_number \
# END_NODED \
# OUTPUT POLYGON FEATURE_TYPE yard_P_0401004013P

#FACTORY_DEF GINA DonutFactory \
# INPUT FEATURE_TYPE yard_P_0401004013P \
# GROUP_BY polygon_number \
# OUTPUT DONUT FEATURE_TYPE yard_P_0401004013 \
# gina_feat_type gina_polygon \
# OUTPUT POLYGON FEATURE_TYPE yard_P_0401004013 \
# gina_feat_type gina_polygon

# For a format that supports point-in-polygon type:

#FACTORY_DEF GINA PolygonFactory \
# INPUT FEATURE_TYPE yard_P_0401004013E \
# INPUT FEATURE_TYPE yard_P_0401004013EL \
# FLUSH_AFTER_CURRENT_WHEN FEATURE_TYPE = yard_P_0401004013EL \
# GROUP_BY polygon_number \
# END_NODED \
# OUTPUT POLYGON FEATURE_TYPE yard_P_0401004013P

#FACTORY_DEF GINA DonutFactory \
# INPUT FEATURE_TYPE yard_P_0401004013P \
# INPUT FEATURE_TYPE yard_P_0401004013C \
# FLUSH_BEFORE_CURRENT_WHEN FEATURE_TYPE = yard_P_0401004013C \
# GROUP_BY polygon_number \
# OUTPUT PIP FEATURE_TYPE yard_P_0401004013 \
# gina_feat_type gina_polygon \
# OUTPUT DONUT FEATURE_TYPE yard_P_0401004013 \
# gina_feat_type gina_polygon

```

```

# OUTPUT POLYGON FEATURE_TYPE yard_P_0401004013 \
# gina_feat_type gina_polygon

# Default polygon formation factories definition:

FACTORY_DEF GINA PolygonFactory \
INPUT FEATURE_TYPE * \
internal_flag GINA_EDGE \
INPUT FEATURE_TYPE * \
internal_flag GINA_EDGE_LAST \
FLUSH_AFTER_CURRENT_WHEN internal_flag = GINA_EDGE_LAST \
GROUP_BY polygon_number \
END_NODED \
OUTPUT POLYGON FEATURE_TYPE GINA_POLYGON_L

FACTORY_DEF GINA DonutFactory \
INPUT FEATURE_TYPE GINA_POLYGON_L \
GROUP_BY polygon_number \
OUTPUT DONUT FEATURE_TYPE GINA_POLYGON \
gina_feat_type gina_polygon \
OUTPUT POLYGON FEATURE_TYPE GINA_POLYGON \
gina_feat_type gina_polygon

# For a format that supports point-in-polygon type, the following
# should be used to replace the default DonutFactory definition
# above:

#FACTORY_DEF GINA DonutFactory \
# INPUT FEATURE_TYPE GINA_POLYGON_L \
# INPUT FEATURE_TYPE * \
# internal_flag GINA_CENTROID \
# FLUSH_BEFORE_CURRENT_WHEN internal_flag = GINA_CENTROID \
# GROUP_BY polygon_number \
# OUTPUT PIP FEATURE_TYPE GINA_POLYGON \
# gina_feat_type gina_polygon \
# OUTPUT DONUT FEATURE_TYPE GINA_POLYGON \
# gina_feat_type gina_polygon \
# OUTPUT POLYGON FEATURE_TYPE GINA_POLYGON \
# gina_feat_type gina_polygon

GINA_DATASET "$(SourceDataset)"

# =====
# The following GUI lines prompt for a VML file to be used as the
# destination of the data. The user input is stored in a macro,
# which is then used to define the dataset to be written.

GUI FILENAME DestDataset All_Files(*.*)|*.* Destination VML Dataset:

# =====
# This directive specifies the left position of the drawing in the
# web page. The directive is optional; if not specified, then the
# default value of '100' will be used.
# Syntax: 'VML_LEFT <left>', where <left> is in CSS
# (CascadingStyleSheets) units.

# VML_LEFT

```

```

=====
# This directive specifies the top position of the drawing in the web
# page. The directive is optional; if not specified, the default
# value of '100' is used.
# Syntax: 'VML_TOP <top>', where <top> is in CSS
# (CascadingStyleSheets) units.

# VML_TOP

# =====
# This directive specifies the width of the drawing in the web page.
# The directive is optional; if not specified, the default value of
# '512' is used.
# Syntax: 'VML_WIDTH <width>', where <width> is in CSS
# (CascadingStyleSheets) units.

# VML_WIDTH

# =====
# This directive specifies the height of the drawing in the web page.
# The directive is optional; if not specified, the default value of
# '512' is used.
# Syntax: 'VML_HEIGHT <height>', where <height> is in CSS
# (CascadingStyleSheets) units.

# VML_HEIGHT

# =====
# This directive defines the number of units along the width and
# height of the containing block for the top-level group element.
# The directive is optional; if not specified, the default values of
# '100000 100000' for width and height respectively will be used.
# Syntax: 'VML_COORDSIZE <width> <height>',
# where <width>, <height> are integers>0
#
# VML_COORDSIZE

# =====
# This directive defines the number of units along the width and
# height of the containing block for the top-level group element.
# The directive is optional, if not specified then the default value
# of '0 0' for left and top corner respectively will be used.
# Syntax: 'VML_COORDORIGIN <origin-x> <origin-y>',
# where <origin-x>, <origin-y> are integers.
#
# VML_COORDORIGIN

# =====
# This directive defines the area of coverage of the feature data
# in ground units. If this is not specified, the coverage area is
# determined from the minimum bounding rectangle of the data.
# Syntax: 'VML_SPATIAL_EXTENT <min-x> <min-y> <max-x> <max-y>',
# where <min-x>, <min-y>, <max-x>, <max-y> are real numbers.
#
# VML_SPATIAL_EXTENT

```

```
# =====
# This keyword directs the VML writer to maintain the original aspect
# ratio (determined by the spatial extent in ground units) of the
# input feature data.
# Syntax: 'VML_KEEP_ASPECT_RATIO (YES|NO)'; if not specified, the
# default value is YES.

# VML_KEEP_ASPECT_RATIO

# =====
# Specifies if the output VML file should be indented for legibility
# or not
# Syntax: 'VML_PRETTY_PRINT (YES|NO)', if not specified the default
# value is NO.
#
# VML_PRETTY_PRINT

# =====
# For convenience, the following lines define for VML some RGB
# colours in CSS1 RGB form:

MACRO DarkRed rgb(85,0,0)
MACRO MediumRed rgb(170,0,0)
MACRO BrightRed rgb(255,0,0)
MACRO LightRed rgb(255,85,85)
MACRO BrickRed rgb(160,64,64)
MACRO CherryRed rgb(255,0,85)
MACRO Maroon rgb(192,0,80)
MACRO Pink rgb(255,170,170)
MACRO Salmon rgb(255,144,128)
MACRO VioletRed rgb(255,0,170)

MACRO DarkGreen rgb(0,85,0)
MACRO MediumGreen rgb(0,170,0)
MACRO BrightGreen rgb(0,255,0)
MACRO LightGreen rgb(170,255,170)
MACRO ForestGreen rgb(85,170,0)
MACRO GrassGreen rgb(0,176,112)
MACRO LimeGreen rgb(170,255,85)
MACRO OliveGreen rgb(120,144,0)
MACRO PineGreen rgb(43,85,0)
MACRO SeaGreen rgb(170,255,255)
MACRO SpringGreen rgb(208,255,160)
MACRO YellowGreen rgb(192,255,0)

MACRO DarkBlue rgb(0,0,85)
MACRO MediumBlue rgb(0,0,170)
MACRO BrightBlue rgb(0,0,255)
MACRO LightBlue rgb(85,85,255)
MACRO BabyBlue rgb(170,170,255)
MACRO BlueGray rgb(144,144,160)
MACRO CobaltBlue rgb(96,80,208)
MACRO CornflowerBlue rgb(170,170,255)
MACRO NavyBlue rgb(0,0,128)
MACRO PeriwinkleBlue rgb(224,208,255)
MACRO SkyBlue rgb(85,170,255)
MACRO VioletBlue rgb(170,0,255)
```

```
MACRO DarkCyan rgb(0,85,85)
MACRO MediumCyan rgb(0,170,170)
MACRO BrightCyan rgb(0,255,255)
MACRO LightCyan rgb(85,255,255)
MACRO AquamarineCyan rgb(160,255,224)
MACRO BlueGreen rgb(0,255,170)
MACRO GreenBlue rgb(0,128,112)
MACRO PaleCyan rgb(170,255,255)
MACRO Turquoise rgb(0,176,160)

MACRO DarkBrown rgb(128,64,0)
MACRO Brown rgb(176,80,0)
MACRO BurntSienna rgb(176,64,0)
MACRO Copper rgb(176,96,64)
MACRO IndianRed rgb(144,0,0)
MACRO Mahogany rgb(192,64,0)
MACRO RawSienna rgb(176,96,0)
MACRO RawUmber rgb(144,96,0)
MACRO Rust rgb(160,80,48)
MACRO Sepia rgb(144,64,0)
MACRO Tan rgb(255,144,96)

MACRO DarkFlesh rgb(170,85,85)
MACRO MediumFlesh rgb(255,170,170)
MACRO LightFlesh rgb(255,192,192)
MACRO Apricot rgb(255,224,192)
MACRO Peach rgb(255,208,192)

MACRO Black rgb(0,0,0)
MACRO VeryDarkGray rgb(64,64,64)
MACRO DarkGray rgb(85,85,85)
MACRO MediumGray rgb(128,128,128)
MACRO LightGray rgb(170,170,170)
MACRO VeryLightGray rgb(213,213,213)
MACRO White rgb(255,255,255)
MACRO Silver rgb(208,208,224)

MACRO DarkMagenta rgb(85,0,85)
MACRO MediumMagenta rgb(170,0,170)
MACRO BrightMagenta rgb(255,0,255)
MACRO LightMagenta rgb(255,85,255)
MACRO MulberryMagenta rgb(170,0,85)
MACRO OrchidMagenta rgb(255,85,170)
MACRO PaleMagenta rgb(255,170,255)
MACRO RedViolet rgb(255,0,160)

MACRO DarkOrange rgb(128,85,0)
MACRO MediumOrange rgb(170,113,0)
MACRO BrightOrange rgb(255,170,0)
MACRO LightOrange rgb(255,170,85)
MACRO BittersweetOrange rgb(255,112,80)
MACRO BurntOrange rgb(224,96,0)
MACRO Melon rgb(255,128,112)
MACRO OrangeRed rgb(255,80,0)
MACRO Tangerine rgb(255,112,0)
MACRO YellowOrange rgb(255,144,0)
```

```
MACRO DarkPurple rgb(43,0,85)
MACRO MediumPurple rgb(85,0,170)
MACRO BrightPurple rgb(128,0,255)
MACRO LightPurple rgb(128,85,255)
MACRO Violet rgb(96,0,112)
MACRO Lavender rgb(213,170,255)
MACRO Plum rgb(160,0,112)
```

```
MACRO DarkYellow rgb(85,85,0)
MACRO MediumYellow rgb(170,170,0)
MACRO BrightYellow rgb(255,255,0)
MACRO LightYellow rgb(255,255,170)
MACRO Amber rgb(255,170,0)
MACRO Cream rgb(255,255,208)
MACRO Gold rgb(176,112,64)
MACRO Goldenrod rgb(255,176,0)
MACRO GreenYellow rgb(170,255,0)
MACRO Lemon rgb(255,255,85)
MACRO Maize rgb(255,176,112)
MACRO OrangeYellow rgb(255,208,0)
```

```
VML_DATASET "$ (DestDataset) "
```

```
# =====
# The main body of the mapping file starts here. Each of the
# _DEF lines describes the data model of the particular feature
# type, and the correlation lines describe how the feature is
# transformed from the source type to the destination type.
# You may edit the following lines to add or remove attributes,
# change attribute definitions, or invoke other FME functions as the
# features are translated.
# =====
```

```
GINA road_edge0000400003 \
  gina_feat_type          gina_line          \
  gina_feat_code          %gina_feat_code    \
  gina_feat_plan          %gina_feat_plan    \
  gina_feat_network       %gina_feat_network \
  gina_feat_number        %gina_feat_number  \
  gina_feat_version       %gina_feat_version \
  gina_feat_gp1           %gina_feat_gp1     \
  gina_feat_class         %gina_feat_class   \
  gina_feat_gp2           %gina_feat_gp2     \
  gina_feat_layer         %gina_feat_layer
```

```
VML road_edge0000400003 \
  vml_type                vml_polyline      \
  gina_feat_code          %gina_feat_code    \
  gina_feat_plan          %gina_feat_plan    \
  gina_feat_network       %gina_feat_network \
  gina_feat_number        %gina_feat_number  \
  gina_feat_version       %gina_feat_version \
  gina_feat_gp1           %gina_feat_gp1     \
  gina_feat_class         %gina_feat_class   \
  gina_feat_gp2           %gina_feat_gp2     \
  gina_feat_layer         %gina_feat_layer
```

```
# =====

GINA road_edge0000210002          \
  gina_feat_type                  gina_line          \
  gina_feat_code                  %gina_feat_code   \
  gina_feat_plan                  %gina_feat_plan    \
  gina_feat_network               %gina_feat_network  \
  gina_feat_number                %gina_feat_number  \
  gina_feat_version               %gina_feat_version  \
  gina_feat_gp1                  %gina_feat_gp1    \
  gina_feat_class                 %gina_feat_class   \
  gina_feat_gp2                  %gina_feat_gp2    \
  gina_feat_layer                 %gina_feat_layer   \

VML road_edge0000210002          \
  vml_type                       vml_polyline      \
  gina_feat_code                  %gina_feat_code   \
  gina_feat_plan                  %gina_feat_plan    \
  gina_feat_network               %gina_feat_network  \
  gina_feat_number                %gina_feat_number  \
  gina_feat_version               %gina_feat_version  \
  gina_feat_gp1                  %gina_feat_gp1    \
  gina_feat_class                 %gina_feat_class   \
  gina_feat_gp2                  %gina_feat_gp2    \
  gina_feat_layer                 %gina_feat_layer   \

# =====

GINA property0000400003          \
  gina_feat_type                  gina_c_point      \
  gina_feat_code                  %gina_feat_code   \
  gina_feat_rotation              %gina_feat_rotation \
  LOT                             %LOT                \
  gina_feat_plan                  %gina_feat_plan    \
  gina_feat_network               %gina_feat_network  \
  gina_feat_number                %gina_feat_number  \
  gina_feat_version               %gina_feat_version  \
  PARCEL                          %PARCEL            \
  gina_feat_gp1                  %gina_feat_gp1    \
  NAME                           %NAME              \
  gina_feat_class                 %gina_feat_class   \
  gina_feat_gp2                  %gina_feat_gp2    \
  gina_feat_layer                 %gina_feat_layer   \
  TAX_ID                         %TAX_ID            \
  SURNAME                        %SURNAME            \

VML property0000400003          \
  vml_type                       vml_point         \
  gina_feat_code                  %gina_feat_code   \
  gina_feat_rotation              %gina_feat_rotation \
  LOT                             %LOT                \
  gina_feat_plan                  %gina_feat_plan    \
  gina_feat_network               %gina_feat_network  \
  gina_feat_number                %gina_feat_number  \
  gina_feat_version               %gina_feat_version  \
  PARCEL                          %PARCEL            \
  gina_feat_gp1                  %gina_feat_gp1    \
```

```

NAME                                %NAME                                \
gina_feat_class                     %gina_feat_class                    \
gina_feat_gp2                       %gina_feat_gp2                      \
gina_feat_layer                     %gina_feat_layer                    \
TAX_ID                              %TAX_ID                              \
SURNAME                             %SURNAME                             \

# =====

GINA property_P_0000400003          \
  gina_feat_type                    gina_polygon                         \
  gina_feat_code                    %gina_feat_code                     \
  gina_feat_plan                    %gina_feat_plan                     \
  gina_feat_network                 %gina_feat_network                  \
  gina_feat_number                  %gina_feat_number                   \
  gina_feat_version                 %gina_feat_version                  \
  gina_feat_gp1                    %gina_feat_gp1                      \
  gina_feat_class                   %gina_feat_class                    \
  gina_feat_gp2                    %gina_feat_gp2                      \
  gina_feat_layer                   %gina_feat_layer                    \
  polygon_number                    %polygon_number                     \

VML property_P_0000400003          \
  vml_type                          vml_polygon                         \
  gina_feat_code                    %gina_feat_code                     \
  gina_feat_plan                    %gina_feat_plan                     \
  gina_feat_network                 %gina_feat_network                  \
  gina_feat_version                 %gina_feat_version                  \
  gina_feat_number                  %gina_feat_number                   \
  gina_feat_gp1                    %gina_feat_gp1                      \
  gina_feat_class                   %gina_feat_class                    \
  gina_feat_gp2                    %gina_feat_gp2                      \
  gina_feat_layer                   %gina_feat_layer                    \
  polygon_number                    %polygon_number                     \

# =====

GINA hydrog_edge0000210002          \
  gina_feat_type                    gina_line                           \
  gina_feat_code                    %gina_feat_code                     \
  gina_feat_plan                    %gina_feat_plan                     \
  gina_feat_network                 %gina_feat_network                  \
  gina_feat_number                  %gina_feat_number                   \
  gina_feat_version                 %gina_feat_version                  \
  gina_feat_gp1                    %gina_feat_gp1                      \
  gina_feat_class                   %gina_feat_class                    \
  gina_feat_gp2                    %gina_feat_gp2                      \
  gina_feat_layer                   %gina_feat_layer                    \

VML hydrog_edge0000210002          \
  vml_type                          vml_polyline                        \
  gina_feat_code                    %gina_feat_code                     \
  gina_feat_plan                    %gina_feat_plan                     \
  gina_feat_network                 %gina_feat_network                  \
  gina_feat_number                  %gina_feat_number                   \
  gina_feat_version                 %gina_feat_version                  \
  gina_feat_gp1                    %gina_feat_gp1                      \

```

```

gina_feat_class      %gina_feat_class      \
gina_feat_gp2        %gina_feat_gp2          \
gina_feat_layer      %gina_feat_layer        \

# =====

GINA road_cl0000300002      \
  gina_feat_type          gina_line              \
  gina_feat_code          %gina_feat_code            \
  CLASS                   %CLASS                    \
  gina_feat_plan          %gina_feat_plan            \
  gina_feat_network       %gina_feat_network         \
  gina_feat_number        %gina_feat_number          \
  gina_feat_version       %gina_feat_version         \
  DIVISION                %DIVISION                 \
  gina_feat_gp1           %gina_feat_gp1             \
  NAME                    %NAME                     \
  gina_feat_class         %gina_feat_class           \
  gina_feat_gp2           %gina_feat_gp2             \
  gina_feat_layer         %gina_feat_layer           \

VML road_cl0000300002      \
  vml_type                vml_polyline              \
  gina_feat_code          %gina_feat_code            \
  CLASS                   %CLASS                    \
  gina_feat_plan          %gina_feat_plan            \
  gina_feat_network       %gina_feat_network         \
  gina_feat_number        %gina_feat_number          \
  gina_feat_version       %gina_feat_version         \
  DIVISION                %DIVISION                 \
  gina_feat_gp1           %gina_feat_gp1             \
  NAME                    %NAME                     \
  gina_feat_class         %gina_feat_class           \
  gina_feat_gp2           %gina_feat_gp2             \
  gina_feat_layer         %gina_feat_layer           \

# =====

GINA road_cl_T_0000300002  \
  gina_feat_type          gina_text                  \
  gina_feat_code          %gina_feat_code            \
  gina_feat_rotation      %gina_feat_rotation        \
  gina_feat_plan          %gina_feat_plan            \
  gina_feat_network       %gina_feat_network         \
  gina_feat_number        %gina_feat_number          \
  gina_feat_version       %gina_feat_version         \
  gina_feat_gp1           %gina_feat_gp1             \
  gina_feat_class         %gina_feat_class           \
  gina_feat_gp2           %gina_feat_gp2             \
  gina_feat_layer         %gina_feat_layer           \
  gina_feat_text          %gina_feat_text            \

VML road_cl_T_0000300002  \
  vml_type                vml_text                  \
  gina_feat_code          %gina_feat_code            \
  vml_rotation            %gina_feat_rotation        \
  gina_feat_plan          %gina_feat_plan            \

```

```

gina_feat_network      %gina_feat_network      \
gina_feat_number       %gina_feat_number        \
gina_feat_version      %gina_feat_version       \
gina_feat_gp1          %gina_feat_gp1           \
gina_feat_class        %gina_feat_class         \
gina_feat_gp2          %gina_feat_gp2           \
gina_feat_layer        %gina_feat_layer         \
vml_text_string        %gina_feat_text          \

# =====

GINA prop_bound0000400003      \
  gina_feat_type            gina_line                \
  gina_feat_code           %gina_feat_code                \
  gina_feat_plan           %gina_feat_plan                \
  gina_feat_network        %gina_feat_network            \
  gina_feat_number         %gina_feat_number             \
  gina_feat_version        %gina_feat_version            \
  gina_feat_gp1            %gina_feat_gp1               \
  gina_feat_class          %gina_feat_class              \
  gina_feat_gp2            %gina_feat_gp2               \
  gina_feat_layer          %gina_feat_layer              \

VML prop_bound0000400003      \
  vml_type                  vml_polyline                \
  gina_feat_code           %gina_feat_code                \
  gina_feat_plan           %gina_feat_plan                \
  gina_feat_network        %gina_feat_network            \
  gina_feat_number         %gina_feat_number             \
  gina_feat_version        %gina_feat_version            \
  gina_feat_gp1            %gina_feat_gp1               \
  gina_feat_class          %gina_feat_class              \
  gina_feat_gp2            %gina_feat_gp2               \
  gina_feat_layer          %gina_feat_layer              \

# =====

GINA neatline0000110001      \
  gina_feat_type            gina_line                \
  gina_feat_code           %gina_feat_code                \
  gina_feat_plan           %gina_feat_plan                \
  gina_feat_network        %gina_feat_network            \
  gina_feat_number         %gina_feat_number             \
  gina_feat_version        %gina_feat_version            \
  gina_feat_gp1            %gina_feat_gp1               \
  gina_feat_class          %gina_feat_class              \
  gina_feat_gp2            %gina_feat_gp2               \
  gina_feat_layer          %gina_feat_layer              \

VML neatline0000110001      \
  vml_type                  vml_polyline                \
  gina_feat_code           %gina_feat_code                \
  gina_feat_plan           %gina_feat_plan                \
  gina_feat_network        %gina_feat_network            \
  gina_feat_number         %gina_feat_number             \
  gina_feat_version        %gina_feat_version            \
  gina_feat_gp1            %gina_feat_gp1               \

```

```

gina_feat_class      %gina_feat_class      \
gina_feat_gp2        %gina_feat_gp2        \
gina_feat_layer      %gina_feat_layer      \

# =====

GINA neatline0000100001      \
  gina_feat_type      gina_line              \
  gina_feat_code      %gina_feat_code              \
  gina_feat_plan      %gina_feat_plan              \
  gina_feat_network    %gina_feat_network          \
  gina_feat_number     %gina_feat_number           \
  gina_feat_version    %gina_feat_version          \
  gina_feat_gp1        %gina_feat_gp1              \
  gina_feat_class      %gina_feat_class            \
  gina_feat_gp2        %gina_feat_gp2              \
  gina_feat_layer      %gina_feat_layer            \

VML neatline0000100001      \
  vml_type            vml_polyline              \
  gina_feat_code      %gina_feat_code              \
  gina_feat_plan      %gina_feat_plan              \
  gina_feat_network    %gina_feat_network          \
  gina_feat_number     %gina_feat_number           \
  gina_feat_version    %gina_feat_version          \
  gina_feat_gp1        %gina_feat_gp1              \
  gina_feat_class      %gina_feat_class            \
  gina_feat_gp2        %gina_feat_gp2              \
  gina_feat_layer      %gina_feat_layer            \

# =====

GINA road_int0000300002      \
  gina_feat_type      gina_point                \
  gina_feat_code      %gina_feat_code              \
  gina_feat_rotation   %gina_feat_rotation         \
  gina_feat_plan      %gina_feat_plan              \
  gina_feat_network    %gina_feat_network          \
  BETWEEN2            %BETWEEN2                  \
  IMAGE_REF           %IMAGE_REF                  \
  gina_feat_number     %gina_feat_number           \
  gina_feat_version    %gina_feat_version          \
  BETWEEN3            %BETWEEN3                  \
  BETWEEN1            %BETWEEN1                  \
  gina_feat_gp1        %gina_feat_gp1              \
  ID                  %ID                          \
  gina_feat_class      %gina_feat_class            \
  gina_feat_gp2        %gina_feat_gp2              \
  gina_feat_layer      %gina_feat_layer            \

VML road_int0000300002      \
  vml_type            vml_point                \
  gina_feat_code      %gina_feat_code              \
  gina_feat_rotation   %gina_feat_rotation         \
  gina_feat_plan      %gina_feat_plan              \
  gina_feat_network    %gina_feat_network          \
  BETWEEN2            %BETWEEN2                  \

```

```

IMAGE_REF          %IMAGE_REF          \
gina_feat_number   %gina_feat_number   \
gina_feat_version  %gina_feat_version  \
BETWEEN3          %BETWEEN3          \
BETWEEN1          %BETWEEN1          \
gina_feat_gp1     %gina_feat_gp1     \
ID                %ID                \
gina_feat_class   %gina_feat_class   \
gina_feat_gp2     %gina_feat_gp2     \
gina_feat_layer   %gina_feat_layer   \

# =====

GINA hydrog_edge0000400003          \
  gina_feat_type   gina_line         \
  gina_feat_code   %gina_feat_code   \
  gina_feat_plan   %gina_feat_plan   \
  gina_feat_network %gina_feat_network \
  gina_feat_number %gina_feat_number \
  gina_feat_version %gina_feat_version \
  gina_feat_gp1    %gina_feat_gp1    \
  gina_feat_class  %gina_feat_class  \
  gina_feat_gp2    %gina_feat_gp2    \
  gina_feat_layer  %gina_feat_layer  \

VML hydrog_edge0000400003          \
  vml_type         vml_polyline      \
  gina_feat_code   %gina_feat_code   \
  gina_feat_plan   %gina_feat_plan   \
  gina_feat_network %gina_feat_network \
  gina_feat_number %gina_feat_number \
  gina_feat_version %gina_feat_version \
  gina_feat_gp1    %gina_feat_gp1    \
  gina_feat_class  %gina_feat_class  \
  gina_feat_gp2    %gina_feat_gp2    \
  gina_feat_layer  %gina_feat_layer  \

# =====

GINA hydrog_text0000210002          \
  gina_feat_type   gina_line         \
  gina_feat_code   %gina_feat_code   \
  gina_feat_plan   %gina_feat_plan   \
  gina_feat_network %gina_feat_network \
  gina_feat_number %gina_feat_number \
  gina_feat_version %gina_feat_version \
  gina_feat_gp1    %gina_feat_gp1    \
  gina_feat_class  %gina_feat_class  \
  gina_feat_gp2    %gina_feat_gp2    \
  gina_feat_layer  %gina_feat_layer  \

VML hydrog_text0000210002          \
  vml_type         vml_polyline      \
  gina_feat_code   %gina_feat_code   \
  gina_feat_plan   %gina_feat_plan   \
  gina_feat_network %gina_feat_network \
  gina_feat_number %gina_feat_number \

```

```

gina_feat_version      %gina_feat_version      \
gina_feat_gp1         %gina_feat_gp1          \
gina_feat_class       %gina_feat_class        \
gina_feat_gp2         %gina_feat_gp2          \
gina_feat_layer       %gina_feat_layer        \

# =====

GINA hydrog_text_T_0000210002      \
  gina_feat_type      gina_text              \
  gina_feat_code      %gina_feat_code         \
  gina_feat_rotation  %gina_feat_rotation    \
  gina_feat_plan      %gina_feat_plan         \
  gina_feat_network   %gina_feat_network     \
  gina_feat_number    %gina_feat_number     \
  gina_feat_version   %gina_feat_version     \
  gina_feat_gp1      %gina_feat_gp1         \
  gina_feat_class     %gina_feat_class       \
  gina_feat_gp2      %gina_feat_gp2         \
  gina_feat_layer    %gina_feat_layer       \
  gina_feat_text     %gina_feat_text       \

VML hydrog_text_T_0000210002      \
  vml_type           vml_text              \
  gina_feat_code     %gina_feat_code         \
  vml_rotation      %gina_feat_rotation    \
  gina_feat_plan     %gina_feat_plan         \
  gina_feat_network  %gina_feat_network     \
  gina_feat_number   %gina_feat_number     \
  gina_feat_version  %gina_feat_version     \
  gina_feat_gp1     %gina_feat_gp1         \
  gina_feat_class    %gina_feat_class       \
  gina_feat_gp2     %gina_feat_gp2         \
  gina_feat_layer   %gina_feat_layer       \
  vml_text_string   %gina_feat_text       \

# =====

GINA road_edge0000300002      \
  gina_feat_type     gina_line              \
  gina_feat_code     %gina_feat_code         \
  gina_feat_plan     %gina_feat_plan         \
  gina_feat_network  %gina_feat_network     \
  gina_feat_number   %gina_feat_number     \
  gina_feat_version  %gina_feat_version     \
  gina_feat_gp1     %gina_feat_gp1         \
  gina_feat_class    %gina_feat_class       \
  gina_feat_gp2     %gina_feat_gp2         \
  gina_feat_layer   %gina_feat_layer       \

VML road_edge0000300002      \
  vml_type           vml_polyline          \
  gina_feat_code     %gina_feat_code         \
  gina_feat_plan     %gina_feat_plan         \
  gina_feat_network  %gina_feat_network     \
  gina_feat_number   %gina_feat_number     \
  gina_feat_version  %gina_feat_version     \

```

```

gina_feat_gp1          %gina_feat_gp1          \
gina_feat_class       %gina_feat_class       \
gina_feat_gp2         %gina_feat_gp2         \
gina_feat_layer       %gina_feat_layer       \

# =====

GINA hydrog_edge0000010000          \
  gina_feat_type       gina_line           \
  gina_feat_code       %gina_feat_code     \
  gina_feat_plan       %gina_feat_plan     \
  gina_feat_network    %gina_feat_network  \
  gina_feat_number     %gina_feat_number   \
  gina_feat_version    %gina_feat_version  \
  gina_feat_gp1       %gina_feat_gp1     \
  gina_feat_class     %gina_feat_class     \
  gina_feat_gp2       %gina_feat_gp2     \
  gina_feat_layer     %gina_feat_layer     \

VML hydrog_edge0000010000          \
  vml_type            vml_polyline       \
  gina_feat_code     %gina_feat_code     \
  gina_feat_plan     %gina_feat_plan     \
  gina_feat_network  %gina_feat_network  \
  gina_feat_number   %gina_feat_number   \
  gina_feat_version  %gina_feat_version  \
  gina_feat_gp1     %gina_feat_gp1     \
  gina_feat_class   %gina_feat_class   \
  gina_feat_gp2     %gina_feat_gp2     \
  gina_feat_layer   %gina_feat_layer   \

# =====

GINA map_sheet0000100001          \
  gina_feat_type     gina_c_point       \
  gina_feat_code     %gina_feat_code     \
  gina_feat_rotation %gina_feat_rotation \
  gina_feat_plan     %gina_feat_plan     \
  gina_feat_network  %gina_feat_network  \
  gina_feat_number   %gina_feat_number   \
  gina_feat_version  %gina_feat_version  \
  gina_feat_gp1     %gina_feat_gp1     \
  ID                 %ID                 \
  gina_feat_class   %gina_feat_class   \
  gina_feat_gp2     %gina_feat_gp2     \
  gina_feat_layer   %gina_feat_layer   \

VML map_sheet0000100001          \
  vml_type            vml_point         \
  gina_feat_code     %gina_feat_code     \
  gina_feat_rotation %gina_feat_rotation \
  gina_feat_plan     %gina_feat_plan     \
  gina_feat_network  %gina_feat_network  \
  gina_feat_number   %gina_feat_number   \
  gina_feat_version  %gina_feat_version  \
  gina_feat_gp1     %gina_feat_gp1     \
  ID                 %ID                 \

```

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gina_feat_class      %gina_feat_class      \
gina_feat_gp2        %gina_feat_gp2          \
gina_feat_layer      %gina_feat_layer        \

# =====

GINA map_sheet_P_0000100001      \
  gina_feat_type      gina_polygon            \
  gina_feat_code      %gina_feat_code          \
  gina_feat_plan      %gina_feat_plan          \
  gina_feat_network   %gina_feat_network       \
  gina_feat_number    %gina_feat_number       \
  gina_feat_version   %gina_feat_version      \
  gina_feat_gp1       %gina_feat_gp1          \
  gina_feat_class     %gina_feat_class        \
  gina_feat_gp2       %gina_feat_gp2          \
  gina_feat_layer     %gina_feat_layer        \
  polygon_number      %polygon_number         \
VML map_sheet_P_0000100001      \
  vml_type            vml_polygon            \
  gina_feat_code      %gina_feat_code          \
  gina_feat_plan      %gina_feat_plan          \
  gina_feat_network   %gina_feat_network       \
  gina_feat_number    %gina_feat_number       \
  gina_feat_version   %gina_feat_version      \
  gina_feat_gp1       %gina_feat_gp1          \
  gina_feat_class     %gina_feat_class        \
  gina_feat_gp2       %gina_feat_gp2          \
  gina_feat_layer     %gina_feat_layer        \
  polygon_number      %polygon_number         \

# =====

GINA filled_land0000600009      \
  gina_feat_type      gina_c_point            \
  gina_feat_code      %gina_feat_code          \
  gina_feat_rotation  %gina_feat_rotation     \
  gina_feat_plan      %gina_feat_plan          \
  gina_feat_network   %gina_feat_network       \
  gina_feat_number    %gina_feat_number       \
  gina_feat_version   %gina_feat_version      \
  gina_feat_gp1       %gina_feat_gp1          \
  gina_feat_class     %gina_feat_class        \
  gina_feat_gp2       %gina_feat_gp2          \
  gina_feat_layer     %gina_feat_layer        \

VML filled_land0000600009      \
  vml_type            vml_point              \
  gina_feat_code      %gina_feat_code          \
  gina_feat_rotation  %gina_feat_rotation     \
  gina_feat_plan      %gina_feat_plan          \
  gina_feat_network   %gina_feat_network       \
  gina_feat_number    %gina_feat_number       \
  gina_feat_version   %gina_feat_version      \
  gina_feat_gp1       %gina_feat_gp1          \
  gina_feat_class     %gina_feat_class        \
  gina_feat_gp2       %gina_feat_gp2          \

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gina_feat_layer          %gina_feat_layer

# =====

GINA filled_land_P_0000600009          \
  gina_feat_type          gina_polygon          \
  gina_feat_code          %gina_feat_code          \
  gina_feat_plan          %gina_feat_plan          \
  gina_feat_network       %gina_feat_network       \
  gina_feat_number        %gina_feat_number        \
  gina_feat_version       %gina_feat_version       \
  gina_feat_gp1           %gina_feat_gp1           \
  gina_feat_class         %gina_feat_class         \
  gina_feat_gp2           %gina_feat_gp2           \
  gina_feat_layer         %gina_feat_layer         \
  polygon_number          %polygon_number

VML filled_land_P_0000600009          \
  vml_type                vml_polygon            \
  gina_feat_code          %gina_feat_code          \
  gina_feat_plan          %gina_feat_plan          \
  gina_feat_network       %gina_feat_network       \
  gina_feat_number        %gina_feat_number        \
  gina_feat_version       %gina_feat_version       \
  gina_feat_gp1           %gina_feat_gp1           \
  gina_feat_class         %gina_feat_class         \
  gina_feat_gp2           %gina_feat_gp2           \
  gina_feat_layer         %gina_feat_layer         \
  polygon_number          %polygon_number

# =====

GINA filled_marsh0000600008          \
  gina_feat_type          gina_c_point          \
  gina_feat_code          %gina_feat_code          \
  gina_feat_rotation      %gina_feat_rotation      \
  gina_feat_plan          %gina_feat_plan          \
  gina_feat_network       %gina_feat_network       \
  gina_feat_number        %gina_feat_number        \
  gina_feat_version       %gina_feat_version       \
  gina_feat_gp1           %gina_feat_gp1           \
  gina_feat_class         %gina_feat_class         \
  gina_feat_gp2           %gina_feat_gp2           \
  gina_feat_layer         %gina_feat_layer

VML filled_marsh0000600008          \
  vml_type                vml_point            \
  gina_feat_code          %gina_feat_code          \
  gina_feat_rotation      %gina_feat_rotation      \
  gina_feat_plan          %gina_feat_plan          \
  gina_feat_network       %gina_feat_network       \
  gina_feat_number        %gina_feat_number        \
  gina_feat_version       %gina_feat_version       \
  gina_feat_gp1           %gina_feat_gp1           \
  gina_feat_class         %gina_feat_class         \
  gina_feat_gp2           %gina_feat_gp2           \
  gina_feat_layer         %gina_feat_layer

```

```
# =====
GINA filled_marsh_P_000060000 \
  gina_feat_type          gina_polygon \
  gina_feat_code          %gina_feat_code \
  gina_feat_plan          %gina_feat_plan \
  gina_feat_network       %gina_feat_network \
  gina_feat_number        %gina_feat_number \
  gina_feat_version       %gina_feat_version \
  gina_feat_gp1           %gina_feat_gp1 \
  gina_feat_class         %gina_feat_class \
  gina_feat_gp2           %gina_feat_gp2 \
  gina_feat_layer         %gina_feat_layer \
  polygon_number          %polygon_number

VML filled_marsh_P_000060000 \
  vml_type                vml_polygon \
  gina_feat_code          %gina_feat_code \
  gina_feat_plan          %gina_feat_plan \
  gina_feat_network       %gina_feat_network \
  gina_feat_number        %gina_feat_number \
  gina_feat_version       %gina_feat_version \
  gina_feat_gp1           %gina_feat_gp1 \
  gina_feat_class         %gina_feat_class \
  gina_feat_gp2           %gina_feat_gp2 \
  gina_feat_layer         %gina_feat_layer \
  polygon_number          %polygon_number

# =====
GINA filled_bound000060009 \
  gina_feat_type          gina_line \
  gina_feat_code          %gina_feat_code \
  gina_feat_plan          %gina_feat_plan \
  gina_feat_network       %gina_feat_network \
  gina_feat_number        %gina_feat_number \
  gina_feat_version       %gina_feat_version \
  gina_feat_gp1           %gina_feat_gp1 \
  gina_feat_class         %gina_feat_class \
  gina_feat_gp2           %gina_feat_gp2 \
  gina_feat_layer         %gina_feat_layer

VML filled_bound000060009 \
  vml_type                vml_polyline \
  gina_feat_code          %gina_feat_code \
  gina_feat_plan          %gina_feat_plan \
  gina_feat_network       %gina_feat_network \
  gina_feat_number        %gina_feat_number \
  gina_feat_version       %gina_feat_version \
  gina_feat_gp1           %gina_feat_gp1 \
  gina_feat_class         %gina_feat_class \
  gina_feat_gp2           %gina_feat_gp2 \
  gina_feat_layer         %gina_feat_layer

# =====
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GINA filled_bound0000600008          \
  gina_feat_type                      gina_line          \
  gina_feat_code                      %gina_feat_code   \
  gina_feat_plan                      %gina_feat_plan   \
  gina_feat_network                   %gina_feat_network \
  gina_feat_number                   %gina_feat_number \
  gina_feat_version                   %gina_feat_version \
  gina_feat_gp1                      %gina_feat_gp1    \
  gina_feat_class                    %gina_feat_class  \
  gina_feat_gp2                      %gina_feat_gp2    \
  gina_feat_layer                    %gina_feat_layer    \

VML filled_bound0000600008          \
  vml_type                            vml_polyline     \
  gina_feat_code                      %gina_feat_code   \
  gina_feat_plan                      %gina_feat_plan   \
  gina_feat_network                   %gina_feat_network \
  gina_feat_number                   %gina_feat_number \
  gina_feat_version                   %gina_feat_version \
  gina_feat_gp1                      %gina_feat_gp1    \
  gina_feat_class                    %gina_feat_class  \
  gina_feat_gp2                      %gina_feat_gp2    \
  gina_feat_layer                    %gina_feat_layer    \

# =====

GINA ext_wall10000400012            \
  gina_feat_type                      gina_line          \
  gina_feat_code                      %gina_feat_code   \
  gina_feat_plan                      %gina_feat_plan   \
  gina_feat_network                   %gina_feat_network \
  gina_feat_number                   %gina_feat_number \
  gina_feat_version                   %gina_feat_version \
  gina_feat_gp1                      %gina_feat_gp1    \
  gina_feat_class                    %gina_feat_class  \
  gina_feat_gp2                      %gina_feat_gp2    \
  gina_feat_layer                    %gina_feat_layer    \

VML ext_wall10000400012            \
  vml_type                            vml_polyline     \
  gina_feat_code                      %gina_feat_code   \
  gina_feat_plan                      %gina_feat_plan   \
  gina_feat_network                   %gina_feat_network \
  gina_feat_number                   %gina_feat_number \
  gina_feat_version                   %gina_feat_version \
  gina_feat_gp1                      %gina_feat_gp1    \
  gina_feat_class                    %gina_feat_class  \
  gina_feat_gp2                      %gina_feat_gp2    \
  gina_feat_layer                    %gina_feat_layer    \

# =====

GINA park0000400012                \
  gina_feat_type                      gina_point        \
  gina_feat_code                      %gina_feat_code   \
  gina_feat_rotation                  %gina_feat_rotation \
  gina_feat_plan                      %gina_feat_plan     \

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gina_feat_network      %gina_feat_network      \
gina_feat_number       %gina_feat_number       \
gina_feat_version      %gina_feat_version      \
gina_feat_gp1          %gina_feat_gp1          \
gina_feat_class        %gina_feat_class        \
gina_feat_gp2          %gina_feat_gp2          \
gina_feat_layer        %gina_feat_layer        \

VML park0000400012    \
  vml_type             vml_point                \
  gina_feat_code       %gina_feat_code                \
  gina_feat_rotation   %gina_feat_rotation            \
  gina_feat_plan       %gina_feat_plan                \
  gina_feat_network    %gina_feat_network            \
  gina_feat_number     %gina_feat_number            \
  gina_feat_version    %gina_feat_version            \
  gina_feat_gp1        %gina_feat_gp1                \
  gina_feat_class      %gina_feat_class            \
  gina_feat_gp2        %gina_feat_gp2                \
  gina_feat_layer      %gina_feat_layer            \

# =====

GINA orthophoto0000210002 \
  gina_feat_type      gina_point                \
  gina_feat_code       %gina_feat_code                \
  gina_feat_rotation   %gina_feat_rotation            \
  FILE_NAME           %FILE_NAME                    \
  gina_feat_plan       %gina_feat_plan                \
  gina_feat_network    %gina_feat_network            \
  DESCRIPTION          %DESCRIPTION                \
  BITS_PER_PIXEL      %BITS_PER_PIXEL              \
  IMAGE_TYPE          %IMAGE_TYPE                  \
  gina_feat_number     %gina_feat_number            \
  gina_feat_version    %gina_feat_version            \
  PIXELS_PER_LINE     %PIXELS_PER_LINE              \
  gina_feat_gp1        %gina_feat_gp1                \
  gina_feat_class      %gina_feat_class            \
  gina_feat_gp2        %gina_feat_gp2                \
  gina_feat_layer      %gina_feat_layer            \
  NO_OF_LINES         %NO_OF_LINES                  \

VML orthophoto0000210002 \
  vml_type             vml_point                \
  gina_feat_code       %gina_feat_code                \
  gina_feat_rotation   %gina_feat_rotation            \
  FILE_NAME           %FILE_NAME                    \
  gina_feat_plan       %gina_feat_plan                \
  gina_feat_network    %gina_feat_network            \
  DESCRIPTION          %DESCRIPTION                \
  BITS_PER_PIXEL      %BITS_PER_PIXEL              \
  IMAGE_TYPE          %IMAGE_TYPE                  \
  gina_feat_number     %gina_feat_number            \
  gina_feat_version    %gina_feat_version            \
  PIXELS_PER_LINE     %PIXELS_PER_LINE              \
  gina_feat_gp1        %gina_feat_gp1                \
  gina_feat_class      %gina_feat_class            \

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gina_feat_gp2          %gina_feat_gp2          \
gina_feat_layer       %gina_feat_layer       \
NO_OF_LINES           %NO_OF_LINES           \

# =====

GINA satellite0000210002          \
  gina_feat_type        gina_point          \
  gina_feat_code        %gina_feat_code      \
  gina_feat_rotation    %gina_feat_rotation  \
  FILE_NAME             %FILE_NAME           \
  gina_feat_plan        %gina_feat_plan      \
  gina_feat_network     %gina_feat_network   \
  DESCRIPTION           %DESCRIPTION         \
  BITS_PER_PIXEL        %BITS_PER_PIXEL     \
  IMAGE_TYPE            %IMAGE_TYPE         \
  gina_feat_number      %gina_feat_number    \
  gina_feat_version     %gina_feat_version   \
  PIXELS_PER_LINE       %PIXELS_PER_LINE    \
  gina_feat_gp1         %gina_feat_gp1      \
  gina_feat_class       %gina_feat_class    \
  gina_feat_gp2         %gina_feat_gp2      \
  gina_feat_layer       %gina_feat_layer    \
  NO_OF_LINES           %NO_OF_LINES        \

VML satellite0000210002          \
  vml_type              vml_point          \
  gina_feat_code        %gina_feat_code      \
  gina_feat_rotation    %gina_feat_rotation  \
  FILE_NAME             %FILE_NAME           \
  gina_feat_plan        %gina_feat_plan      \
  gina_feat_network     %gina_feat_network   \
  DESCRIPTION           %DESCRIPTION         \
  BITS_PER_PIXEL        %BITS_PER_PIXEL     \
  IMAGE_TYPE            %IMAGE_TYPE         \
  gina_feat_number      %gina_feat_number    \
  gina_feat_version     %gina_feat_version   \
  PIXELS_PER_LINE       %PIXELS_PER_LINE    \
  gina_feat_gp1         %gina_feat_gp1      \
  gina_feat_class       %gina_feat_class    \
  gina_feat_gp2         %gina_feat_gp2      \
  gina_feat_layer       %gina_feat_layer    \
  NO_OF_LINES           %NO_OF_LINES        \

# =====

GINA image_extent0000500005          \
  gina_feat_type        gina_line          \
  gina_feat_code        %gina_feat_code      \
  FILE_NAME             %FILE_NAME           \
  gina_feat_plan        %gina_feat_plan      \
  gina_feat_network     %gina_feat_network   \
  DESCRIPTION           %DESCRIPTION         \
  BITS_PER_PIXEL        %BITS_PER_PIXEL     \
  IMAGE_TYPE            %IMAGE_TYPE         \
  gina_feat_number      %gina_feat_number    \
  gina_feat_version     %gina_feat_version   \

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PIXELS_PER_LINE      %PIXELS_PER_LINE      \
gina_feat_gp1        %gina_feat_gp1          \
gina_feat_class      %gina_feat_class        \
gina_feat_gp2        %gina_feat_gp2          \
gina_feat_layer      %gina_feat_layer        \
NO_OF_LINES         %NO_OF_LINES

VML image_extent0000500005      \
  vml_type            vml_polyline          \
  gina_feat_code      %gina_feat_code        \
  FILE_NAME           %FILE_NAME            \
  gina_feat_plan      %gina_feat_plan        \
  gina_feat_network   %gina_feat_network     \
  DESCRIPTION         %DESCRIPTION          \
  BITS_PER_PIXEL     %BITS_PER_PIXEL        \
  IMAGE_TYPE          %IMAGE_TYPE           \
  gina_feat_number    %gina_feat_number     \
  gina_feat_version   %gina_feat_version    \
  PIXELS_PER_LINE    %PIXELS_PER_LINE      \
  gina_feat_gp1      %gina_feat_gp1        \
  gina_feat_class     %gina_feat_class      \
  gina_feat_gp2      %gina_feat_gp2        \
  gina_feat_layer     %gina_feat_layer      \
  NO_OF_LINES        %NO_OF_LINES

# =====

GINA image_extent0000500004      \
  gina_feat_type      gina_line             \
  gina_feat_code      %gina_feat_code        \
  FILE_NAME           %FILE_NAME            \
  gina_feat_plan      %gina_feat_plan        \
  gina_feat_network   %gina_feat_network     \
  DESCRIPTION         %DESCRIPTION          \
  BITS_PER_PIXEL     %BITS_PER_PIXEL        \
  IMAGE_TYPE          %IMAGE_TYPE           \
  gina_feat_number    %gina_feat_number     \
  gina_feat_version   %gina_feat_version    \
  PIXELS_PER_LINE    %PIXELS_PER_LINE      \
  gina_feat_gp1      %gina_feat_gp1        \
  gina_feat_class     %gina_feat_class      \
  gina_feat_gp2      %gina_feat_gp2        \
  gina_feat_layer     %gina_feat_layer      \
  NO_OF_LINES        %NO_OF_LINES

VML image_extent0000500004      \
  vml_type            vml_polyline          \
  gina_feat_code      %gina_feat_code        \
  FILE_NAME           %FILE_NAME            \
  gina_feat_plan      %gina_feat_plan        \
  gina_feat_network   %gina_feat_network     \
  DESCRIPTION         %DESCRIPTION          \
  BITS_PER_PIXEL     %BITS_PER_PIXEL        \
  IMAGE_TYPE          %IMAGE_TYPE           \
  gina_feat_number    %gina_feat_number     \
  gina_feat_version   %gina_feat_version    \
  PIXELS_PER_LINE    %PIXELS_PER_LINE      \

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gina_feat_gp1          %gina_feat_gp1          \
gina_feat_class       %gina_feat_class        \
gina_feat_gp2         %gina_feat_gp2         \
NO_OF_LINES          %NO_OF_LINES
gina_feat_layer       %gina_feat_layer        \

# =====

GINA photograph0000310003
gina_feat_type        gina_point              \
gina_feat_code        %gina_feat_code         \
gina_feat_rotation    %gina_feat_rotation     \
FILE_NAME             %FILE_NAME             \
gina_feat_plan        %gina_feat_plan         \
gina_feat_network     %gina_feat_network      \
DESCRIPTION           %DESCRIPTION           \
BITS_PER_PIXEL       %BITS_PER_PIXEL        \
IMAGE_TYPE           %IMAGE_TYPE            \
gina_feat_number      %gina_feat_number      \
gina_feat_version     %gina_feat_version     \
PIXELS_PER_LINE      %PIXELS_PER_LINE       \
gina_feat_gp1        %gina_feat_gp1         \
gina_feat_class       %gina_feat_class       \
gina_feat_gp2        %gina_feat_gp2         \
gina_feat_layer       %gina_feat_layer       \
NO_OF_LINES          %NO_OF_LINES

VML photograph0000310003
vml_type              vml_point              \
gina_feat_code        %gina_feat_code         \
gina_feat_rotation    %gina_feat_rotation     \
FILE_NAME             %FILE_NAME             \
gina_feat_plan        %gina_feat_plan         \
gina_feat_network     %gina_feat_network      \
DESCRIPTION           %DESCRIPTION           \
BITS_PER_PIXEL       %BITS_PER_PIXEL        \
IMAGE_TYPE           %IMAGE_TYPE            \
gina_feat_number      %gina_feat_number      \
gina_feat_version     %gina_feat_version     \
PIXELS_PER_LINE      %PIXELS_PER_LINE       \
gina_feat_gp1        %gina_feat_gp1         \
gina_feat_class       %gina_feat_class       \
gina_feat_gp2        %gina_feat_gp2         \
gina_feat_layer       %gina_feat_layer       \
NO_OF_LINES          %NO_OF_LINES

# =====

GINA GINA_POLYGON
gina_feat_type        gina_polygon            \
gina_feat_code        %gina_feat_code         \
gina_feat_plan        %gina_feat_plan         \
gina_feat_network     %gina_feat_network      \
gina_feat_number      %gina_feat_number      \
gina_feat_version     %gina_feat_version     \
gina_feat_gp1        %gina_feat_gp1         \

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gina_feat_class      %gina_feat_class      \
gina_feat_gp2       %gina_feat_gp2       \
gina_feat_layer     %gina_feat_layer     \
polygon_number      %polygon_number

VML GINA_POLYGON    \
  vml_type          vml_polygon          \
  gina_feat_code    %gina_feat_code    \
  gina_feat_plan    %gina_feat_plan    \
  gina_feat_network %gina_feat_network \
  gina_feat_number  %gina_feat_number  \
  gina_feat_version %gina_feat_version \
  gina_feat_gp1     %gina_feat_gp1     \
  gina_feat_class   %gina_feat_class   \
  gina_feat_gp2     %gina_feat_gp2     \
  gina_feat_layer   %gina_feat_layer   \
  polygon_number    %polygon_number

```