My Project

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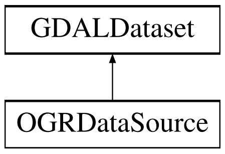
5.1 OGRDataSource Class Reference

```
#include <ogrsf_frmts.h>
```

Inheritance diagram for OGRDataSource:



5.1.1 Detailed Description

LEGACY class. Use GDALDataset in your new code ! This class may be removed in a later release.

This class represents a data source. A data source potentially consists of many layers (OGRLayer). A data source normally consists of one, or a related set of files, though the name doesn't have to be a real item in the file system.

When an OGRDataSource is destroyed, all it's associated OGRLayers objects are also destroyed.

NOTE: Starting with GDAL 2.0, it is *NOT* safe to cast the handle of a C function that returns a OGRDataSourceH to a OGRDataSource∗. If a C++ object is needed, the handle should be cast to GDALDataset∗.

Deprecated

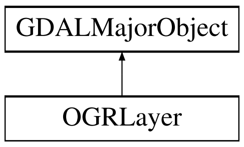
The documentation for this class was generated from the following file:

- ogrsf_frmts.h

5.2 OGRLayer Class Reference

```
#include <ogrsf_frmts.h>
```

Inheritance diagram for OGRLayer:



Public Member Functions

- virtual OGRGeometry ∗ GetSpatialFilter ()

  This method returns the current spatial filter for this layer.
- virtual void SetSpatialFilter (OGRGeometry ∗)

  Set a new spatial filter.
- virtual void SetSpatialFilterRect (double dfMinX, double dfMinY, double dfMaxX, double dfMaxY)

  Set a new rectangular spatial filter.
- virtual void SetSpatialFilter (int iGeomField, OGRGeometry ∗)

  Set a new spatial filter.
- virtual void SetSpatialFilterRect (int iGeomField, double dfMinX, double dfMinY, double dfMaxX, double dfMaxY)

  Set a new rectangular spatial filter.
- virtual OGRErr SetAttributeFilter (const char ∗)

  Set a new attribute query.
- virtual void ResetReading ()=0

  Reset feature reading to start on the first feature.
- virtual OGRFeature ∗ GetNextFeature () CPL_WARN_UNUSED_RESULT=0

  Fetch the next available feature from this layer.
- virtual OGRErr SetNextByIndex (GIntBig nIndex)

  Move read cursor to the nIndex'th feature in the current resultset.
- virtual OGRFeature ∗ GetFeature (GIntBig nFID) CPL_WARN_UNUSED_RESULT

  Fetch a feature by its identifier.
- OGRErr SetFeature (OGRFeature ∗poFeature) CPL_WARN_UNUSED_RESULT

  Rewrite an existing feature.
- OGRErr CreateFeature (OGRFeature ∗poFeature) CPL_WARN_UNUSED_RESULT

  Create and write a new feature within a layer.
- virtual OGRErr DeleteFeature (GIntBig nFID) CPL_WARN_UNUSED_RESULT

  Delete feature from layer.
- virtual const char ∗ GetName ()

  Return the layer name.
- virtual OGRwkbGeometryType GetGeomType ()

  Return the layer geometry type.
- virtual OGRFeatureDefn ∗ GetLayerDefn ()=0

  Fetch the schema information for this layer.
- virtual int FindFieldIndex (const char ∗pszFieldName, int bExactMatch)

  Find the index of field in the layer.
- virtual OGRSpatialReference ∗ GetSpatialRef ()

  Fetch the spatial reference system for this layer.
- virtual GIntBig GetFeatureCount (int bForce=TRUE)

  Fetch the feature count in this layer.
- virtual OGRErr GetExtent (OGREnvelope ∗psExtent, int bForce=TRUE) CPL_WARN_UNUSED_RESULT

  Fetch the extent of this layer.
- virtual OGRErr GetExtent (int iGeomField, OGREnvelope ∗psExtent, int bForce=TRUE) CPL_WARN_UNUSED_RESULT

Fetch the extent of this layer, on the specified geometry field.

- virtual int TestCapability (const char ∗)=0

  Test if this layer supported the named capability.
- virtual OGRErr CreateField (OGRFieldDefn ∗poField, int bApproxOK=TRUE)

  Create a new field on a layer.
- virtual OGRErr DeleteField (int iField)

  Delete an existing field on a layer.
- virtual OGRErr ReorderFields (int ∗panMap)

  Reorder all the fields of a layer.
- virtual OGRErr AlterFieldDefn (int iField, OGRFieldDefn ∗poNewFieldDefn, int nFlagsIn)

  Alter the definition of an existing field on a layer.
- virtual OGRErr CreateGeomField (OGRGeomFieldDefn ∗poField, int bApproxOK=TRUE)

  Create a new geometry field on a layer.
- virtual OGRErr SyncToDisk ()

  Flush pending changes to disk.
- virtual OGRStyleTable ∗ GetStyleTable ()

  Returns layer style table.
- virtual void SetStyleTableDirectly (OGRStyleTable ∗poStyleTable)

  Set layer style table.
- virtual void SetStyleTable (OGRStyleTable ∗poStyleTable)

  Set layer style table.
- virtual OGRErr StartTransaction () CPL_WARN_UNUSED_RESULT

  For datasources which support transactions, StartTransaction creates a transaction.
- virtual OGRErr CommitTransaction () CPL_WARN_UNUSED_RESULT

  For datasources which support transactions, CommitTransaction commits a transaction.
- virtual OGRErr RollbackTransaction ()

  For datasources which support transactions, RollbackTransaction will roll back a datasource to its state before the start of the current transaction. If no transaction is active, or the rollback fails, will return OGRERR_FAILURE. Datasources which do not support transactions will always return OGRERR_NONE.
- virtual const char ∗ GetFIDColumn ()

  This method returns the name of the underlying database column being used as the FID column, or "" if not supported.
- virtual const char ∗ GetGeometryColumn ()

  This method returns the name of the underlying database column being used as the geometry column, or "" if not supported.
- virtual OGRErr SetIgnoredFields (const char ∗∗papszFields)

  Set which fields can be omitted when retrieving features from the layer.
- OGRErr **Intersection** (OGRLayer ∗pLayerMethod, OGRLayer ∗pLayerResult, char ∗∗papszOptions=NULL, GDALProgressFunc pfnProgress=NULL, void ∗pProgressArg=NULL)
- OGRErr **Union** (OGRLayer ∗pLayerMethod, OGRLayer ∗pLayerResult, char ∗∗papszOptions=NULL, GDALProgressFunc pfnProgress=NULL, void ∗pProgressArg=NULL)
- OGRErr **SymDifference** (OGRLayer ∗pLayerMethod, OGRLayer ∗pLayerResult, char ∗∗papszOptions, GDALProgressFunc pfnProgress, void ∗pProgressArg)
- OGRErr **Identity** (OGRLayer ∗pLayerMethod, OGRLayer ∗pLayerResult, char ∗∗papszOptions=NULL, GDALProgressFunc pfnProgress=NULL, void ∗pProgressArg=NULL)
- OGRErr **Update** (OGRLayer ∗pLayerMethod, OGRLayer ∗pLayerResult, char ∗∗papszOptions=NULL, GDALProgressFunc pfnProgress=NULL, void ∗pProgressArg=NULL)
- OGRErr **Clip** (OGRLayer ∗pLayerMethod, OGRLayer ∗pLayerResult, char ∗∗papszOptions=NULL, GDALProgressFunc pfnProgress=NULL, void ∗pProgressArg=NULL)
- OGRErr **Erase** (OGRLayer ∗pLayerMethod, OGRLayer ∗pLayerResult, char ∗∗papszOptions=NULL, GDALProgressFunc pfnProgress=NULL, void ∗pProgressArg=NULL)
- int Reference ()

  Increment layer reference count.
- int Dereference ()

Decrement layer reference count.

- int GetRefCount () const

  Fetch reference count.

- OGRErr ReorderField (int iOldFieldPos, int iNewFieldPos)

  Reorder an existing field on a layer.

Protected Member Functions

- virtual OGRErr ISetFeature (OGRFeature ∗poFeature) CPL_WARN_UNUSED_RESULT

  Rewrite an existing feature.

- virtual OGRErr ICreateFeature (OGRFeature ∗poFeature) CPL_WARN_UNUSED_RESULT

  Create and write a new feature within a layer.

5.2.1 Detailed Description

This class represents a layer of simple features, with access methods.

5.2.2 Member Function Documentation

5.2.2.1 OGRErr OGRLayer::AlterFieldDefn (int *iField,* OGRFieldDefn ∗ *poNewFieldDefn,* int *nFlags*) [virtual]

Alter the definition of an existing field on a layer.

You must use this to alter the definition of an existing field of a real layer. Internally the OGRFeatureDefn for the layer will be updated to reflect the altered field. Applications should never modify the OGRFeatureDefn used by a layer directly.

This method should not be called while there are feature objects in existence that were obtained or created with the previous layer definition.

Not all drivers support this method. You can query a layer to check if it supports it with the OLCAlterFieldDefn capability. Some drivers may only support this method while there are still no features in the layer. When it is supported, the existing features of the backing file/database should be updated accordingly. Some drivers might also not support all update flags.

This function is the same as the C function OGR_L_AlterFieldDefn().

Parameters

iField	index of the field whose definition must be altered.
poNewFieldDefn	new field definition
nFlags	combination of ALTER_NAME_FLAG, ALTER_TYPE_FLAG, ALTER_WIDTH_PRECISION_FLAG, ALTER_NULLABLE_FLAG and ALTER_DEFAULT_FLAG to indicate which of the name and/or type and/or width and precision fields and/or nullability from the new field definition must be taken into account.

Returns

OGRERR_NONE on success.

Since

OGR 1.9.0

5.2.2.2 OGRErr OGRLayer::CommitTransaction ( ) [virtual]

For datasources which support transactions, CommitTransaction commits a transaction.

If no transaction is active, or the commit fails, will return OGRERR_FAILURE. Datasources which do not support transactions will always return OGRERR_NONE.

This function is the same as the C function OGR_L_CommitTransaction().

Returns

OGRERR_NONE on success.

5.2.2.3 OGRErr OGRLayer::CreateFeature (OGRFeature ∗ *poFeature*)

Create and write a new feature within a layer.

The passed feature is written to the layer as a new feature, rather than overwriting an existing one. If the feature has a feature id other than OGRNullFID, then the native implementation may use that as the feature id of the new feature, but not necessarily. Upon successful return the passed feature will have been updated with the new feature id.

Starting with GDAL 2.0, drivers should specialize the ICreateFeature() method, since CreateFeature() is no longer virtual.

This method is the same as the C function OGR_L_CreateFeature().

Parameters

poFeature	the feature to write to disk.

Returns

OGRERR_NONE on success.

5.2.2.4 OGRErr OGRLayer::CreateField (OGRFieldDefn ∗ *poField*, int *bApproxOK* = TRUE) [virtual]

Create a new field on a layer.

You must use this to create new fields on a real layer. Internally the OGRFeatureDefn for the layer will be updated to reflect the new field. Applications should never modify the OGRFeatureDefn used by a layer directly.

This method should not be called while there are feature objects in existence that were obtained or created with the previous layer definition.

Not all drivers support this method. You can query a layer to check if it supports it with the OLCCreateField capability. Some drivers may only support this method while there are still no features in the layer. When it is supported, the existing features of the backing file/database should be updated accordingly.

Drivers may or may not support not-null constraints. If they support creating fields with not-null constraints, this is generally before creating any feature to the layer.

This function is the same as the C function OGR_L_CreateField().

Parameters

poField	field definition to write to disk.
bApproxOK	If TRUE, the field may be created in a slightly different form depending on the limitations of the format driver.

Returns

OGRERR_NONE on success.

5.2.2.5 OGRErr OGRLayer::CreateGeomField (OGRGeomFieldDefn * *poField*, int *bApproxOK* = `TRUE`) `[virtual]`

Create a new geometry field on a layer.

You must use this to create new geometry fields on a real layer. Internally the OGRFeatureDefn for the layer will be updated to reflect the new field. Applications should never modify the OGRFeatureDefn used by a layer directly.

This method should not be called while there are feature objects in existence that were obtained or created with the previous layer definition.

Not all drivers support this method. You can query a layer to check if it supports it with the OLCCreateGeomField capability. Some drivers may only support this method while there are still no features in the layer. When it is supported, the existing features of the backing file/database should be updated accordingly.

Drivers may or may not support not-null constraints. If they support creating fields with not-null constraints, this is generally before creating any feature to the layer.

This function is the same as the C function OGR_L_CreateGeomField().

Parameters

poField	geometry field definition to write to disk.
bApproxOK	If TRUE, the field may be created in a slightly different form depending on the limitations of the format driver.

Returns

OGRERR_NONE on success.

Since

OGR 1.11

5.2.2.6 OGRErr OGRLayer::DeleteFeature (GIntBig *nFID*) `[virtual]`

Delete feature from layer.

The feature with the indicated feature id is deleted from the layer if supported by the driver. Most drivers do not support feature deletion, and will return OGRERR_UNSUPPORTED_OPERATION. The TestCapability() layer method may be called with OLCDeleteFeature to check if the driver supports feature deletion.

This method is the same as the C function OGR_L_DeleteFeature().

Parameters

nFID	the feature id to be deleted from the layer

Returns

OGRERR_NONE if the operation works, otherwise an appropriate error code (e.g OGRERR_NON_EXISTIN-G_FEATURE if the feature does not exist).

5.2.2.7 OGRErr OGRLayer::DeleteField (int *iField*) [virtual]

Delete an existing field on a layer.

You must use this to delete existing fields on a real layer. Internally the OGRFeatureDefn for the layer will be updated to reflect the deleted field. Applications should never modify the OGRFeatureDefn used by a layer directly.

This method should not be called while there are feature objects in existence that were obtained or created with the previous layer definition.

Not all drivers support this method. You can query a layer to check if it supports it with the OLCDeleteField capability. Some drivers may only support this method while there are still no features in the layer. When it is supported, the existing features of the backing file/database should be updated accordingly.

This function is the same as the C function OGR_L_DeleteField().

Parameters

iField	index of the field to delete.

Returns

OGRERR_NONE on success.

Since

OGR 1.9.0

5.2.2.8 int OGRLayer::Dereference ( )

Decrement layer reference count.

This method is the same as the C function OGR_L_Dereference().

Returns

the reference count after decrementing.

5.2.2.9 int OGRLayer::FindFieldIndex (const char ∗ *pszFieldName*, int *bExactMatch*) [virtual]

Find the index of field in the layer.

The returned number is the index of the field in the layers, or -1 if the field doesn't exist.

If bExactMatch is set to FALSE and the field doesn't exists in the given form the driver might apply some changes to make it match, like those it might do if the layer was created (eg. like LAUNDER in the OCI driver).

This method is the same as the C function OGR_L_FindFieldIndex().

Returns

field index, or -1 if the field doesn't exist

5.2.2.10 OGRErr OGRLayer::GetExtent (OGREnvelope ∗ *psExtent*, int *bForce* = TRUE) [virtual]

Fetch the extent of this layer.

Returns the extent (MBR) of the data in the layer. If bForce is FALSE, and it would be expensive to establish the extent then OGRERR_FAILURE will be returned indicating that the extent isn't know. If bForce is TRUE then some implementations will actually scan the entire layer once to compute the MBR of all the features in the layer.

Depending on the drivers, the returned extent may or may not take the spatial filter into account. So it is safer to call GetExtent() without setting a spatial filter.

Layers without any geometry may return OGRERR_FAILURE just indicating that no meaningful extents could be collected.

Note that some implementations of this method may alter the read cursor of the layer.

This method is the same as the C function OGR_L_GetExtent().

Parameters

psExtent	the structure in which the extent value will be returned.
bForce	Flag indicating whether the extent should be computed even if it is expensive.

Returns

OGRERR_NONE on success, OGRERR_FAILURE if extent not known.

5.2.2.11 OGRErr OGRLayer::GetExtent (int *iGeomField,* OGREnvelope ∗ *psExtent,* int *bForce* = `TRUE`) `[virtual]`

Fetch the extent of this layer, on the specified geometry field.

Returns the extent (MBR) of the data in the layer. If bForce is FALSE, and it would be expensive to establish the extent then OGRERR_FAILURE will be returned indicating that the extent isn't know. If bForce is TRUE then some implementations will actually scan the entire layer once to compute the MBR of all the features in the layer.

Depending on the drivers, the returned extent may or may not take the spatial filter into account. So it is safer to call GetExtent() without setting a spatial filter.

Layers without any geometry may return OGRERR_FAILURE just indicating that no meaningful extents could be collected.

Note that some implementations of this method may alter the read cursor of the layer.

Note to driver implementer: if you implement GetExtent(int,OGREnvelope∗,int), you must also implement GetExtent(OGREnvelope∗, int) to make it call GetExtent(0,OGREnvelope∗,int).

This method is the same as the C function OGR_L_GetExtentEx().

Parameters

iGeomField	the index of the geometry field on which to compute the extent.
psExtent	the structure in which the extent value will be returned.
bForce	Flag indicating whether the extent should be computed even if it is expensive.

Returns

OGRERR_NONE on success, OGRERR_FAILURE if extent not known.

5.2.2.12 OGRFeature ∗ OGRLayer::GetFeature (GIntBig *nFID*) `[virtual]`

Fetch a feature by its identifier.

This function will attempt to read the identified feature. The nFID value cannot be OGRNullFID. Success or failure of this operation is unaffected by the spatial or attribute filters (and specialized implementations in drivers should make sure that they do not take into account spatial or attribute filters).

If this method returns a non-NULL feature, it is guaranteed that its feature id (OGRFeature::GetFID()) will be the same as nFID.

Use OGRLayer::TestCapability(OLCRandomRead) to establish if this layer supports efficient random access reading via GetFeature(); however, the call should always work if the feature exists as a fallback implementation just scans all the features in the layer looking for the desired feature.

Sequential reads (with GetNextFeature()) are generally considered interrupted by a GetFeature() call.

The returned feature should be free with OGRFeature::DestroyFeature().

This method is the same as the C function OGR_L_GetFeature().

Parameters

nFID	the feature id of the feature to read.

Returns

a feature now owned by the caller, or NULL on failure.

5.2.2.13 GIntBig OGRLayer::GetFeatureCount (int *bForce* = `TRUE`) `[virtual]`

Fetch the feature count in this layer.

Returns the number of features in the layer. For dynamic databases the count may not be exact. If bForce is FALSE, and it would be expensive to establish the feature count a value of -1 may be returned indicating that the count isn't know. If bForce is TRUE some implementations will actually scan the entire layer once to count objects.

The returned count takes the spatial filter into account.

Note that some implementations of this method may alter the read cursor of the layer.

This method is the same as the C function OGR_L_GetFeatureCount().

Note: since GDAL 2.0, this method returns a GIntBig (previously a int)

Parameters

bForce	Flag indicating whether the count should be computed even if it is expensive.

Returns

feature count, -1 if count not known.

5.2.2.14 const char ∗ OGRLayer::GetFIDColumn ( ) `[virtual]`

This method returns the name of the underlying database column being used as the FID column, or "" if not supported.

This method is the same as the C function OGR_L_GetFIDColumn().

Returns

fid column name.

5.2.2.15 const char ∗ OGRLayer::GetGeometryColumn ( ) `[virtual]`

This method returns the name of the underlying database column being used as the geometry column, or "" if not supported.

For layers with multiple geometry fields, this method only returns the name of the first geometry column. For other columns, use GetLayerDefn()->OGRFeatureDefn::GetGeomFieldDefn(i)->GetNameRef().

This method is the same as the C function OGR_L_GetGeometryColumn().

Returns

geometry column name.

5.2.2.16 OGRwkbGeometryType OGRLayer::GetGeomType ( ) [virtual]

Return the layer geometry type.

This returns the same result as GetLayerDefn()->OGRFeatureDefn::GetGeomType(), but for a few drivers, calling GetGeomType() directly can avoid lengthy layer definition initialization.

For layers with multiple geometry fields, this method only returns the geometry type of the first geometry column. For other columns, use GetLayerDefn()->OGRFeatureDefn::GetGeomFieldDefn(i)->GetType(). For layers without any geometry field, this method returns wkbNone.

This method is the same as the C function OGR_L_GetGeomType().

If this method is derived in a driver, it must be done such that it returns the same content as GetLayerDefn()->OG-RFeatureDefn::GetGeomType().

Returns

the geometry type

Since

OGR 1.8.0

5.2.2.17 OGRFeatureDefn ∗ OGRLayer::GetLayerDefn ( ) [pure virtual]

Fetch the schema information for this layer.

The returned OGRFeatureDefn is owned by the OGRLayer, and should not be modified or freed by the application. It encapsulates the attribute schema of the features of the layer.

This method is the same as the C function OGR_L_GetLayerDefn().

Returns

feature definition.

5.2.2.18 const char ∗ OGRLayer::GetName ( ) [virtual]

Return the layer name.

This returns the same content as GetLayerDefn()->OGRFeatureDefn::GetName(), but for a few drivers, calling GetName() directly can avoid lengthy layer definition initialization.

This method is the same as the C function OGR_L_GetName().

If this method is derived in a driver, it must be done such that it returns the same content as GetLayerDefn()->OG-RFeatureDefn::GetName().

Returns

the layer name (must not been freed)

Since

OGR 1.8.0

5.2.2.19 OGRFeature ∗ OGRLayer::GetNextFeature ( ) [pure virtual]

Fetch the next available feature from this layer.

The returned feature becomes the responsibility of the caller to delete with OGRFeature::DestroyFeature(). It is critical that all features associated with an OGRLayer (more specifically an OGRFeatureDefn) be deleted before that layer/datasource is deleted.

Only features matching the current spatial filter (set with SetSpatialFilter()) will be returned.

This method implements sequential access to the features of a layer. The ResetReading() method can be used to start at the beginning again.

Features returned by GetNextFeature() may or may not be affected by concurrent modifications depending on drivers. A guaranteed way of seeing modifications in effect is to call ResetReading() on layers where GetNext-Feature() has been called, before reading again. Structural changes in layers (field addition, deletion, ...) when a read is in progress may or may not be possible depending on drivers. If a transaction is committed/aborted, the current sequential reading may or may not be valid after that operation and a call to ResetReading() might be needed.

This method is the same as the C function OGR_L_GetNextFeature().

Returns

a feature, or NULL if no more features are available.

5.2.2.20 int OGRLayer::GetRefCount ( ) const

Fetch reference count.

This method is the same as the C function OGR_L_GetRefCount().

Returns

the current reference count for the layer object itself.

5.2.2.21 OGRGeometry ∗ OGRLayer::GetSpatialFilter ( ) [virtual]

This method returns the current spatial filter for this layer.

The returned pointer is to an internally owned object, and should not be altered or deleted by the caller.

This method is the same as the C function OGR_L_GetSpatialFilter().

Returns

spatial filter geometry.

5.2.2.22 OGRSpatialReference ∗ OGRLayer::GetSpatialRef ( ) [virtual]

Fetch the spatial reference system for this layer.

The returned object is owned by the OGRLayer and should not be modified or freed by the application.

Starting with OGR 1.11, several geometry fields can be associated to a feature definition. Each geometry field can have its own spatial reference system, which is returned by OGRGeomFieldDefn::GetSpatialRef(). OGRLayer::Get-SpatialRef() is equivalent to GetLayerDefn()->OGRFeatureDefn::GetGeomFieldDefn(0)->GetSpatialRef()

This method is the same as the C function OGR_L_GetSpatialRef().

Returns

spatial reference, or NULL if there isn't one.

5.2.2.23 void OGRLayer::GetStyleTable ( ) [virtual]

Returns layer style table.

This method is the same as the C function OGR_L_GetStyleTable().

Returns

pointer to a style table which should not be modified or freed by the caller.

5.2.2.24 OGRErr OGRLayer::ICreateFeature (OGRFeature ∗ *poFeature*) [protected], [virtual]

Create and write a new feature within a layer.

This method is implemented by drivers and not called directly. User code should use CreateFeature() instead.

The passed feature is written to the layer as a new feature, rather than overwriting an existing one. If the feature has a feature id other than OGRNullFID, then the native implementation may use that as the feature id of the new feature, but not necessarily. Upon successful return the passed feature will have been updated with the new feature id.

Parameters

poFeature	the feature to write to disk.

Returns

OGRERR_NONE on success.

Since

GDAL 2.0

5.2.2.25 OGRErr OGRLayer::ISetFeature (OGRFeature ∗ *poFeature*) [protected], [virtual]

Rewrite an existing feature.

This method is implemented by drivers and not called directly. User code should use SetFeature() instead.

This method will write a feature to the layer, based on the feature id within the OGRFeature.

Parameters

poFeature	the feature to write.

Returns

OGRERR_NONE if the operation works, otherwise an appropriate error code (e.g OGRERR_NON_EXISTIN-G_FEATURE if the feature does not exist).

Since

GDAL 2.0

5.2.2.26 int OGRLayer::Reference ( )

Increment layer reference count.

This method is the same as the C function OGR_L_Reference().

Returns

the reference count after incrementing.

5.2.2.27 OGRErr OGRLayer::ReorderField (int *iOldFieldPos*, int *iNewFieldPos*)

Reorder an existing field on a layer.

This method is a convenience wrapper of ReorderFields() dedicated to move a single field. It is a non-virtual method, so drivers should implement ReorderFields() instead.

You must use this to reorder existing fields on a real layer. Internally the OGRFeatureDefn for the layer will be updated to reflect the reordering of the fields. Applications should never modify the OGRFeatureDefn used by a layer directly.

This method should not be called while there are feature objects in existence that were obtained or created with the previous layer definition.

The field definition that was at initial position iOldFieldPos will be moved at position iNewFieldPos, and elements between will be shuffled accordingly.

For example, let suppose the fields were "0","1","2","3","4" initially. ReorderField(1, 3) will reorder them as "0","2","3","1","4".

Not all drivers support this method. You can query a layer to check if it supports it with the OLCReorderFields capability. Some drivers may only support this method while there are still no features in the layer. When it is supported, the existing features of the backing file/database should be updated accordingly.

This function is the same as the C function OGR_L_ReorderField().

Parameters

iOldFieldPos	previous position of the field to move. Must be in the range [0,GetFieldCount()-1].
iNewFieldPos	new position of the field to move. Must be in the range [0,GetFieldCount()-1].

Returns

OGRERR_NONE on success.

Since

OGR 1.9.0

5.2.2.28 OGRErr OGRLayer::ReorderFields (int ∗ *panMap*) [virtual]

Reorder all the fields of a layer.

You must use this to reorder existing fields on a real layer. Internally the OGRFeatureDefn for the layer will be updated to reflect the reordering of the fields. Applications should never modify the OGRFeatureDefn used by a layer directly.

This method should not be called while there are feature objects in existence that were obtained or created with the previous layer definition.

panMap is such that,for each field definition at position i after reordering, its position before reordering was panMap[i].

For example, let suppose the fields were "0","1","2","3","4" initially. ReorderFields([0,2,3,1,4]) will reorder them as "0","2","3","1","4".

Not all drivers support this method. You can query a layer to check if it supports it with the OLCReorderFields capability. Some drivers may only support this method while there are still no features in the layer. When it is supported, the existing features of the backing file/database should be updated accordingly.

This function is the same as the C function OGR_L_ReorderFields().

Parameters

panMap	an array of GetLayerDefn()->OGRFeatureDefn::GetFieldCount() elements which is a permutation of [0, GetLayerDefn()->OGRFeatureDefn::GetFieldCount()-1].

Returns

OGRERR_NONE on success.

Since

OGR 1.9.0

5.2.2.29 void OGRLayer::ResetReading ( ) `[pure virtual]`

Reset feature reading to start on the first feature.

This affects GetNextFeature().

This method is the same as the C function OGR_L_ResetReading().

5.2.2.30 OGRErr OGRLayer::RollbackTransaction ( ) `[virtual]`

For datasources which support transactions, RollbackTransaction will roll back a datasource to its state before the start of the current transaction. If no transaction is active, or the rollback fails, will return OGRERR_FAILURE. Datasources which do not support transactions will always return OGRERR_NONE.

This function is the same as the C function OGR_L_RollbackTransaction().

Returns

OGRERR_NONE on success.

5.2.2.31 void OGRLayer::SetAttributeFilter (const char ∗ *pszQuery*) `[virtual]`

Set a new attribute query.

This method sets the attribute query string to be used when fetching features via the GetNextFeature() method. Only features for which the query evaluates as true will be returned.

The query string should be in the format of an SQL WHERE clause. For instance "population > 1000000 and population < 5000000" where population is an attribute in the layer. The query format is normally a restricted form of SQL WHERE clause as described in the "WHERE" section of the `OGR SQL` tutorial. In some cases (RDBMS backed drivers) the native capabilities of the database may be used to interpret the WHERE clause in which case the capabilities will be broader than those of OGR SQL.

Note that installing a query string will generally result in resetting the current reading position (ala ResetReading()).

This method is the same as the C function OGR_L_SetAttributeFilter().

Parameters

pszQuery	query in restricted SQL WHERE format, or NULL to clear the current query.

Returns

OGRERR_NONE if successfully installed, or an error code if the query expression is in error, or some other failure occurs.

5.2.2.32 OGRErr OGRLayer::SetFeature (OGRFeature * *poFeature*)

Rewrite an existing feature.

This method will write a feature to the layer, based on the feature id within the OGRFeature.

Use OGRLayer::TestCapability(OLCRandomWrite) to establish if this layer supports random access writing via SetFeature().

Starting with GDAL 2.0, drivers should specialize the ISetFeature() method, since SetFeature() is no longer virtual.

This method is the same as the C function OGR_L_SetFeature().

Parameters

poFeature	the feature to write.

Returns

OGRERR_NONE if the operation works, otherwise an appropriate error code (e.g OGRERR_NON_EXISTING_FEATURE if the feature does not exist).

5.2.2.33 OGRErr OGRLayer::SetIgnoredFields (const char ** *papszFields*) [virtual]

Set which fields can be omitted when retrieving features from the layer.

If the driver supports this functionality (testable using OLCIgnoreFields capability), it will not fetch the specified fields in subsequent calls to GetFeature() / GetNextFeature() and thus save some processing time and/or bandwidth.

Besides field names of the layers, the following special fields can be passed: "OGR_GEOMETRY" to ignore geometry and "OGR_STYLE" to ignore layer style.

By default, no fields are ignored.

This method is the same as the C function OGR_L_SetIgnoredFields()

Parameters

papszFields	an array of field names terminated by NULL item. If NULL is passed, the ignored list is cleared.

Returns

OGRERR_NONE if all field names have been resolved (even if the driver does not support this method)

5.2.2.34 OGRErr OGRLayer::SetNextByIndex (GIntBig *nIndex*) [virtual]

Move read cursor to the nIndex'th feature in the current resultset.

This method allows positioning of a layer such that the GetNextFeature() call will read the requested feature, where nIndex is an absolute index into the current result set. So, setting it to 3 would mean the next feature read with GetNextFeature() would have been the 4th feature to have been read if sequential reading took place from the beginning of the layer, including accounting for spatial and attribute filters.

Only in rare circumstances is SetNextByIndex() efficiently implemented. In all other cases the default implementation which calls ResetReading() and then calls GetNextFeature() nIndex times is used. To determine if fast seeking is available on the current layer use the TestCapability() method with a value of OLCFastSetNextByIndex.

This method is the same as the C function OGR_L_SetNextByIndex().

Parameters

nIndex	the index indicating how many steps into the result set to seek.

Returns

OGRERR_NONE on success or an error code.

5.2.2.35 void OGRLayer::SetSpatialFilter (OGRGeometry ∗ *poFilter*) [virtual]

Set a new spatial filter.

This method set the geometry to be used as a spatial filter when fetching features via the GetNextFeature() method. Only features that geometrically intersect the filter geometry will be returned.

Currently this test is may be inaccurately implemented, but it is guaranteed that all features who's envelope (as returned by OGRGeometry::getEnvelope()) overlaps the envelope of the spatial filter will be returned. This can result in more shapes being returned that should strictly be the case.

This method makes an internal copy of the passed geometry. The passed geometry remains the responsibility of the caller, and may be safely destroyed.

For the time being the passed filter geometry should be in the same SRS as the layer (as returned by OGRLayer::GetSpatialRef()). In the future this may be generalized.

This method is the same as the C function OGR_L_SetSpatialFilter().

Parameters

poFilter	the geometry to use as a filtering region. NULL may be passed indicating that the current spatial filter should be cleared, but no new one instituted.

5.2.2.36 void OGRLayer::SetSpatialFilter (int *iGeomField*, OGRGeometry ∗ *poFilter*) [virtual]

Set a new spatial filter.

This method set the geometry to be used as a spatial filter when fetching features via the GetNextFeature() method. Only features that geometrically intersect the filter geometry will be returned.

Currently this test is may be inaccurately implemented, but it is guaranteed that all features who's envelope (as returned by OGRGeometry::getEnvelope()) overlaps the envelope of the spatial filter will be returned. This can result in more shapes being returned that should strictly be the case.

This method makes an internal copy of the passed geometry. The passed geometry remains the responsibility of the caller, and may be safely destroyed.

For the time being the passed filter geometry should be in the same SRS as the geometry field definition it corresponds to (as returned by GetLayerDefn()->OGRFeatureDefn::GetGeomFieldDefn(iGeomField)->GetSpatialRef()). In the future this may be generalized.

Note that only the last spatial filter set is applied, even if several successive calls are done with different iGeomField values.

Note to driver implementer: if you implement SetSpatialFilter(int,OGRGeometry∗), you must also implement SetSpatialFilter(OGRGeometry∗) to make it call SetSpatialFilter(0,OGRGeometry∗).

This method is the same as the C function OGR_L_SetSpatialFilterEx().

Parameters

iGeomField	index of the geometry field on which the spatial filter operates.
poFilter	the geometry to use as a filtering region. NULL may be passed indicating that the current spatial filter should be cleared, but no new one instituted.

Since

GDAL 1.11

5.2.2.37 void OGRLayer::SetSpatialFilterRect (double *dfMinX,* double *dfMinY,* double *dfMaxX,* double *dfMaxY*) [virtual]

Set a new rectangular spatial filter.

This method set rectangle to be used as a spatial filter when fetching features via the GetNextFeature() method. Only features that geometrically intersect the given rectangle will be returned.

The x/y values should be in the same coordinate system as the layer as a whole (as returned by OGRLayer::GetSpatialRef()). Internally this method is normally implemented as creating a 5 vertex closed rectangular polygon and passing it to OGRLayer::SetSpatialFilter(). It exists as a convenience.

The only way to clear a spatial filter set with this method is to call OGRLayer::SetSpatialFilter(NULL).

This method is the same as the C function OGR_L_SetSpatialFilterRect().

Parameters

dfMinX	the minimum X coordinate for the rectangular region.
dfMinY	the minimum Y coordinate for the rectangular region.
dfMaxX	the maximum X coordinate for the rectangular region.
dfMaxY	the maximum Y coordinate for the rectangular region.

5.2.2.38 void OGRLayer::SetSpatialFilterRect (int *iGeomField,* double *dfMinX,* double *dfMinY,* double *dfMaxX,* double *dfMaxY*) [virtual]

Set a new rectangular spatial filter.

This method set rectangle to be used as a spatial filter when fetching features via the GetNextFeature() method. Only features that geometrically intersect the given rectangle will be returned.

The x/y values should be in the same coordinate system as as the geometry field definition it corresponds to (as returned by GetLayerDefn()->OGRFeatureDefn::GetGeomFieldDefn(iGeomField)->GetSpatialRef()). Internally this method is normally implemented as creating a 5 vertex closed rectangular polygon and passing it to OGRLayer::SetSpatialFilter(). It exists as a convenience.

The only way to clear a spatial filter set with this method is to call OGRLayer::SetSpatialFilter(NULL).

This method is the same as the C function OGR_L_SetSpatialFilterRectEx().

Parameters

iGeomField	index of the geometry field on which the spatial filter operates.
dfMinX	the minimum X coordinate for the rectangular region.
dfMinY	the minimum Y coordinate for the rectangular region.
dfMaxX	the maximum X coordinate for the rectangular region.
dfMaxY	the maximum Y coordinate for the rectangular region.

Since

GDAL 1.11

5.2.2.39 void OGRLayer::SetStyleTable (OGRStyleTable ∗ *poStyleTable*) [virtual]

Set layer style table.

This method operate exactly as OGRLayer::SetStyleTableDirectly() except that it does not assume ownership of the passed table.

This method is the same as the C function OGR_L_SetStyleTable().

Parameters

poStyleTable	pointer to style table to set

5.2.2.40 void OGRLayer::SetStyleTableDirectly (OGRStyleTable ∗ *poStyleTable*) [virtual]

Set layer style table.

This method operate exactly as OGRLayer::SetStyleTable() except that it assumes ownership of the passed table.

This method is the same as the C function OGR_L_SetStyleTableDirectly().

Parameters

poStyleTable	pointer to style table to set

5.2.2.41 OGRErr OGRLayer::StartTransaction ( ) [virtual]

For datasources which support transactions, StartTransaction creates a transaction.

If starting the transaction fails, will return OGRERR_FAILURE. Datasources which do not support transactions will always return OGRERR_NONE.

Note: as of GDAL 2.0, use of this API is discouraged when the dataset offers dataset level transaction with GDALDataset::StartTransaction(). The reason is that most drivers can only offer transactions at dataset level, and not layer level. Very few drivers really support transactions at layer scope.

This function is the same as the C function OGR_L_StartTransaction().

Returns

OGRERR_NONE on success.

5.2.2.42 OGRErr OGRLayer::SyncToDisk ( ) [virtual]

Flush pending changes to disk.

This call is intended to force the layer to flush any pending writes to disk, and leave the disk file in a consistent state. It would not normally have any effect on read-only datasources.

Some layers do not implement this method, and will still return OGRERR_NONE. The default implementation just returns OGRERR_NONE. An error is only returned if an error occurs while attempting to flush to disk.

In any event, you should always close any opened datasource with OGRDataSource::DestroyDataSource() that will ensure all data is correctly flushed.

This method is the same as the C function OGR_L_SyncToDisk().

Returns

OGRERR_NONE if no error occurs (even if nothing is done) or an error code.

5.2.2.43 int OGRLayer::TestCapability (const char * *pszCap*) [pure virtual]

Test if this layer supported the named capability.

The capability codes that can be tested are represented as strings, but #defined constants exists to ensure correct spelling. Specific layer types may implement class specific capabilities, but this can't generally be discovered by the caller.

- **OLCRandomRead** / "RandomRead": TRUE if the GetFeature() method is implemented in an optimized way for this layer, as opposed to the default implementation using ResetReading() and GetNextFeature() to find the requested feature id.
- **OLCSequentialWrite** / "SequentialWrite": TRUE if the CreateFeature() method works for this layer. Note this means that this particular layer is writable. The same OGRLayer class may returned FALSE for other layer instances that are effectively read-only.
- **OLCRandomWrite** / "RandomWrite": TRUE if the SetFeature() method is operational on this layer. Note this means that this particular layer is writable. The same OGRLayer class may returned FALSE for other layer instances that are effectively read-only.
- **OLCFastSpatialFilter** / "FastSpatialFilter": TRUE if this layer implements spatial filtering efficiently. Layers that effectively read all features, and test them with the OGRFeature intersection methods should return FA-LSE. This can be used as a clue by the application whether it should build and maintain its own spatial index for features in this layer.
- **OLCFastFeatureCount** / "FastFeatureCount": TRUE if this layer can return a feature count (via GetFeature-Count()) efficiently. i.e. without counting the features. In some cases this will return TRUE until a spatial filter is installed after which it will return FALSE.
- **OLCFastGetExtent** / "FastGetExtent": TRUE if this layer can return its data extent (via GetExtent()) efficiently, i.e. without scanning all the features. In some cases this will return TRUE until a spatial filter is installed after which it will return FALSE.
- **OLCFastSetNextByIndex** / "FastSetNextByIndex": TRUE if this layer can perform the SetNextByIndex() call efficiently, otherwise FALSE.
- **OLCCreateField** / "CreateField": TRUE if this layer can create new fields on the current layer using Create-Field(), otherwise FALSE.
- **OLCCreateGeomField** / "CreateGeomField": (GDAL >= 1.11) TRUE if this layer can create new geometry fields on the current layer using CreateGeomField(), otherwise FALSE.
- **OLCDeleteField** / "DeleteField": TRUE if this layer can delete existing fields on the current layer using Delete-Field(), otherwise FALSE.
- **OLCReorderFields** / "ReorderFields": TRUE if this layer can reorder existing fields on the current layer using ReorderField() or ReorderFields(), otherwise FALSE.
- **OLCAlterFieldDefn** / "AlterFieldDefn": TRUE if this layer can alter the definition of an existing field on the current layer using AlterFieldDefn(), otherwise FALSE.
- **OLCDeleteFeature** / "DeleteFeature": TRUE if the DeleteFeature() method is supported on this layer, other-wise FALSE.
- **OLCStringsAsUTF8** / "StringsAsUTF8": TRUE if values of OFTString fields are assured to be in UTF-8 format. If FALSE the encoding of fields is uncertain, though it might still be UTF-8.
- **OLCTransactions** / "Transactions": TRUE if the StartTransaction(), CommitTransaction() and Rollback-Transaction() methods work in a meaningful way, otherwise FALSE.
- **OLCIgnoreFields** / "IgnoreFields": TRUE if fields, geometry and style will be omitted when fetching features as set by SetIgnoredFields() method.
- **OLCCurveGeometries** / "CurveGeometries": TRUE if this layer supports writing curve geometries or may return such geometries. (GDAL 2.0).

This method is the same as the C function OGR_L_TestCapability().

Parameters

pszCap	the name of the capability to test.

Returns

TRUE if the layer has the requested capability, or FALSE otherwise. OGRLayers will return FALSE for any unrecognized capabilities.

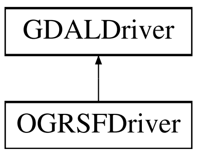
The documentation for this class was generated from the following files:

- ogrsf_frmts.h
- ogrsf_frmts.dox

5.3 OGRSFDriver Class Reference

```
#include <ogrsf_frmts.h>
```

Inheritance diagram for OGRSFDriver:



5.3.1 Detailed Description

LEGACY class. Use GDALDriver in your new code ! This class may be removed in a later release.

Represents an operational format driver.

One OGRSFDriver derived class will normally exist for each file format registered for use, regardless of whether a file has or will be opened. The list of available drivers is normally managed by the OGRSFDriverRegistrar.

NOTE: Starting with GDAL 2.0, it is *NOT* safe to cast the handle of a C function that returns a OGRSFDriverH to a OGRSFDriver∗. If a C++ object is needed, the handle should be cast to GDALDriver∗.

Deprecated

The documentation for this class was generated from the following file:

- ogrsf_frmts.h

5.4 OGRSFDriverRegistrar Class Reference

```
#include <ogrsf_frmts.h>
```

5.4.1 Detailed Description

LEGACY class. Use GDALDriverManager in your new code ! This class may be removed in a later release.

Singleton manager for OGRSFDriver instances that will be used to try and open datasources. Normally the registrar is populated with standard drivers using the OGRRegisterAll() function and does not need to be directly accessed. The driver registrar and all registered drivers may be cleaned up on shutdown using OGRCleanupAll().

Deprecated

The documentation for this class was generated from the following file:

- ogrsf_frmts.h

Chapter 6

File Documentation

6.1 ogrsf_frmts.h File Reference

```
#include "cpl_progress.h"
#include "ogr_feature.h"
#include "ogr_featurestyle.h"
#include "gdal_priv.h"
```

Classes

- class OGRLayer
- class OGRDataSource
- class OGRSFDriver
- class OGRSFDriverRegistrar

Functions

- CPL_C_START void CPL_DLL OGRRegisterAll ()

    Register all drivers.

6.1.1 Detailed Description

Classes related to registration of format support, and opening datasets.

6.1.2 Function Documentation

6.1.2.1 int OGRRegisterAll ( )

Register all drivers.

Deprecated Use GDALAllRegister() in GDAL 2.0