

Australian Hydrological Geospatial Fabric (Geofabric) Data Dictionary

Surface Network

Version 2.1 – November 2012



Australian Government
Bureau of Meteorology



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Geofabric Surface Network V2.1

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Domains

Domain Name	Domain Type
AHGFCatchmentType	Coded Value
AHGFDiffusedNodeType	Coded Value
AHGFHierarchy	Coded Value
AHGFNetworkNodeType	Coded Value
AHGFNetworkStreamType	Coded Value
AHGFPerenniality	Coded Value
AHGFWaterbodyType	Coded Value
AHGFWaterStoreUse	Coded Value
EnabledDomain	Coded Value
HydroFlowDirections	Coded Value

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AHGFCatchmentType

Description	Surface water drainage area (terrain based).
Domain Type	Coded Value
Field Type	Integer
Merge Policy	Default Value
Split Policy	Default Value
Domain Members	
Name	Value
Catchment	21

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AHGFDiffusedNodeType

Description	Types of diffused nodes.
Domain Type	Coded Value
Field Type	String
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
Coastal	Coastal
Delta	Delta
Inter-catchment	Inter-catchment

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AHGFHierarchy

Description	Importance of associated water feature.
Domain Type	Coded Value
Field Type	String
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
Major	Major
Minor	Minor
Not Applicable	Not Applicable

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AHGFNetworkNodeType

Description	Node types derived from network (terrain based) streams.
Domain Type	Coded Value
Field Type	Integer
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
NetworkJunctionNode	4
NetworkTerminusNode	5
NetworkArtificialNode	6
NetworkWaterAreaNode	7
NetworkGhostNode	8
NetworkHeadNode	9
NetworkCliffNode	10

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AHGFNetworkStreamType

Description	Types of network (terrain based) stream segments.
Domain Type	Coded Value
Field Type	Integer
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
NetworkFlowSegment	1
NetworkArtificialFlowSegment2	
NetworkWaterAreaSegment	3

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AHGFPernniality

Description	Water feature perenniality.
Domain Type	Coded Value
Field Type	String
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
Perennial	Perennial
Non Perennial	Non Perennial
Not Applicable	Not Applicable

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AHGFWaterbodyType

Description	Types of surface waterbodies (mapped).
Domain Type	Coded Value
Field Type	Integer
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
Reservoir	25
Lake	26
Swamp	27

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AHGFWaterStoreUse

Description	Uses of reservoir waterbodies.
Domain Type	Coded Value
Field Type	String
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
ReservoirTownRural	ReservoirTownRural
ReservoirFloodIrrigation	ReservoirFloodIrrigation
Not Applicable	Not Applicable

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EnabledDomain

Description	Flag indicating whether a feature allows flow or is blocked.
Domain Type	Coded Value
Field Type	Small Integer
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
False	0
True	1

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HydroFlowDirections

Description	Flow directions in relation to the digitised direction.
Domain Type	Coded Value
Field Type	Integer
Merge Policy	Default Value
Split Policy	Default Value

Domain Members

Name	Value
Uninitialized	0
WithDigitized	1
AgainstDigitized	2
Indeterminate	3

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ObjectClasses

ObjectClass Name	Type	Geometry	Subtype
SH_Network			Spatial References
AHGFCatchment	Simple FeatureClass	Polygon	- NetworkArtificialNode NetworkCliffNode NetworkGhostNode
AHGFNetworkNode	Simple FeatureClass	Point	NetworkHeadNode NetworkJunctionNode NetworkTerminusNode NetworkWaterAreaNode NetworkArtificialFlowSegment
AHGFNetworkStream	Simple FeatureClass	Polyline	NetworkFlowSegment NetworkWaterAreaSegment
AHGFWaterbody	Simple FeatureClass	Polygon	Lake Reservoir Swamp
Stand Alone ObjectClass(s)			
AHGFNetworkConnectivityDown	Table	-	-
AHGFNetworkConnectivityUp	Table	-	-
AHGFNetworkStream_FS	Table	-	-

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AHGFCatchment

Alias	AHGFCatchment	Geometry:Polygon					
Dataset Type	FeatureClass	Average Number of Points:0					
		Has M:No					
FeatureType	Simple	Has Z:No					
		Grid Size:1,000					
Field Name	Alias Name	Model Name	Type	Precn.	Scale	Length	Null
OBJECTID	OBJECTID	OBJECTID	OID	0	0	4	No
Shape	Shape	Shape	Geometry	0	0	0	Yes
HydroID			Integer	0	0	4	No
AHGFFType	AHGFFeatureType	AHGFFType	Integer	0	0	4	No
NetNodeID	NetworkNodeID	NetNodeID	Integer	0	0	4	Yes
NCB_ID			Integer	0	0	4	No
SegmentNo			Integer	0	0	4	Yes
StreamName			String	0	0	60	Yes
HasSegment			Integer	0	0	4	Yes
ExtrnlBasn	ExternalBasin	ExtrnlBasn	Integer	0	0	4	Yes
NextDownID			Integer	0	0	4	Yes
SrcFCName	SourceFeatureClassName	SrcFCName	String	0	0	25	No
SrcFType	SourceFeatureType	SrcFType	String	0	0	32	No
SrcType	SourceType	SrcType	Integer	0	0	4	Yes
SourceID			Integer	0	0	4	Yes
FeatRel	FeatureReliability	FeatRel	Date	0	0	8	Yes
FSource	FeatureSource	FSource	String	0	0	25	No
AttrRel	AttributeReliability	AttrRel	Date	0	0	8	Yes
AttrSource	AttributeSource	AttrSource	String	0	0	25	No
PlanAcc	PlanimetricAccuracy	PlanAcc	Small Integer	0	0	2	Yes
Symbol			Small Integer	0	0	2	Yes
TextNote			String	0	0	50	Yes
AlbersArea			Double	0	0	8	Yes
Shape_Length	Shape_Length	Shape_Length	Double	0	0	8	Yes
Shape_Area	Shape_Area	Shape_Area	Double	0	0	8	Yes
Subtype Name	Default Value		Domain				
ObjectClass							
AHGFFType		21		AHGFCatchmentType			
Index Name	Ascending	Unique	Fields				
FDO_OBJECTID	Yes	Yes	OBJECTID				
FDO_Shape	No	No	Shape				
GDB_26_HydroID	Yes	No	HydroID				
GDB_26_NetNodeID	Yes	No	NetNodeID				

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AHGFNetworkConnectivityDown

Alias	AHGFNetworkConnectivityDown						
Dataset Type	Table						
FeatureType							
Field Name	Alias Name	Model Name	Type	Precn.	Scale	Length	Null
OBJECTID	OBJECTID	OBJECTID	OID	0	0	4	No
From_ID			Integer	0	0	4	No
To_ID			Integer	0	0	4	No
Segment_ID			Integer	0	0	4	No
Subtype Name	Default Value			Domain			
Index Name	Ascending	Unique	Fields				
FDO_OBJECTID	Yes	Yes	OBJECTID				

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AHGFNetworkConnectivityUp

Alias	AHGFNetworkConnectivityUp						
Dataset Type	Table						
FeatureType							
Field Name	Alias Name	Model Name	Type	Precn.	Scale	Length	Null
OBJECTID	OBJECTID	OBJECTID	OID	0	0	4	No
From_ID			Integer	0	0	4	No
To_ID			Integer	0	0	4	No
Segment_ID			Integer	0	0	4	No
Subtype Name	Default Value			Domain			
Index Name	Ascending	Unique	Fields				
FDO_OBJECTID	Yes	Yes	OBJECTID				

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AHGFNetworkNode

Alias	AHGFNetworkNode	Geometry:Point					
Dataset Type	FeatureClass	Average Number of Points:0					
		Has M:No					
FeatureType	Simple	Has Z:No					
		Grid Size:1,000					
Field Name	Alias Name	Model Name	Type	Precn.	Scale	Length	Null
OBJECTID	OBJECTID	OBJECTID	OID	0	0	4	No
Shape	Shape	Shape	Geometry	0	0	0	Yes
HydroID			Integer	0	0	4	No
AHGFFType	AHGFFeatureType	AHGFFType	Integer	0	0	4	No
ConNodeID	ContractedNodeID	ConNodeID	Integer	0	0	4	Yes
ConLevel	ContractLevel	ConLevel	Small Integer	0	0	2	Yes
MapNodeID	MappedNodeID	MapNodeID	Integer	0	0	4	Yes
DiffusGrp	DiffusedGroup	DiffusGrp	Integer	0	0	4	Yes
DiffusType	DiffusedType	DiffusType	String	0	0	20	Yes
DiffusKey	DiffusedKey	DiffusKey	Small Integer	0	0	2	Yes
MergedSink			Integer	0	0	4	Yes
NextDownID			Integer	0	0	4	Yes
Enabled	Enabled	Enabled	Small Integer	0	0	2	No
UpstrGeoLn	UpstreamGeodesicLength	UpstrGeoLn	Double	0	0	8	Yes
UpstrDArea	UpstreamDrainageArea	UpstrDArea	Double	0	0	8	Yes
SrcFCName	SourceFeatureClassName	SrcFCName	String	0	0	25	No
SrcFType	SourceFeatureType	SrcFType	String	0	0	32	No
SrcType	SourceType	SrcType	Integer	0	0	4	Yes
SourceID			Integer	0	0	4	Yes
FeatRel	FeatureReliability	FeatRel	Date	0	0	8	Yes
FSource	FeatureSource	FSource	String	0	0	25	No
AttrRel	AttributeReliability	AttrRel	Date	0	0	8	Yes
AttrSource	AttributeSource	AttrSource	String	0	0	25	No
PlanAcc	PlanimetricAccuracy	PlanAcc	Small Integer	0	0	2	Yes
Symbol			Small Integer	0	0	2	Yes
TextNote			String	0	0	50	Yes

Subtype Name	Default Value	Domain	
ObjectClass			
AHGFFType	5	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
NetworkArtificialNode (AHGFFType=6)			
AHGFFType	6	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
NetworkCliffNode (AHGFFType=10)			
AHGFFType	10	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
NetworkGhostNode (AHGFFType=8)			
AHGFFType	8	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
NetworkHeadNode (AHGFFType=9)			
AHGFFType	9	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
NetworkJunctionNode (AHGFFType=4)			
AHGFFType	4	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
NetworkTerminusNode (AHGFFType=5) [Default]			
AHGFFType	5	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
NetworkWaterAreaNode (AHGFFType=7)			
AHGFFType	7	AHGFNetworkNodeType	
DiffusType		AHGFDiffusedNodeType	
Enabled		EnabledDomain	
Index Name	Ascending	Unique	Fields
FDO_OBJECTID	Yes	Yes	OBJECTID
FDO_Shape	No	No	Shape
GDB_24_HydroID	Yes	No	HydroID

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AHGFNetworkStream

Alias	AHGFNetworkStream	Geometry:Polyline					
Dataset	FeatureClass	Average Number of Points:0					
Type		Has M:No					
FeatureType	Simple	Has Z:No					
		Grid Size:1,000					
Field Name	Alias Name	Model Name	Type	Precn.	Scale	Length	Null
OBJECTID	OBJECTID	OBJECTID	OID	0	0	4	No
Shape	Shape	Shape	Geometry	0	0	0	Yes
HydroID			Integer	0	0	4	No
AHGFFType	AHGFFeatureType	AHGFFType	Integer	0	0	4	No
Name			String	0	0	60	Yes
Hierarchy	Hierarchy	Hierarchy	String	0	0	255	No
Perennial	Perenniality	Perennial	String	0	0	255	No
AusHydroID			Integer	0	0	4	Yes
AusHydroEr	AusHydroIDError	AusHydroEr	Small Integer	0	0	2	Yes
SegmentNo			Integer	0	0	4	Yes
DrainID			Integer	0	0	4	Yes
From_Node			Integer	0	0	4	Yes
To_Node			Integer	0	0	4	Yes
NextDownID			Integer	0	0	4	Yes
Enabled	Enabled	Enabled	Small Integer	0	0	2	No
FlowDir	FlowDir	FlowDir	Integer	0	0	4	No
SrcFCName	SourceFeatureClassName	SrcFCName	String	0	0	25	No
SrcFType	SourceFeatureType	SrcFType	String	0	0	32	No
SrcType	SourceType	SrcType	Integer	0	0	4	Yes
SourceID			Integer	0	0	4	Yes
FeatRel	FeatureReliability	FeatRel	Date	0	0	8	Yes
FSource	FeatureSource	FSource	String	0	0	25	No
AttrRel	AttributeReliability	AttrRel	Date	0	0	8	Yes
AttrSource	AttributeSource	AttrSource	String	0	0	25	No
PlanAcc	PlanimetricAccuracy	PlanAcc	Small Integer	0	0	2	Yes
Symbol			Small Integer	0	0	2	Yes
TextNote			String	0	0	50	Yes
GeodesLen	GeodesicLength	GeodesLen	Double	0	0	8	Yes
UpstrGeoLn	UpstreamGeodesicLength	UpstrGeoLn	Double	0	0	8	Yes
UpstrDArea	UpstreamDrainageArea	UpstrDArea	Double	0	0	8	Yes
Shape_Length	Shape_Length	Shape_Length	Double	0	0	8	Yes

Subtype Name	Default Value	Domain	
ObjectClass			
AHGFFType	1	AHGFNetworkStreamType	
Hierarchy		AHGFHierarchy	
Perennial		AHGFPerenniality	
Enabled		EnabledDomain	
FlowDir		HydroFlowDirections	
NetworkArtificialFlowSegment (AHGFFType=2)			
AHGFFType	2	AHGFNetworkStreamType	
Enabled		EnabledDomain	
FlowDir		HydroFlowDirections	
Hierarchy		AHGFHierarchy	
Perennial		AHGFPerenniality	
NetworkFlowSegment (AHGFFType=1) [Default]			
AHGFFType	1	AHGFNetworkStreamType	
Enabled		EnabledDomain	
FlowDir		HydroFlowDirections	
Hierarchy		AHGFHierarchy	
Perennial		AHGFPerenniality	
NetworkWaterAreaSegment (AHGFFType=3)			
AHGFFType	3	AHGFNetworkStreamType	
Enabled		EnabledDomain	
FlowDir		HydroFlowDirections	
Hierarchy		AHGFHierarchy	
Perennial		AHGFPerenniality	
Index Name	Ascending	Unique	Fields
FDO_OBJECTID	Yes	Yes	OBJECTID
FDO_Shape	No	No	Shape
GDB_23_DrainID	Yes	No	DrainID

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AHGFNetworkStream_FS

Alias	AHGFNetworkStream_FS						
Dataset Type	Table						
FeatureType							
Field Name	Alias Name	Model Name	Type	Precn.	Scale	Length	Null
OBJECTID	OBJECTID	OBJECTID	OID	0	0	4	No
FeatureID			Integer	0	0	4	Yes
NextDownID			Integer	0	0	4	Yes
Subtype Name			Default Value	Domain			
Index Name			Ascending	Unique	Fields		
FDO_OBJECTID			Yes	Yes	OBJECTID		

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AHGFWaterbody

Alias	AHGFWaterbody	Geometry:Polygon					
Dataset Type	FeatureClass	Average Number of Points:0					
		Has M:No					
FeatureType	Simple	Has Z:No					
		Grid Size:1,000					
Field Name	Alias Name	Model Name	Type	Precn.	Scale	Length	Null
OBJECTID	OBJECTID	OBJECTID	OID	0	0	4	No
Shape	Shape	Shape	Geometry	0	0	0	Yes
HydroID			Integer	0	0	4	No
AHGFFType	AHGFFeatureType	AHGFFType	Integer	0	0	4	No
Name			String	0	0	60	Yes
Perennial	Perenniality	Perennial	String	0	0	255	No
NetNodeID	NetworkNodeID	NetNodeID	Integer	0	0	4	Yes
MapNodeID	MappedNodeID	MapNodeID	Integer	0	0	4	Yes
WStoreUse	WaterStoreUse	WStoreUse	String	0	0	30	Yes
SLAKE_Name			String	0	0	60	Yes
SLAKE_Syst	SLAKE_System	SLAKE_Syst	String	0	0	60	Yes
SLAKE_URN			String	0	0	100	Yes
SrcFCName	SourceFeatureClassName	SrcFCName	String	0	0	25	No
SrcFType	SourceFeatureType	SrcFType	String	0	0	32	No
SrcType	SourceType	SrcType	Integer	0	0	4	Yes
SourceID			Integer	0	0	4	Yes
FeatRel	FeatureReliability	FeatRel	Date	0	0	8	Yes
FSource	FeatureSource	FSource	String	0	0	25	No
AttrRel	AttributeReliability	AttrRel	Date	0	0	8	Yes
AttrSource	AttributeSource	AttrSource	String	0	0	25	No
PlanAcc	PlanimetricAccuracy	PlanAcc	Small Integer	0	0	2	Yes
Symbol			Small Integer	0	0	2	Yes
TextNote			String	0	0	50	Yes
AlbersArea			Double	0	0	8	Yes
Shape_Length	Shape_Length	Shape_Length	Double	0	0	8	Yes
Shape_Area	Shape_Area	Shape_Area	Double	0	0	8	Yes

Subtype Name	Default Value	Domain	
ObjectClass			
AHGFFType	25	AHGFWaterbodyType	
Perennial		AHGFPerenniality	
WStoreUse		AHGFWaterStoreUse	
Lake (AHGFFType=26)			
AHGFFType	26	AHGFWaterbodyType	
Perennial		AHGFPerenniality	
WStoreUse	Not Applicable	AHGFWaterStoreUse	
Reservoir (AHGFFType=25) [Default]			
AHGFFType	25	AHGFWaterbodyType	
Perennial		AHGFPerenniality	
WStoreUse	ReservoirTownRural	AHGFWaterStoreUse	
Swamp (AHGFFType=27)			
AHGFFType	27	AHGFWaterbodyType	
Perennial		AHGFPerenniality	
WStoreUse	Not Applicable	AHGFWaterStoreUse	
Index Name			
FDO_OBJECTID	Ascending	Yes	Fields
FDO_Shape	No	No	OBJECTID
GDB_25_NetNodeID	Yes	No	Shape
			NetNodeID

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Relationships

Name	Origin	Destination	Attributed	Composite	Rules
CatchmentDrainsToSegment	AHGFCatchment	AHGFNetworkStream	No	No	No
NetNodeDrainsCatchment	AHGFNetworkNode	AHGFCatchment	No	No	No
NetNodeDrainsWaterbody	AHGFNetworkNode	AHGFWaterbody	No	No	No

CatchmentDrainsToSegment

Composite	No	
Cardinality	One To Many	
Notification	None	
Attributed	No	
	Origin	Destination
ObjectClass	AHGFCatchment	AHGFNetworkStream
Key	HydroID (<i>Origin Primary Key</i>)	DrainID (<i>Origin Foreign Key</i>)
Labels	drains	is drained by

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NetNodeDrainsCatchment

Composite	No	
Cardinality	One To Many	
Notification	None	
Attributed	No	
	Origin	Destination
ObjectClass	AHGFNetworkNode	AHGFCatchment
Key	HydroID (<i>Origin Primary Key</i>)	NetNodeID (<i>Origin Foreign Key</i>)
Labels	is drained by	drains

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NetNodeDrainsWaterbody

Composite	No	
Cardinality	One To Many	
Notification	None	
Attributed	No	
	Origin	Destination
ObjectClass	AHGFNetworkNode	AHGFWaterbody
Key	HydroID (<i>Origin Primary Key</i>)	NetNodeID (<i>Origin Foreign Key</i>)
Labels	is drained by	drains

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Spatial References

Dimension	Minimum	Precision
SH_Network		
X	-400	
Y	-400	1,000,000,000
M	0	100,000
Z	0	100,000
Coordinate System Description		
GEOGCS["GCS_GDA_1994",		
DATUM["D_GDA_1994",		
SPHEROID["GRS_1980",6378137.0,298.257222101]],		
PRIMEM["Greenwich",0.0],		
UNIT["Degree",0.0174532925199433],		
AUTHORITY["EPSG",4283]]		

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Through the *Water Act 2007*, the Australian Government has given the Bureau of Meteorology responsibility for compiling and delivering comprehensive water information across Australia.

For more information

Visit our website at www.bom.gov.au/water

Send an email request to waterinfo@bom.gov.au



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