Australian Hydrological Geospatial Fabric – Hydrology Reporting Catchments Geodatabase Product Schema

Australian Government Bureau of Meteorology AHGF for ESRI ArcGIS Desktop 9.3 – Version 2.1, November 2012.
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Comments
The Precision and Scale field properties are only applicable to ArcSDE geodatabases (i.e. not supported by personal or file geodatabases). Where attributes are shown with Precision and Scale set to zero, these fields will assume the default values for the specified data type in the target DBMS.

Relationship class
NodeDrainsContractedCatchment
Type Simple — Forward label: drains — Cardinality One to many — Backward label: is drained by — Notification None
Origin feature class: AHGFNode — Destination feature class: AHGFContractedCatchment
Primary key: CorrNodeID
Foreign key: CorrNodeID
No relationship rules defined.

Relationship class
ContractedCatchmentDrainsToLink
Type Simple — Forward label: is drained by — Cardinality One to one — Backward label: drains — Notification None
Origin feature class: AHGFContractedCatchment — Destination feature class: NamedHGFLink
Primary key: HydroID
Foreign key: DrainID
No relationship rules defined.

AHGFNode — Geometry: Point; Contains M values: No; Contains Z values: No

Representation of persistent logical (contracted) point in the hydrological network. A point may be located at the end of one or more AHGFLink features forming part a node-link network. Nodes are the subset of AHGFNetworkNode features, which are persistent (contracted) and form part of the simplified network.

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
Shape	Geometry	Yes					
HydroID	Long integer	No			0		
AHGFFType	Long integer	No	5	AHGFNetworkNodeType	0		
CorrNodeID	Long integer	Yes			0		
CorrLevel	Short integer	Yes			0		
MapNodeID	Long integer	Yes			0		
DrawOrg	Long integer	Yes			0		
DrawType	Long integer	Yes		AHGFDrawnNodeType	0		
DrawKey	Short integer	Yes			0		
MergedSink	Long integer	Yes			0		
NextDownID	Long integer	Yes			0		
Enabled	Short integer	No	1	EnabledDomain	0		
UpstGeoLn	Double	Yes			0	0	
UpstCtArea	Double	Yes			0	0	
SrcFCName	String	No					25
SrcFType	String	No					32
SrcType	Long integer	Yes			0		
SourceID	Long integer	Yes			0		
FeatRel	Date	Yes			0	0	8
FSource	String	No					25
AttrRel	Date	Yes			0	0	8
AttrSource	String	No					25
PlanAcc	Short integer	Yes			0		
Symbol	Short integer	Yes			0		
TextNote	String	Yes					50

Subtypes of AHGFNode
Subtype field: AHGFFType
Default subtype: 8
List of defined default values and domains for subtypes in this class

Subtype Code	Subtype Description	Field name	Default value	Domain
4	NetworkJunctionNode	AHGFFType	4	AHGFNetworkNodeType
		Enabled		EnabledDomain
9	NetworkHeadNode	AHGFFType	9	AHGFNetworkNodeType
		Enabled		EnabledDomain
6	NetworkArtificialNode	AHGFFType	6	AHGFNetworkNodeType
		Enabled		EnabledDomain
7	NetworkWaterAreaNode	AHGFFType	7	AHGFNetworkNodeType
		Enabled		EnabledDomain
8	NetworkGhostNode	AHGFFType	8	AHGFNetworkNodeType
		Enabled		EnabledDomain
5	NetworkTerminusNode	AHGFFType	5	AHGFNetworkNodeType
		Enabled		EnabledDomain
10	NetworkCliffNode	AHGFFType	10	AHGFNetworkNodeType
		Enabled		EnabledDomain

Simple feature class
AHGFContractedCatchment — Geometry: Polygon; Contains M values: No; Contains Z values: No

Traced upstream catchment area draining to a contracted node (AHGFNode) feature (Contracted & NonContractedArea subtypes). Features are non-overlapping and may be related to AHGFLink feature(s). Inland areas lacking related AHGFLink features are merged according to their pour-points. NoFlow areas are assigned to small inland areas without contracted features. All areas are aggregations of AHGFCatchment features.

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
Shape	Geometry	Yes					
HydroID	Long integer	No			0		
AHGFFType	Long integer	No	22	AHGFContractedCatchmentType	0		
CorrCatID	Long integer	Yes			0		
CorrNodeID	Long integer	Yes			0		
CorrLevel	Short integer	Yes			0		
FCorrNodeID	Long integer	Yes			0		
NatNodeID	Long integer	Yes			0		
MapNodeID	Long integer	Yes			0		
SrcFCName	String	No					25
SrcFType	String	No					32
SrcType	Long integer	Yes			0		
SourceID	Long integer	Yes			0		
FeatRel	Date	Yes			0	0	8
FSource	String	No					25
AttrRel	Date	Yes			0	0	8
AttrSource	String	No					25
PlanAcc	Short integer	Yes			0		
Symbol	Short integer	Yes			0		
TextNote	String	Yes					50
AlbersArea	Double	Yes			0	0	
Shape_Length	Double	Yes			0	0	
Shape_Area	Double	Yes			0	0	

Subtypes of AHGFContractedCatchment
Subtype field: AHGFFType
Default subtype: 22
List of defined default values and domains for subtypes in this class

Subtype Code	Subtype Description	Field name	Default value	Domain
23	NonContractedArea	AHGFFType	23	AHGFContractedCatchmentType
24	NoFlowArea	AHGFFType	24	AHGFContractedCatchmentType
22	ContractedArea	AHGFFType	22	AHGFContractedCatchmentType

Traced upstream catchment area draining to an inland contracted node with confidence level 3 or 4.
Areas lacking related network stream features and outside catchments with which to be merged (i.e. small inlands).
Traced upstream catchment area draining to a contracted node with confidence level 1 or 2.

Complex edge feature class
AHGFLink — Geometry: Polyline; Contains M values: No; Contains Z values: No

Line segment representing a simplified flow path between two persistent logical (contracted) points in the simplified hydrological network. A link, together with its associated AHGFNode features form part of the simplified node-link network.

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
Shape	Geometry	Yes					
HydroID	Long integer	No			0		
AHGFFType	Long integer	No	65	AHGFNetworkLinkType	0		
CorrLinkID	Long integer	Yes			0		
FCorrNodeID	Long integer	Yes			0		
TCorrNodeID	Long integer	Yes			0		
DrainID	Long integer	Yes			0		
Enabled	Short integer	No	1	EnabledDomain	0		
FlowDir	Long integer	No		HydroFlowDirections	0		
SrcFCName	String	No					25
SrcFType	String	No					32
SrcType	Long integer	Yes			0		
SourceID	Long integer	Yes			0		
FeatRel	Date	Yes			0	0	8
FSource	String	No					25
AttrRel	Date	Yes			0	0	8
AttrSource	String	No					25
PlanAcc	Short integer	Yes			0		
Symbol	Short integer	Yes			0		
TextNote	String	Yes					50
GeodesLen	Double	Yes			0	0	
Shape_Length	Double	Yes			0	0	

Table
AHGFNodeLinkConnectivityDown

Connectivity object defining the topological (Node-Link) connectivity between two AHGFNode features when traversed in a downstream direction.

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
From_ID	Long integer	No			0		
To_ID	Long integer	No			0		
Link_ID	Long integer	No			0		

HydroID of AHGFNode features.
HydroID of downstream connected AHGFNode features (-1 signifies terminus node).
HydroID of AHGFLink features connecting the two AHGFNode features (-1 signifies no link).

Table
AHGFNodeLinkConnectivityUp

Connectivity object defining the topological (Node-Link) connectivity between two AHGFNode features when traversed in a upstream direction.

Field name	Data type	Allow nulls	Default value	Domain	Precision	Scale	Length
OBJECTID	Object ID						
From_ID	Long integer	No			0		
To_ID	Long integer	No			0		
Link_ID	Long integer	No			0		

HydroID of AHGFNode features.
HydroID of upstream connected AHGFNode features (-1 signifies head node).
HydroID of AHGFLink features connecting the two AHGFNode features (-1 signifies no link).

Coded value domain
AHGFContractedCatchmentType
Description: Types of contracted catchment areas
Field type: Long integer
Split policy: Default value
Merge policy: Default value

Code	Description
22	ContractedArea
23	NonContractedArea
24	NoFlowArea

Coded value domain
AHGFNetworkLinkType
Description: Network persistent geomechanistic link (terrain based).
Field type: Long integer
Split policy: Default value
Merge policy: Default value

Code	Description
65	NetworkLink

Coded value domain
AHGFNetworkNodeType
Description: Node types derived from network (terrain based) and non-network streams
Field type: Long integer
Split policy: Default value
Merge policy: Default value

Code	Description
4	NetworkJunctionNode
5	NetworkTerminusNode
6	NetworkArtificialNode
7	NetworkWaterAreaNode
8	NetworkGhostNode
9	NetworkHeadNode
10	NetworkCliffNode

Coded value domain
EnabledDomain
Description: Attribute indicating whether a feature allows flow or is blocked
Field type: Short integer
Split policy: Default value
Merge policy: Default value

Code	Description
0	False
1	True

Coded value domain
HydroFlowDirections
Description: Flow directions in relation to the digitised direction
Field type: Long integer
Split policy: Default value
Merge policy: Default value

Code	Description
0	Uninitialised
1	WithDigitised
2	AgainstDigitised
3	Indeterminate

Coded value domain
AHGFDiffusedNodeType
Description: Types of diffused nodes
Field type: Long integer
Split policy: Default value
Merge policy: Default value

Code	Description
1	Coastal
2	Delta
3	Inter-catchment

HR Catchments