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English

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Item 14 of the provisional agenda *
Geographical names data management.

Geographical names database of Saudi Arabia

Submitted by Saudi Arabia **

Summary

Geographical names provide cultural, historical and political orientation and identity to geographical places with one or more official or unofficial names. They are location identifiers for man-made and natural features of the real world, such as districts, regions, or any feature of public or historical interest. Geographical names can be used for mapping, gazetteers, and various services. Geographical names are usually collected through field surveys conducted by experienced surveyors, and they are stored in a geographical names database.

The General Authority for Survey and Geospatial Information of Saudi Arabia focuses on surveying and mapping in the areas of topography, geodesy and hydrography. As the custodian of geographical names in Saudi Arabia, the General Authority strives to collect, store, manage and update geographical names with the help of innovative tools in the industry. Geographical names are stored in a geographical names database developed and managed by the geographical names department in the General Authority.

The geographical names database of Saudi Arabia was developed by the General Authority for Survey and Geospatial Information in 2014, in alignment with National Geospatial-Intelligence Agency standards and contains the data available at that time as well as updates thereto with the names from projects carried out subsequently. Geographical names are collected in the field by surveyors using field geographical information system devices and software. The database includes about 140,000 names from all over Saudi Arabia.

The geographical names database stores all the information pertaining to a geographical name, such as the Roman name, classification details, alternate names, coordinates of the name, administrative area information, pictures of the feature and voice files providing pronunciation of the name. The geographical names database also stores feature extents of a name, such as a polygon and a line by linking them with the name point using a unique identification system. Geographical names are represented as a point feature class, and the extent of the names are represented with a polygon and a line feature class. In the database, geographical names have been classified into eight major classes:

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administrative boundary name, area name, cultivation name, cultural name, hydrographic name, populated place name, relief name, and road and/or railroad name.

The geographical names database schema will be redesigned in the near future by adding new details to benefit a wide range of users, and it will also be linked with other major databases in the General Authority for Survey and Geospatial Information, such as the land use/land cover database and the Geospatial Information Centre database.

Geographical Names Database of the Kingdom of Saudi Arabia

1. INTRODUCTION

1.1 Executive Summary

Geographical Names provide cultural, historical, and political orientation and identity to geographical places with one or more official or unofficial names. They are location identifiers for artificial and natural real-world features, such as districts, regions, or any public or historical interest feature. Geographical names can be used for mapping, gazetteers, and various services.

Being the custodian of Geographical names in the Kingdom of Saudi Arabia, GEOSA strives to collect, store, manage, and update Geographical Names with the help of innovative tools in the industry. Geographical names are stored in a Geographical Names database developed and managed by the Geographical names department in GEOSA. The geographical Names database of KSA was developed by GEOSA in alignment with National Geospatial-Intelligence Agency (NGA) Standards with the available data of the time. The database is regularly updated with the names collected in various geographical names projects in GEOSA.

The geographical Names database stores all the information of a Geographical Name, such as Roman Name, Classification details, Alternative names, coordinates of the features, administrative area info, Picture of the feature, Voice file for the pronunciation, etc. Geographical names database also stores feature extents of a name, such as a polygon and a line, by linking them with the name point using unique ID. Geographical names are represented as a point feature class, and the names' extent is defined with a polygon and a line feature class. The geographical names database schema will be redesigned and linked to other government organizations in the KSA, such as the Ministry of Transport, the General Authority for Statistics, and the Ministry of Municipal and Rural Affairs.

This report includes details about the objective, design, schema, and benefits of the Geographical Names database of the KSA. It also covers how the database helps strategic users inside and outside the GEOSA.

1.2 Purpose

The report’s purpose is to present the Geographical Names database of the KSA to the United Nations Group of Experts on geographical Names (UNGEGN) at the UNGEGN conference 2023. As an expert group providing technical recommendations on standardization and documentation of Geographical names, UNGEGN can review the geographical names database system; GEOSA

is keen on getting the expert's feedback to improve the Geographical Names database of the KSA. We are also happy if the report helps any attendees at the conference to enhance their geographical names data management system.

2. GENERAL AUTHORITY FOR SURVEY AND GEOSPATIAL INFORMATION (GEOSA)

2.1 Mandate

The primary focus of the General Authority for Survey and Geospatial Information (GEOSA) is to cover the following fields of services and activities.

1. **Geodetic Surveys**: focus on the different branches of earth sciences related to geological structures and other topics of interest.
2. **Topographic Surveys**: studying the different areas of the Kingdom's land surface and producing topographic maps with terrain, water, and artificial specific features.
3. **Hydrographic Surveys**: aiding mariners to meet their requirements.

GEOSA is also the custodian of the geographical names in the Kingdom of Saudi Arabia. As the custodian, GEOSA follows an effective data management system for storing and managing geographical names in the Kingdom.

4. 2.2 Achievements

GEOSA utilizes the latest technologies, standards, methodologies, data-gathering stations, and highly qualified human resources to manage and produce geospatial data and information. To facilitate and regulate access to the data and products developed and owned by GEOSA, a Geospatial Information Center (GIC) was established. The following are some significant achievements of GEOSA in surveying and Mapping.

1. GEOSA has produced numerous topographical on various scales for the Kingdom of Saudi Arabia.
2. It has produced Electronic Navigational Charts (ENC), Paper Nautical Charts (PNC), and Coastal Zone Management Charts (CZMC).
3. It established the national geodetic network and national vertical network. They are updated and maintained in regular intervals.
4. GEOSA has carried out survey works for various related purposes.
5. It has performed numerous marine surveys for various purposes.
6. GEOSA established a marine scientific research Centre.
7. GEOSA collected Geographical names for the whole country.
8. It has developed a brilliant database to store and manage geographical names in the Kingdom.

3. GEOGRAPHICAL NAMES DEPARTMENT (GND)

3.1 Mandate

As the custodian of the Geographical names, GEOSA has a dedicated department to collect, store and manage Geographical names in the Kingdom. The geographical names are collected using a Field GIS device and software and stored in the Geographical names database. The geographical names in the Kingdom are updated regularly to maintain the quality and accuracy of the data. The geographical Names department mainly has three sections which are,

1. **Collection and documentation section**: It is the responsible section for collecting and documenting Geographical Names
2. **Quality checking section**: It performs the quality checking of name data collected by field surveyors.
3. **Geodatabase Section**: This section manages the Geographical Names database of the Kingdom of Saudi Arabia.

3.2 Geographical Names Collection Process

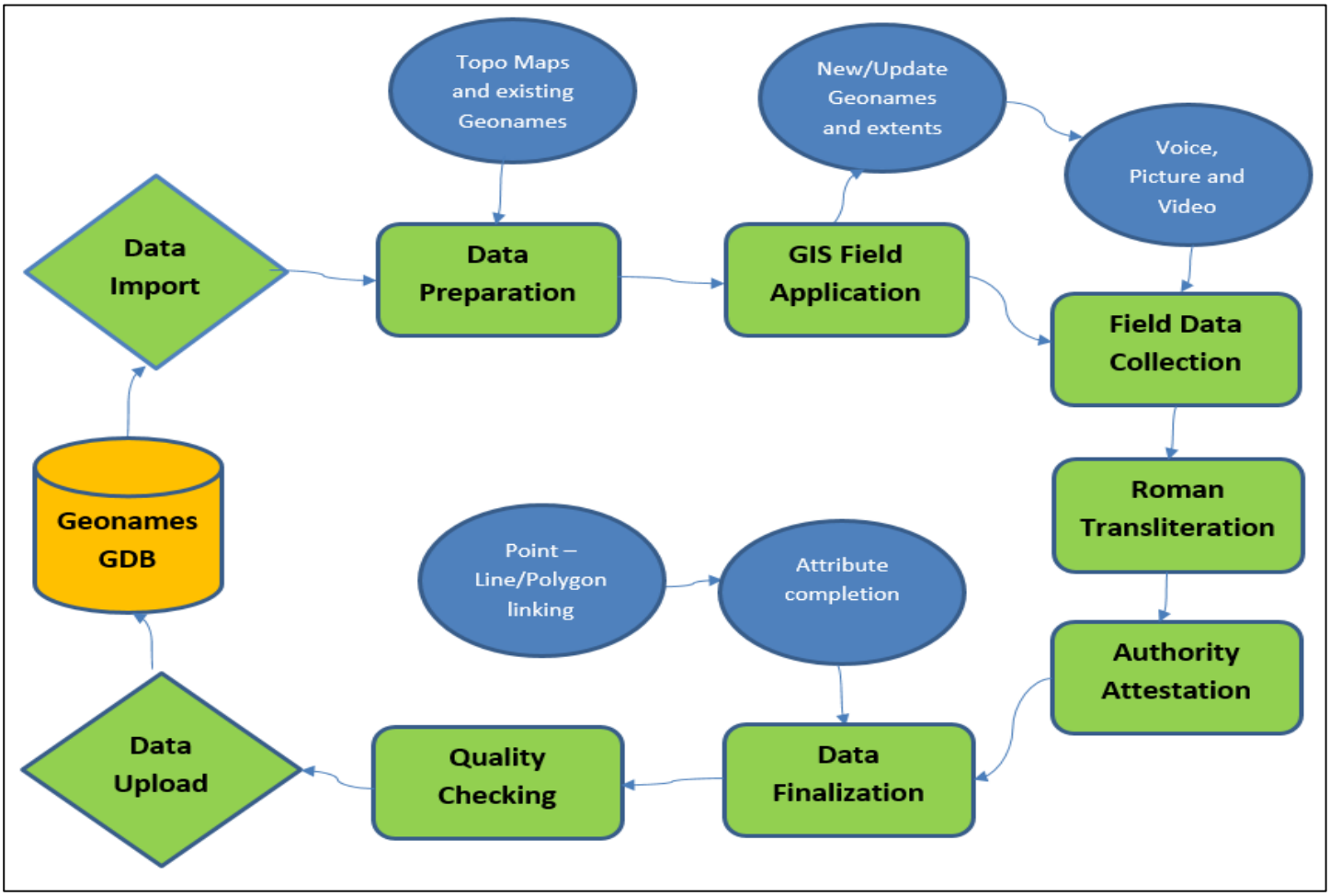
Surveyors collect Geographical names in the field using a tablet and field GIS software. Surveyors must inform the local government authorities of their survey work, and the head of the local government authority usually arranges a field guide familiar with the area to help the field surveyors. During the survey, the surveyors mainly collect the following things,

1. Location of the geographical name (Coordinates)
2. Pronunciation of the name as an audio file (Field guide's voice)
3. A photo of the feature
4. Feature name and classification category.
5. Feature extents of the geographical name (Polygon & Line)

The Romanization process is carried out for the collected names subsequently. Once the fieldwork is over, surveyors approach the local government authority to get approval for the name. Once the team arrives at the office, they process the data with GIS Software, check the overall quality, and upload it into the Geographical names database.

Geographical name data is updated periodically to collect new names and change or confirm the existing names. Being the custodian of geographical names, it is vital to maintain the integrity of the data, as geographical names are an integral part of topographical maps.

Flow chart describing Geographical Names Collection Process in GEOSA



3.3 Achievements

The significant achievements of the geographical names department are,

1. Collected geographical names for the whole kingdom
2. Collected Island names and names for hydro features in the Red sea and Arabian Gulf for the Kingdom territory.
3. Developed Geographical names database of the Kingdom
4. Geographical names were used in GEOSA's various topographical maps.
5. Provided geographical names to various government organizations in Kingdom for various purposes on request.
6. Arranged plenty of training programs for university students to teach about geographical names, their collection, and documentation.

4. GEOGRAPHICAL NAMES DATABASE OF THE KSA

4.1 Overview

It is crucial to have a flawless database management system in an organization like GEOSA to help store, manage, and update spatial data. The geodatabase is the native data format for ESRI's ArcGIS software. GEOSA designed and built the geographical names geodatabase in 2014 to store and maintain geographical names effectively. The database was designed and developed by following NGA standards, and it currently has about 140,000 names stored in it. The database allows users to collect geographical names online and offline in the field. The geographical Names database holds all the information of a Geographical Name, such as Roman Name,

Classification details, Alternative names, coordinates of the features, Administrative area info, Picture of the feature, Voice file for the pronunciation, etc. Geographical names are represented as a point feature class, and the names' extent is defined with a polygon and a line feature class.

4.2 Objective

The main objectives of the GEOSA Geographical Names Database are,

• To manage the geographical names in a centralized Oracle Database

• To increase data security and quality.

• To effectively manage the geographical names in a centralized Oracle Database.

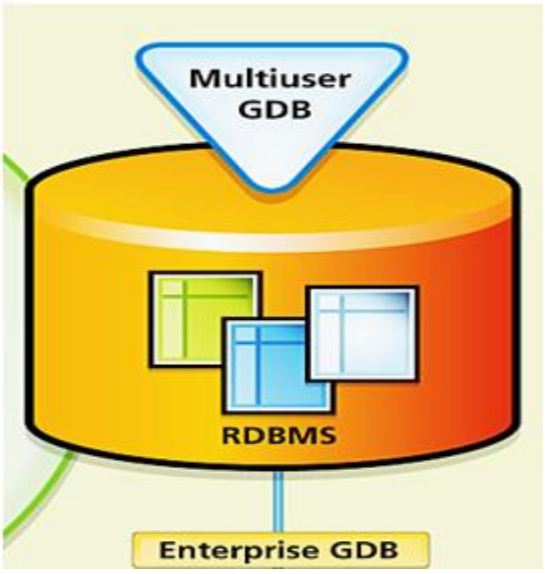
• To manage the geographical names geodatabase by versioning & to work in a Multiuser environment

•To be able to update the information in the field by smartphones or tablets in both online & offline mode

• To share the Geographical Names database with different internal & external government departments.

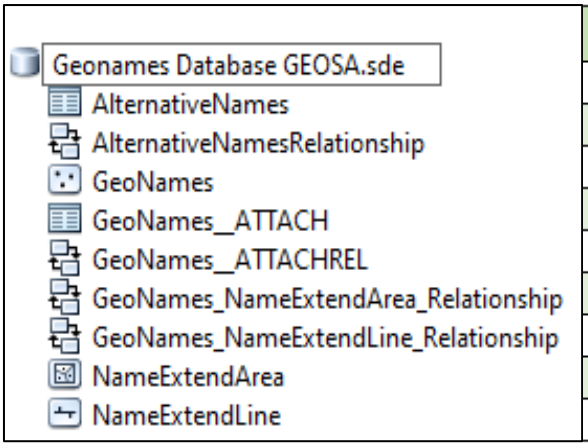
• To use the Geographical names database data to create a web app for searching & viewing names on GEOSA web Portal

4.3 Design and Structure

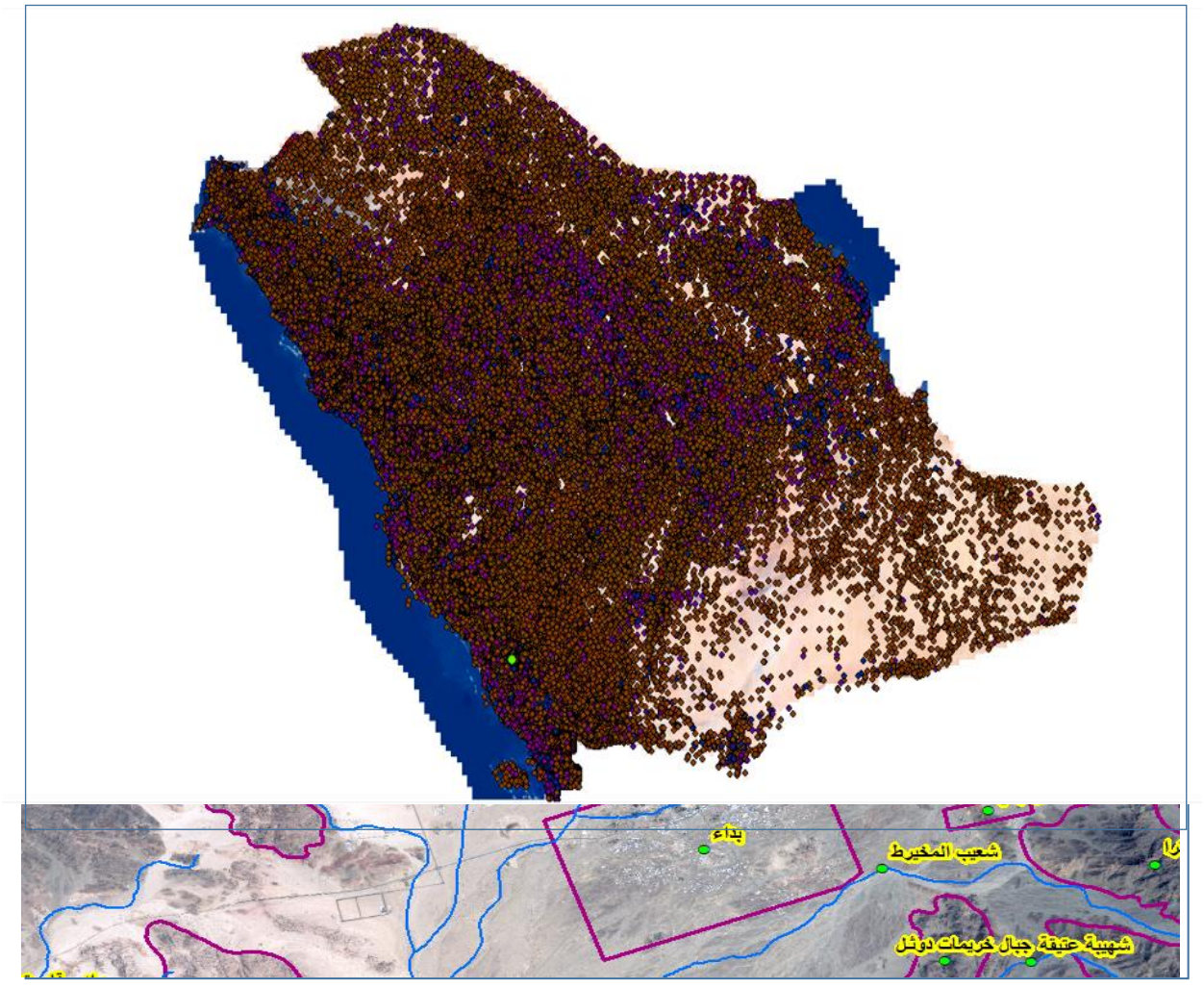


The geographical name database is an enterprise geodatabase, also called ArcSDE geodatabase, held in a relational database that provides high performance and support for large GIS datasets. RDBMS supports GIS data management for scalability, reliability, security, backup, and data integrity. It was developed in the oracle platform. ArcSDE geodatabases are multi-user databases. Therefore, data in the geographical names database can be managed by different people from different locations with the versioning feature. It also supports non-versioned editing. The other prominent features of geographical names geodatabase are geodatabase replication and historical archiving. The geographical names database contain following elements such as feature classes, relationship feature classes and tables.

The following image and table show the structure and significant elements in the geographical names database. GeoNames feature class is a point feature class that is the key element in the database as it represents geographical names in the Kingdom of Saudi Arabia.



NAME	ELEMENT
GeoNames	Point eature Class
NameExtendArea	Polygon Feature Class
NameExtendLine	Line Feature Class
AlternativeNames	Table
GeoNames__ATTACH	Table
GeoNames_NameExtendArea_Relationship	Relationship Class
GeoNames_NameExtendLine_Relationship	Relationship Class
GeoNames__ATTACHREL	Relationship Class
AlternativeNamesRelationship	Relationship Class



Geographical Names Database structure and elements

GeoNames Database GEOSA.sde

GeoNames

This point feature class represents Geographical names and it contains all the information about the names.

NameExtendArea

The polygon feature class delineates the extent of the area features such as Mountains, Dunes, etc. The relationship class

NameExtendLine

The Line feature class delineates the extent of the line features such as Wadi, Stream, etc.

GeoNames__ATTACH

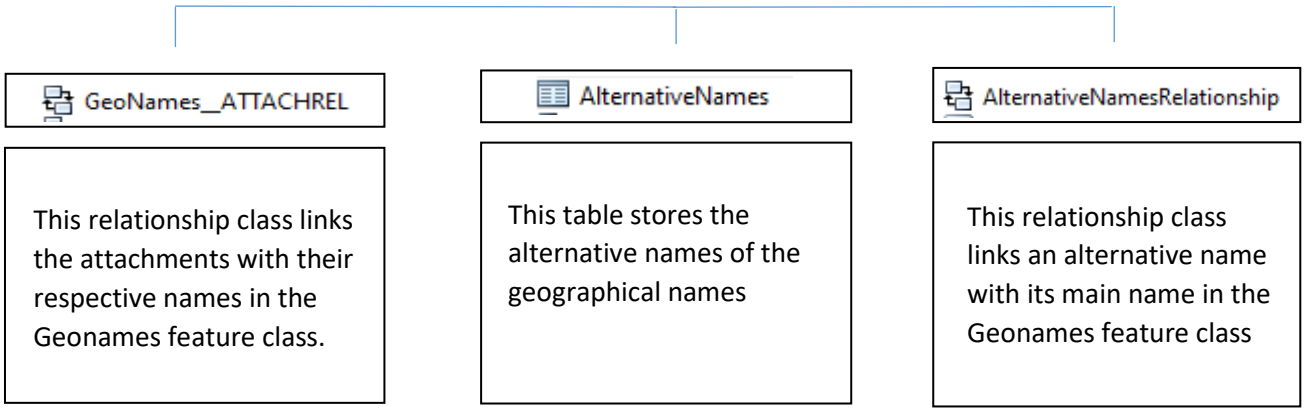
This table stores voice files and pics of the geographical names

GeoNames_NameExtendArea_Relationship

This relationship feature class links the polygons with their respective points.

GeoNames_NameExtendLine_Relationship

This relationship feature class links the lines with their respective points.



4.4 Schema

The following sessions illustrate the schema of the Geographical names database of the Kingdom of Saudi Arabia.

4.4.1 Attribute Fields

Attribute field of GeoNames Feature class

Field Name	Alias	Description	Data type
OBJECTID	OBJECTID	An ObjectID is a unique, not null, integer field that uniquely identifies table rows in a geodatabase.	ObjectID
GLOBALID	GLOBALID	GlobalIDs uniquely identify a feature or table row in a geodatabase.	GlobalID
E_FEATURE	Feature	Feature name in English	text
A_FEATURE	المعـلم	Feature name in Arabic	text
ARABICN	ArabicName	Geographical Name in Arabic	text
ROMANN	RomanName	Geographical Name in Roman	text
E_FEATURETYPE	FeatureType	Feature Classification Category in English	Short Integer
A_FEATURETYPE	نوع المعلم	Feature Classification Category in Arabic	Short Integer
E_PROVINCE	Province	Province Name in English	text
A_PROVINCE	المنطقة الادارية	Province Name in Arabic	text
E_GOVERNORATE	Governorate	Governorate Name in English	text
E_CENTER	Center	Center Name in English	text

E_DISTRICT	District	District Name in English	text
E_DATASOURCE	DataSource	Name source in English, representing the (original) data source from which the geographical name is taken from	text
E_NAMESTATUS	NameStatus	Name Status in English('Approved,' 'Unapproved,' 'Documented,' Expired' or 'other')	text
COMMENTS	Comments	Names comments	text
LONGITUDE	Longitude	Longitude in decimal degrees	Float
LATITUDE	Latitude	Latitude in decimal degrees	Float
ELEVATION	Elevation	Elevation in Meter	Float
GN_ID	GN_ID	Same as Object ID	Long Integer
MAP_25K	Map_25K	Map Sheet number Scale 1:25K	text
MAP_50K	Map_50K	Map Sheet number Scale 1:50K	text
MAP_100K	Map_100K	Map Sheet number Scale 1:100K	text

Table

GeoNames

OBJECTID *	Feature	المعلم	ArabicName *	RomanName	FeatureType	نوع المعلم	Province
1	wadi	وادي	شعيب مغيب	Sha'īb Maghīb	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
3	mountain	جبل	جبل أبو شداد	Jabal Abū Shidād	Relief Name	اسم تضاريسي	Ar Riyāḍ
4	wadi	وادي	شعيب أبو حرمل	Sha'īb Abū Ḥarmal	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
5	water well	بئر ماء	قليب الشهيبية	Qalīb ash Shuhaybiyyah	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
6	wadi	وادي	دحلة زملة	Daḥalat Zimlah	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
7	wadi	وادي	شعيب أبو طلاح	Sha'īb Abū Ṭilāḥ	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
8	wadi	وادي	شعيب الحفنة	Sha'īb al Ḥifnah	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
9	mountain	جبل	قور الحفنة	Qūr al Ḥifnah	Relief Name	اسم تضاريسي	Ar Riyāḍ
10	area	منطقة واسعة ممتده	الحرج	Al Ḥaraj	Area Name	اسم منطقة	Ar Riyāḍ
11	stony desert	صحراء حصوية	الحدباء	Al Ḥadbā'	Relief Name	اسم تضاريسي	Ar Riyāḍ
12	area	منطقة واسعة ممتده	عيلة خف	'Iblat Khuff	Area Name	اسم منطقة	Ar Riyāḍ
13	wadi	وادي	شعيب بلعيس	Sha'īb Bulay'īs	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
14	wadi	وادي	شعيب الشويطن	Sha'īb ash Shuwayṭin	Hydrographic Name	اسم معلم مائي	Ar Riyāḍ
15	stony desert	صحراء حصوية	صفراء مغيب	Ṣafrā' Mughīb	Relief Name	اسم تضاريسي	Ar Riyāḍ

Table

GeoNames

DataSource	المصدر	Longitude	Latitude	Map_25K	Map_50K	GLOBALID *
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.645475	24.952591	4424141	442523	{E7E81579-4079-442E-A61E-8C0FDD49E7BD}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.780187	24.497765	4424214	442412	{7F6834AB-3F87-408E-BBA1-1E303673E817}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.963779	24.590254	4424122	442412	{1FA033DE-112F-4D61-ACF6-815E234BCA0A}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.960012	24.600421	4424122	442412	{6814D732-B774-41BA-8DE5-138769B3262D}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.963792	24.609728	4424122	442412	{CA9DF8F7-53C7-4526-91B2-2BB4AE9B1498}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.889028	24.628322	4424121	442412	{C0C3E262-A9E6-48D1-8B14-543126F2F542}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.883104	24.535126	4424122	442412	{1E407689-19B4-4346-9610-F1B087209D54}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.88918	24.545181	4424122	442412	{C0BBC957-38B5-4325-A305-88DB0D4B00EB}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.942262	24.536512	4424122	442412	{52930CF4-A27A-4E42-8C5F-90F00411E4B2}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.959893	24.58088	4424122	442412	{BFDE0909-C7DF-4411-A013-D3D29F721E00}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.741423	24.85583	4424142	442414	{0F0E0FB6-7B09-4B0C-B235-DC4439DF9E7F}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.702478	24.911008	4424141	442414	{9A8E8B4C-7D4D-41E7-B030-01A759A202F4}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.642345	24.867489	4424142	442414	{2EE36636-428B-4DD3-9ECB-5D7411538959}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.634564	24.786169	4424142	442414	{4B5CA962-A55D-4166-AD54-7AACC81CB620}
General Authority for Survey and Geospatial	الهيئة العامة للمساحة والمعلومات الجيومكانية	44.749203	24.836913	4424142	442414	{5E036A81-89FD-4735-B1D8-23C8DF24800F}

		row in a geodatabase.	
ARABICN	ARABICN	Geographical Name in Arabic	text
ROMANN	ARABICN	Geographical Name in Roman	text

GN_ID	GN_ID	Same as Object ID	Long Integer

Attribute field of NameExtentLine Feature class

Field Name	Alias	Description	Data type
OBJECTID	OBJECTID	An ObjectID is a unique, not null, integer field that uniquely identifies table rows in a geodatabase.	ObjectID
GLOBALID	GLOBALID	GlobalIDs uniquely identify a feature or table row in a geodatabase.	GLOBALID
ARABICN	ARABICN	Geographical Name in Arabic	text
ROMANN	ARABICN	Geographical Name in Roman	text
GN_ID	GN_ID	Same as Object ID	Long Integer

4.4.2 Subtypes

In GeoNames feature class, the geographical names classification categories are represented in subtypes to maintain data integrity. The following subtypes are created under the field E_FEATURETYPE (FeatureType) for that purpose.

Code	Feature Subtypes / Categories
10	Administrative Boundary Name
20	Hydrographic Name
30	Area Name
40	Populated Place Name
50	Road / Railroad Name
60	Cultural Name
70	Relief Name
80	Cultivation Name

4.4.3 Domains

A domain is a declaration of acceptable attribute values. Whenever a domain is associated with an attribute field, only the values within that domain are valid for the field. In the geographical names database, domain values are used in multiple fields, and the following fields have domain values.

1. E_FEATURE (Feature) and E_FEATURE (Feature)

Domain values in these fields are connected with the subtypes in E_FEATURETYPE (FeatureType). See some examples below.

A few domain values for Hydrographic Names

Code	English Description	Arabic Description
DAM	dam	سد
WAD	wadi	وادي
PND	pond	حوض
LK	Lake	بحيرة
STM	stream	جدول
CNL	canal	قناة

A few domain values for Relief Names

Code	English Description	Arabic Description
HLL	hill	تل
MT	mountain	جبل
PK	peak	قمة
RDGE	ridge	سلسلة تلال
PASS	pass	ممر

A few domain values for Cultural Names

Code	English Description	Arabic Description
MALL	mall	مركز تجاري
MKT	market	سوق
HTL	hotel	فندق
HSP	hospital	مستشفى
HSPC	clinic	عيادة
CTRM	medical center	مركز طبي
CMTY	cemetery	مقبرة
MSQE	mosque	مسجد

2. **E_PROVINCE (Province) and A_PROVINCE (المنطقة الادارية)**

Code	English Description	Arabic Description
RD	Al Riyadh	الرياض
MK	Makkah	مكة المكرمة
MD	Al Madinah	المدينة المنورة
QS	Al Qassim	القصيم
EP	Eastern Province	المنطقة الشرقية
AS	Asir	عسير
TB	Tabuk	تبوك
HL	Hail	حائل
NB	Northern Borders	الحدود الشمالية
JZ	Jizan	جازان
NJ	Najran	نجران
BH	Al Bahah	الباحة
JF	Al Jawf	الجوف

3. **E_NAMESTATUS & A_NAMESTATUS (NameStatus) domain values.**

Code	English Description	Arabic Description
APRD	Approved	موافق عليه
UAPRD	Unapproved	غير موافق عليه
DOC	Documented	موثق
EXP	Expired	منتهي الصلاحية
OTH	Other	أخرى

4. **E_DATASOURCE & A_DATASOURCE (DataSource) domain values.**

Code	English Description	Arabic Description
GEOSA	General Authority for Survey & Geospatial Information	الهيئة العامة للمساحة والمعلومات الجيومكانية
GDMS	General Directorate of Military Survey	الادارة العامة للمساحة العسكرية

MOPM	Ministry of Petroleum and Mineral Resources	وزارة البترول و الثروة المعدنية
MOMRA	Saudi Geological Survey	وزارة الشئون البلدية و القروية
SPA SPA	Ministry of Municipalities and Rural Affairs	الهيئة العامة للموانئ
CDSI	Central Department Of Statistics & Information	الهيئة العامة للإحصاء

4.4.4 Attachments.

The geographical names database includes an attachment table that allows attaching files such as voice, picture, and video of a geographical name and linking them with the respective name in the GeoNames feature class in the database using the relationship feature class. The attachment table stores the attachment files in the geodatabases as BLOB (binary large object).

4.4.5 Alternative Names Table

The geographical names database includes a table that stores alternative geographical names of features. For instance, if a mountain has two names, the unofficial name will find a place in the alternative table. Geographical names in the AlternativeNames table are linked with their official names in the GeoNames feature class with a relationship feature class.

AlternativeNames

OBJECTID *	GN_ID *	ArabicN	RomanN	Type	GLOBALID *
1	23380	رجم الضحيلة	Rijm Aḑ Ḑu'ayyinah	Old	{D06BA597-D9A5-40C4-94FF-B471DD96B53B}
2	23233	جبل الشبرمية	Jabal ash Shubrumiyy	Local	{8E34EA50-B1F2-4C46-B804-6ACCB6F6F597}
3	34673	ضلعان أمهات رؤوس	Ḑil'ān Ummahāt Ru'ūs	Local	{E88AFE99-DE42-4D76-9E86-D51FA0BD60C5}
4	23329	حشة الحفيرة	Ḥishshat al Ḥufayyirah	Old	{6C9753E6-D2C9-40FD-83CE-E95BB05C9D1C}
5	23383	سفان أبو سدر	Sinfān Abū Sidir	Other	{BF310E78-271B-48DD-BCDF-F341F4B7239B}
6	23345	جبل عروان	Jabal 'Arwān	Historical	{86B73FD0-8D54-4928-B642-32B885CFD1BE}
7	23356	شعيب جهام	Sha'īb Jahām	Old	{857DF083-CE97-4F41-BA47-C7DB8678CA14}
8	23434	بئر الحسرج	Bi'r al Ḥasraj	Old	{EB247BE4-4A1B-40BC-9C09-CACD28AE7979}
9	23356	شعيب الرديڤيات	Sha'īb ar Rudayniyyāt	Local	{48D13B6A-B10B-422E-8479-DDD1A0891C34}
10	23356	الروضة	Ar Rawḑah	Local	{2C4B624B-D079-4982-BE40-03234B858A61}
11	23398	سقمان	Saqmān	Local	{415F2DF6-B882-4D60-8997-18651BD3561D}

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• The date and time it was last edited.

Editor tracking helps to maintain accountability and enforce quality control standards.

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PC	20-Mar-21 4:39:21 PM	K.SIYAF	12-Oct-22 8:09:49 AM	900082
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PC	20-Mar-21 4:39:21 PM	K.SIYAF	12-Oct-22 8:09:49 AM	900086

4.4.7 The Future

The geographical Names database schema will be redesigned by adding new details to benefit a wide range of users. The schema will have new fields and added domain values to accommodate more information. Most importantly, the database will be linked to other government organizations in the KSA, such as the Ministry of Transport, the General Authority for Statistics, Saudi Post, and the Ministry of Municipal and Rural Affairs, so that a unified database will contain the geographical names of different organizations managed by GEOSA.

The geographical names in the database will be used to create a geographical names search engine and a gazetteer. The geographical name search engine/portal will be Geographical Names Information System (GNIS). This geographical names portal will help thousands of public users to explore geographical names in the kingdom. The geographical names will be displayed on the portal according to predetermined visibility criteria based on the priority of the feature. The geographical names portal will provide filtration capability. If a user wants to see only hydrographic names or another user wants to see names in a specific region, they will be able to filter the names according to their requirements.

5. THE NATIONAL COMMITTEE ON GEOGRAPHICAL NAMES.

The geographical names committee of the Kingdom of Saudi Arabia was formed to support unifying efforts related to geographical names in the Kingdom regarding writing, spelling, spelling, and everything related to the national standard for it and preparing its database. It is an official reference for everything related to existing or new geographical names in the Kingdom to make recommendations**.**

5.1 Objective

The following are the key objective of the National Committee on geographical names in the Kingdom of Saudi Arabia,

1. Collect and publish geographical names, carry out related work, and prepare a database for them.
2. Prepare an indexed national dictionary that includes Romanization to be a binding reference for all government agencies and follow up on updating it
3. Coordinate and cooperate with government agencies related to geographical names to unify efforts.
4. Represent the Kingdom internally and externally regarding geographical names.
5. Ensure international cooperation and participation in preparing the International Geographical names Index Dictionary.

5.2 Achievements

The following are some of the significant achievements of the committee,

1. A geographical names database for the geographical names in the Kingdom of Saudi Arabia was developed.
2. 140,000 geographical names were collected from the kingdom on a scale of 1:25000.
3. Island names were collected from the Red Sea and Arabian Gulf.
4. Preparation and design of the book "Ad Dir‘iyyah in Historical Maps", which included the design of a template for maps, the design of the book cover, and the design of the book’s content on publishing programs for printing.
5. Preparation and design of the model of the project of a picture book of Western travelers, which includes the presentation of the historical picture, description of the image in Arabic, French, and English, reference number, type of books, name of the book in English and Arabic, name of the author, location of the picture in the origin of the book, type of image, date of the description of the place, name of the place (Romanization), coordinates of the place, state/region
6. The National Committee on Geographical Names in The Kingdom of Saudi Arabia continues to receive requests for road-sign names for the Ministry of Transport in various administrative regions and provinces following the Arabic Romanization System 2017. The Committee continued to receive inquiries from government agencies about the correct name of places or modifying or changing some place names.
7. Romanization of geographical names of the Red Sea project. The National Commission on Geographical Names has corrected, reviewed, edited, and promoted the names of the islands to preserve the old name of the islands as much as possible, and the National Committee has made proposals to amend some of the disputed names at the request of the project's sponsors for tourism purposes
8. Started directing and preparation of the Atlas of The Kingdom of Saudi Arabia, where it has formed a committee for the project's geographical, technical, and historical matters.
9. The design of a website for the Gazetteer of Geographical Places in the Red Sea, and the work included the issuance of an electronic version of the Gazetteer in 4 volumes; this site has been linked to the website of the King Abdulaziz Foundation (Ad Darah) and enables the users of the website to browse the pages of the Gazetteer directly on the international internet.
10. Started preparing a concept of an indexed national Gazetteer containing names in Latin letters in coordination with the relevant geographical names as a binding reference for all government agencies in The Kingdom of Saudi Arabia

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