



DevInfo

Digital Mapping Technical Note

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Introducing GIS

An Information System is a vital element in all spheres of human endeavor. It helps us make sense of the volumes of data, generate learning, and apply this learning to enhance our capacity to monitor, strategize, and plan for the future. It will be truism to state that an efficient information system is the differentiating factor and makes all the difference in today's time and world. Considering the fact that almost 70% of the data has geographical reference as its denominator, the need to provide geographically referenced information cannot be over emphasized.

A Geographic Information System (GIS) is a computer based system that links a data value to a geographical feature. It can store, analyze, and digitally reproduce the features present on earth surface and the events that take place on it. GIS is both a database system with specific capabilities for spatially referenced data as well as a set of operations for working with the data.

GIS technology integrates common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps. These abilities distinguish GIS from other information systems and make it valuable to a wide range of public and private enterprises for explaining events, predicting outcomes, and planning strategies.

DevInfo as a GIS

DevInfo 5.0 includes advanced functions for providing geospatial analysis of the data. DevInfo provides for linking data with maps and creating a wide range of spatially project data outputs—themes, hatch patterns, dots, and charts. It also allows the user to associate features maps (points, lines and polygons) to Areas in the database. The user can also overlay custom layers from other locations.

The maps files are integrated in the database, precluding the need to store them separately. This makes the database independent of any external dependencies. It can be easily ported and mutually shared without bothering for integrity and consistency.

Vector and Raster Models

In GIS, there are two established models for digitizing geographic information — the "Vector" model and the "Raster" model. The models are fundamentally different in their approach, and have their own strengths and areas for application.

In the Vector model, information about points, lines, and polygons is encoded and stored as a collection of two dimensional x,y coordinates. The Vector model is extremely useful for describing discrete features, but less useful for describing continuously varying features such as soil type.

The raster model has evolved to digitize such continuous features. A raster image comprises of a collection of grid cells rather like a scanned map or picture.

DevInfo 5.0 is able to handle both models. DevInfo vector model is based on shape files and it utilizes open source World Wind for its raster implementation.

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Geospatial Data

Spatial data have two essential parts: **location** and **attributes**.

Typical location references are latitude and longitude and grid references. Attributes are characteristics or properties associated with location. Attributes may be stored within Map files or stored externally in a separate database. Storing attributes within map files (e.g. Dbf files associated with Shape files) makes the information static and hard coded. DevInfo works on second approach where data attributes are external to map file and are associated with map file at runtime. This gives the flexibility to visualize thematic maps based of different indicators using same map files.

Why Shape files?

Amongst the Vector file formats available, the Shape file format is one of the most commonly used format to effectively store and disseminate geospatial data. Being 'light' (requires less disk space) and 'portable' (can be shared easily), it is the leading de facto standard for geospatial data exchange and desktop GIS applications.

The openly published Shape file format is based upon a nonproprietary geospatial data structure and is widely used and freely available. A copy of the Shape file technical description can be found at: <http://www.esri.com/library/whitepapers/pdfs/shapefile.pdf>

The mapping module of DevInfo uses the Shape file format.

Shape file stores non-topological geometry and attribute information for the spatial features in a data set. The geometry for a feature is stored as a shape comprising a set of vector coordinates. Because shape files do not have the processing overhead of a topological data structure, they have advantages over other data sources such as faster drawing speed and edit ability. Shape files handle single features that overlap or are noncontiguous. They typically require less disk space and are easier to read and write.

Shape files store all of the necessary geometric, locational and attribute information of geographic features (points, lines or polygons). It is a trinity or 3 files that must always be together if any geographic information is going to be displayed. The three files are:

file.shp: stores feature geometry.

file.shx: stores the index of the feature geometry for linking with the database

file.dbf : stores the attribute information of features.

Shape files can support point, line, and area features. Attributes are held in a dbase format file. Each attribute record has a one-to-one relationship with the associated shape record.

Creating a Shape file

Shape file for specific area may be created by digitizing shapes using GIS feature creation tool like ArcView. They can also be generated by writing directly to the shape file specifications programmatically.

DevInfo provides utility to group and split existing shape files to generate new shape files programmatically.

To utilize the shape files within DevInfo, they must have ID_ and NAME_ fields in their .dbf file. ID_ field is the basis for defining association between area defined in database and shape file geometry. The values for ID_ field should be unique.

Metadata

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There have been considerable achievements in the field of standardization of data and metadata representation and transfer, in the field of geomatics. DevInfo provides inherent support for defining and sharing the spatial metadata. In its pursuit for conformance with international standards, DevInfo complies with ISO 19115 - An International Metadata Standard for Geographic Information. A sample entry is shown below.

Element	Value
Identification Information	
File Identifier:	afr_bfa_102_2002
Metadata Language:	en
Metadata Character Set:	usAscii
Point of contact:	DevInfo Project Manager
Metadata Date Stamp:	20041021
Metadata Standard Name:	ISO 19115
Metadata Standard Version:	Version 2.0, August 27, 2004
Online Resources:	http://www.devinfo.info/maplib/
Title:	First Level Administrative Boundary
Dataset Reference Date:	20020909
Dataset Reference Date Type:	Creation
Dataset Edition:	First Edition
Presentation Format:	Digital map
Abstract:	This Arcview Shape File contains the first level administrative boundary as part of the DevInfo dataset.
Purpose:	Support UN agencies decision making
Resource Provider:	DevInfo
Keywords:	Maps, Cartography
Place Keyword:	Administrative boundaries, national, Burkina Faso, Africa
Browse Graphic File Name:	afr_bfa_102_2002.pdf
Browse Graphic File Description:	Map showing the area for the country
Browse Graphic File Type:	PDF
Direct Spatial Reference Method:	Vector
Scale of the Dataset:	Recommended not to use this data at a scale below 1:1 000 000
Dataset Language:	en
Dataset Character Set:	usAscii
Topic Category:	Base maps, scanned maps and charts
Bounding Box:	-5.518916, 9.401104, 2.403769, 15.082592
Date Stamp	Start Date: 20020909 End Date: 20020914
Supplemental Information:	In order to ensure a close match between different national coverages and obtain compatibility with other standard medium resolution

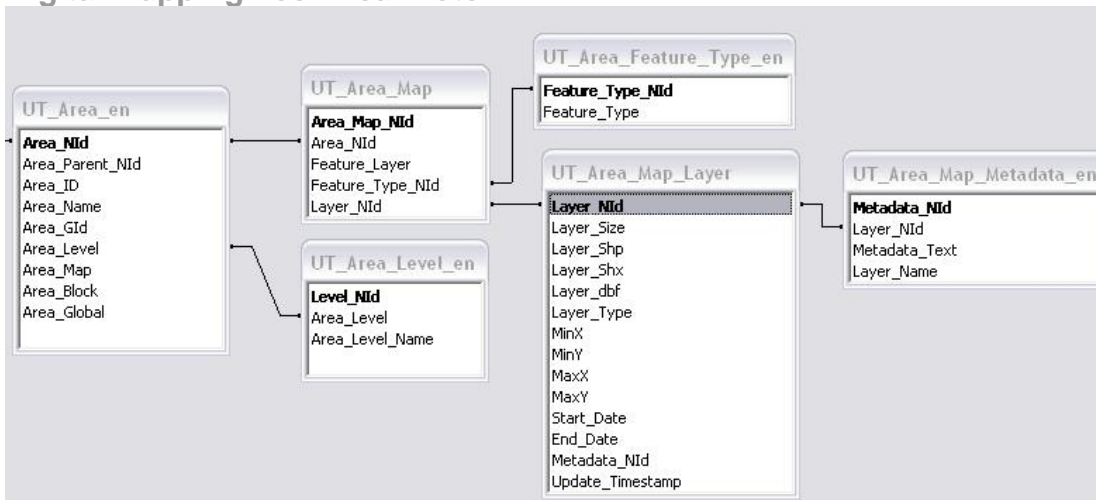
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	datatasets all national boundaries have been checked with the international borders boundary database developed by the UN Task Group on International Borders (International Boundaries Database, Version 1.0). DevInfo dataset is better adapted for thematic mapping than for depicting precise locations or spatial modelling. The coding scheme combines the ISO3 alpha code and a numerical code.
Distribution Liability:	This site is intended to be a portal to the projects, data and metadata produced for DevInfo. Information and data may also be available from other sources. The data has no implied or explicit guarantees.
Restrictions:	Restricted, for internal UN use only
Lineage Statement:	The source file has been unprojected and adjusted to fit the international borders standard.
Processing Step Description:	Work is continuing on updating metadata for existing projects and creating metadata for new ones. This is an ongoing effort to make data accessible for years to come. The metadata is available in one format, PDF only but would soon be available for HTML, TEXT, XML, and Question and Answer, as well.
Data Quality Report Result:	Due to differences in the quality of the documents compiled, this dataset is better adapted for thematic mapping.
Geometric Object Type:	Surface
Cell Geometry:	Complexes
Geographic Reference System:	Lat/Lon - Clark 1866 Lat/Lon, Degrees, -180 ==> +180
PDF file created:	PDF writer
Access Instructions:	Log onto DevInfo website, http://www.devinfo.info/maplib/
Access constraints	None
Use constraints	None

DevInfo 5.0 Database

DevInfo 5.0 stores all geometric features inside main database instead of storing them externally as shape files. This makes the database independent of any external dependencies. It can now be easily ported and mutually shared without bothering for integrity and consistency. DI 5.0 data base stores the shape file information in a Master table Area_Map_Layer with Layer_NId as primary Key. This includes binary data from .shp, .shx and .dbf files. An Area may be associated with multiple layers (shape files). A layer may be associated with multiple areas. To accommodate many to many relationships between Area and Layer a relationship table Area_Map is used. A layer may be marked as Feature layer by using a Boolean field Feature_Layer in Area_map table. Feature Type (Lake, River) is set in Area_Feture_Type table. Layer name and Metadata for each layer is stored in Area_Map_Metadata table.

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DevInfo 5.0 Mapping Features

Basic Navigation



Full Extent - Resets the map to full view.



Zoom Rectangle_ - Allows to zoom to precise rubber banding rectangle.



Zoom In - Allows for fixed incremental zoom in.



Zoom Out - Allows for fixed incremental zoom out.



Pan - Allows to move map in desired direction



Zoom to Highlight - Sets the map extent to highlighted areas.

Layer and Legends

Types of Layers

GIS data are usually stored in more than one layer in order to overcome the technical problems caused by handling very large amounts of information at once.

Based on shape, layer may be of following type



- Point Village, Hospital, Service Center, Polio Instances
- ↗ Line River, Rail, Road
- Polygon Administrative Boundaries, Lake, National Park

DevInfo 5.0 categorizes the map layers into three categories based on their association.

Base Layer - These are the Polygon or Point layers defining the administrative boundaries / location of an Area. Database administrator associates these layers with desired areas in DA - Map module.


Feature Layer - These are point / line / polygon layers to represent features such as road, rail, rivers, national parks, lakes, health centers, service centers, villages etc. Database administrator associates these layers with desired areas in DA - Map module. Multiple feature layers may be associated to an area.


Custom Layer - User can add external layers to default map which shall be known as custom layer. Base Layers can also be used as Custom Layers.

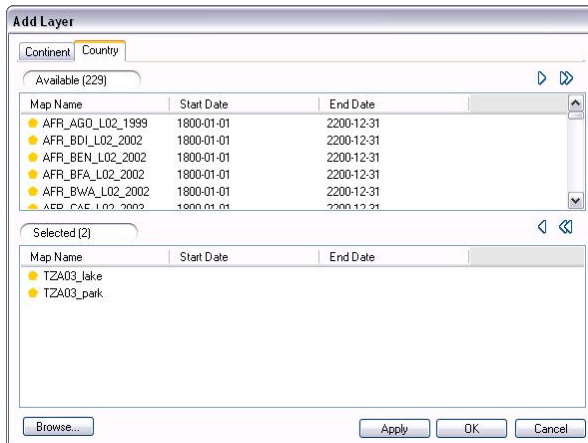
Base layers and feature layers are automatically added by mapping module based on area references. User can add custom layers externally. Base layers are represented by plain icons  in layer legend, where as Feature layer and Custom Layers are represented by colored icons . Base layers are rendered based on theme settings, while feature and custom layers are rendered based on user defined color and patterns. Border color and border width for all layers are customizable.

DevInfo 5.0 allows associating multiple base layers to a single area with varying **temporal representation**. E.g. two new districts are created for a region in 2004. Now this region may have two associated map with different administrative boundaries. One map will be effective for a period of say 1990-2004 and other for a period 2004-2200. Based on time selection by user DevInfo 5.0 will automatically pick up the appropriate map. In case time period is selected such that it overlaps with both maps then, both layer shall be shown in mapping module. User may hide the visibility of desired layer.

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Replacing Base Layer  It may so happen that a database is created and map associations are made. This database is already in circulation. Now there is change in administrative boundaries of an area. End user is able to procure the new map file and wish to override the default base file. User can replace the base layer with external layer using this option.

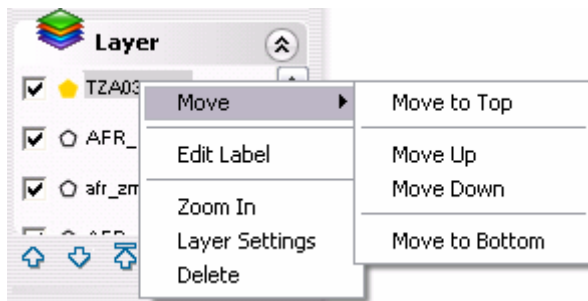
Adding Layers  User may browse for shape files residing on system or choose from maps available inside database. A layer with same name that already exists in current layer collection can not be added.



Layer Rendering and Customization

Layers Z - Order

Order of layer rendering is bottom to top i.e. bottom most layer is drawn first then the layer above it and so on. Labels for all layers are drawn on top. User can move the desired layer up and down in the layer collection. Suppose three countries were selected as base layer and a theme was created. Now user feels that map looks weird without the continent boundaries. So user adds a continent layer as custom layer. This layer is added on top by default and covers whole base layer. In such cases, user can move the continent layer to bottom using layer ordering options.



Layer Visibility

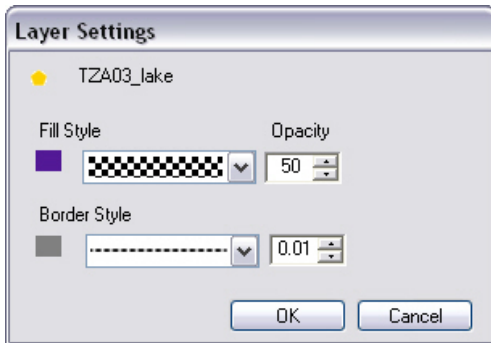
User has option to set the visibility of layer by using the check boxes against each layer. User can also remove any undesired custom layer by using delete option.

Layer Settings

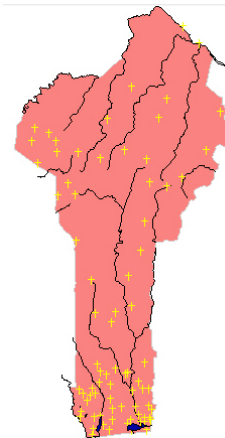
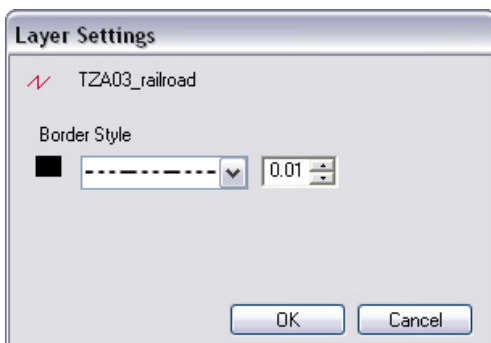
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User can customize Feature and Custom layers by clicking on the icon before the layer name. This option is not applicable for the base layers.

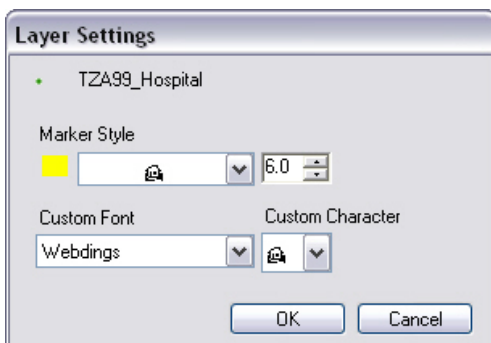
Polygon layer settings: can set fill color, opacity and fill style. User can change the border color, border style and border width. In certain case, where it's desirable to have partly transparent layers, user can set the transparency using opacity option.



Line layer settings: User can change the border color, border style and border width.



Point layer settings: User can change the marker color, marker style and marker size. DevInfo 5.0 now allows user to set custom font as marker symbol. These are specially suited for marking entities like church, hospitals and service centers etc as symbols.



Active Layer

User can edit label settings and set map extent for an active layer. Active layer is the highlighted layer in the layer legend.

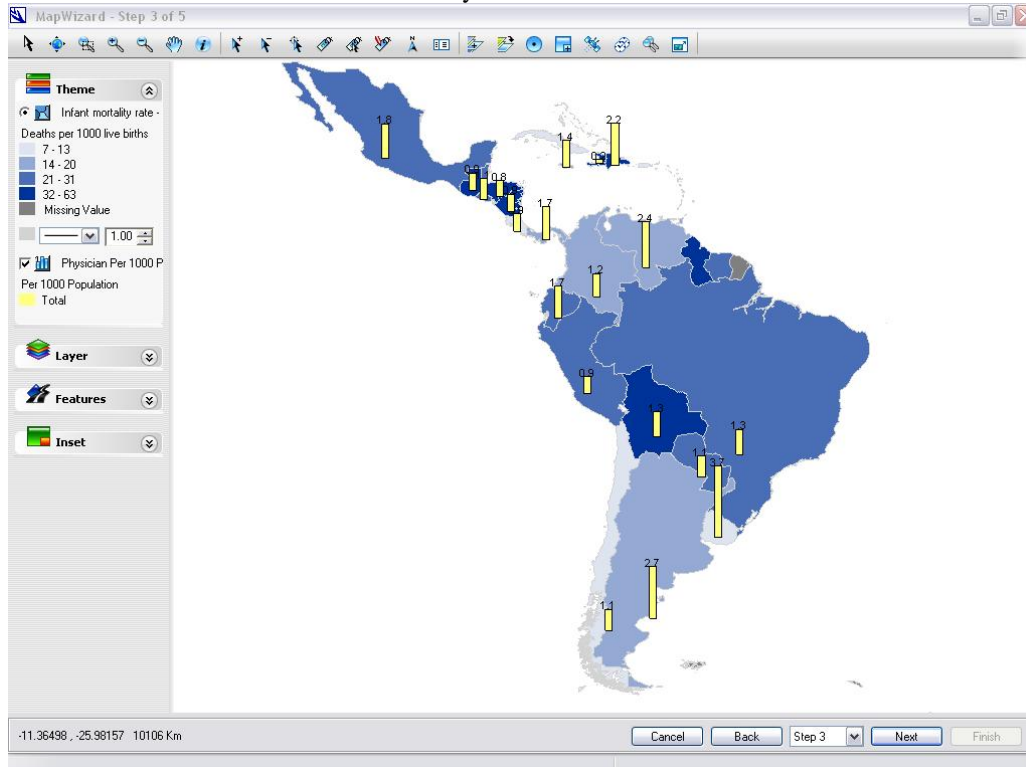
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Theme and Legends

DevInfo 5.0 Mapping module now allows user to create four types of themes. These are

- Color
- Hatch
- Dot Density
- Chart

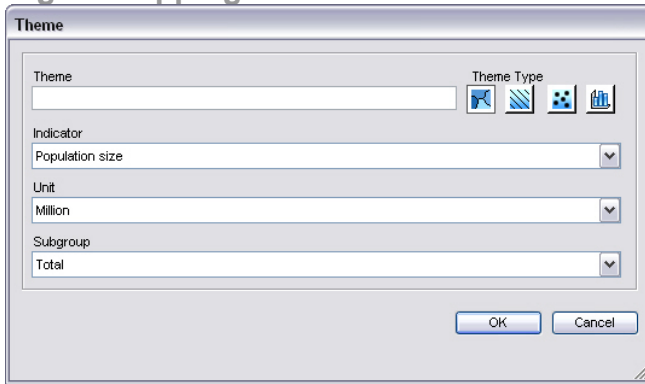
This enhances the scope of visualizing multiple I-U-S simultaneously and makes an effective analysis of data that is hard to comprehend in isolation. There might be case when user wishes to correlate the impact of Health Care facilities on Infant Mortality Rate.




Creating New Themes

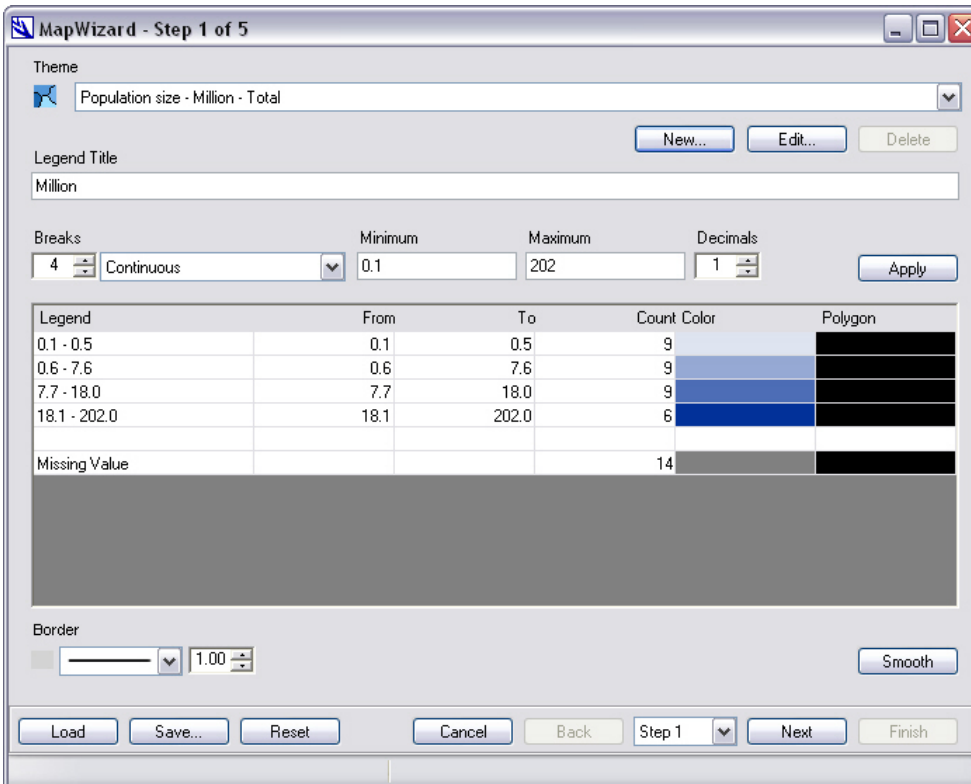
Uniqueness of a theme is defined by combination of Indicator-Unit-Subgroup and Theme Type. Multiple themes can be created for same IUS but different theme type. By default, mapping module generates a color theme based on a unique IUS combination. Non numeric data values are discarded for mapping purpose. In theme creation dialog, user can set the theme title, choose desired IUS combination and Theme type.

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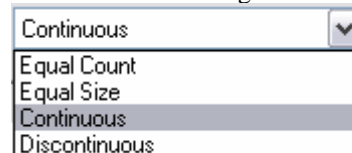


Theme Types

 **Color** – Areas are shaded in proportion to the statistical data value for chosen IUS.



User can select among predefined method of break to distribute data into desired ranges. These breaks can



be of Equal Count, Equal size, Continuous and Discontinuous.

Equal Count: (Quantile classification) It divides the ranges in such a manner so that each range contains equal area count based on data values. In certain cases where data values are such that they cannot be distributed equally they are distributed as evenly as possible. No changes are allowed in the 'From' and 'To' Columns.

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Equal Size: It divides data ranges into equal sizes such that difference between From value and To value remains same. No changes are allowed in the 'From' and 'To' Columns.

Continuous: This option allows user to change the 'To' column values. On making changes to the 'To' column, the remaining rows are automatically adjusted to maintain the continuous distribution of the breaks.

Discontinuous: It allows data ranges to be discontinuous. By default they are divided into breaks of equal count with regular intervals. User can change both 'From' and 'To' columns in the grid. After the changes are made, the wizard does not make any adjustments in the remaining rows.

User can set the number of breaks. Minimum number of breaks allowed is 2 and Maximum number of breaks is 10. Besides the number of breaks selected by user there is always a default break item for missing data at the end.

Missing Data – While rendering a thematic map, all map files associated with Areas available in data view are considered. All Areas of map with a data value are thematically rendered and the remaining area with no data value (if any) are grouped under missing data and rendered according to a missing data legend.

Breaks		Minimum	Maximum	Decimals
4	Continuous	35	176257	0

User can set the decimal precision for ranges, Minimum and Maximum values for ranges.

User can associate desired colors with each break, by clicking on the color box against each legend item.

Clicking opens a color palette, from which user can choose colors. User can set the color for starting and ending legend and automatically assign graduated color for intermediate legends by using Smooth option.

Smooth

User can change border color, border style and border size.

		
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Saving Preference:


Load	Save...	Reset
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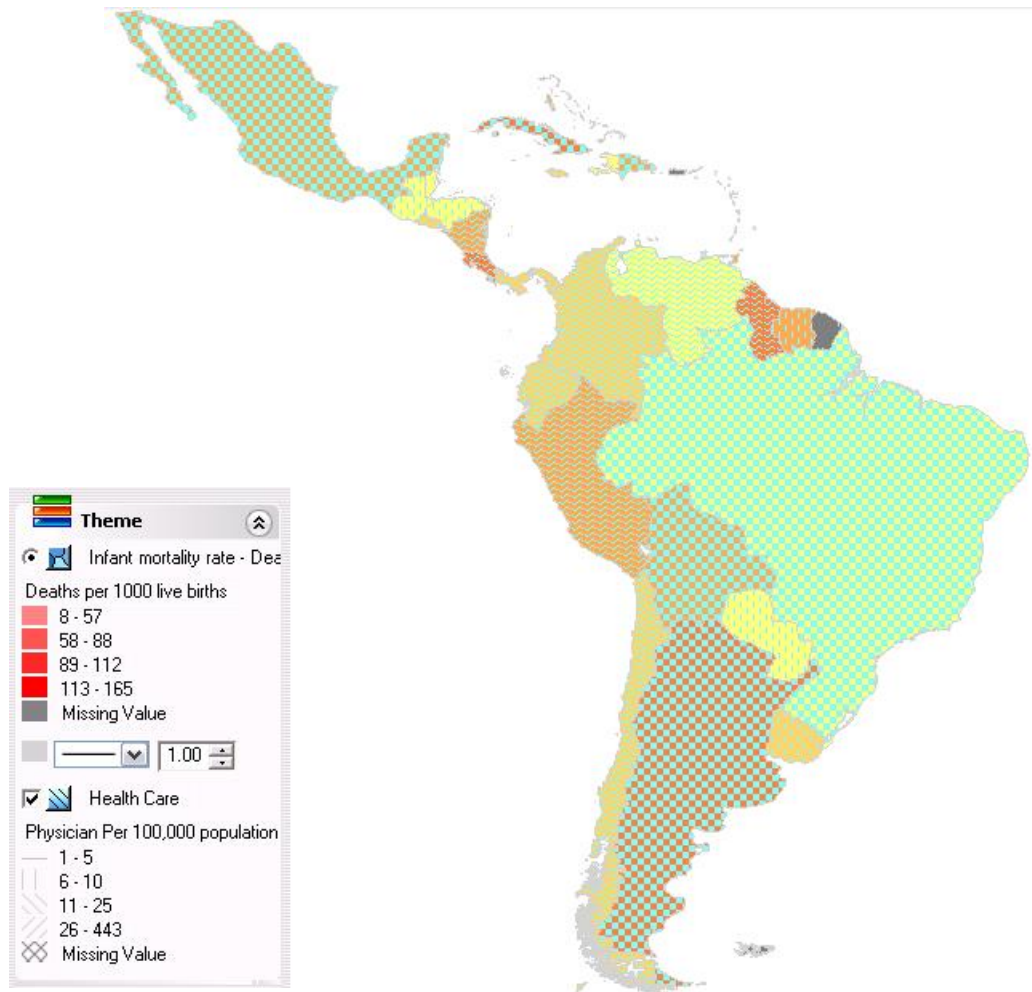
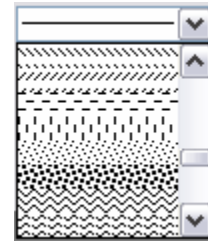
Many a time it happens that a user meticulously sets the legend break values, title & colors and desires to reuse them in future. Mapping module allows user to save the legend setting in form of .plf files. User can reapply them in future by loading them in mapping module. User may choose to apply only label / color / break values or all of them. User may reset the legends to default values.

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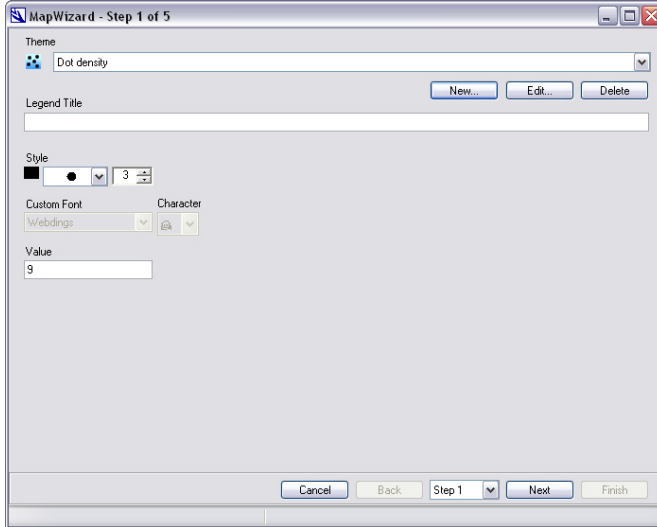
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 *Hatch* – Areas are patterned in proportion to the statistical data value for chosen IUS. Interface and functionalities for setting hatch theme are same except that user can associate desired hatch patterns with each break.

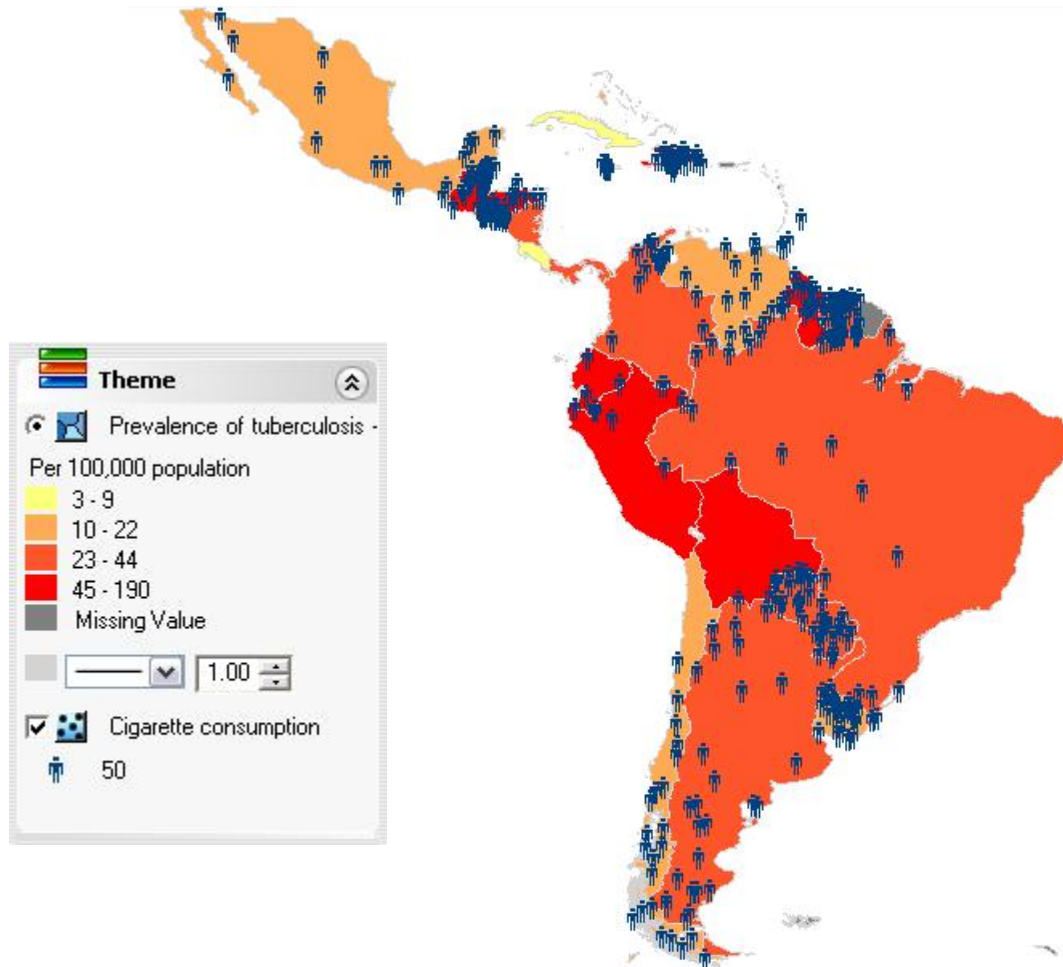


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 *Dot Density* – Dot Density themes are specially suited for representing numeric values like population count etc. Each dot represents a fixed data value. If one dot represents a population of 1000 and there are 50 dots in a district, then population of district may be inferred as 50000. Data value defines the counts of dots and has no bearing on the size of dot. Size may be scaled by user to manage the cluttering and present ability of map.

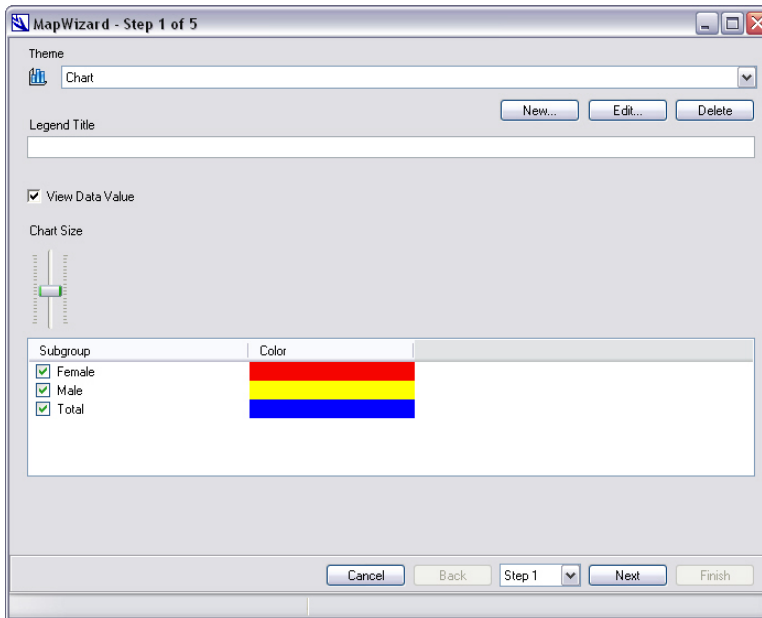


A default value for dot is automatically set when a new dot density theme is created. User has option to set the data value that a dot represents. User can change the color, style and size of the dot. User can replace dot by custom font symbols.



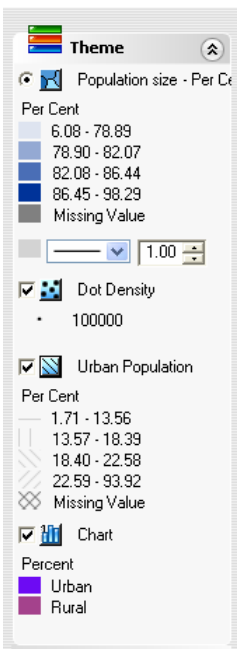
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 **Chart** – Chart theme allows user to present a theme as bar chart on Map. User can create a chart theme by selecting chart type option in create theme dialog. By default a bar is rendered against each subgroup, associated with selected indicator. User may hide a particular subgroup bar if desired. The height of bar is determined by the corresponding data value. User can adjust the default bar height by using a slider control. User can view or suppress data values shown on top of the bars. User can set the color for each subgroup bar.



Theme Legend

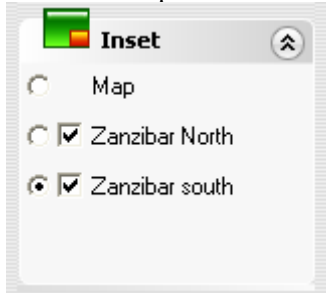
User can create any number of desired themes. User is restricted to see any one color theme at a time besides multiple Hatch, dot density and chart theme. Theme Legends shall display the theme name and legend title along with legend items. User can control the visibility of the theme by using check boxes in theme legend. Legends can be collapsed to hide legend items. User can change the color / hatch pattern of the legend item directly through theme legend.



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Inset

Insets may be considered as satellite maps besides main map. Insets are handy tools, to bring small isolated areas into focus. They may also be utilized to visualize previous time series data as insets and current data as main map. For e.g. a user may create the inset maps for a chosen IUS based on previous censuses and draw main map for current census data.



Inset Legend

Inset captures the static image of current map extent and display the inset name in Inset legend. User can create multiple insets with different focus area or different time series data. User can navigate between various insets and default map through selection in Inset Legend. User can suppress the visibility of inset in output by using the check boxes available against each inset.

Population size

Million

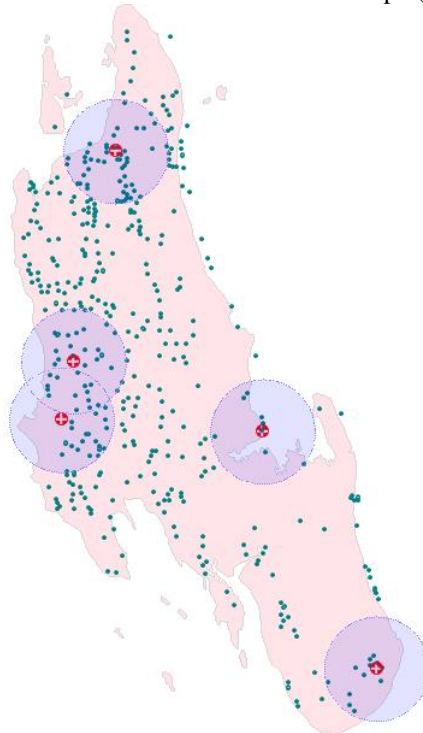


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Buffer

Buffers are concentric polygons drawn around point or lines. Map buffer is very effective tool for impact analysis under an influence zone. It enable user to create buffer zones around the line or point layer by specifying buffer size. This technique can be used extensively for many conditions - e.g. to understand the association between prevalence of childhood leukemia in northern England and the proximity to nuclear power stations. This technique also provides answers to questions such as "How many villages are covered within a 3 km radius from Public Health Centers". User can have quick and effective visualization of facts like

- How many villages (Target) are within accessible distance from hospital (Reference)?
- What is the probable location where next PHC should be set up? (allocation modeling)



Point Buffer – Villages covered by PHC



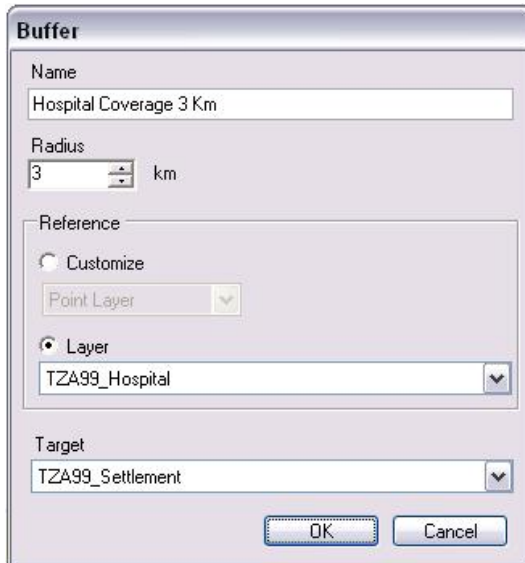
Line Buffer – Villages affected by flood

Creating Buffer


Buffer dialog box allows user to create a buffer layer. User defines the buffer name and radius and selects specific target layer whose feature are covered by buffer are to be analyzed. User can draw buffer around

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available point layer or line layer. Optionally user may set his own custom points or line. Defining custom point and lines is especially helpful when desired reference layer are not available or user wish to define new point or line feature. Setting custom points or lines are specially useful for the cases where desired point or line layer are not available. E.g. In case of an earthquake, a user may be able to know the precise location of epicenter in terms of latitude and longitude. In probability there will be no point layer existing that may be used for defining the epicenters of earthquake. User can choose the custom option and mark a point at epicenter to define a custom buffer.



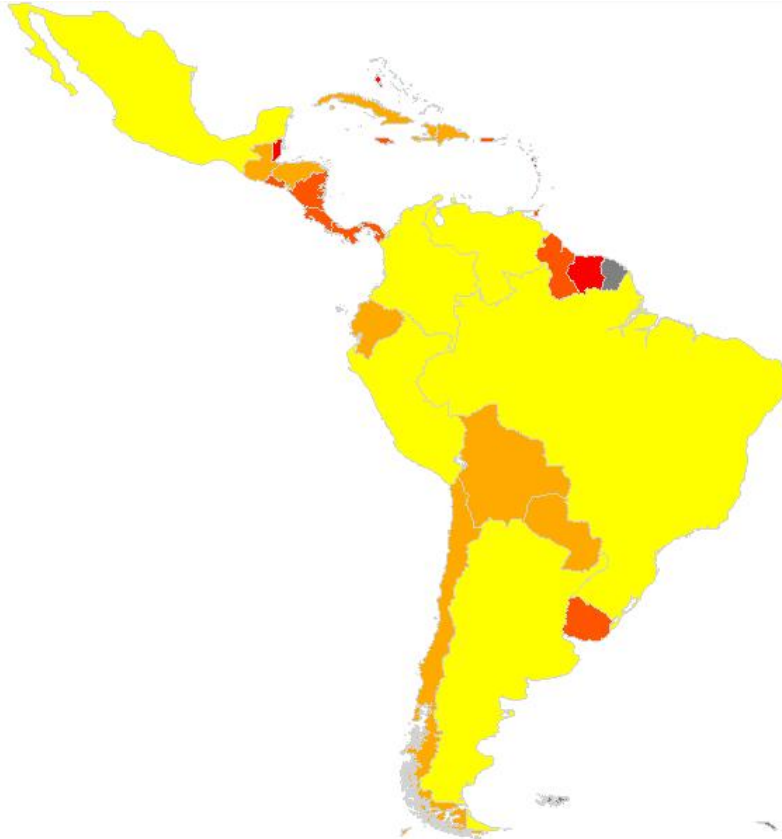
Analyzing Buffer

Buffer may be visually analyzed for allocation modeling. To view the Count / Sum / Mean, click on buffer layer after activating Info icon  in toolbar. Information dialog will display the count of target features lying inside the buffer. If target layer happens to be a base layer then Sum and Mean for will also be displayed. Sum is useful for analyzing indicators like population count and mean is useful for percentage and index.

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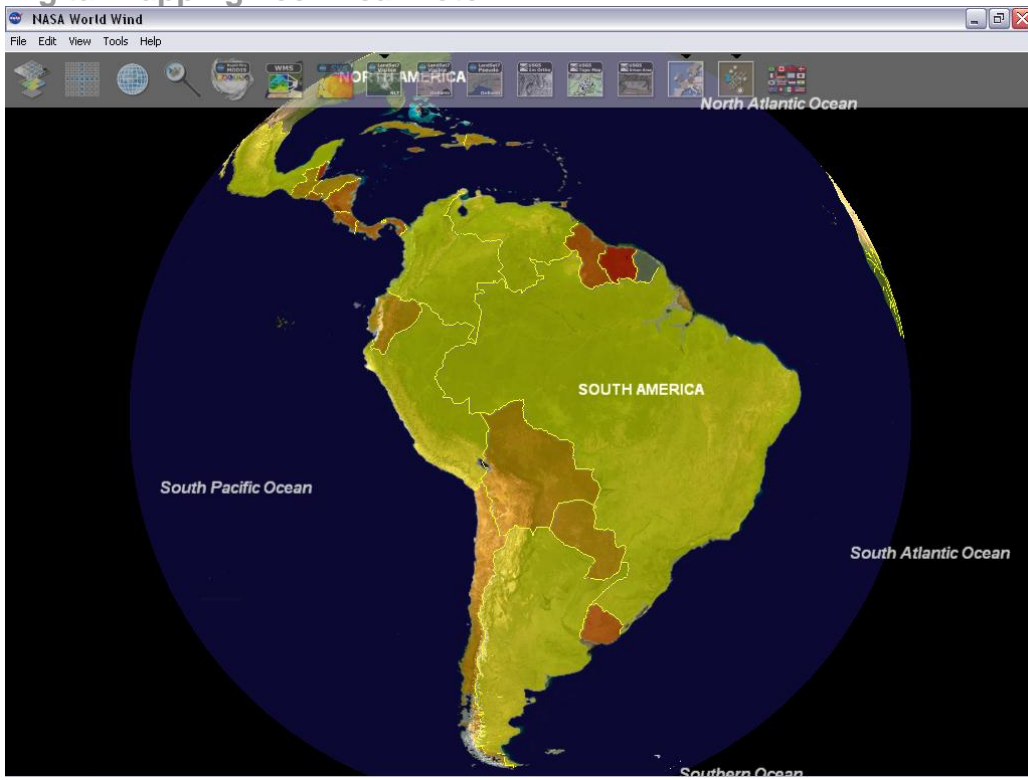
Raster data

A raster image comprises a collection of grid cells rather like a scanned map or picture. It is useful for describing continuously varying features such as soil type, elevation or temperature. DevInfo 5.0 utilizes open source World Wind for its raster implementation. It overlay the current map image over raster in world wind application. If World wind resides in default location C:\Devinfo\World Wind 1.3, it runs automatically on clicking the raster icon, else user is prompted to identify the location of world wind exe file.



Map output in DevInfo

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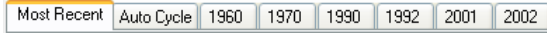


Map output from DevInfo superimposed on World Wind

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Time Series and Area cross section

Time series –



Surveillance of certain indicator like “Malaria Prevalence” or “HIV/AIDS Prevalence” requires continuous systematic collection and analysis of a series of quantitative measurements. The detection and interpretation of changes in the pattern of the constructed time series is very important for appropriate intervention. Time series is a temporal analysis technique through which temporal changes can be easily visualized. DevInfo 5.0 allows user to view the thematic map for different time periods.

Area series –




DevInfo 5.0 allows user to view the thematic map across geographical cross section (Area Levels).

User may choose to view animated map using Auto Cycle option in both the cases. When user selects Time Series or Area Series then extra tab sheets are created in excel output preview.


Label Editing

DevInfo 5.0 provides state of art label editing features enabling precise control over font settings, position, display values, indentation and leader line settings.

User may simply toggle the visibility of labels (on/off) by using Label icon. 

Scope of Label editing

User can apply label settings at three levels.

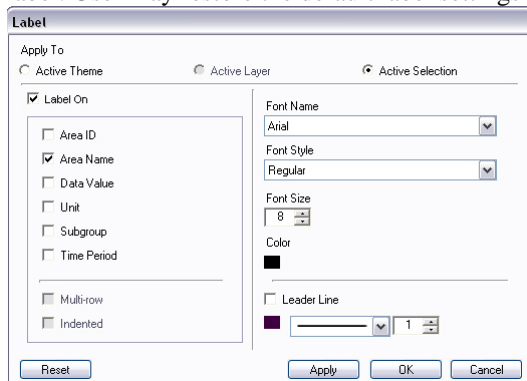
- Theme level – Label settings are applied to currently active color theme. All base layers are affected.
- Layer level – Label settings are applied to the active layer. A layer can be activated by selecting it in layer legend.
- Selected Area - Label settings are applied to all individually selected area. User may choose one or more polygon or point by using selection icon.  This enables user to highlight the focus area with distinct label settings.



Changing Label Settings

User can select one or more fields for display. When multiple fields are selected user can display them in multiple rows with or without indentation.

User can change visibility, font settings, and color for labels. User can also set the color, style and thickness of leader line for nudged labels. Leader lines are the line drawn from the centroid of the shape to shifted label. User may restore the default label settings by using reset option.



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Handling of Label at Map Edges

By default labels are drawn center aligned at the centroid of the area. In previous versions of DevInfo, areas whose centroid were very near to the map edges were partly cut, due to center aligned labels going beyond map edges. This problem has been handled in DevInfo 5.0. In DevInfo 5.0 labels at map edges are automatically shifted toward center. Even while panning, if a label goes partly beyond the map edges, it is automatically shifted to render full label.

Label Nudging

Many times it happens that default centroid placing of labels is quite cluttered up and labels overlap each other. DevInfo 5.0 allows user to reposition labels, by selecting nudge icon and dragging labels to desired position. Leader lines are drawn automatically from centroid to labels. User may suppress the leader line by using label editing options. Nudges labels are geo referenced, i.e. if a user zoom or pan the map the relative location of nudged labels is maintained.

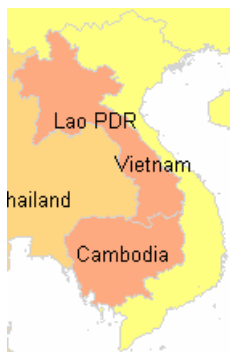


Default Labels



Labels after Nudging

Label nudging may also be useful in cases where centroid of an area falls outside the boundary of area and label may seem to be misplaced. E.g.: Centroid of Vietnam falls somewhere in Lao PDR. Label of Vietnam may be nudged to more appropriate location.



Default Labels



Labels after Nudging

Digital Mapping Technical Note

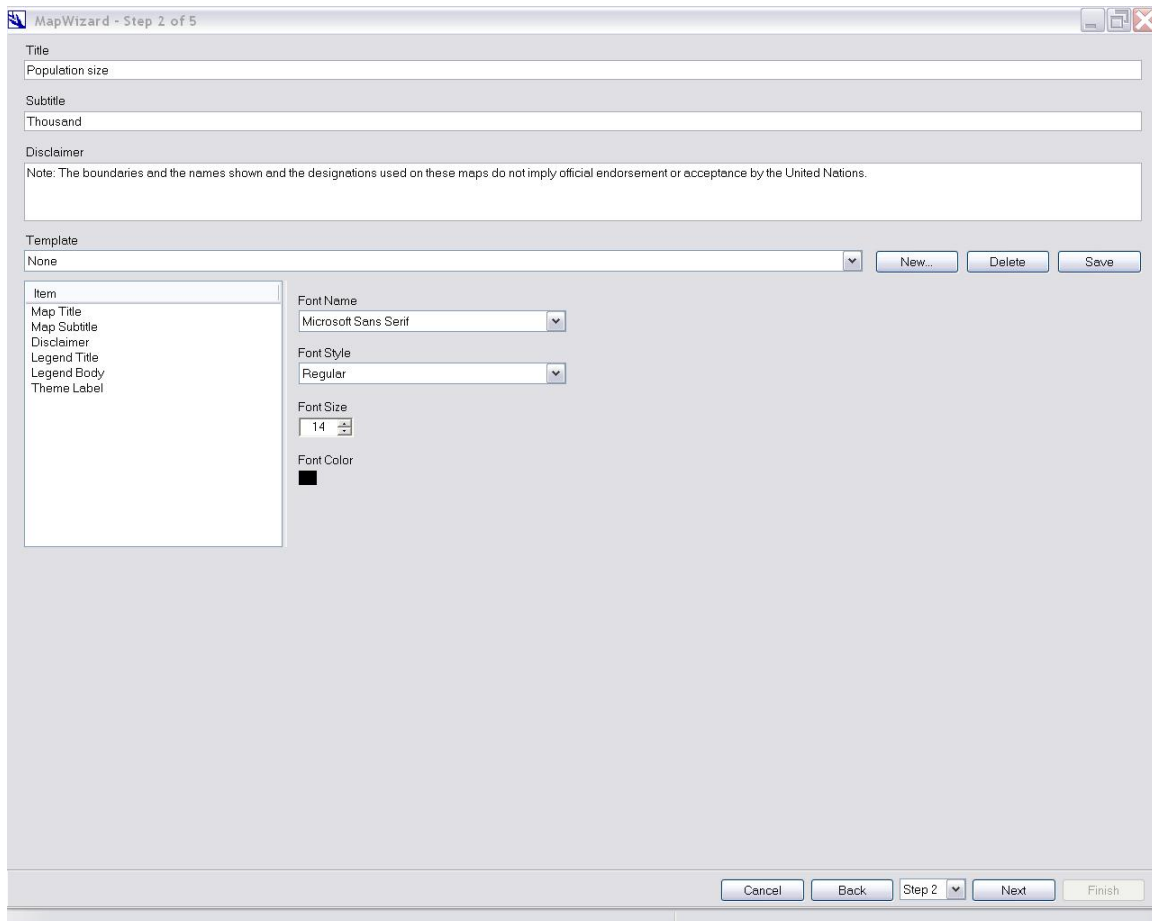
Title – Subtitle - Disclaimer

User can set the map title, map subtitle and disclaimer. By default Title text is set to indicator name and Subtitle is set to unit name. Default disclaimer is shown as follows:

Note: The boundaries and the names shown and the designations used on these maps do not imply official endorsement or acceptance by the United Nations.

User can edit the font settings of map title, map subtitle, disclaimer, legend title, legend body and theme labels. These settings are reflected in Excel output preview at step 4 of mapping.

User can preserve the font setting across application sessions in template files. All available font templates are shown as drop down list and font settings are applied from the selected font template.



MapWizard - Step 2 of 5

Title

Population size

Subtitle

Thousand

Disclaimer

Note: The boundaries and the names shown and the designations used on these maps do not imply official endorsement or acceptance by the United Nations.

Template

None

New... Delete Save

Item

- Map Title
- Map Subtitle
- Disclaimer
- Legend Title
- Legend Body
- Theme Label

Font Name

Microsoft Sans Serif

Font Style

Regular

Font Size

14

Font Color

■

Cancel Back Step 2 Next Finish

Digital Mapping Technical Note

Mapping Output

Mapping output is in form of excel sheets. The preview pane has three views:

- **Map:** Display map generated by the user. It consists of Map title, subtitle, main map, legends, disclaimer, and Insets. If time series or Area series are selected then extra sheets for each series element are introduced.
- **Map Data:** Display the entire data view on which map output was based. Mapping modules does not consider non numeric data values for theme generation.
- **Source:** Display sources which have contributed in the data-view





Each element on Map sheet (Map title, subtitle, main map, legends, disclaimer, and Insets) is an **emf** image. **Enhanced Meta File (emf)** can be scaled up without losing their precision. I.e. precision of image and text is maintained on stretching an image. It does not break up like bmp images. For getting large **posters** etc. User may scale up map image even up to thousand times or more. In this case thickness of border lines will increase accordingly. In case user likes to maintain thin border line, user can set the border thickness as low as .001 pixels.


Presenting all elements as emf image has additional benefit while exporting the map content to presentation in gallery. DevInfo 5.0 copies legend disclaimer, insets etc into presentation besides main map. User can easily move these elements to desired location and even resize them.

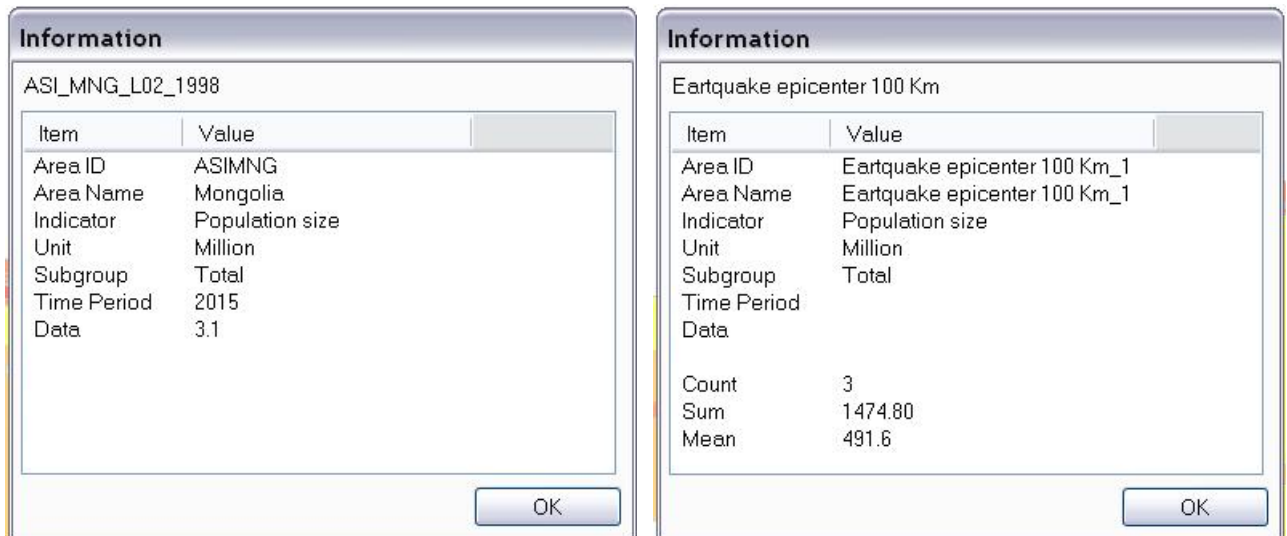
Digital Mapping Technical Note


Miscellaneous

Layout Flexibility: Map preview comprises of Toolbar, Map, Theme Legend, Layer Legend and Inset Map Legends. User can resize legend pane or map pane for better view. User can toggle the visibility of left legend panel by using Legend Hide icon.  User can maximize the wizard view by using Full View option. 

DevInfo 5.0 Interface has been designed to reduce the telescopic display of modal dialogs. User is in a position to correlate the impact of changes made in various settings. Most of the changes are now possible at Map preview itself without switching to other steps. User can visualize the changes immediately by clicking on Apply button of the dialog screens.

Info:  User can view the detailed information for an area by selecting Info icon and clicking on the desired area on map. Information dialog opens up displaying details of Area – IUS – Time and Data value. Incase of buffer layer count, sum and mean are also displayed.



North Arrow:  User can view or hide north arrow symbol on the map using North Icon.

Geo Coordinates 87.85424 , -15.03355 Latitude and longitude values are displayed at the bottom left corner of the wizard as the user moves the mouse over map.

Licensing: The Mapping component is integral part of DevInfo and can be distributed without any user licensing requirements.

Technology: Mapping component is primarily based on GDI+ library of .Net framework. It provides advanced capabilities of Alpha blending, support for multiple image formats, Transformation and Matrix objects etc.

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