PX-Map - Producer's Guide

Content

Preface -introduction

This documentation contains the necessary information needed in order to install and adjust PX-Map, including the relation between data files and map basis.

PX-Map is developed according to requirement specifications prepared by Statistics Norway (SN). The program is developed by the consulting firm Geodata AS. SN has all rights to application and source code.

This documentation is among other things based on system and operation documentation worked out by Geodata AS.

See also other documentation:
- PX-Map Users Guide (User manual)
- PX-Map System and operating documentation
- other documentation on PC-AXIS

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Further work will be carried out on this documentation. Tasks of interest are:

- document algorithms for classification distribution in shaded maps and symbol sizes in symbol maps
- go through all examples
- various formulations – improve language and explanations
- conversion to HLP-file

SN is grateful for all types of comments – about PX-Map in general and to this documentation especially. Please contact:

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Summary

PX-Map is a tool for presenting statistical data as thematic maps. PX-Map is a map module within the PC-Axis software family. It is simple to make a map. But to make a good map is a challenge. A good map must be true to the data it presents, it must be easy to read and be nice looking. When using PX-Map in a sensible way, you will get higher value from your data.

Install PX-map on your computer, and explore the sample data in the PX-Files folder (Norway, Nordic Countries, Europe, China). Se the User's Guide (in the PX-Map program folder) for more information.

PX-Map is developed by Statistics Norway.

Statistical data

You may present your own data in the maps. PX-Map can read PX-files and semicolon-delimited text-files. PX-file is an information rich file format used by the PC-AXIS program family. PX-files can be created from scratch with the program PX-Make.

Semicolon delimited text-file (SDV-file)

Record 1   Link to the map you want to use (Ex. Europe_nation.ini). This file is expected to be in the 'Maps' folder
Record 2   Region code, Value name (1), Value name (2), Value name (j), Value name (n)
Record 3   Code (i), Value (i1), Value (i2),...Value(ij),...,Value(in)
etc.

The values in the field *'Region code'* have to be identical to the similar values in the map data.

```
Europe_nation.ini
Ctry_cod; Population growth rate; Rate of natural increase; etc.
AM;0,2;0,4;-0,2;3;1,45;14,7;3798,2
AT;0;0;0;;1,34; ;8082,8
AZ;0,9;1;-0,1;5,2;2;16,6;7949,3
BY;-0,2;-0,4;0,2;7;1,27;11,3;10227
BE;0,2;0,1;0,1;4,4; ; ;10213,8
etc.
```

PX-files - required key words

PC-Axis can handle statistical files with up to 16 variables. In PX-Map this has been reduced, as user selections are handled by PC-Axis. The following additional requirements are needed for PX-Map to understand and handle a PX-file:

One 'geographical variable' that holds at least one value. The key word 'CODES' is mandatory for the 'geographical variable'. From other variables only one variable can hold more than one value.

```
Ex.
STUB="Region";
HEADING="Statistics";

VALUES ("Region")="Armenia","Austria","Azerbaijan","Belarus","Belgium", etc.
VALUES ("Statistics")="Population growth rate", "Rate of natural increase", etc.

CODES ("Region")="AM","AT","AZ","BY","BE", etc.

MAP ("Region")="Europe_nation.ini";
```

The key word CODES, for the variable 'region', holds the geographical codes. These values have to be identical to the similar values in the map data. The key word MAP holds the link to the map you want to use (Ex. Europe_nation.ini). This file is expected to be in the 'Maps' folder.

Map (coordinate) data

Map data are held in the shape format used by ESRI ArcView. The map has to be a set of regions described by polygons. Every region has a unique code property, which has to be the same as the region code in the statistical data. The region code has to be in text (string) format (and not as number).

Obtain a map, which you are allowed to use. Contact your map vendor, or try these web sites:
- ESRI ArcData online: http://www.esri.com/data/online/index.html
- Geography Network: http://www.geographynetwork.com/free.cfm
- Digital Chart of the World: http://www.maproom.psu.edu/dcw/

Map.ini-file

The map.ini-file (ex. Europe_nation.ini) holds the information that links the data to the map.

Example	**Comment**
[MAPS]	
NumMaps=1	Number of maps
1=C:\Programfiler\PX-Map\Maps\Europe_nation.shp	Path to the map files
[DEFAULT]	
SymbCol=colLightYellow	Default colour for symbols in symbol maps
StartCol=colLightYellow	Default start colour for choropleth maps
EndCol=colRed	Default end colour for choropleth maps
NullCol=colWhite	Default colour for NIL values
ShowNoData=1	1: Show NIL values, 0: Do not show
[FIELDS1]	
MapName=Europe	Presentation name for Map no. 1
KeyField=Ctry_cod	**Map key field for region code**
KeyPField=ISI code	Presentation text for KeyField
NameField=Country	Map name field
NamePField=Country	Presentation text for Name Field
StatPField=Data	Presentation text for data
Show=1	Show outline for map polygons
Size=1	Line size for outline
Color=colDarkGray	Colour for outline

Language

All text in PX-Map can be viewed in an unlimited number of languages. Default is English, and in order to work with PX-Map in another language, start PX-Map with the language parameter /l LanguageTextFile:

Ex.: PX-Map.exe /l <path>pxmapFR.txt   (French)

To make this work you need to have a simple windows text file named <pxmap>" & <LanguageCode>, where LanguageCode is:

en	English
fr	French
es	Español
pt	Português
etc.	

Other language codes are defined by ISO-639.

Make your own language file

Copy the file pxmapEN.txt (English language) found in the PX-Map program folder. Rename the file with your Language Code, and translate the file.

1.   Generally

PX-Map is a map program that presents statistics as thematic maps. PX-Map can make shaded and symbol maps, and it is easy to choose colours and classification distribution. The maps may be presented with symbol explanation and title, and finished maps can be printed or copied to other Window programs.

PX-Map can present PC Axis files or comma-separated files on maps in the form of shaded maps or symbol maps. PX-Map presents a suggestion for the design of a map, and users have many possibilities to adjust this:
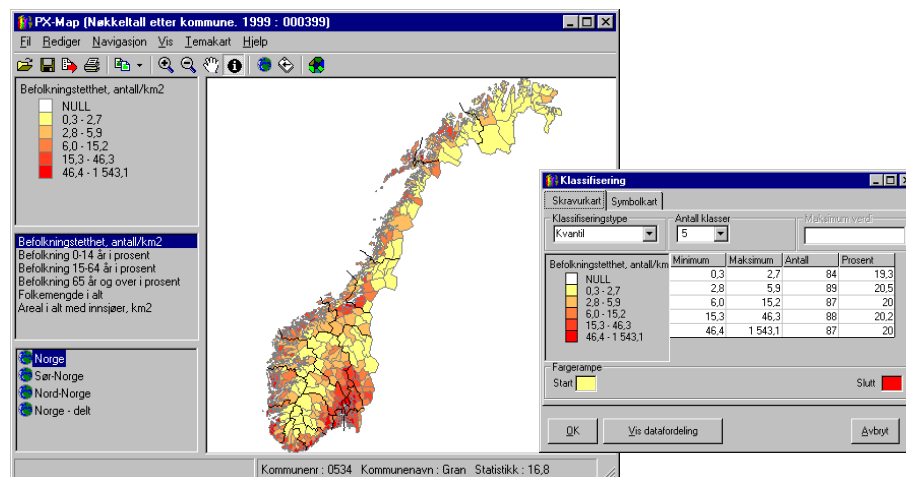
PX-Map is a supplement to the solutions in the "PC-Axis-family", and presents statistics as thematic maps. The program is developed with a simple and user-friendly interface, which at the same time contains sufficient functionality to cover different needs and user areas, and no special knowledge of statistics and map presentation is needed. The program is also developed with professional users in mind, users that are able to produce tailor-made basis for statistics and maps. *PX-Map* may also be used as a component in other program solutions, for instance on Web. *PX-Map* is integrated with PC-Axis, but can also be used as freestanding and independent program.

PX-Map is a continuance of "Statistisk sett", and is developed by Statistics Norway in cooperation with GEODATA AS. *PX-Map* may be loaded – free of charge [1] – from SN's home pages (http://www.ssb.no/pxmap/), and the software comes with documentation and example data for Norway, Scandinavia and Europe (both statistics and map basis). *PX-Map* is an open system so the user may make use of his own statistics and map data, for instance parts of a city, regional areas, municipalities, countries in Europe or whatever.

The finished maps may be presented with symbol explanation and title, and be printed or copied to other Window programs. *PX-Map* presents a proposal for design, which among other things are to secure the most possible correct, and a reader-friendly map, but the user has many possibilities for adjusting this:
- Change classification distribution and colours
- The finished theme map (and symbol explanation) may be printed and copied to other Window programs via the clipping board.
- Show data distribution and simple statistical variables (maximum, minimum, median, average, standard deviations)
- exports of the map picture to other formats (BMP, PNG and WMF)

SN will use *PX-Map* in communication solutions for regional data and for own production of statistical theme maps. We also hope that the program will be useful for other users of regional data, for instance the ones who want to make their own theme maps.

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[1] This is the case for countries that have an agreement with SN about the use of PC-AXIS. These include in addition to Norway among others the Nordic countries, Spain, Estonia and others.

2. PX-files

PX-file is the data format used by PC-AXIS. The file format is documented in "System Manual. PC-AXIS for Windows 95/98/NT Version 2000" (contact SN about this one). In annex 1 there is one example of a complete PX-file. The PX format is a straightforward ASCII-format that may be edited in a common text editor.

PX-files that are to be used in PX-map must contain one (and only one) regional variable. In addition the file may contain a variable with several values.

2.1   The key word MAP

The key word MAP is used in PX files to secure the communication between the PX-file and the map program X-Map.

The syntax for this key word is as follows: **MAP("<Variabel>")="<text>";**

The key word MAP must be placed *after* the key word that defines the regional variable in the PX-file[2], and it is a sound rule to place it after the key words STUB and HEADING:
STUB="år","kommune";
HEADING="nøkkeltall";
MAP("kommune")="Norway_municipality";

Example:
MAP("kommune")="Norge_kommune";

<Variable>   The name of the variable in the PX-file that contains the regional codes in the PX-file. Must be written exactly the same way, also lower/upper case letters.

<tekst>   The content in <tekst> is to consist of one link that shows the pertinent geographical area it covers (for instance country), and one link that shows regional level (classification). This text string is a pointer to the map parameter file that steers the linking between statistics and map, and that decides the appearance of the maps.
                    NB! This file (Norge_kommune.ini) MUST lie locally on the MAP catalogue where the program is installed (for instance C:Programfiler\PX-Map\Maps)

Examples of key word MAP
MAP("region")="Norge_kommune"   - municipal data for Norway
MAP("region")="Norge_fylke"   - county data for Norway
MAP("region")="Oslo_bydel"   - neighbourhood data for Oslo
MAP("region")="Hedmark_grunnkrets"   - regional data for Hedmark county
MAP("region")="Denmark_municipality"   - municipal data for Denmark
MAP("region")="Nordic_municipality"   - municipal data for the Nordic countries
MAP("region")="Europe_nation"   - national data for Europe
MAP("region")="Europe_NUTS2"   - NUTS2-data for Europe

2.2   Regional codes

In the PX-file the regional codes are to be stated in the key word CODES. The example shows municipal data for Norway.

Example
VALUES("kommune")="Halden","Moss", "Sarpsborg", "Fredrikstad", etc.
CODES("kommune")="0101","0104","0105","0106", osv.

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[2] This requirement concerns PC-AXIS for the reading of PX-files, but not for PX-Map for opening PX-files.

2.3   Own statistical data - text files (SDV)

PX-Map is able to read semicolon-separated text files (SDV-files). Text files do not need to have the surname SDV; this is decided by the user through adjustments in the language file. For instance OpenFilter=px, sdv, txt, pxo, asc, dat.

A text file example -county data for Norway

Norge_fylke.ini	referral to the map basis, that means the pointer to kart.ini-fil (see key word MAP for PX-files)
Region;Portion pensioners 1996	Field name – for regional code and for statistical data, in this case only one field
01;15.1	Values, separated with semicolon.
	First county number, then value for portion pensioners
02;11.0	
03;14.4	
04;17.4	
05;16.6	
- etc.	
18;14.5	
19;12.2	
20;10.8	

Comments
- fields should be separated with **semicolon (;)**
- **the content of the field for regional code (KNR)** must be the same as in the map basis, but not necessarily the same field name
- decimal symbol – both comma or period may be used
- not necessary with semicolon after each row (but all right)
- must be values in all rows, i.e. either a number, an interval or a special symbol
- may well be not stated/stated as blank (interval)
- necessary with line feed after the last row/line!

3.   Map basis – shape files

3.1   In general

PX-Map uses map data in ESRIs shape format[3].

The shape format consists of (minimum) three files, all with the same name, but different file type. PX-Map needs all three files in order to function – do not touch them!

Example
norge_fylke.shp   Main file, map data, coordinates
norge_fylke.dbf   dBase-file, with codes and possibly data for the map objects
norge_fylke.shx   Index file

PX-Map is delivered with the following map basis:
- Norway – counties, economic regions, municipalities, neighbourhoods in Oslo and Bergen
- Nordic countries – country, counties and municipalities – may be downloaded separate from www.ssb.no/px-map
- Europe – country and NUTS2
- World – country

This is a map basis which may be freely used together with PX-Map, but remember to state source (Norwegian Mapping Authority – and the Nordic data).

New map basis may be added dependent on which statistical data are to be shown. Requirements for new map basis are as follows:
1. A map parameter file must exist in the sub-catalogue MAPS in the installation of PX-Map, one that points to the pertinent map basis.
2. The map basis must have a common connector key that (regarding content) corresponds to the statistical data.

If you need other map basis contact your local dealer of GIS and/or map data. You may also try the Internet – possible addresses are for instance:
- ESRI ArcData online: http://www.esri.com/data/online/index.html
- Geography Network: http://www.geographynetwork.com/free.cfm
- Digital Chart of the World: http://www.maproom.psu.edu/dcw/

3.2   Map parameter file

The link between statistics and map data is steered by a map parameter file, for instance **Norge_kommune.ini**. (see also chapter 2.1 about key word MAP). This parameter file is also steering the default values for the colours in the shaded and the symbol maps, language and descriptions in the maps and the background values for some of the map data.

The map parameter file **Must** lie locally on the MAPS catalogue where the program is installed (for instance. C:\Programfiler\PX-Map\Maps)

Possibilities with adjustments in parameter file:
- placing (storage) of coordinate data on local disc
- default minimum and maximum colours for shaded map
- default colour for symbol map
- contour (thickness of line and – colour) for polygons in the map basis
- presentation of supplementary map basis – thickness of line and – colour
- ZERO values – presentation on the map (the ZERO concept – other concepts to be chosen in the language file)

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[3] Pertinent software using this format are for instance ArcView and ArcInfo. Many GIS software packages may be converted to and from shape format.

- name of map basis – the map name that is shown in PX-Map
- values for background texts on status line – for instance name of municipality and number, statistical field

Field	Description, comments
[MAPS]	
NumMaps=4	Number base maps that are to be shown – must be polygons
1=C:\Programfiler\PX-Map\Maps\norge.shp	Path and name for map basis for base map no. 1 (entire Norway)
2=C:\Programfiler\PX-Map\Maps\norge_sor.shp	Path and name for map basis for base map no. 2 (Southern Norway)
3=C:\Programfiler\PX-Map\Maps\norge_nord.shp	- etc.
4=C:\Programfiler\PX-Map\Maps\norge_delt.shp	
E1=C:\Programfiler\PX-Map\Maps\norge_fylke.shp	Path and name for supplementary map parts in map no. 1. (for instance county borders) – may be polygons or lines
E2=C:\Programfiler\PX-Map\Maps\norge_sor_fylke.shp	- etc.
E3=C:\Programfiler\PX-Map\Maps\norge_nord_fylke.shp	
[DEFAULT]	Default values – colours in maps
SymbCol= colLightYellow	Colour for circle symbols
StartCol= colLightYellow	Colour for starting colour, shaded maps
EndCol=colRed	Colour for end colour, shaded maps
NullCol=colWhite	Colour for zero values
ShowNoData=0	0: Do not show class for no data; data missing
	1: Swow no data; data missing
[FIELDS1]	Information on map basis no. 1
MapName=Norge	Name of maps that are to be shown in PX-Map
	If not stated the name of the shape file is given
KeyField=KNR	**Key field for connection, points to the pertinent field in map basis (dbf-fil). Must be text (string) format in Arc View.** Is not case-sensitive, but must have the same name. Need not be the first field in the shape file.
KeyPField=Kommunenr	Presentation field for the key field, i.e. the filed name that is shown on the status line in PX-Map.
NameField=KOMMNAVN	Field name for regional name – points to pertinent field in the map basis (dbf-fil) Is not case-sensitive, but must have the same name.
NamePField=Kommunenavn	Presentation field for region, i.e. the field name that is shown on the status line in PX-Map.
StatPField=Statistikk	Presentation field for statistics
Show=1	Display of contour (out-line) for polygons: 1: Displayed 0: Not displayed
Size=1	Line thickness on contour
Color=colGray	Colour of contour
[E1]	Supplementary map layer, for instance other adm. boundaries
Size=1	Line thickness of contour
Color=colBlack	Colour of contour
[FIELDS2]	Next map layer … etc.
MapName=Sør-Norge	
[E2]	
Size=1	
[FIELDS3]	
MapName=Nord-Norge	

3.3 Requirements for regional codes in the map data

Special map data that are to be used must as a minimum have the following fields:
- field for regional code – MUST be of the type text ('String' in ArcView terminology) [4]
- field for regional name – must be of the type text

The field names for regional code and – name must correspond to the appurtenant field names in the

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[4] It is probably also a maximum length for the field name, but this has not been checked.

map parameter file.

The field names need not be identical to the corresponding field name in the PX or the SDV file. But the *content* in the field for the regional code must be identical to appurtenant values in the PX or the SDV file.

3.4 Colour codes

A set of predefined colour codes from MapObjects LT is used, and are as follows:

ColBlack	0x0	Black
ColRed	0xFF	Red
ColGreen	0xFF00	Green
colBlue	0xFF0000	Blue
colMagenta	0xFF00FF	Magenta
colCyan	0xFFFF00	Cyan
colWhite	0xFFFFFF	White
colLightGray	12632256	LightGray
colDarkGray	4210752	DarkGray
colGray	8421504	Gray
colPaleYellow	13697023	Pale Yellow
colLightYellow	8454143	Light Yellow
colYellow	65535	Yellow
colLimeGreen	12639424	Lime Green
colTeal	8421440	Teal
colDarkGreen	16384	Dark Green
colMaroon	128	Maroon
colPurple	8388736	Purple
colOrange	33023	Orange
colKhaki	7051175	Khaki
colOlive	32896	Olive
colBrown	4210816	Brown
colNavy	8404992	Navy

In addition you may use colours that are described with RGB in a calculated form from HEX to DEC. The sequence of the RGB values is changed to Blue Green Red (BGR) and hexadecimals are put together in this sequence. 0 lowest value and therefore no colour and FF (255) highest value and is therefore a full or pure colour. The calculation may be illustrated in the following matrix:

Colour		(B)ue HEX	(G)reen HEX	(R)ed HEX	HEX	DEC (PXO file)
Red		00	00	FF	FF	255
Green		00	FF	00	FF00	65280
Blue		FF	00	00	FF0000	16711680
Yellow		00	FF	FF	FFFF	65535
Orange		33	99	FF	3399FF	3381759

It is recommended that PX-Map is used to set colours and that user does not key codes for colours.

4.   Coupling between statistics and map

4.1   Use of PC-AXIS key word in PX-Map

PC-AXIS and PX-Map use the following key word from the PX-file[5]:

TITLE	Used for information in window title.
DESCRIPTION	Used for field Description when in File/Open (shows content in PX-file)
CONTENTS	Used by PC-AXIS, in the upper field in the dialogue box for selection of variables from PX-file
MATRIX	Used for information in window title.
STUB	Used to find direction for reading of data, and/or statistics field.
HEADING	Used to find direction for reading of data, and /or statistics field.
CODES	To be read to pick out regional values.
VALUES	To be read to pick out file names for statistics and regions. Also – picks out values for information in status bar. Also used to find out if the px file is valid. If more than two VALUES occurrences have more than one (1) value, the file is invalid for PX-Map.
MAP	Used to find map parameter file. If this key word does not exist, the file is not a valid file for PX-Map.
DECIMALS	Number decimals to be displayed.
DATA	Actual statistics data

The example below shows the interaction between the PX-file and the result in PX-Map after start from PC-AXIS::

Data in PX-file:
MATRIX="000399";
DESCRIPTION="Nøkkeltall. Kommune. 1999";
TITLE="Nøkkeltall etter kommune. 1999";
CONTENTS="Nøkkeltall";
UNITS="Antall pr. km2, prosent, antall, km2";
STUB="kommune";
HEADING="nøkkeltall";
MAP("kommune")="Norge_kommune";
VALUES("kommune")="Halden","Moss","Sarpsborg", osv.

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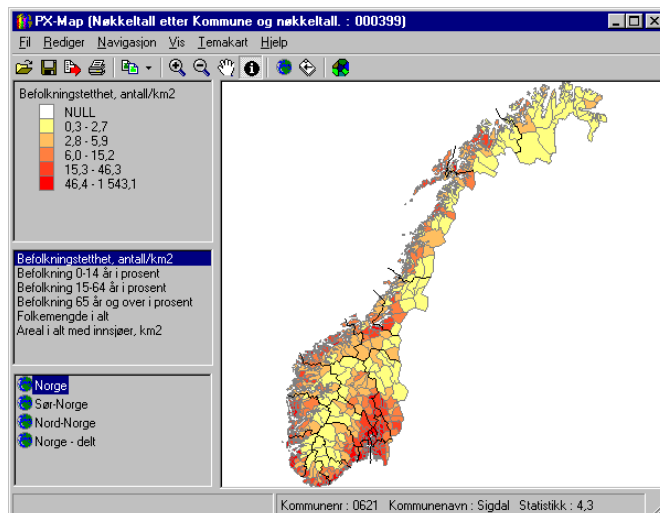
[5] Rewrite or supply this chapter with systematic information about the different elements in the PX-Map window, Description in File/Open. In the status line at the bottom of the screen , differnces regarding the PX-file are read via PC-AXIS or directly in PX-Map. In the map picture – rather read title from Description instead of Title? In the list of files in File/Open the Description is displayed – and use Contents if Desc. is blank. Rather generate own Title in PX-Map? Title is generated by PC-AXIS based on Contents and variables, and insert words in between such as distributed, after, and so on. The title in may be insufficient if texts are read directly from the PX-file.

4.2   Error message due to too many variable values from PX-file

PX-AXIS is able to handle statistics files with up to 16 variables ('dimensions'). One example illustrates this: Number persons by municipality, year, gender, age group and marital status – these are five variables or dimensions.

PX-files that are to be used in PX-Map may only contain one dimension (i.e. one variable with several values) in addition to the region. For possibly other variables only one value for each variable may be selected.

Example:
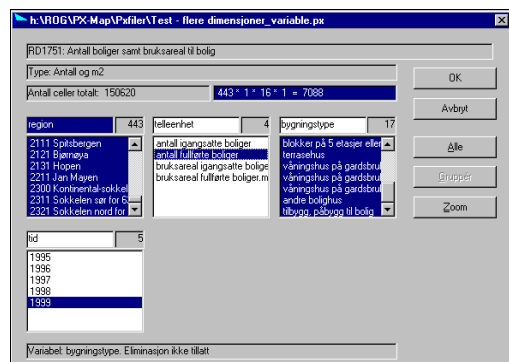
PX-files with several dimensions are not displayed with File/Open in PX-Map

PX-Map gives an error message about too many variable values, i.e. that for several variables more than one value is selected. For instance, all municipalities and all key words – this is all right. With all municipalities, all key figures and all years (and thereby three dimensions) – this is not all right. The map key in PC-AXIS may be selected, but an error message shows up from PX-Map if attempts are made to produce maps:
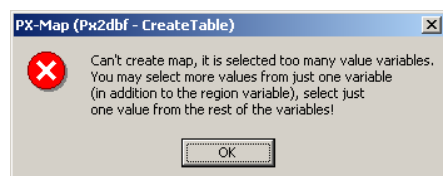
4.3   Display of number of decimals

PX-files

PX-Map is using the key word PRECISION in order to show the number of decimals. If PRECISION does not exist for the pertinent variable DECIMALS is used.

Example – PX-file with one and two decimals in the data

Key word:
PRECISION("nøkkeltall","Befolkningstetthet, antall/km2")=2;
PRECISION("nøkkeltall","Befolkning 0-14 år i prosent")=1;
PRECISION("nøkkeltall","Befolkning 15-64 år i prosent")=1;
PRECISION("nøkkeltall","Befolkning 65 år og over i prosent")=1;
DECIMALS=1;
SHOWDECIMALS=0;

SDV-files - text files

PX-Map is using the highest number of decimals that exists in the data. For instance, if a data value has four decimals, these are used for all data.

4.4   Special symbols in PX-files

PX-Map can handle some special symbols. Special symbols are shown the following way:

Symbol	Value – meaning	Display in PX-Map
-	Value – zero	ZERO
	Not stated – blank	ZERO
.	Can not occur	ZERO
..	Statement lacking	ZERO

5.   Option file - PXO

PX-Map cannot read an option file (PXO-file), or start from the commando line with message to option file (see chapter 7 - Batch). In the option file a complete set-up of statistics is stored: maps, class boundaries, colours etc.

The PXO-file can be produced by PX-Map (File/Save as), or also be produced in a text-editing program. The PXO-file is a straightforward ASCII-file, and may be edited in an ordinary text editor.

The file has the following content (not necessarily with this sequence on the sections):

Section/Field	Comments
[DATA]	
Source=W:\ssb\Applikasjon\PXFiler\040697.px	PC-Axis file that is to be used
Value=5	Which field in the statistics data that is used in the map
Geo=Norge.ini	PX-Map is using this to approve the file as a valid PX-Map project file
Map=3	Which file to be used: defined in INI-file
[EXTENT]	Map segment
	All = 0 is the same as complete segment. Other values represent map coordinates for corner points.
Left=0	
Right=0	
Top=0	
Bottom=0	
[SYMBOLIC]	Map type
Type=CLASSIFICATION	Shaded map: CLASSIFICATION, symbol map: CIRCLE
[CIRCLE]	If Type=CIRCLE this should be included.
Percent=10	Percentage size of map basis that the circles should cover. Recommended value is 10.
Color=ColPaleYellow	Circle value
Null=-2	Value of ZERO in the data set
[CLASSIFICATION]	If Type=CLASSIFICATION this should be included
Null=-2	Value of ZERO in the data set
NullColor=16777215	Colour for ZERO on the map.
Classes=10	Number of classifications
RampColors=1	1: Colours should be distributed between StartColor and EndColor with the RAMP function 0: Colours are specified for each class
StartColor=ColYellow	
EndColor=ColRed	
Class1=50	Classification for the highest Value in the class. Therefore lowest value --50, 51-100 etc..
Class2=100	
Class3=200	
Class4=400	
Class5=800	
Class6=1600	
Class7=3200	
Class8=64000	
Class9=128000	
Class10=256000	

Example of a PXO file for a shaded map:

[DATA]
Source=h:\ROG\PX-Map\Pxfiler\000399.px
Value=1
Geo=Norge_kommune.ini
Map=1

[EXTENT]

Left=-294577.788213315
Right=1332728.54602582
Top=7940077
Bottom=6454100

[SYMBOLIC]
Type=CLASSIFICATION

[CLASSIFICATION]
Null=-2
NullColor=16777215
Classes=5
RampColors=1
StartColor=8454143
EndColor=255
Class1=2.8
Class2=6
Class3=15.3
Class4=46.4
Class5=1543.1

Example of a PXO file for a symbol map:

	Explanation – comments
[DATA]	
Source=h:\ROG\PX-Map\Pxfiler\000399.px	
Value=5	Field no. 5 in the PX file
Geo=Norge_kommune.ini	
Map=1	
[EXTENT]	
Left=-294577.788213315	
Right=1332728.54602582	
Top=7940077	
Bottom=6454100	
[SYMBOLIC]	
Type=CIRCLE	
[CIRCLE]	
Percent=10	
Color=8454143	Corresponds to the colour colYellow
Null=244	Corresponds to the colour col/White

6.   Language

6.1   Language in PX-Map

All texts (menus, information, dialogue boxes etc.) may be shown in an unlimited number of languages. This is steered by a special language file that can be called at the start of the program.

Example: PX-Map.exe /l <path>pxmapNO.txt   - PX-Map starts with Norwegian texts

If PX-Map is started without a language file, English texts will appear (that lie default in the exe-file).

From PC-AXIS PX-Map is started with the language that is selected in PC-AXIS. If the pertinent language file for PX-Map does not exist, PX-Map is started with English texts.

The language file (for instance PXMAPNO.TXT) is a straightforward ASCII-file, where all texts lie in plain texts.

The language file must have the following name:
PXMAP<LanguageCode>.txt, where LanguageCode is:

sv	Swedish
en	English
da	Danish
no	Norsk
fi	Suomi
kl	Kalaallisut
is	Íslenska
fo	Føroyskt
es	Español
eu	euskara
pt	Português

Other language codes are defined in standard ISO-639.

6.2   Producing own language file

Copy file PXMAPEN.TXT in the PX-Map program catalogue. Rename the file to the new language code and translate the content of the file:

From:	**To: - other language!**
File=&File	File=&Fil
Open=&Open	Open=Å&pne
Save=&Save	Save=La&gre
SaveAs=Save &As	SaveAs=Lagre &som
etc.	

- where you place & before the shortcut character which will be shown as underlined in menus

The language file is shown in annex 2.

6.3   Language in the maps

PX-Map makes it possible to show different languages in connection with the maps:
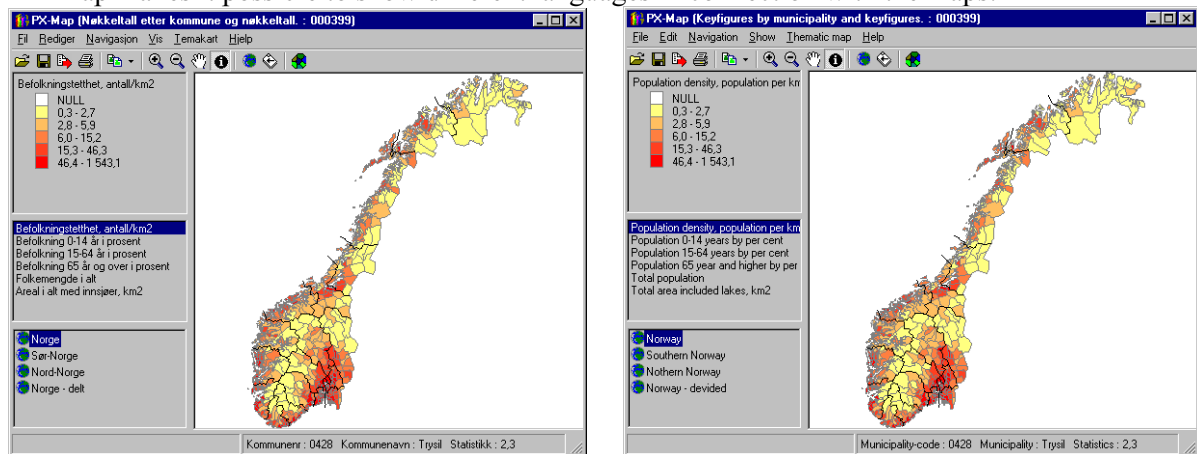
Texts for map name, and on the status line (Municipality number, Municipality name and Statistics) are steered from the map parameter file (Norge_kommune.ini), and not from the language file.

In the example above this is solved with the help of two map parameter files, one with Norwegian text and one with English:

MAP("region")=(Norge_kommune"):   Results in Norwegian texts in the map, and is used where data are to be shown in Norwegian connections.

MAP("region")=(Norway_municipality"):   Results in English texts (Norway, Northern Norway, Municipality, Statistics, etc.), and is used where data are to be shown in international connections.

Both the two map parameter files come with the installation of PX-Map.

7.   Batch

PX-Map may be started from the commando line, i.e. called with parameters in the following form:
px-map.exe [[/f <inputfile>.<px|pxt|sdv|pxo>] [/m <optionfile>.<pxo>] [/o <outputfile>.<png|wmf|bmp>]]
            [/l <languagefile>.txt] [/c circle|choroplet] [/s <number>]

The Parameters' significance:

- **/f** is input file that either could be a PC-Axis file, px/ptx (temporary) or a semicolon-separated file (sdv).

    px-map.exe /f min.px

- **/m** is PX-Maps option file that only can a pxo. If it is a px/pxt or sdv file as input the pxo file will describe the appearance for the input file in PX-Map. Commando must at a minimum contain:

    px-map.exe /f min.px /m min.pxo

    PX-Map can be opened by reading the px-file, all information in the option file and show map with statistics.

- **/o** is used only for batch jobs that indicate in which format the picture should be stored. For batch jobs the following calls must be executed:

    px-map.exe /f min.px /m min.pxo /o min.png

    PX-Map is opened minimized. Reads px-file, all information in the option file and stores picture for map, symbol explanation, PX file and a pxo file in the same catalogue as the output file.

- **/l** is a language file that may be of the type PXMAPNO.TXT. If language file is a part of parameters then all text will be according to the content of the language file.

- **/c** may either be circle|choroplet that decides if the map is to be a symbol map or a shaded map.

- **/s** Size of exports of map picture. A value decides the dissolution on the segment. A dissolution on 1 represents the same number pixler as bitmap picture of the map the way it looks on the screen. A dissolution of 10 is ten times more than original number pixler in the map picture, both in horizontal and vertical direction. 0.5 is half of the number of pixler in the map picture.

    px-map.exe /f min.px /m min.pxo /o min.png /s 0.5

The program can also be executed with a PX-Map option file. The call may therefore only include the following:

px-map.exe min.pxo

Then PX-Map will start and read all information from the option file and produce the theme map. A PXO file can therefore be opened as a document for PX-Map.

8.   Installation

8.1   System requirements and installation

Requirement for hardware

The following configuration is recommended by GEODATA AS:

Product	Minimum configuration for complete installation	Recommended
Processor	Intel PII-200MHz	Intel PII-450MHz
Hard disk	53 Mb	100MB
RAM	64 Mb	128 Mb
Display card	2 Mb, 256 colours	4 Mb, >256 colours

Complete installation requires 53 MB free hard disk, of which 5.5 MB are needed for PX-Map software and 47.5 MB on system disk for system files. Reduced installation requires 23 MB free hard disk, of which 5.5 MB are needed for PX-Map and 17.5 MB on system disk.

Available operating system

PX-Map is available on the following operating system:
- Windows NT 4.0, service pack 5 or higher
- Windows 95
- Windows 2000
- Windows ME
- Windows XP

PX-Map is NOT available for Windows 98.

Installation

Be aware of that you need admintrative privileges on your computer to install the software. If PX-Map previously is installed on the machine the first step will be to deinstall the previous version. The installation itself is started by starting the installation script one more time.

The installation is made with InstallShield Professional 6.2 (2000). Two variables are produced:
- complete installation – including BDE 5.11 and MDAC 2.5 – 21.7 MB
- reduced installation – without BDE and MDAC – 8,5 MB

Complete installation

An installation with all necessary components has been produced:
- MDAC 2.5
- BDE 5.11
- MFC 6.0
- Visual Basic Runtime 6
- MOLT 2.0
- PX-Map

Here – the versions of the operating system that are to be used are checked. For Windows NT the service pack 5 or higher must be installed. For Windows 2000 and ME – MDAC 2.5 is not being installed because it comes with the operating system..

A complete installation needs a minimum of 53 MB available hard disk where 5,5 MB is needed for PX-Map and 47.5 MB on system disk.

Reduced installation

An installation with fewer components is made in order to reduce the size. MDAC 2.5 and BDE 5.11 are removed from the installation, but in order for PX-Map to function these must have been installed

on the machine beforehand. User will get a warning about this if one or both are lacking.

The components that are included in reduced installation are:
- MFC 6.0
- Visual Basic Runtime 6
- MOLT 2.0
- PX-Map

A reduced installation requires a minimum of 23 MB available hard disk where 5.5 MB are needed for PX-Map and 17.5 MB on system disk.

Sequence for installing PX-Map and PC-AXIS

PC-AXIS must be installed before PX-Map due to overwriting of – or new PCAXIS-inifile (c:\winnt\pcax2000.ini)

Simple system description

The program is built up by several components. The interface is developed in Visual Basic 6.0 service pack 4 (VB 6.0). Map motor is MapObjects LT 2.0 from ESRI. Some UML documents have been put up in order to illustrate the different classes and objects in the solution.

PX-Map is using numerous ActiveX components. Most of them are standard components delivered from Microsoft. ESRI is the deliverer of the component *MapObjects LT 2.0* – a component for handling geographical information.

In addition GEODATA AS has made modules based on ESRI's technology in order to display symbols on maps, and generate dbf file from px/sdv files. ActiveX DLLs and AcitveX checks that are used in PX-.Map are developed.

Components that carry out the database work for PX-Map are developed, in this case DBase-files. PX2DBFBuilder is an ActiveX DLL that is developed in connection with PX-Map. It is described in the Self-produced ActiveX check and library chapter. The others are Microsoft Active Data Access Objects that are handling links with databases. PX-Map and the developed components are using ADO, which is a part of MDAC_TYP library to Microsoft.

PX-Map has one requirement regarding catalogue structure that is needed in order for the program to operate. A catalogue with the name PX-Map/maps that is to contain map basis and map parameter files must be available.

8.2   File placing

The map parameter file (for instance Norge_kommune.ini) MUST be stored in the MAPS catalogue where PX-Map is installed (for instance C:\Programfiler\PX-Map\Maps\). In the map parameter file references to the placing of the actual map basis is stated. As default in the installation program this path is put to the same catalogue (C:\Programfiler\PX-Map\Maps\), but user may change this if a different placing is desired.

If you use something else than Norwegian Windows, or choose to install PX-Map in another catalogue than default, you MUST change the file placings in the map parameter basis correspondingly. The path in the map parameter file must be edited to where the map basis is placed.

Statistics data (PX and text files) may be placed where the user wants them.

8.3   Interplay with PC-AXIS

Current version of PC-AXIS (that inter alia exist on SN's web site) is adjusted to use together with PX-Map.

Adjustments in PC-AXIS

During the installation of PX-Map the following text is written to ini-fil (**c:\winnt\pcax2000.ini)** for
PC-AXIS:
[PXMAP]
Pgm=C:\Programfiler\PX-Map\PX-Map.exe
Pathtxt=D:\Programfiler\PX-Map

Annex 1: Example of a PX file

```
CHARSET="ANSI";
AXIS-VERSION="99";
CREATION-DATE="19990422";
SUBJECT-AREA="00 Generelt";
SUBJECT-CODE="00";
MATRIX="000399";
DESCRIPTION="Nøkkeltall. Kommune. 1999";
TITLE="Nøkkeltall etter kommune. 1999";
CONTENTS="Nøkkeltall";
UNITS="Antall pr. km2, prosent, antall, km2";
STUB="kommune";
HEADING="nøkkeltall";
MAP("kommune")="Norge_kommune";
VALUES("kommune")="Halden","Moss","Sarpsborg","Fredrikstad","Hvaler","Aremark","Marker","Rømsk
    og","Trøgstad","Spydeberg","Askim", osv. ;
VALUES("nøkkeltall")="Befolkningstetthet, antall/km2","Befolkning 0-14 år i
    prosent","Befolkning 15-64 år i prosent",
"Befolkning 65 år og over i prosent","Folkemengde i alt","Areal i alt med innsjøer, km2";
CODES("kommune")="0101","0104","0105","0106","0111","0118","0119","0121","0122","0123","0124",
    "0125","0127","0128","0135","0136","0137","0138","0211", osv. ;
PRESTEXT("nøkkeltall")=0;
PRECISION("nøkkeltall","Befolkningstetthet, antall/km2")=2;
PRECISION("nøkkeltall","Befolkning 0-14 år i prosent")=1;
PRECISION("nøkkeltall","Befolkning 15-64 år i prosent")=1;
PRECISION("nøkkeltall","Befolkning 65 år og over i prosent")=1;
DECIMALS=1;
SHOWDECIMALS=0;
SOURCE="Statistisk sentralbyrå";
DATA=
41.38 18.40 62.80 18.80 26523.00 641.00
416.54 17.60 65.80 16.60 26242.00 63.00
115.78 18.00 65.20 16.80 47122.00 407.00
232.47 18.10 64.70 17.20 67415.00 290.00
39.62 18.20 66.30 15.50 3487.00 88.00
osv.
;
```

Annex 2: Language file

Innhold i språkfilen er vist under. Det må ikke oversettes det som står i krokodilleklammer <>.

[PXMAP]
#Don't translate words in <>
About=&Om PX-Map
AboutDescription=10
AboutDescription1=PX-Map er en kartmodul i PC-AXIS for tematisering av kart.
AboutDescription2=PX-Map er også et frittstående produkt som kan lese PX-filer og ASCII semikolon separerte filer.
AboutDescription3=
AboutDescription4=Copyright Statistisk Sentralbyrå 2001
AboutDescription5=Statistisk Sentralbyrå
AboutDescription6=Postboks 8131 Avd.
AboutDescription7=0033 Oslo
AboutDescription8=
AboutDescription9=Lars Rogstad, rog@ssb.no
AboutDescription10=www.ssb.no/px-map
Cancel=&Avbryt
CantCreatePXO=Kan ikke lage PX-Map opsjonsfil
CantShowField=Kan ikke vise <FIELD>.
Chart=&Vis datafordeling
CheckINI=Sjekk feltnavnene i <INI> og <SHAPE> (shape-fil), som må være identiske.
CircleColorTxt=Symbolfarge
CircleColorCmdTxt=&Endre farge
CircleSizeTxt=Symbolstørrelse
CircleSizeDescTxt=Skriv inn ny prosent:
CircleSizeInfoTxt=Normalt er symbolets areal 10% av arealet for regionene i statistikkartet.
ClassForm=Temakart
Close=&Lukk
Codes=Kan ikke finne koder for
Connect=Kan ikke åpne database
ConnectDB=Kan ikke koble statistikk og kart.
Contents=&Hjelp for PX-Map
Copy=Kopier
CopyFiles=Shape-fila <SHAPE> finnes ikke. Sjekk filnavnene i <INI>.
CopyLegend=Kopier &tegnforklaring
CopyLgdImg=Kopier tegnforklarings&bilde
CopyLgdTxt=Kopier tegnforklaringst&ekst
CopyMap=&Kopier kart
CopyStat=&Kopier statistikk
CopyTitle=Ko&pier tittel
Count=Antall
CustomText=Egendefinert
DateTxt=Dato
DescriptionTxt=Beskrivelse
Edit=&Rediger
EqualText=Like intervaller
Exit=&Avslutt
Export=Eks&port
ExportFilter=Bitmap fil (*.bmp)|*.bmp|Windows Meta fil (*.wmf)|*.wmf|Portable Network Graphics file(*.png)|*.png
ExportTitle=Eksporter
FieldError=finnes ikke i <SHAPE> (shape-fil).
File=&Fil
Fileformat=Feil tekstfilformat.
FileNameTxt=Filnavn
FrameClassesText=Antall klasser
FrameColorText=Fargerampe
FrameMaximumTXT=Maksimum verdi
FrameTypeText=Klassifiseringstype
FullExtent=&Fullt utsnitt
GenErrorMsg=Det oppsto en feil! Sjekk dataene og utført operasjon.<CRLF>Det er mer informasjon i Loggfil
Greater=Tallet kan ikke være større enn eller lik
GreaterMin=Tallet kan ikke være større enn

Help=&Hjelp
Info=&Informasjon
InUse=Kartdata er i bruk av en annen prosess. Vær tålmodig og vent til kartet er ferdig tegnet!
InZoom=Trinnvis zoo&m inn
Join=Kan ikke koble tabellene
LabelEndText=Slutt
LabelStartText=Start
Less=Tallet kan ikke være mindre enn
MapType=Velg karttype
Max=Maks
Maximum=Maksimum
Mean=Gj.snitt
Median=Median
Min=Min
Minimum=Minimum
Missing=Mangler PX-Fil!
MissingData=Mangler numeriske data.
MissingFile=Mangler fil
Navigate=&Navigasjon
NoData=Ingen data
NoDataCheckText=Vis 'Ingen data'
NonNumeric=er ikke et numerisk felt. Kan ikke kalkulere data!
NumApps=For mange applikasjoner kjøres på engang!
NumFiles=Antall filer
OK=&OK
Open=Å&pne
OpenFilter=px,sdv,txt,pxo
OpenTitle=Åpne
OutZoom=Trinnvis &zoom ut
Pan=&Panorer
Percent=Prosent
PrevExtent=Forrige &utsnitt
Print=Skriv &ut
PrintTitle=Skriv ut
Progress=Mangler Progressbar!
PXMapFile=PX-Map opsjonsfil
QuantileText=Kvantil
RadioChoroplet=Skravurkart - for relative verdier (forholdstall, andeler, prosenter)
RadioSymbol=Symbolkart - for absolutte verdier (totaltall)
SaveAs=Lagre &som
SaveasTitle=Lagre som
SaveFilter=PX-Map fil (*.pxo)|*.pxo
SizeTxt=Størrelse
StdDev=Stnd. avik
Sum=Sum
SymbolMax=Største symbol
SymbolMin=Minste symbol
TabSymbol=Symbolkart
TabThematic=Skravurkart
Theme=&Temakart
Unavailable=er utilgjengelig
UnJoin=Kan ikke koble fra tabellene
Valid=Ikke gyldig fil for PX-Map!
Values=Kan ikke finne verdier for
Variable=Kan ikke lage kart, det er valgt for mange variabelverdier.<CRLF>Du kan kun velge flere verdier fra en variabel<CRLF>(i tillegg til region-variabelen), for øvrige<CRLF>variabler kan du kun velge en verdi.
Version=Versjon
View=&Vis
WrongExtension=Feil filetternavn
WrongNumber=Feil verdi for value i data- eller opsjonsfila, benytter den første.
WrongPXO=Feil verdi i PXO fil!
ZoomIn=Zoom &inn
ZoomOut=Zoom &ut