

PRINCIPLES OF MANAGING THE STATE REGISTER OF BORDERS

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1. LEGAL GROUNDS

The legal grounds for managing the State Register of Borders are:

- The Geodetic and Cartographic Law Act of 17 May 1989 (unified text in Journal of Law of 2000, No.100, item 1086 with amendments).

2. GENERAL ASSUMPTIONS FOR MANAGING THE STATE REAL ESTATE REGISTER OF BORDER

- The course of borders and areas of units of territorial division of the country are kept in the state register of borders and areas of units of territorial division of the country, hereinafter called the „register of borders”.
- The register of borders is an official, digital collection of geometric and descriptive data on the course of borders and on areas of units of territorial division of the country, comprising a system of spatial information, also understood as a computer system as well as a orders, systemic manner of managing the register.

- Information about all border line points of registration precincts coinciding with the borders of communes are collected in the register.
- The grounds for elaborating a register of borders are:
 - legal acts concerning the creation, merging and abolishing of units of the territorial division of the country (journals of law, monitors, province official gazettes),
 - geodetic surveys connected with surveys of renewal or upgrading land registers (in the part related to the course of borders),
 - recording and basic maps (obtaining data by means of vectorising).

3. PRINCIPLES OF MANAGING A STATE REGISTER OF BORDERS

All and any information imperative for managing a register of borders are collected in tabular form in a relational data base.

- The nodal points (NODAL POINTS) table contains information concerning points in which border lines converge.
- The intermediate points (POINTS) table contains information concerning border points situated between nodal points.
- The lines table (LINES) contains information concerning border lines between nodal points.

3.1. PRINCIPLES FOR COLLECTING INFORMATION CONCERNING BORDERS NODAL POINTS

The NODAL POINTS table contains the following columns:

1. Systemic denomination of a point

The unique systemic denomination is a seven-digit integer granted each nodal point according to strictly defined principles.

The two first digits allow the position of a point to be defined at various levels of registration units.

The following principles are adopted:

- 1 - means voivodeship (province) level
- 2 - means powiat (county) level
- 3 - means gmina (commune) level
- 4 - means registration precinct level

Province level	1
	2
	3
	4
	2

County level		3
		4
Commune level	3	3
		4
Registration precinct level	4	4

Consistent with adopted principles, the two first digits signify:

- 11 - nodal points in which the borders of provinces, states converge;
- 12 - nodal points of counties lying on a province border;
- 13 - nodal points of communes lying on a province border
- 14 - nodal points of registration precincts lying on a province border;
- 22 - nodal points situated inside provinces in which county borders converge;
- 23 - nodal points of communes lying on the border of counties;
- 24 - nodal points of registration precincts lying on the border of counties;
- 33 - nodal points situated inside counties, where commune borders converge;
- 34 - nodal points of registration precincts lying on the borders of communes;
- 44 - nodal points situated inside communes, where the borders of registration precincts converge.

Five successive digits should be awarded to nodal points consistent with the principles:

nodal points at province level

range:

1100000 – 1100099

nodal points at county level

range:

1200100 – 1200999

2200100 - 2200999

nodal points at commune level

range:

1301000 – 1309999

2301000 – 2309999

3301000 - 3309999

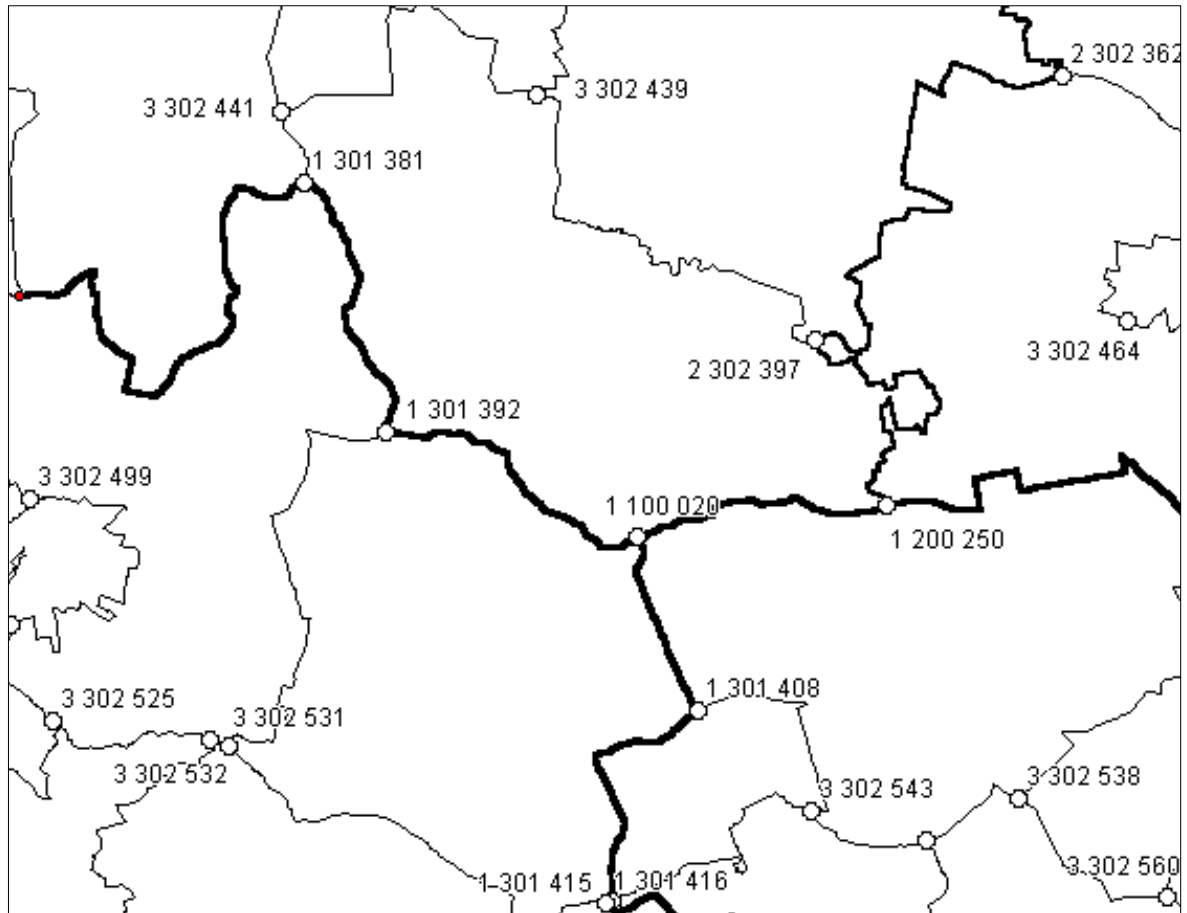
nodal points at registration precinct level

range:

1410000 – 1499999

2410000 – 2499999

3410000 – 3499999
4410000 - 4499999



Draw.1. Denomination of nodal points (without nodal points of registration precincts situated on borders of communes).



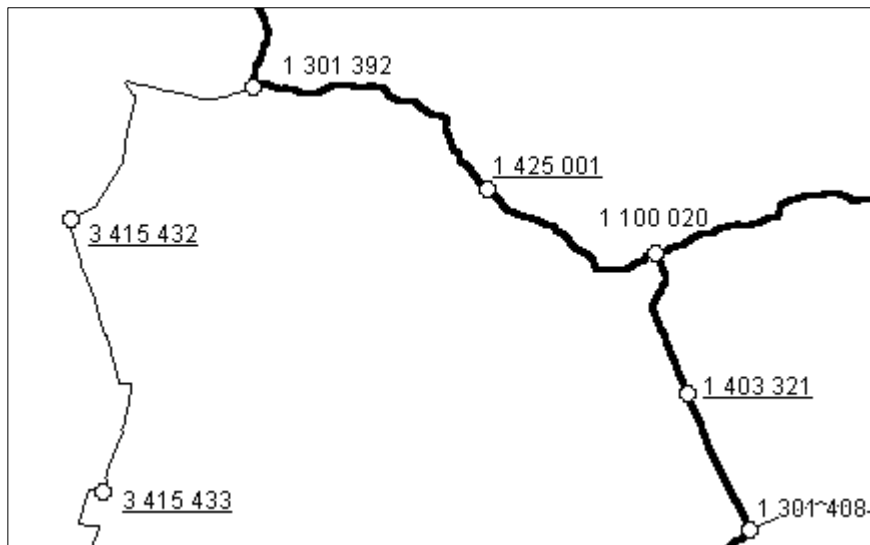
province borders



county borders



commune borders



Draw.2. Denomination of nodal points, including points of registration precincts (underlined)

2. Rectangular coordinate X - nodal point

3. Rectangular coordinate Y - nodal point

Coordinates may be expressed in these systems: „1965”, „1992”, „1942”, „2000”.

4. Name of rectangular coordinates system

The name of the system of rectangular coordinates should be given as well denomination of the projection zone:

- 1965-1, 1965-2, 1965-3, 1965-4, 1965-5,
- 1942-3, 1942-4,
- 1992,
- 2000-15, 2000-18, 2000-21, 2000-24

5. Geographic-geodetic coordinate B on ellipsoid GRS-80

6. Geographic-geodetic coordinate L on ellipsoid GRS-80

X,Y rectangular coordinates will be converted into B,L geographic-geodetic coordinates and vice versa, with the assistance of a prepared application.

7, 8, 9, 10. Denomination of a territorial unit

The universal denomination of a territorial unit is a real number composed of:

denomination of country - prime symbol

- 10 - Poland
- 11 - Germany
- 12 - Czech Republic
- 13 - Slovakia

- 14 - Ukraine
- 15 - Belorus
- 16 - Lithuania
- 17 - Russia
- 18 - Polish marine area

Denomination of province

02, 04, 06 98 - symbol of the Central Bureau for Statistics

Denomination of county

01, 02, 03, 99 - symbol of the Central Bureau for Statistics

Denomination of commune

01, 02, 03, 99 - symbol of the Central Bureau for Statistics

Denomination of the kind of unit

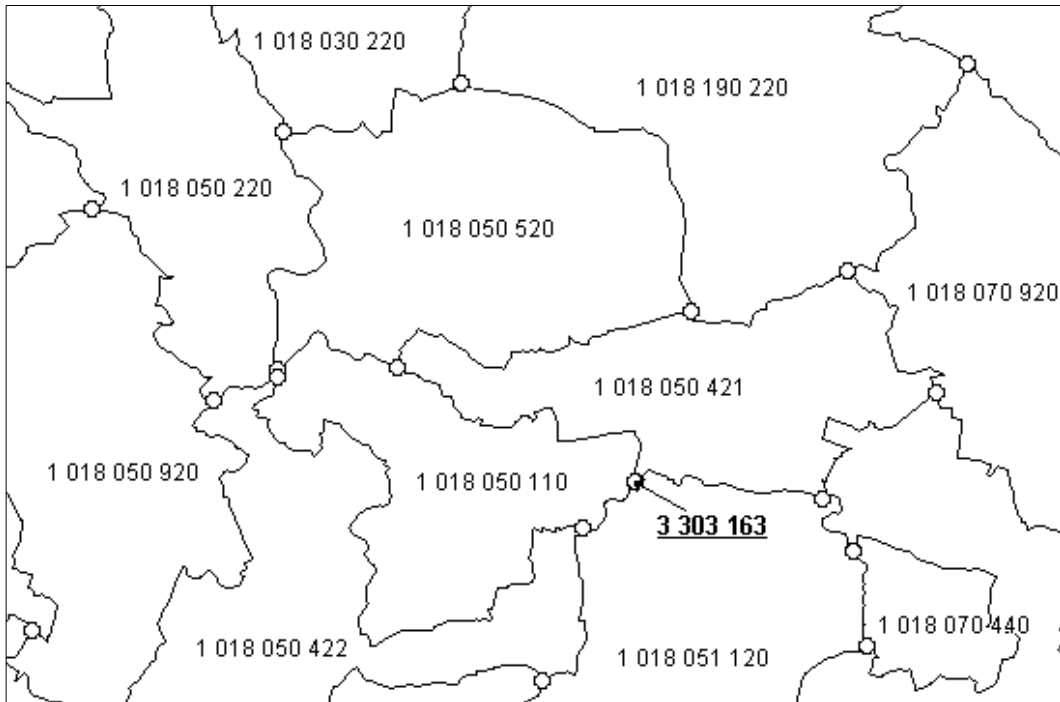
- 1 - urban commune
- 2 - rural commune
- 4 - town in an urban-rural commune
- 5 - rural area in an urban-rural commune

Denomination of communes composed of several parts

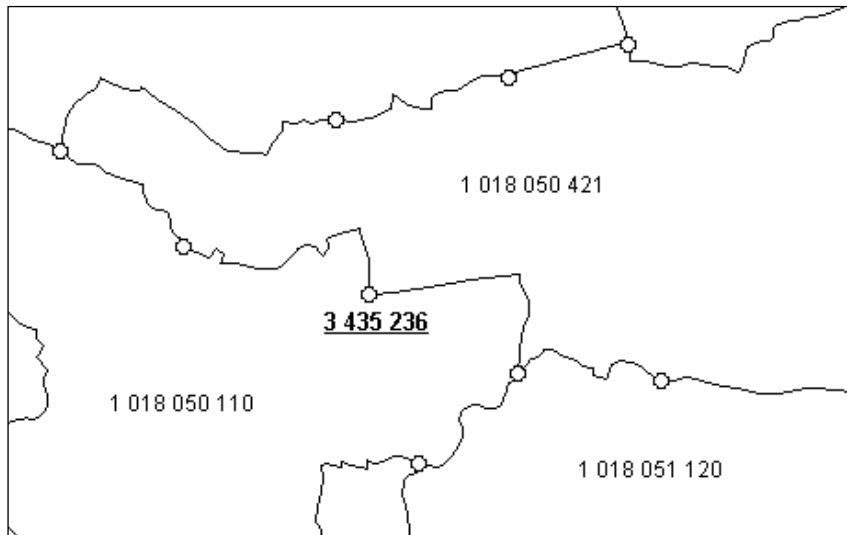
- 0 - commune in one part
- 1 - first part of a commune
- 2 - second part of a commune
- 3 - third part of a commune

Denomination of registration precincts (following the decimal point)

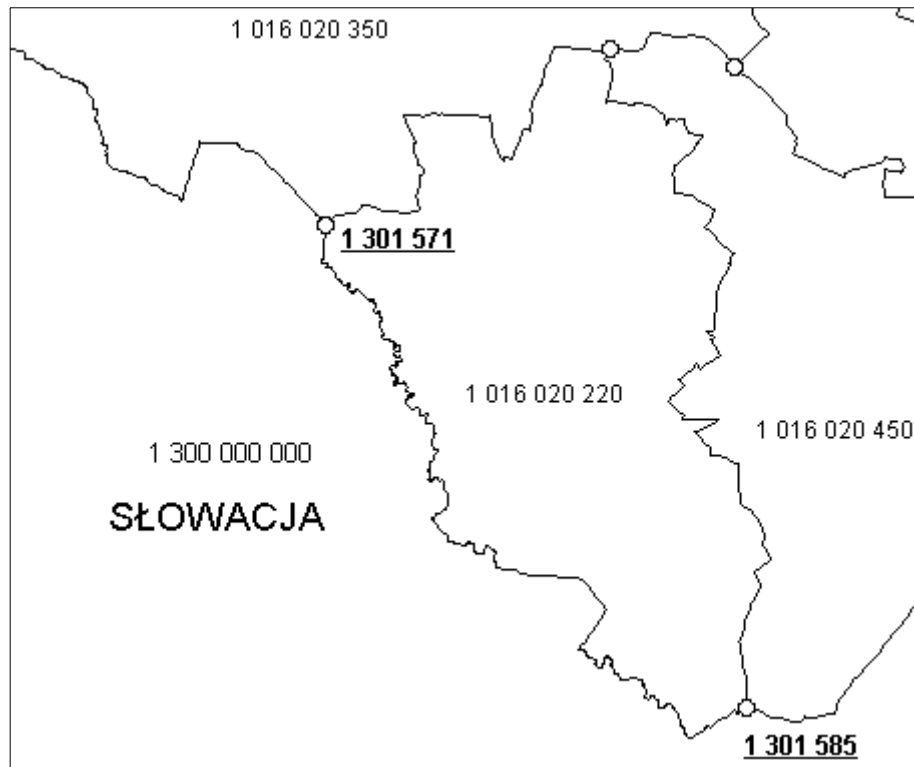
0001, 0002, 0003, 9999



Draw.3. Connection of nodal points with the denominations of territorial units. (Specific territorial units are connected with each nodal point, e.g. communes 1018050110, 1018050421, 1018051120 are connected with point 3303163)



Draw.4. Connection of nodal points with the denominations of territorial units. (Two territorial units are always connected with each nodal point of a registration precinct situated on the border of communes., e.g. communes 1018050110, 1018050421 are connected with point 3435236)



Draw.5. Connection of nodal points situated on the country's border with denominations of territorial units. (Units 1300000000, 1016020350, 1016020220 are connected with point 1301571)

11. Manner of gaining a point's coordinates

The manner of gaining the coordinates of a point to the register should be defined:

- 1 - from geodetic measurements,
- 2 - from registration map in 1:500 scale,
- 3 - from registration map in 1:1000 scale,
- 4 - from registration map in 1:2000 scale,
- 5 - from registration map in 1:5000 scale,
- 6 - from registration map in other scale,
- 7 - from topographic map 1:10,000,
- 8 - from topographic map 1:25,000,
- 9 - from topographic map 1:50,000.

12. Legal grounds for introducing a point to the register

Concerns cases of official changes to the course of borders.

13. Year of introducing a point to the register

14. Person introducing a point to the register

The first and second names of the person who introduced information about a point to the register should be inserted.

15. Geodetic denomination of a point

16. Remarks

3.2. PRINCIPLES OF COLLECTING INFORMATION CONCERNING ORDER INTERMEDIATE POINTS

The POINTS table contains the following columns:

1. Systemic denomination of a border line

The systemic denomination of a border line is a natural number.

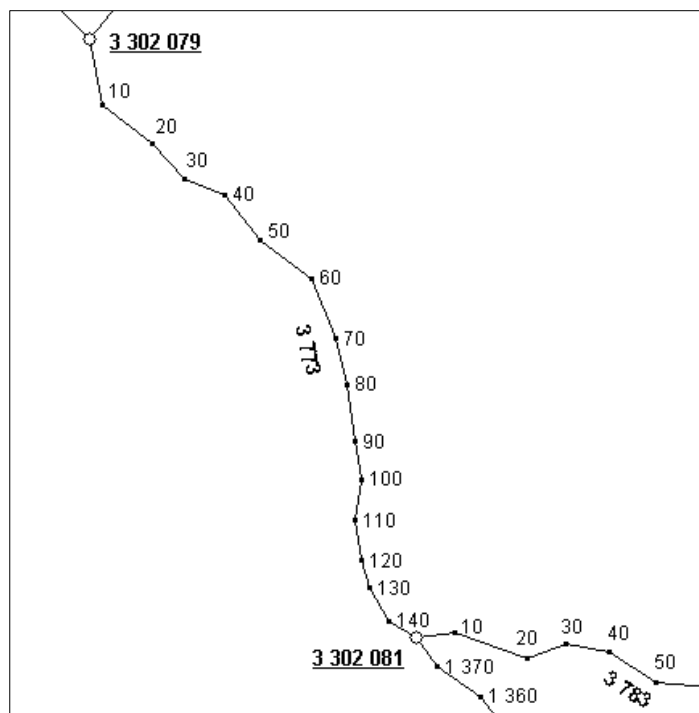
2. Systemic denomination of an intermediate point

The systemic denominations of successive intermediate points lying on border lines between nodal points must create a monotonic sequence comprising positive integers.

3. Rectangular coordinate X - of an intermediate point

4. Rectangular coordinate Y - of an intermediate point

Coordinates may be expressed in one of these systems: „1965”, „1992”, „1942”, „2000”.



Draw.6. Systemic denomination of intermediate points and border lines

5. Name of the system of rectangular coordinates

The name of the system of rectangular coordinates and the denomination of the projection zone should be given:

1965-1, 1965-2, 1965-3, 1965-4, 1965-5,
1942-3, 1942-4,
1992,
2000-15, 2000-16, 2000-21, 2000-24

6. Geographic-geodetic coordinate B on ellipsoid GRS-80

7. Geographic-geodetic coordinate L on ellipsoid GRS-80

Rectangular coordinates X, Y will be converted into geographic-geodetic coordinates B, L and vice versa, with the assistance of a prepared application.

8. Manner of gaining a point's coordinates

The manner of gaining a point's coordinates for the register should be defined:

- 1 - from geodetic measurements,
- 2 - from registration map 1:500,
- 3 - from registration map 1:1000,
- 4 - from registration map 1:2000,
- 5 - from registration map 1:5000,
- 6 - from registration map in other scale,
- 7 - from topographic map 1:10,000,
- 8 - from topographic map 1:25,000,
- 9 - from topographic map 1:50,000.

9. Legal grounds for introducing a point to the register

Concerns cases of official amendments to the course of borders.

10. Year of introducing a point to the register

11. Person introducing a point to the register

The first and second names of the person who introduced a point to the register should be inserted.

12. Geodetic denomination of a point

13. Remarks

3.3. PRINCIPLES OF COLLECTING INFORMATION ABOUT BORDER LINES

Information about border lines is stored in the „LINES” table which comprises 4 columns:

1. Systemic denomination of a line's initial nodal point

Consistent with the principles established for column 1 of the „NODAL POINTS” table.

2. Systemic denomination of a line's final nodal point

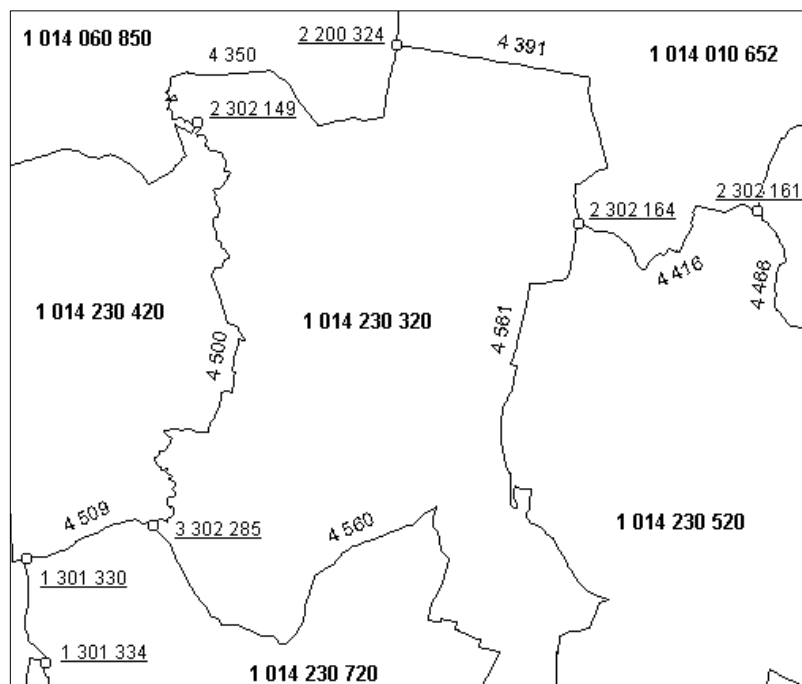
Consistent with the principles established for column 1 of the „NODAL POINTS” table.

3. Systemic denomination of a territorial unit lying to one side of a line

Consistent with the principles established for columns 7-10 of the „NODAL POINTS” table.

4. Systemic denomination of a territorial unit lying to the other side of a line

Consistent with the principles established for columns 7-10 of the „NODAL POINTS” table.



Draw.7 Graphic presentation of information contained in the „LINES” table

3.4. INFORMATION DEFINING TOPOLOGY

Information allowing the topology of a whole collection to be defined is contained in the three tables needed to establish a register of borders. This information consists of: in the „NODAL POINTS” table:

- denominations of nodal points,
 - coordinates of nodal points,
 - denomination of units of territorial division,
- in the „POINTS” table:
- systemic denominations of border lines,

- systemic denomination of intermediate points,
- coordinates of intermediate points,

in the „LINES” table:

- systemic denomination of a line’s initial nodal point,
- systemic denomination of a line’s final nodal point,
- systemic denomination of a territorial unit lying to one side of a line,
- system denomination of a territorial unit lying to the other side of a line.

The solution applied here allows a topology to be established in the relational data base. The graphics, i.e. the drawing of territorial division units, of border lines, nodal points and intermediate points can be obtained directly from the relational data base.

4. APPLICATIONS ASSISTING IN THE MANAGEMENT OF A STATE REGISTER OF BORDERS

The system of managing a State Register of Borders (SRB) consists of three basic parts:

- a relational data base containing information about the course of administration borders in Poland, including information about border points’ coordinates, their topology and the names of administration units,
- a collection of applications managing the relational data base at various administration levels: central (Head Office of Geodesy and Cartography), province and county (commune if so required),
- a collection of applications managing the data gained from the relational data base in structures and with the use of various GIS instruments.

At the present stage of constructing an SRB system, the basic functions connected with managing an administration borders data base and assisting the gaining of data are performed by three applications of the following names:

- SRB/G - central level,
- SRB/W - province level,
- SRB/Data - county level (obtaining data).

The application serves the collecting, storage and managing of data concerning the course of administration borders, in the structures of a non-spatial data base, consistent with accepted general principles. The purpose of the application is also to transfer currently valid data to bases of spatial information systems, constituting a basic link of visualising and accessing information to users in the described system