GEO 2000

Geometric calculations in general

Overview

The Geo2 software is an editor for a calculations program, which is a simple list of commands. The order of calculation is from top down, so the results of any command can be used as input for the following commands.

The Geo2 software, have a treasure of available commands, some of them are mathematic, some are computer handling. From this treasure of commands you can select commands and build your calculations program. This treasure of commands is listed in the small top-right window. From this window you select commands, by names.

The large top-left window contains the commands (the script), which build your calculations program. Each line represents a single command. Each command includes a name and a list of parameters according to its nature. The editing of command parameters is done using a special window.

When a new command is added to the list of commands, it is calculated immediately. The results are shown in the large bottom window. The results windows can show the results of a single command, or the results of a block of commands, or the results of all commands.

The results can include graphic entities, numeric values which are put into memory variables, and reports (for printing).

Graphic entities are: points, vectors, arcs, polylines and parcels. The points are split into two categories: regular and known. Known points are used as input for the TRANSFORM command (coordinates transformations) only. All other points are regular points. Vectors are lines between two edge points. Arcs are also between two edge points, and can have an angle larger than half a circle. Polylines are a continuity list of connected vectors and arcs. Parcels are closed areas defined by a continuity list of connected vectors, arcs and polylines.

For each type of units – length, angle, coordinate, height, area – 100 memory variables are defined, numbered from 1 up to 100. These memory variables, contains numeric values according to theirs units. They can get commands output, and also can serve as input for other commands. To defined a variable, you need to type the symbol ^ followed by a serial number 1-100. For example: ^12. The software knows the type of units from the command's parameter, which is that variable.

The reports are created automatically for all commands.

The results window is separated into pages. Those are: Points, Known Points, Vectors, Arcs, Polylines, Parcels, Report, Tables, Variables. Each page shows a different data. You select pages by clicking theirs title buttons.

The software is producing *.geo files. A *.geo file is the script of commands and theirs results all together. As any file, *.geo files can be saved and opened later for continuous editing.

A special characteristic of the Geo2 software is the automation of the results. The results window is always updated to show the command results – on line, automatically. See details later in this document.

The commands treasure window

The small top-right window contains all of the available commands. It is split into the following pages:

- All – The list of all commands.
- D (Definitions) – Commands which make definitions, such as point codes, overwrite flags, file formats, etc.
- E (Entities) – Commands which create new entities.
- M (Math) – Mathematical commands (calculations).
- A (Advanced) – Advanced commands.
- U (Used) – Commands which are used in your script.

Commands are always sorted by name.

At the bottom of this window there are four buttons. The right one (Help) gives help for the selected command. From the other three buttons, only one is activated (pressed down) while the others are disabled (up). The pressed button defines the location for new commands. The three options are:

- Before the current command.
- After the current command.
- Always last.

Double click a command name to select it as a new command. This is the way to add new commands to your script. As a respond to that double click, a special window will open, to let you edit the selected new command parameters. See details later in this document.

If the treasure commands window is not visible, activate the “Insert” command found in the “Script” menu, to show it.

A right click on a command name will open a help window for that command.

The script window

The large top-left window contains the script of your calculations program. Each line represents a single command. The columns in the line are:

- Command serial number.
- An icon, which identify if the command is enabled , enabled without creating a report , or disabled . A disabled command is treated as a remark. Double clicking this icon, reverses its state. When a command became disabled, its results are automatically canceled. When a command became enabled, it is automatically calculated. Those updates are shown in the results window.
- An icon, which identify if the command was successfully calculated , or failed on error , or successful with warning , or not calculated at all . Double clicking this icon, shows the full information about the command warnings and errors.
- The command name. Double clicking it, opens the editing window for the command parameters.
- The command parameters. Double clicking it opens the editing window for the command parameters.

You can brows the script, so at any time, one command is the current command. The software automatically keeps the results window updated, by recalculating commands any time it is required from your actions. Few examples will demonstrate that:

- When a command is deleted, all commands above it in the script, must be recalculated, because it may be that theirs input is changed. So, the current command became to be the one immediately above the deleted command. That command is recalculated and all commands above it became to be in the state of “not-calculated” – theirs results are deleted from the results window.
- If after that, you click the command before the last one in the script, that command became the current. To recalculate it, all commands before it, must be

recalculated also (all above the deleted one). All of that is automatically executed and reflected in the results window, as a respond to that single click.

- If you requested to edit the parameters of an existing command, at end the command is recalculated. All commands above it became “not-calculated”.
- When a disabled command became enabled, it is calculated automatically. All commands above it became “not-calculated”.

You can define the default state for new command: enabled or disabled. Do it using the “Default command status” command in the “Options” menu. Point the mouse on that command and select one of:

- Enabled, or
- Enabled Without Report, or
- Disabled.

To change the state of a block of commands, you have to mark the block and then activate a menu command.

To mark the block, click on the first command, then press the Shift key and hold it down, then click the last command, then release the Shift key. You can also scroll the mouse with its left button and the Shift key both pressed. You can also select a block of commands using the “Select all” or “Select up to” commands found in the “Script” menu. The “Select all” command selects all commands. The “Select up to” command selects the commands from the first one up to the current command.

After marking the block, activate one of the following commands found in the “Script” menu:

- Disable, or
- Enable, or
- Enable Without Report

Note: when a block of commands is marked, the results window shows the collected results of those commands only. When only one command is selected (the current), the results window shows the results of all commands, or the results of the current command – depending on the definition of the “Show results of” command found in the “Options” menu. Point the mouse on the “Show results of” command and select one of two options:

- ✡ All commands, or
- ✡ Selected command.

The results window

The results window is split into pages: Points, Known points, Vectors, Arcs, Polylines, Parcels, Report, Tables, Variables. Each page shows different type of information, as the titles describes.

Results are always shown. No need to request it.

Following is the type of information in each page:

- Points – Regular points.
- Known points – Points used as input for the TRANSFORM command only.
- Vectors – Lines between two edge points.
- Arcs – Arcs between two edge points.
- Polylines – Sequence of connected vectors and arcs.
- Parcels – Closed areas by connected sequence of vectors, arcs and polylines.
- Report – Report for printing.
- Tables – Unify, division, move lots, and area tables.
- Variables – Contents of used memory variables.

When a block of commands is marked, the results window shows the collected results of those commands only. When only one command is selected (the current), the results window shows the results of all commands, or the results of the current command – depending on the definition of the "Show results of" command found in the "Options" menu. Point the mouse on the "Show results of" command and select one of two options:

- All commands, or
- Selected command.

To mark the block, click on the first command, then press the Shift key and hold it down, then click the last command, then release the Shift key. You can also scroll the mouse with its left button and the Shift key both pressed. You can also select a block of commands using the "Select all" or "Select up to" commands found in the "Script" menu.

The “Select all” command selects all commands. The “Select up to” command selects the commands from the first one up to the current command.

To print the report, press F5 (hot key), or activate the “Print report” command found in the “File” menu. A new window will open, which handle the printing options. The ESC key closes this window.

The two small buttons, at the right side of the Variables page, are used to enable/disable the visibility of the grid horizontal and vertical lines, in the results window.

Creation and saving of a GEO file

The “File” menu contains the following commands:

- ✡ New – Create a new *.geo file. The current file, if any, will close.
- ✡ Open – Open an existing *.geo file, using the windows standard open dialog.
- ✡ Save – Save the entire script and results in one *.geo file. The file on disk is overwritten. You may be asked for a file name.
- ✡ Save as – Save under a new file name.

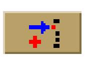
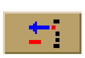
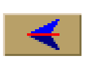
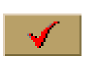
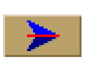
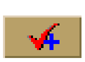
File of *.geo type can be viewed and edited using the Geo2 software only!

The command parameters editing window

The command parameters editing window include buttons, a list of constant parameters, and a list of repeated parameters, which can be repeated many times. Commands can have each one of those two parameters lists.

For each parameter you need to type its value. At end click the "**O**" button.

The editing window includes the following buttons:

-  – Set the command to be Enabled, Enabled without creating report, or Disabled.
-  – Open a selection list for the current parameter, according to its type. Point codes can be selected from code tables. Numeric values can be selected from the list of memory variables. Other parameters values can be selected from option tables.
-  – Change the units for the current parameter. See later about units.
-  – Add a new set for the repeated parameters, as the last set. For example: the "Point" command let you define many points in one command, each point in a different set of parameters.
-  – Add a new set for the repeated parameters, before the current set.
-  – Delete the current set for repeated parameters.
-  – Edit the order of lines of the repeated parameters table.
-  – End editing and go to the previous command.
-  – End editing and stay at the current command.
-  – End editing and go to the next command.
-  – End editing and create another same command after this command.

- – Search for the next command (when this window was open for search, not for editing).
- – Refresh the results window and the graphic window.
- – Open help for the current command.
- – Cancel all changes and stay at the current command.

Typing values in this window is not sensitive to lower/upper case letters.

Selection of point codes

When the current parameter is one of the point codes, double clicking its value, or activating the button, will open the appropriate code table. You can edit that table and select a value for the parameter, by double clicking this value in the table.

Selection of values from option tables

When the current parameter can only be selected from a table, double clicking its value, or activating the button, will open the appropriate table. You can select a value for the parameter, by double clicking this value in the table.

Selection of entity names

When the current parameter is an entity name (point, vector, arc, polyline, parcel), double clicking its value, or activating the button, will open a table of the existing and available entities of the same type.

In the opened window, “Name of” defines the type of entity. Generally, the software will not allow more than one type, but sometimes it is possible to choose from several entity types. According to the type of entity, the list of available entities is displayed.

“Selected name” define the entity name that you wish to set into the current parameter. You can type a name, or select a name from the list, by double clicking on the requested name.

When it is possible to choose a group of names, “Up to number” will define the last number (limit) for the group. Also, “All names in set must exist”, if selected, will define that all names in the group must exist! The symbol “!” at the right side of the group name, define in Geo2 that all of the names in the group, must exist, otherwise an error message is raised.

Selection of memory variables

When the current parameter is numeric using units (length, angle, etc), double clicking its value, or activating the  button, will open the appropriate memory variables list, according to the parameter units. Only the used variables are displayed. You can select a value for the parameter, by double clicking this value in the list. The symbol “^” followed by the selected serial number, will construct the value of the parameter. This memory variable can be used as input for the command, or as a place to put some output in it – depending on the command itself.

Entity group of names

For some parameters, you can define entity group of names. A group of names take the following format:

Name1_Number2!

Name1 is the first name in the group. It must include an integer number, and optional letters at its both sides. Those letters are constant for all names in the group. Only the number is increasing, or decreasing, towards Number2.

Number2 is the number of the last name in the group.

The symbol “!” is optional. When is appears, it defines that all the names in the group must exist! Otherwise, the software will report missing names. When the “!” symbol do not appear, it defines that, at least, one name must exist.

Sometimes, you must add the symbol “.” In front of the group names, to define that this is a group of point names, and not other entity type. But, usually there is no need for that, because where points are required, no other entity type can be legal. However, in the “Delete” command, it is legal.

For some parameter, it is required to define group names of other entities than points, such as vectors, arcs, polylines or parcels. Entity names, except points, must be formatted as:

Number1_Number2!

All entity names, except points, can include numbers only. Number1 is the first number in the group, and Number2 is the last. The order can be increasing or decreasing. The symbol “!” have the same meaning as with points.

Sometimes, you must add an ID symbol in front of the group of names, to identify the type of entity. The possible Ids are:

- “.” For regular points.
- “*” For known points.
- “\” For vectors.
- “)” For arcs.
- “~” For polylines.
- “]” For parcels.

The same apply for entity single names. Wherever there is a need to identify the entity type, an ID symbol is required.

Changing command parameters

To change the parameters of an existing command, double click the command name or its parameters information column, in the script window. You can also activate the “Edit parameters” command found in the “Script” menu. The command’s editing window will open and let you change the parameters values. At end, the command will be recalculated and results updating will occur automatically.

Edit the order of lines of the repeated parameters table

Clicking the  button will open a window, which is used to change the order of lines within the repeated parameters table. That button is disabled in commands, which do not have repeated parameters.

The window contain two tables:

1. The top table – contain a copy of the repeated parameters of the edited command. The purpose of this window is to change the order of lines within that table. In addition, it is possible to delete or add lines to this table. When clicking OK, the window closes and the command repeated parameters table is replaced with the top table.
2. The bottom table – contains storage of lines (clipboard) with the same structure as the top table, and is used as a tool in the task of arranging the order of lines.

The following buttons exists at the side of the bottom table:

- New – used to erase any previous content in the bottom table and to fit its structure to the top table. Only then the bottom table is ready for use and the buttons Copy, Cut and Paste (at the side of the top table), are enabled.
- Delete – used to delete the selected line or block of lines in the bottom table.
- Reverse – used to reverse the order of lines in the selected block of lines in the bottom table.

- Store – used to store the entire bottom table in a disk file, in the User directory. The name of the file is C:\RGM2000\User\Geo2.[CommandName].txt where [CommandName] is the edited command name (for example: C:\RGM2000\User\Geo2.Point.txt). Since every command type has a different structure of repeated parameters, the bottom table is stored in a separated file for every command type. Those files are kept even after exiting the program. When the bottom table contains data from a previous command, which is different from the edited command, then the Store button will use the file name, which fits the previous command. Usually there is no need for the Store button, but it is useful for some tasks.
- Restore – used to restore the data, which was stored previously by the Store button. The name of the file is defined by the name of the edited command.

The following buttons exists at the side of the top table:

- Copy – used to copy the selected line or block of lines, from the top table into the bottom table. The selected line in the bottom table define the destination of the copy – before or after it, as defined in the "Copy …" box located at the bottom left corner of the window.
- Cut – used to cut (move) the selected line or block of lines, from the top table into the bottom table. The selected line in the bottom table define the destination of the cut – before or after it, as defined in the "Copy …" box located at the bottom left corner of the window.
- Paste – used to copy the selected line or block of lines, from the bottom table into the top table. The selected line in the top table define the destination of the paste – before or after it, as defined in the "Copy …" box located at the bottom left corner of the window.
- Delete – used to delete the selected line or block of lines, in the top table.
- Reverse – used to reverse the order of lines in the selected block of lines in the top table.

Selecting a block of lines:

Selecting a block of lines, in any table, is done using a click (left mouse button) on the first line, and a second click while holding down the Shift key on the last line. Another way is to click and hold on the first line, then scroll while the left mouse button is held down, and finally releasing on the last line. To select all of the lines in the focused table, press Ctrl+A.

The following boxes are found at the bottom of the window:

- Copy … – define the destination of copied lines, relative to the selected line in the table, which gets the lines – before or after it.
- Double click … – define the operation for double click on a single line in some table – copy it or move it from one table to the other. The copy or move destination is defined by the “Copy …” box.

The following buttons are found at the bottom of the window:

- OK – used to close the window while replacing the command repeated parameters with the top table. The top table is copied entirely into the edited command. The bottom table content is left unchanged and it will appear the next time this window is opened, even if the edited command type will be different.
- Cancel – used to close the window while ignoring the top table content. The edited command parameters are left unchanged. The bottom table content is left unchanged and it will appear the next time this window is opened, even if the edited command type will be different.
- Help – used to display these explanations.

More options:

- The column “No” in both tables contains the original line serial numbers within the edited command repeated parameters table. At some stage, those serial numbers can become meaningless, but the “No” column serves for another purpose. You can click and hold on some line, drag it up or down and release the mouse left button. This will change the location of the line in the table.

- Between the two tables there is a horizontal splitter. You can click it, hold and drag it. This will change the sizes of the tables.
- The width and height of the window can be changed using the regular Windows manner.

Units:

Numeric values using units are displayed (in the top and bottom tables) with an extra "U:" data, followed by an integer number. This extra data shows the units code of the values. Any value must keep its units code when it is copied or moved, so this extra data must exist. It is also visible since it is not visible anywhere else. In this window you can see the units code of all data, at one glance.

Recalculating a command

To recalculate a requested command, select it in the script window, and then activate the "Execute" command found in the "Script" menu. The command will be recalculated and results updating will occur automatically.

Getting command execute information

To get detailed information about a command execution, double click the icon before the command name column, or activate the "Information" command found in the "Script" menu. A special window will open, containing the information, if any, which was created during the command calculation (execution).

Searching in script and results

To search something within the script and/or results, activate the "Find" command found in the "Script" menu. In the new opened window, define:

- What to search?
- Where to search?

In the first part – "What to search?" – you need to define two things:

- The searched value. Type this value in the line intended to it, against "Text=".
- In what manner to treat the searched value? The first option is "Float exact number" – numeric value according to units. In this case, type the entire number as the searched value, according to its units picture, were special symbols (such as degree, minutes, seconds) can be replaced with a period (".") symbol. The second option is "Integer exact number" – is an integer number (point codes, line types, colors, etc). In this case type the entire integer number as the searched value. The third option is "Entity exact name" – an entity name (point, vector, arc, polyline, parcel). In this case type the entire entity name as the searched value, including the entity ID symbol (unnecessary in case of point). The last option is "Text sequence" – which is a simple text. In this case, the search can find a partial part of a larger text.

In the second part – "Where to search?" – you need to define "Script only" for searching among commands only, or "Points only" for searching among result points only (regular and known), or "Report only" for searching the result report only, or "Scrip and all result pages" for searching in any possible location (both script and results).

Pressing the "Search" button will start the search. If a value is found within a command, that command will open for editing, with the cursor on the found parameter. If a value is found within the results, the found page will be set into focus, and the cursor will be set on the found line.

The "Find next" command found in the "Script" menu, is used to search the next value. Note: it the previous search did open the editing command window, then you must close it (using ESC or recalculating) before activating "Search next" (F6 also activates it).

As said, when a value is found within the results, the found line is marked (selected). Now, you can activate the "Find and edit parent command" found in the "Script" menu (hot key F8). This will find the command in the script, which is responsible for creating the entity on that marked line, and will bring it into focus in the script window, and also open it for editing. Note: it is possible to activate this command at any time, with no connection to the "Find" process. At any time, you can press F8, or double click a line in the results window (except the Report and Tables pages), to find and open the script command, which is responsible on creating the entity on that line.

With regard to that, the "Follow results to parent command" command is found in the "Options" menu. It is a switch between two states: ON – any selection of an entity, in the results window, will immediately bring into focus, its parent command, but without opening it for editing; OFF – any selection of entity, in the results windows, will not effect the selection in the script window.

Remarks:

- ✡ When searching in the results pages of the Report and Tables, the "Text sequence" option is used automatically, even if defined otherwise.
- ✡ To search a memory variable number, you have to type the symbol "^" followed by its number. For example: ^55. The symbol "^" define that manner of search.
- ✡ To search for a combination of line type codes, you have to type the combination separated by commas (for example: 44,45), and to select the option "Text sequence".
- ✡ Searching a point name, such as A5, within a names group, such as A1_A9, is expected to find nothing!
- ✡ When the search manner is not numeric, you can use symbols of "?" within the searched value, as unknown characters.

Deletion of command or block of commands

To delete a command from the script, select it, and activate the "Delete" command found in the "Script" menu. The command will be deleted and all will be automatically updated.

To delete a block of commands, mark the block, and then activate the "Delete" command.

Copy/Paste of commands

To duplicate a command or a block of commands, select the command or mark the block. Then, activate the “Copy to clipboard” command found in the “Script” menu. This will copy the selected command(s) into an invisible storage. Next, select the command, in which after it you wish to paste (meanwhile, it is possible to reload a new *.geo file, and still the clipboard content is kept), and finally activate the “Paste from clipboard” command found in the “Script” menu. The commands will duplicate, but their state will set to be disabled. You can edit those commands, before switching them to the enabled state.

Undo/Redo

Any edit operation, which make changes to the script window, can be reversed (undo). If it is reversed, it can be also done again (redo). This includes adding and deleting commands, editing commands, and editing commands parameters.

The “Undo” command found in the “Script” menu, cancels (step by step) the last operation, so the previous state is restored.

The “Redo” command found in the “Script” menu, cancels (step by step) the last Undo operation. So, using Undo and Redo, you can go back and forward within operations. The list of operations, is kept in memory, back to the very beginning, and forward up to the last edit operation.

The “Save” operation, is also erasing the list of the memorized operations, so a new list is starting immediately after any save.

Units

The entire results window, except the reports, is formatted using the same units.

The control over the reports units, is done using the “PrintSwitches” command.

For each command parameter, in separate, you can define unique units.

The mechanism for using units in Geo2, includes, as a base, a library of definitions. The library is a list of groups (lines). Each group contains 8 definitions, one for each type of units: scalar, length, angle, pressure, temperature, area, coordinates and elevations (height). Each definition includes a title, base units, and a format picture. Each group in the library, have an ID number, from 0 and up. As a default, any new *.geo file, includes a default library with some predefined groups. The first group in this library is the default group to be used.

The “Options/Units” command:

When you activate the “Units” command found in the “Options” menu, the units library window will open. Each line is a group, having an ID (at the left column), and divided into 8 columns. Each cell is a units definition, meaning: a title, base units, and format picture. Double clicking any place on the table, will switch the details visibility of it.

At the bottom of the window, there is a component called “Script default”, which defines the default units for new commands. It is simply a “Units ID” – the ID number of the selected group of units from the library. In the same way, each command parameter, individually, have a units ID attached to it. This units ID is a selection of a units group from the library. According to the predefined parameter’s units (length, angle, etc), the software knows which definition to pick from that group.

The “Results” component, defines the units ID for the entire results window. You can change this units ID at any time, to get a different units formatting for the results window.

The “Edit” button attached to “Script default” can be used to edit the definitions itself of the units group, which its ID appears in “Script default”. The “Edit” button attached to

“Results” can be used to edit the definitions itself of the units group, which its ID appears in “Result”. In both cases, “Edit” opens the same standard window. It is also used in Regev-2000, and it has its own help.

The “New ID” button, creates a new units group for the library, and let you immediately edit its definitions.

The “Close” button, close the units library window of Geo2.

Changing the units for an individual parameter:

This window of units library, can be opened also, from within the command editing window. The command edit window contains a button, with an icon of a key on it, which is used to open the library, for selection of units ID, for the current parameter only! In this case, the library will contain the “Parameter” component, instead of the “Script default” component. The “Units ID” which appears in “Parameter”, is the current units ID of this parameter, and can be changed. This is the way to change units, individually, for each parameter, when it is needed.

The “Options/Default Units” command:

The “Options/Default Units” command opens the same units library window, but this time, shows the content of the default units library given to new Geo files. That library is kept in the file: “C:\Rgm2000\User\Geo.ulb”. Editing that library does not affect the current Geo file library.

Some new buttons are now active in this window:

Delete ID – Used to erase a line (units ID).

Save all – Used to save the entire content of the window into the “Geo.ulb” file. Note: the “Script default” and “Results” definitions are also saved.

Reload all – Used to reload the entire content of the window from the “Geo.ulb” file. The current content is lost.

Dos Pics – Used to define a units translation table. That table is needed when import is executed – from Geo-Dos, or from SRV files, or from Map-2000. In a Geo-Dos file there are the commands: DistUnits, AngleUnits, AreaUnits, CoordUnits. The definitions of those commands need to be translated into units pictures in Geo-2000. The translation table defines just that – a units picture for each possible Geo-Dos units definition! And so, the import operation handles the units automatically (including the expansion of the units library of the current Geo file). Clicking the "Dos Pics" button will open a new window for editing that units translation table. The default table is ready for use.

Printing

To print the script window content, activate the “Print script” command found in the “File” menu.

To print the report, activate the “Print report” command found in the “File” menu, or press F5 (hot key). The opened window let you control the appearance of the report on paper. Note: the “Show results of” command found in the “Options” menu, defines what is contained in the results window – the results of a selected command, block of commands, or all commands.

You can also print the selected page of the results window, in another way (less recommended): activate the “Print results” command found in the “File” menu.

GEO 2000

Geometric calculations commands

In alphabetic order

AdjFrontsParams

Define parameters for the front adjustment process, which take place in the MeasLine command (when it is requested bu setting the "ADJUST FRONTS" value for the "Adjust Fronts" parameter).

The default parameters are defined in the "AdjFrontsOnMeasLine.stp" file, which can be editted using the "Options" menu of Geo2000 (Options\Geo Setup\Geo\Adjust fronts on measured line) and they stay in effect until change by another AdjFrontsParams command.

The adjustment process accepts a net of fronts as input data, all measured along a measured line (MeasLine). Each of the two edges of a front is measured by run and offset pair, or is anchored on a known point. Some of the fronts were measured OK (with permitted deviation) and some NOT OK. The adjustment process tries to move the runs and offsets, minimal movements, so most of the fronts will become OK, without corrupting the fronts measured OK. The parameters used by this process, beside the measurement regulations, can be set using this command.

Constant parameters:

Const Abnormal Run Shift -

Used to define the maximal permitted movement for run distance. There is a distinction between two types of runs: those which are connected to (at least) one front which was measuref NOT OK, and those which are connected to fronts which are all OK. This parameter regards the first type. Meaning: runs permitted to move a lot, since they are NOT OK. The maximal permitted movement of such runs is defined as a sum of two values: one is constant and the second is relative to the run length. This parameter defines the constant value. The default is 4.0 Meters.

Relative Abnormal Run Shift -

Completes the previous parameter and defines the relative value. The default is 2% from the run length (0.02).

Abnormal Run Shift Power -

Completes the previous two parameters and defines the resistance level for moving runs which are NOT OK (as if a spring is resisting the run movement with some level of force). Mathematically, this is a power of a fraction. Level of 0 means “no resistance”. As the power goes up, the resistance increases. The default is 1.0.

Const Normal Run Shift -

Used to define the maximal permitted movement for run distance of the second type. Meaning: runs permitted to move a little, since they are OK. The maximal permitted movement of such runs is also defined as a sum of two values: one is constant and the second is relative to the run length. This parameter defines the constant value. The default is 2.0 Meters.

Relative Normal Run Shift -

Completes the previous parameter and defines the relative value. The default is 1% from the run length (0.01).

Normal Run Shift Power -

Completes the previous two parameters and defines the resistance level for moving runs which are OK. The default is 3.0.

Const Offset Shift -

Used to define the maximal permitted movement for offset distance. There is no distiction between two types of offsets as exists in runs. Meaning: offsets are always permitted to move a little. The maximal permitted movement of offsets is also defined as a sum of two values: one is constant and the second is relative to the offset length. This parameter defines the constant value. The default is 0.5 Meter.

Relative Offset Shift -

Completes the previous parameter and defines the relative value. The default is 1% from the offset length (0.01).

Offset Shift Power -

Completes the previous two parameters and defines the resistance level for moving offsets. The default is 15.0. This high power causes the runs to move a lot in comparison to offsets.

Results Precision -

Results accuracy. Meaning: how near should front deviations be, to the maximal permitted deviation, so they can be considered OK. The default is 0.001 Meter.

Total Iterations -

The adjustment process is iterative. Meaning: it approaches the solution in small steps, to minimize the run and offset movements. In some conditions many iterations can be needed. This parameter sets a limitation, saying: “stop the calculation after a long time!” The default is 100,000 iterations.

Normal Futile Iterations -

The measure for approaching the solution is dropping in the sum of squared front deviations. If, after many iterations, no such drop occure, it may be that there is no solution. This parameter defines how many iterations to continue without improvement. The default is 200.

Abnormal Futile Iterations -

Along the process, it can happen that fronts measured OK become NOT OK, due to run and offset movements. In this case, the process turns into fixing those fronts in high preiority. If, after many iterations, those fronts do not become OK, it may be that there is not solution. This parameter defines how many iterations to continue without completing the task of fixing those fronts. The default is 200.

Iteration Max Shift -

The maximal permitted movement for each run and offset in one iteration. The default is 0.05 Meter. A lower number will cause much more iterations, unnecessary. A larger number can cause a jump into a solution, which is not the nearest solution.

Iteration Min Shift -

The minimal permitted movement for each run and offset in one iteration. The default is 0, which leads to accurate results, while paying the price in increased count of iterations under some conditions.

Repeated parameters:

None.

AdjustGeoResults

Import the results of AdjustGeo program (adjustment of Geo2000 file or files).

This command import the points found in the AdjustGeo output field book file, using automatic overwrite for existing points.

Constant parameters:

AdjustGeo Output Dir -

The output directory name of AdjustGeo, where the field book file to be imported is located.

Import Points Option -

Which points to import? – All points, only existing points, or only new points.

Min Dx,Dy -

Only points, which have changed in X or Y by at least this size, are imported. New points – which do not appear in the current script – are imported also.

Repeated parameters:

None.

AffineParams

Define parameters of Affine transformation.

The default definition is stored in the transformations setup file. It can be edited using the setup windows (Options / Geo Setup / Geo / Transformations).

This command picks the default parameters from the transformations setup file and shows filled with them. Then, changes are possible without effecting the setup file. Adding this command to the geo file guarantee that the Transform command will execute independent of the setup file, which is subject to changes.

Constant parameters:

Permitted Mdx,Mdy -

Permitted MSE on each axis (X,Y).

Factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Digitation Permitted Mdx,Mdy -

In case of digitation transformation: permitted MSE by count of known points. This is a string of characters defining the permitted MSE in millimeters for every possible count of known points. The options are separated by a vertical line character. The default is:

4,0.29|5,0.26|6,0.24|7,0.23|9,0.22|14,0.21|19,0.20|20,0.19|9999,0.18

So, for example: for 4 known points the permitted MSE is 0.29 millimeters (multiplied by the digitation scale). For more than 20 points the permitted MSE is 0.18 millimeters.

The case of a digitation transformation is set by defining a value for the "Digitation Scale" parameter of the Transform command.

Digitation Factor on Mdx,Mdy -

In case of digitation transformation: factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Repeated parameters:

None.

Arc

Create new arc entities. An arc is defined between two edges.

Constant parameters:

None.

Repeated parameters:

Arc Name -

Name for a new arc.

First Point -

First edge point (name).

Arc Radius -

Arc radius. Positive when the arc goes at the right side of its chord, negative otherwise.

Arc Size -

Identify the angular size of the arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Color -

Color (pen number) in the range 1 – 255. Can be left empty, so the color is taken from the previous “LineType” command.

Line Type -

Line type in the range 0 – 65535. Can be left empty, so the line type is taken from the previous “LineType” command.

Next Point -

Second edge point (name).

ArcInAngle

Create a new arc entity. The arc is defined within an angle, which is given by 3 points. The head of the angle is an IP point. The two other points define the angle legs, and they must not be the tangent points. In addition, one parameter of the arc must be defined. It can be one of the following (the first which is given):

- The radius.
- The distance between the IP point and the tangent points.
- The arc chord.
- The arc length.
- The distance between the IP point and the middle of the arc.
- The sector area.
- The bisector area.

Constant parameters:

Arc Name -

Name for a new arc.

Point 1 -

Point name – defines the first leg of the angle.

IP Point -

IP point name – defines the head of the angle.

Point 2 -

Point name – defines the second leg of the angle.

Radius -

Arc radius.

Tangent -

Distance between the IP point and tangent points.

Chord -

Arc chord.

Arc Length -

Arc length.

Bisector -

Distance between the IP point and the middle of the arc.

Sector Area -

Sector area.

Bisector Area -

Bisector area.

Tangent Point 1 -

New point name – first tangent point, on the first angle leg. Leave empty if you do not wish to create this point.

Tangent Point 2 -

New point name – second tangent point, on the second angle leg. Leave empty if you do not wish to create this point.

Middle Point -

New point name – arc middle point. Leave empty if you do not wish to create this point.

Center Point -

New point name – arc center point (circle center). Leave empty if you do not wish to create this point.

Out Angle Var -

Memory variable number where to put the result of the arc angle (sector angle). Optional.

Out Radius Var -

Memory variable number where to put the result of the arc radius. Optional.

Out Tangent Var -

Memory variable number where to put the result of the distance, between the IP point and each of the two tangent points. Optional.

Out Chord Var -

Memory variable number where to put the result of the arc chord length. Optional.

Out Arc Length Var -

Memory variable number where to put the result of the arc length. Optional.

Out Bisector Var -

Memory variable number where to put the result of the distance, between the IP point and the arc middle. Optional.

Out Sector Area Var -

Memory variable number where to put the result of the sector area. Optional.

Out Bisector Area Var -

Memory variable number where to put the result of the bisector area. Optional.

Repeated parameters:

None.

ArcPoints

Create points on existing arc entity (Stakeout).

One of the following parameter must be defined (the first which is given):

- The arc length between near stakeout points.
- The arc angle between near stakeout points.
- The arc chord length between near stakeout points.
- The arc arrow length between near stakeout points.

Constant parameters:

Arc Name -

Arc name.

Count of Points -

Number of stakeout points on the arc.

Partial Length -

Arc length – between near stakeout points.

Partial Angle -

Arc angle – between near stakeout points.

Partial Chord -

Arc chord length – between near stakeout points.

Partial Arrow -

Arc arrow length – between near stakeout points.

First Length -

Distance from the first edge point of the arc to the first stakeout point.

First Point -

Name for the first stakeout point. It must include a number, because for the following stakeout points, this number is increased by 1.

Out Partial Length Var -

Memory variable number where to put the result of the arc length between each two-stakeout point. Optional.

Out Partial Angle Var -

Memory variable number where to put the result of the arc angle between each two-stakeout point. Optional.

Out Partial Chord Var -

Memory variable number where to put the result of the arc chord length between each two-stakeout point. Optional.

Out Partial Arrow Var -

Memory variable number where to put the result of the arc arrow length between each two-stakeout point. Optional.

Repeated parameters:

None.

ArcTangent

Create a new arc entity. The arc is defined using two tangent points, which are also the arc edges. In addition, one parameter of the arc must be defined. It can be one of the following (the first which is given):

- The radius.
- The distance between the IP point and the tangent points.
- The arc length.
- The distance between the IP point and the middle of the arc.
- The sector area.
- The bisector area.

Constant parameters:

Arc Name -

Name for a new arc.

Tangent Point 1 -

Existing point name – defines the first tangent point.

Tangent Point 2 -

Existing point name – defines the second tangent point.

Radius -

Arc radius.

Tangent -

Distance between the IP point and tangent points.

Arc Length -

Arc length.

Bisector -

Distance between the IP point and the middle of the arc.

Sector Area -

Sector area.

Bisector Area -

Bisector area.

IP Point -

New point name – IP point. Leave empty if you do not wish to create this point.

Middle Point -

New point name – arc middle point. Leave empty if you do not wish to create this point.

Center Point -

New point name – arc center point (circle center). Leave empty if you do not wish to create this point.

Out Angle Var -

Memory variable number where to put the result of the arc angle (sector angle). Optional.

Out Radius Var -

Memory variable number where to put the result of the arc radius. Optional.

Out Tangent Var -

Memory variable number where to put the result of the distance, between the IP point and each of the two tangent points. Optional.

Out Chord Var -

Memory variable number where to put the result of the arc chord length. Optional.

Out Arc Length Var -

Memory variable number where to put the result of the arc length. Optional.

Out Bisector Var -

Memory variable number where to put the result of the distance, between the IP point and the arc middle. Optional.

Out Sector Area Var -

Memory variable number where to put the result of the sector area. Optional.

Out Bisector Area Var -

Memory variable number where to put the result of the bisector area. Optional.

Repeated parameters:

None.

AreaList

Create table for parcels areas.

The area units for the report, defined in the “PrintSwitches” command, are used also for the tables file which is exported to Map-2000. The base units and factor, defined in this units picture, for areas, determine the base units in the tables file: Square Meters, square Feet, Dunam (factor of 1000), Acre (factor of 43560), Hectar (factor of 10000). The numbers in the tables file no not contain any special symbols (such as “M”) defined by the units picture.

Constant parameters:

Table Type -

Defines the table columns. The choice is between calculated area and legal area, and between the parcel name and its master plan name. Double click this parameter to open its list of choices.

Repeated parameters:

Parcel Name(s) -

Parcel name – existing or new. It is also possible to input a parcel name group.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Master Plan -

Parcel master plan name (of the parcel in the same row). If the parcel already exists, it can be left empty, and then the master plan name will be picked from the parcel definition.

Area -

Parcel area (of the parcel in the same row). If the parcel already exists, it can be left empty, and then the area will be picked from the parcel definition.

Assign

Copy the value of one memory variable into another, even if both have different types of units!!! In addition, a math operation can be performed.

Constant parameters:

None.

Repeated parameters:

Scalar Var -

Memory variable number – scalar units.

Length Var -

Memory variable number – length units.

Angle Var -

Memory variable number – angle units.

Coordinate Var -

Memory variable number – coordinate units.

Elevation Var -

Memory variable number – elevation units.

Area Var -

Memory variable number – area units.

Assign From -

Which is the source memory variable between the above list?

Operator -

Math operation to perform – Optional.

Double click to open the list of available math operations.

Assign To -

Which is the target memory variable between the above list?

AssignAngle

Assign an angle value into a memory variable of type angle.

For each type of units (length, angle, etc), there are 100 memory variables, numbered from 1 up to 100. The symbol “^” in front of the number, defines that it is a memory variable name. Those variables can be used as input/output parameters, instead of real numbers. To select such a variable, double click the parameter in the command’s editing window. This will open the list of variables to select from. After selection, the selected variable name will appear as the parameter value. You can also directly type a memory variable name instead of a real number.

Constant parameters:

None.

Repeated parameters:

Assign to Var -

Memory variable number where to put the result of a mathematic formula. The previous value of that variable can be used by the formula – depending on the selected formula (see: the Formula parameter). It this previous value is needed, but undefined, then 1 will be used.

Value 1 -

First angle value needed by the formula. Must be input.

Value 2 -

Second angle value needed by the formula. If it is empty, then 0 is used.

Factor -

Multiplication factor – can be used by the formula. If it is empty, then 1 used.

Formula -

Formula selected from a list of possible formulas. Double click it to open the list.

AssignArea

Assign an area value into a memory variable of type area.

For each type of units (length, angle, etc), there are 100 memory variables, numbered from 1 up to 100. The symbol "^" in front of the number, defines that it is a memory variable name. Those variables can be used as input/output parameters, instead of real numbers. To select such a variable, double click the parameter in the command's editing window. This will open the list of variables to select from. After selection, the selected variable name will appear as the parameter value. You can also directly type a memory variable name instead of a real number.

Constant parameters:

None.

Repeated parameters:

Assign to Var -

Memory variable number where to put the result of a mathematic formula. The previous value of that variable can be used by the formula – depending on the selected formula (see: the Formula parameter). It this previous value is needed, but undefined, then 1 will be used.

Value 1 -

First area value used by the formula. Must be input.

Value 2 -

Second area value used by the formula. If it is empty, then 0 is used.

Factor -

Multiplication factor – can be used by the formula. If it is empty, then 1 is used.

Formula -

Formula selected from a list of possible formulas. Double click it to open the list.

AssignCoord

Assign a coordinate value into a memory variable of type coordinate.

For each type of units (length, angle, etc), there are 100 memory variables, numbered from 1 up to 100. The symbol "^" in front of the number, defines that it is a memory variable name. Those variables can be used as input/output parameters, instead of real numbers. To select such a variable, double click the parameter in the command's editing window. This will open the list of variables to select from. After selection, the selected variable name will appear as the parameter value. You can also directly type a memory variable name instead of a real number.

Constant parameters:

None.

Repeated parameters:

Assign to Var -

Memory variable number where to put the result of a mathematic formula. The previous value of that variable can be used by the formula – depending on the selected formula (see: the Formula parameter). It this previous value is needed, but undefined, then 1 will be used.

Value 1 -

First coordinate value used by the formula. Must be input.

Value 2 -

Second coordinate value used by the formula. If it is empty, then 0 is used.

Factor -

Multiplication factor – can be used by the formula. If it is empty, then 1 is used.

Formula -

Formula selected from a list of possible formulas. Double click it to open the list.

AssignElev

Assign an elevation value into a memory variable of type elevation.

For each type of units (length, angle, etc), there are 100 memory variables, numbered from 1 up to 100. The symbol "^" in front of the number, defines that it is a memory variable name. Those variables can be used as input/output parameters, instead of real numbers. To select such a variable, double click the parameter in the command's editing window. This will open the list of variables to select from. After selection, the selected variable name will appear as the parameter value. You can also directly type a memory variable name instead of a real number.

Constant parameters:

None.

Repeated parameters:

Assign to Var -

Memory variable number where to put the result of a mathematic formula. The previous value of that variable can be used by the formula – depending on the selected formula (see: the Formula parameter). It this previous value is needed, but undefined, then 1 will be used.

Value 1 -

First elevation value used by the formula. Must be input.

Value 2 -

Second elevation value used by the formula. If it is empty, then 0 used.

Factor -

Multiplication factor – can be used by the formula. If it is empty, then 1 used.

Formula -

Formula selected from a list of possible formulas. Double click it to open the list.

AssignLength

Assign a length value into a memory variable of type length.

For each type of units (length, angle, etc), there are 100 memory variables, numbered from 1 up to 100. The symbol "^" in front of the number, defines that it is a memory variable name. Those variables can be used as input/output parameters, instead of real numbers. To select such a variable, double click the parameter in the command's editing window. This will open the list of variables to select from. After selection, the selected variable name will appear as the parameter value. You can also directly type a memory variable name instead of a real number.

Constant parameters:

None.

Repeated parameters:

Assign to Var -

Memory variable number where to put the result of a mathematic formula. The previous value of that variable can be used by the formula – depending on the selected formula (see: the Formula parameter). It this previous value is needed, but undefined, then 1 will be used.

Value 1 -

First length value used by the formula. Must be input.

Value 2 -

Second length value used by the formula. If it is empty, then 0 is used.

Factor -

Multiplication factor – can be used by the formula. If it is empty, then 1 is used.

Formula -

Formula selected from a list of possible formulas. Double click it to open the list.

AssignScalar

Assign a scalar value into a memory variable of type scalar.

For each type of units (length, angle, etc), there are 100 memory variables, numbered from 1 up to 100. The symbol "^" in front of the number, defines that it is a memory variable name. Those variables can be used as input/output parameters, instead of real numbers. To select such a variable, double click the parameter in the command's editing window. This will open the list of variables to select from. After selection, the selected variable name will appear as the parameter value. You can also directly type a memory variable name instead of a real number.

Constant parameters:

None.

Repeated parameters:

Assign to Var -

Memory variable number where to put the result of a mathematic formula. The previous value of that variable can be used by the formula – depending on the selected formula (see: the Formula parameter). It this previous value is needed, but undefined, then 1 will be used.

Value 1 -

First scalar value used by the formula. Must be input.

Value 2 -

Second scalar value used by the formula. If it is empty, then 0 is used.

Factor -

Multiplication factor – can be used by the formula. If it is empty, then 1 is used.

Formula -

Formula selected from a list of possible formulas. Double click it to open the list.

AziDist

Calculate azimuth and distance from each given station to each given target.

Constant parameters:

None.

Repeated parameters:

Station(s) -

Station name, or station group names.

Target(s) -

Target name, or target group names.

Out Azimuth Var -

Memory variable number where to put the result azimuth. Optional.

Out Distance Var -

Memory variable number where to put the result distance. Optional.

Arc Radius -

Radius from station to target. Optional.

Out Arc Arrow Var -

Memory variable number where to put the result arc arrow. Optional.

Out Arc Length Var -

Memory variable number where to put the result arc length. Optional.

AziDistRnd

Calculate azimuth and distance from each given station to each given target, and then add/subtract random measured errors (in normal distribution) for the calculated azimuths and distances.

Constant parameters:

Std Azi Dev -

Standard azimuth deviation.

Std Dist Dev -

Standard distance deviation.

Repeated parameters:

Station(s) -

Station name, or station group names.

Target(s) -

Target name, or target group names.

Out Azimuth Var -

Memory variable number where to put the result azimuth. Optional.

Out Distance Var -

Memory variable number where to put the result distance. Optional.

Arc Radius -

Radius from station to target. Optional.

Out Arc Arrow Var -

Memory variable number where to put the result arc arrow. Optional.

Out Arc Length Var -

Memory variable number where to put the result arc length. Optional.

CheckLot

Defined switches (ON/OFF) for parcel contours checking. Those switches are general, active for all commands (dealing with parcels), and remain in effect until changed by another CheckLot command.

Each of the switches can be "ON" or "OFF" or simply empty. When empty, the previous defined value – by the previous CheckLot command, or by default – still remains in effect (unchanged).

Constant parameters:

Duplicate Names -

When "ON" – perform checking of duplicate point names along parcel contours. If such a duplicate name found, then raise a warning or an error for the executing command – depending on the "Raise Error" parameter.

The default is "ON".

Legs Length = 0 -

When "ON" – perform checking of legs length along parcel contours. If a zero length found (using the chord in case of arcs), then raise a warning or an error for the executing command – depending on the "Raise Error" parameter.

The default is "ON".

Crossing Legs -

When "ON" – perform checking of crossing legs along parcel contours. If such a cross is found (using the arcs in case of arcs), then raise a warning or an error for the executing command – depending on the "Raise Error" parameter.

The default is "ON".

Cross Epsilon -

This parameter defines the minimum distance needed between a crossing point and a parcel corner, to identify the crossing point as a real crossing point. For example, when a parcel corner is a line edge from one side, and an arc edge on the other side (the line and arc are part of the parcel contour), and the arc is tangent to the line – it is possible that the calculation will find a crossing point between the line and the arc. That crossing point is not real, and it is located near the parcel corner. This parameter defined when to ignore such a crossing point. The default is 0.001 Meter, but sometimes even 1 meter is needed to avoid warning messages about crossing points (in the Lot command, for example).

Raise Error -

When “ON” – raise an error. Otherwise raise only a warning.

The default is “OFF” (warning only).

Same Radius -

This parameter defines the maximal difference between two radiuses, while still identifying the same radius. The default is 0.001 Meter. This parameter affects the LOT and SEGMENT commands only. When new arcs are created, their radiuses are checked against existing arcs. If this is the same radius, then the existing arcs are used.

Repeated parameters:

None.

CheckNames

Define the level of check to be executed on entity names (points, vectors, arcs, polylines, parcels), which are given as input data (command parameters).

This check is executed in the following commands:

LoadPoints, SavePoints, SaveLots, AziDist, RunOffset, Road, RoadIP, RoadLN, Vector, Arc, Lot, Parcel, Segment, Polyline, Unify, Division, AreaList, Transform

In all of those commands, a general check is executed, which its purpose is to report (in the command information) about missing entities, which need to be exist, but do not exist.

For example, the "LoadPoints" command will report any point names which were not found in the file. The "SaveLots" command will report missing lots, which are given in the command parameters, but do not exist. The "AziDist" command will report missing station and target points. Etc.

When entities are missing, the command will raise a warning or an error. Errors are raised for missing single names, and for missing names within full name sets. Warnings are raised for missing names within normal sets.

Constant parameters:

Check Level -

Four check options:

OFF – No check at all.
SINGLES + FULL SETS – The check is executed on single names and full sets (sets with "!") only.
SINGLES + FULL SETS + FIRST AND LAST – The check is executed on single names, on full sets, and on the first and last of normal sets (sets without "!"). This is the default.
SINGLES + ANY SETS (COMPLETE) – The check is execute on single names, and on any sets (complete check).

Repeated parameters:

None.

CheckUnify

Do nothing except checking if some parcels can unify without error, and put information within the command execute information.

Constant parameters:

Unified Parcel Name -

Unified parcel name. Optional.

Parcels Order -

Unify order. Two options: “Given in script” or “Listed in command”. The first is the same as the order of parcel definitions in the script. The second is the order given within this command, using the repeated parameters.

Repeated parameters:

Parcel Name(s) -

Parcel name, or parcel group names. Used only when “Listed in command” is selected.

Circles

Given a triangle by 3 points, calculates the radius of its blocking circle, and the radius of its blocked circle.

Constant parameters:

Point A -

First point name – first head of the triangle.

Point B -

Second point name – second head of the triangle.

Point C -

Third point name – third head of the triangle.

Blocking Radius -

Memory variable number where to put the result of the blocking circle.

Blocked Radius -

Memory variable number where to put the result of the blocked circle.

Repeated parameters:

None.

Codes

Define codes for new points, from now on, until the next "Codes" command.

Constant parameters:

Source Code -

Source code. Do not exist in Regev-DOS. Double click it to open a selection table, which can be also edited.

Type Code -

Type code. The three right characters in Regev-DOS code. Double click it to open a selection table, which can be also edited.

Desc. Code -

Description code. The two left characters in Regev-DOS code. Double click it to open a selection table, which can be also edited.

Repeated parameters:

None.

Coord

Calculates new points using azimuth and distance from a known station.

Constant parameters:

Station -

Station name.

Repeated parameters:

Azimuth -

The azimuth from the station towards the target you wish to create.

Distance -

The distance from the station towards the target you wish to create.

New Point -

Name for new target point.

CoordByAngle

Calculates new points using angle and distance from a known station.

Constant parameters:

Station -

Station name. Known height is needed to calculate new point height. Must be given.

Inst Height -

Instrument height. When empty, new height is not calculated.

Zero Point -

Known point name for direction. Must be given.

Zero Direction -

Direction to the known point (Zero Point). Zero is used when empty.

Repeated parameters:

Direction -

Direction to the new point. Must be given.

Vertical Angle -

Vertical angle from Zenith. 90° is used when empty.

Distance -

Distance from station to new point. Slope distance when vertical angle is given, otherwise horizontal. Must be given.

Prism Height -

Prism height. When empty, new height is not calculated.

New Point -

Name for new target point. Must be given.

Cross

Cross two entities (or parallels to them), which can be vector or arc each. The result can be one or two crossing points (or none if no solution).

Constant parameters:

Vec1/Arc1: Name -

First vector or arc name. A vector name starts with the symbol ID “\”. For example: \54. An arc name starts with the symbol ID “)”. For example:)318.

Vec1/Arc1: Parallel -

First parallel distance. The actual crossing vector/arc is the parallel vector/arc.

If empty, then 0 is used.

Vec1/Arc1: Parallel Side -

The side of the first parallel, relative to the first vector/arc: “LEFT” or “RIGHT”.

Vec1/Arc1: Solution -

Requested crossing points relative to the first vector/arc: between edges, or outside edges, or anywhere.

Vec2/Arc2: Name -

Second vector or arc name.

Vec2/Arc2: Parallel -

Second parallel distance. The actual crossing vector/arc is the parallel vector/arc.

If empty, then 0 is used.

Vec2/Arc2: Parallel Side -

The side of the second parallel, relative to the second vector/arc: "LEFT" or "RIGHT".

Vec2/Arc2: Solution -

Requested crossing points relative to the second vector/arc: between edges, or outside edges, or anywhere.

New Point 1 -

Name for the first new crossing point. Optional.

When only one crossing point exists, this is the name given to it. When two crossing points exists, they are sorted according to some rule, and this is the name given to the first point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

The sorting rule is this: if crossing point A is located between both vectors/arcs edges, and crossing point B is not such a point, then the first is A and the second is B. Otherwise, if crossing point A is not located between any of the vectors/arcs edges, and crossing point B is not such a point, then the first is B and the second is A. Otherwise, if any of the crossing entities is an arc, then the crossing points are sorted along the first arc, in the direction which it is defined. Otherwise, the crossing points are sorted along the first vector, in the direction which it is defined.

New Point 2 -

Name for the second new crossing point. Optional.

When two crossing points exists, they are sorted, and this is the name given to the second point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

Repeated parameters:

None.

Cross2Azi

Cross two azimuths. Calculate a crossing point, using two azimuths towards it, measured from two known station points.

Constant parameters:

Station A -

First station name.

Station B -

Second station name.

Direction A to B -

Direction from the first station towards the second station.

Direction A to P -

Direction from the first station towards the crossing point.

Direction B to A -

Direction from the second station towards the first station.

Direction B to P -

Direction from the second station towards the crossing point.

New Point P -

Name for new crossing point.

Repeated parameters:

None.

Cross3Dir

Cross 3 directions. Calculate a crossing point, using 3 directions measured from it, towards 3 known points.

Constant parameters:

Target A -

First known point name.

Target B -

Second known point name.

Target C -

Third known point name.

Direction P to A -

Direction towards the first known point.

Direction P to B -

Direction towards the second known point.

Direction P to C -

Direction towards the third known point.

New Point P -

Name for new crossing point.

Repeated parameters:

None.

CrossAngDist

Cross an angle and a distance. Calculate a crossing point, using direction and distance from it towards a known point, and using a direction only or direction and distance from it towards a second known point. When only one distance is given, it must be smaller than the distance between the two known points. At least one distance must be given.

Constant parameters:

Target A -

First known point name.

Target B -

Second known point name.

Distance P to A -

Optional distance from the crossing point to the first known point.

Direction P to A -

Direction from the crossing point towards the first known point.

Distance P to B -

Optional distance from the crossing point to the second known point.

Direction P to B -

Direction from the crossing point towards the second known point.

New Point P -

Name for new crossing point.

Repeated parameters:

None.

CrossArcLine

Cross line with arc. Calculate the crossing points between a line and an arc, or their parallels.

Constant parameters:

Arc: Point A -

The name of the first edge point of the arc.

Arc: Point B -

The name of the second edge point of the arc.

Arc: Radius -

Arc radius. Positive when the arc goes at the right side of its chord, negative otherwise.

Arc: Size -

Identify the angular size of the arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Arc: Parallel -

Arc parallel distance. The actual crossing arc is the parallel arc.

If empty, then 0 is used.

Arc: Parallel Side -

The side of the parallel arc, relative to the arc: “LEFT” or “RIGHT”.

Arc: Solution -

Requested crossing points relative to the arc: between edges, or outside edges, or anywhere.

Line: Point A -

The name of the first edge point of the line.

Line: Point B -

The name of the second edge point of the line.

Line: Parallel -

Line parallel distance. The actual crossing line is the parallel line.

If empty, then 0 is used.

Line: Parallel Side -

The side of the parallel line, relative to the line: “LEFT” or “RIGHT”.

Line: Solution -

Requested crossing points relative to the line: between edges, or outside edges, or anywhere.

New Point 1 -

Name for the first new crossing point. Optional.

When only one crossing point exists, this is the name given to it. When two crossing points exists, they are sorted according to some rule, and this is the name given to the first point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

The sorting rule is this: if crossing point A is located between the arc edges and also between the line edges, and crossing point B is not such a point, then the first is A and the second is B. Otherwise, if crossing point A is not located between the arc edges and also not between the line edges, and crossing point B is not such a point, then the first is B and the second is A. Otherwise, the crossing points are sorted along the arc, in the direction which it is defined.

New Point 2 -

Name for the second new crossing point. Optional.

When two crossing points exists, they are sorted, and this is the name given to the second point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

Repeated parameters:

None.

CrossArcs

Cross two arcs. Calculate the crossing points between two arcs, or their parallels.

Constant parameters:

Arc1: Point A -

The name of the first edge point of first arc.

Arc1: Point B -

The name of the second edge point of first arc.

Arc1: Radius -

The radius of the first arc. Positive when the arc goes at the right side of its chord, negative otherwise.

Arc1: Size -

Identify the angular size of the first arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Arc1: Parallel -

First arc parallel distance. The actual crossing arc is the parallel arc.

If empty, then 0 is used.

Arc1: Parallel Side -

The side of the parallel arc, relative to the first arc: “LEFT” or “RIGHT”.

Arc1: Solution -

Requested crossing points relative to the first arc: between edges, or outside edges, or anywhere.

Arc2: Point A -

The name of the first edge point of second arc.

Arc2: Point B -

The name of the second edge point of second arc.

Arc2: Radius -

The radius of the second arc. Positive when the arc goes at the right side of its chord, negative otherwise.

Arc2: Size -

Identify the angular size of the second arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Arc2: Parallel -

Second arc parallel distance. The actual crossing arc is the parallel arc.

If empty, then 0 is used.

Arc2: Parallel Side -

The side of the parallel arc, relative to the second arc: “LEFT” or “RIGHT”.

Arc2: Solution -

Requested crossing points relative to the second arc: between edges, or outside edges, or anywhere.

New Point 1 -

Name for the first new crossing point. Optional.

When only one crossing point exists, this is the name given to it. When two crossing points exists, they are sorted according to some rule, and this is the name given to the first point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

The sorting rule is this: if crossing point A is located between both arcs edges, and crossing point B is not such a point, then the first is A and the second is B. Otherwise, if crossing point A is not located between any of the arcs edges, and crossing point B is not such a point, then the first is B and the second is A. Otherwise, the crossing points are sorted along the first arc, in the direction which it is defined.

New Point 2 -

Name for the second new crossing point. Optional.

When two crossing points exists, they are sorted, and this is the name given to the second point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

Repeated parameters:

None.

CrossCircleArc

Cross a circle with an arc. Calculate the crossing points between a circle and an arc, or its parallel.

Constant parameters:

Circle: Center -

The name of the center point of the circle.

Circle: Radius -

The radius of the circle.

Arc: Point A -

The name of the first edge point of the arc.

Arc: Point B -

The name of the second edge point of the arc.

Arc: Radius -

The radius of the arc. Positive when the arc goes at the right side of its chord, negative otherwise.

Arc: Size -

Identify the angular size of the arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Arc: Parallel -

Arc parallel distance. The actual crossing arc is the parallel arc.

If empty, then 0 is used.

Arc: Parallel Side -

The side of the parallel arc, relative to the arc: “LEFT” or “RIGHT”.

Arc: Solution -

Requested crossing points relative to the arc: between edges, or outside edges, or anywhere.

New Point 1 -

Name for the first new crossing point. Optional.

When only one crossing point exists, this is the name given to it. When two crossing points exists, they are sorted according to some rule, and this is the name given to the first point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

The sorting rule is this: if crossing point A is located between the arc edges, and crossing point B is not such a point, then the first is A and the second is B. Otherwise, the crossing points are sorted along the arc, in the direction which it is defined.

New Point 2 -

Name for the second new crossing point. Optional.

When two crossing points exists, they are sorted, and this is the name given to the second point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

Repeated parameters:

None.

CrossCircleLine

Cross circle with line. Calculate the crossing points between a circle and a line, or its parallel.

Constant parameters:

Circle: Center -

The name of the center point of the circle.

Circle: Radius -

The radius of the circle.

Line: Point A -

The name of the first edge point of the line.

Line: Point B -

The name of the second edge point of the line.

Line: Parallel -

Line parallel distance. The actual crossing line is the parallel line.

If empty, then 0 is used.

Line: Parallel Side -

The side of the parallel line, relative to the line: “LEFT” or “RIGHT”.

Line: Solution -

Requested crossing points relative to the line: between edges, or outside edges, or anywhere.

New Point 1 -

Name for the first new crossing point. Optional.

When only one crossing point exists, this is the name given to it. When two crossing points exists, they are sorted according to some rule, and this is the name given to the first point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

The sorting rule is this: if crossing point A is located between the line edges, and crossing point B is not such a point, then the first is A and the second is B. Otherwise, the crossing points are sorted along the line, in the direction which it is defined.

New Point 2 -

Name for the second new crossing point. Optional.

When two crossing points exists, they are sorted, and this is the name given to the second point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

Repeated parameters:

None.

CrossCircles

Cross two circles. Calculate the crossing points between two circles.

Constant parameters:

Circle1: Center -

The name of the center point of the first circle.

Circle1: Radius -

The radius of the first circle.

Circle2: Center -

The name of the center point of the second circle.

Circle2: Radius -

The radius of the second circle.

New Point 1 -

Name for the first new crossing point. Optional.

When only one crossing point exists, this is the name given to it. When two crossing points exists, they are sorted according to some rule, and this is the name given to the first point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

The sorting rule is this: the points are sorted by increasing azimuth from the center of the first circle towards them.

New Point 2 -

Name for the second new crossing point. Optional.

When two crossing points exists, they are sorted, and this is the name given to the second point after sorting. If this name is missing (empty), then this point will appear in the report, but will not be created.

Repeated parameters:

None.

CrossDist

Crossing distances. Calculate a new point, as a cross point of two or more circles. In case of more than two circles, the solution is adjusted.

Constant parameters:

New Point -

Name for new crossing point.

From Point -

The name of the first edge point of a line.

To Point -

The name of the second edge point of a line.

Measured Length -

Measured distance of the line. Optional. Used to adjust all of the run distances along this line.

Run 1 -

First run distance, from the first line edge towards the second line edge. If empty, then 0 is used. This defines the center of the first circle.

Radius 1 -

The radius of the first circle. It sign selects the solution – positive on the right side of the line, negative on the left side of the line.

Weight Factor 1 -

A multiply factor for the weight of the first radius. Optional. Will be used only when adjustment is taking place. Empty is the same as 1. This parameter can change the relative accuracy of the first radius. A value above 1 will increase its relative accuracy. A value between 0 and 1 will decrease its relative accuracy.

Run 2 -

Second run distance, from the first line edge towards the second line edge. If empty, then the line length is used. This defines the center of the second circle.

Radius 2 -

The radius of the second circle.

Weight Factor 2 -

A multiply factor for the weight of the second radius. Optional. Will be used only when adjustment is taking place. Empty is the same as 1. This parameter can change the relative accuracy of the second radius. A value above 1 will increase its relative accuracy. A value between 0 and 1 will decrease its relative accuracy.

Repeated parameters:

Point -

Point name of another circle. Optional. This point can be anywhere.

Run -

When the **Point** parameter is empty – run distance, from the first line edge towards the second line edge, defining the center of another circle.

Radius -

The radius of the circle.

Weight Factor -

A multiply factor for the weight of the radius. Optional. Will be used only when adjustment is taking place. Empty is the same as 1. This parameter can change the relative accuracy of this radius. A value above 1 will increase its relative accuracy. A value between 0 and 1 will decrease its relative accuracy.

Remark:

It is permitted for the second run (Run 2) and the second radius (Radius 2) to be missing, while some more distances are given. In this case, the first radius (Radius 1) is treated as an offset. The program will calculate the hypotenuse of the triangle which its perpendiculars are the first run (Run 1) and its offset (Radius 1), and will define the result as a measured distance from the line first edge (From Point) to the new point (New Point). All other measured distances will be taken as usual.

CrossHansen

Hansen cross.

Constant parameters:

Target A -

First known point name.

Target B -

Second known point name.

Direction P1 to A -

Direction from the first unknown point towards the first known point.

Direction P1 to B -

Direction from the first unknown point towards the second known point.

Direction P1 to P2 -

Direction from the first unknown point towards the second unknown point.

Direction P2 to A -

Direction from the second unknown point towards the first known point.

Direction P2 to B -

Direction from the second unknown point towards the second known point.

Direction P2 to P1 -

Direction from the second unknown point towards the first unknown point.

New Point P1 -

Name for new point – first unknown point.

New Point P2 -

Name for new point – second unknown point.

Repeated parameters:

None.

CrossLines

Cross lines. Calculate the crossing point between two lines or parallels.

Constant parameters:

Line1: Point A -

The name of the first edge point of first line.

Line1: Point B -

The name of the second edge point of first line.

Line1: Parallel -

First line parallel distance. If empty, then 0 is used.

Line1: Parallel Side -

The side of the first parallel line, relative to the first line: “LEFT” or “RIGHT”.

Line1: Solution -

Requested crossing point relative to the first line: between edges, or outside edges, or anywhere.

Line2: Point A -

The name of the first edge point of second line.

Line2: Point B -

The name of the second edge point of second line.

Line2: Parallel -

Second line parallel distance. If empty, then 0 is used.

Line2: Parallel Side -

The side of the second parallel line, relative to the second line: “LEFT” or “RIGHT”.

Line2: Solution -

Requested crossing point relative to the second line: between edges, or outside edges, or anywhere.

New Point -

Name for new point – crossing point.

If missing (empty) then only the report will be created.

Repeated parameters:

None.

Delete

Delete existing entities. Entities are: points, known points, vectors, arcs, polylines and parcels. Deleted entities are no longer available for the following commands, but they still exist up to the “Delete” command. Is it impossible to delete an entity, when other entities rely on (such as a point which is part of a parcel contour).

Constant parameters:

Entity Name(s) -

Entity name to delete. A group name is also permitted. Point names do not require an entity ID, but you can use the “.” as points ID. If you wish to delete known points, you must use the “*” entity ID. For vectors, the entity ID is “\”. For example, a vector name can be \54. For arcs, the entity ID is “)”. For example, an arc name can be)318.

For polylines, the entity ID is “~”. For example, a polyline name can be ~68. For parcels, the entity ID is “]”. For example, a parcel name can be]72.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Repeated parameters:

None.

DivAreaByAzimuth

Divide a given parcel into two parcels, by searching a line having a defined azimuth, which cross the parcel (at unknown location) and split it into two parcels, were the area of the right parcel is requested (right side of the line).

The following steps are executed:

- ✡ Find the location of the line, so the requested right area is meet.
- ✡ Creates two new points where the line crosses the main parcel.
- ✡ Creates two new vectors (or arcs), at the right and left sides of the first crossing point, so the crossed leg is split into two parts.
- ✡ Creates two new vectors (or arcs), at the right and left sides of the second crossing point, so the crossed leg is split into two parts.
- ✡ Creates two new parcels, which unify to the main parcel.

Constant parameters:

Main Parcel -

Main parcel name to be divided. Its definition will not change as a result of this command.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Line Azimuth -

Crossing line azimuth.

From Point -

A point located on the main parcel contour. Is it a starting point from which to define some part of that contour. The crossing line is permitted to cross that part only. If no limit is imposed, then this point name can be left empty. Only when the number of solutions is above 1, this limitation is needed to select the appropriate solution.

To Point -

A point located on the main parcel contour. Is it an ending point to which to define some part of that contour, starting at the "From point" parameter, going in the same direction which the main parcel contour was defined.

Req. Right Area -

The requested right area for the parcel on the right side of the crossing line. If the main parcel is defined with a legal area, then "Right area" is treated as a requested legal area, otherwise as calculated area.

New Point 1 -

Name for new point – the first crossing point of the line with the main parcel (according to the line azimuth). When the line crosses the parcel at an existing point, this parameter can be left empty.

New Point 2 -

Name for new point – the second crossing point of the line with the main parcel (according to the line azimuth). When the line crosses the parcel at an existing point, this parameter can be left empty.

New Leg Right to 1 -

Name (number only) for a new vector/arc – on the right side of the first crossing point. The first crossing point will be the left edge of this new vector/arc. The right edge will be the right edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Leg Left to 1 -

Name (number only) for a new vector/arc – on the left side of the first crossing point. The first crossing point will be the right edge of this new vector/arc. The left edge will be the left edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Leg Right to 2 -

Name (number only) for a new vector/arc – on the right side of the second crossing point. The second crossing point will be the left edge of this new vector/arc. The right edge will be the right edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Leg Left to 2 -

Name (number only) for a new vector/arc – on the left side of the second crossing point. The second crossing point will be the right edge of this new vector/arc. The left edge will be the left edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Crossing Leg -

Name (number only) for a new vector/arc – for the part of the crossing line, which is inside the parcel. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Right Parcel -

Name for new parcel – on the right side of the crossing line.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

New Left Parcel -

Name for new parcel – on the left side of the crossing line.

Out Right Area Var -

Memory variable number for the output calculated area of the right parcel.

Out Left Area Var -

Memory variable number for the output calculated area of the left parcel.

Redefine Main Parcel -

“ON” to redefine the main parcel with the crossing points, “OFF” not to redefined it.

Repeated parameters:

None.

DivAreaByPoint

Divide a given parcel into two parcels, by searching a line anchored to a given point, which cross the parcel (at unknown azimuth) and split it into two parcels, were the area of the right parcel is requested (right side of the line).

The following steps are executed:

- ✡ Find the azimuth of the line, so the requested right area is meet.
- ✡ Creates two new points where the line crosses the main parcel.
- ✡ Creates two new vectors (or arcs), at the right and left sides of the first crossing point, so the crossed leg is split into two parts.
- ✡ Creates two new vectors (or arcs), at the right and left sides of the second crossing point, so the crossed leg is split into two parts.

Creates two new parcels, which unify to the main parcel.

Constant parameters:

Main Parcel -

The main parcel name to be divided. Its definition will not change as a result of this command.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Anchor Point -

Point name (any point), which the crossing line is anchored to.

From Point -

A point located on the main parcel contour. Is it a starting point from which to define some part of that contour. The crossing line is permitted to cross that part only. If no limit is imposed, then this point name can be left empty. Only when the number of solutions is above 1, this limitation is needed to select the appropriate solution.

To Point -

A point located on the main parcel contour. Is it an ending point to which to define some part of that contour, starting at the "From point" parameter, going in the same direction which the main parcel contour was defined.

Req. Right Area -

The requested right area for the parcel on the right side of the crossing line. If the main parcel is defined with a legal area, then "Right area" is treated as a requested legal area, otherwise as calculated area.

New Point 1 -

Name for new point – the first crossing point of the line with the main parcel (according to the line azimuth). When the line crosses the parcel at an existing point, this parameter can be left empty.

New Point 2 -

Name for new point – the second crossing point of the line with the main parcel (according to the line azimuth). When the line crosses the parcel at an existing point, this parameter can be left empty.

New Leg Right to 1 -

Name (number only) for a new vector/arc – on the right side of the first crossing point. The first crossing point will be the left edge of this new vector/arc. The right edge will be the right edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Leg Left to 1 -

Name (number only) for a new vector/arc – on the left side of the first crossing point. The first crossing point will be the right edge of this new vector/arc. The left edge will be the left edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Leg Right to 2 -

Name (number only) for a new vector/arc – on the right side of the second crossing point. The second crossing point will be the left edge of this new vector/arc. The right edge will be the right edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Leg Left to 2 -

Name (number only) for a new vector/arc – on the left side of the second crossing point. The second crossing point will be the right edge of this new vector/arc. The left edge will be the left edge of the crossed leg. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Crossing Leg -

Name (number only) for a new vector/arc – for the part of the crossing line, which is inside the parcel. This parameter can be left empty, so the software will automatically issue a vector/arc new name.

New Right Parcel -

Name for new parcel – on the right side of the crossing line.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

New Left Parcel -

Name for new parcel – on the left side of the crossing line.

Out Right Area Var -

Memory variable number for the output calculated area of the right parcel.

Out Left Area Var -

Memory variable number for the output calculated area of the left parcel.

Redefine Main Parcel -

“ON” to redefine the main parcel with the crossing points, “OFF” not to redefined it.

Repeated parameters:

None.

Division

Divide a main parcel into internal parcels. Define the unified parcel, if undefined. Creates division table.

The area units for the report, defined in the "PrintSwitches" command, are used also for the tables file which is exported to Map-2000. The base units and factor, defined in this units picture, for areas, determine the base units in the tables file: Square Meters, square Feet, Dunam (factor of 1000), Acre (factor of 43560), Hectar (factor of 10000). The numbers in the tables file no not contain any special symbols (such as "M") defined by the units picture.

Constant parameters:

Unified Parcel Name -

Name of the global (unified) parcel.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Unified Legal Area -

Legal area of the global parcel. Optional.

Unified Calc. Area -

Memory variable number where to put the result of the global parcel calculated area. Optional.

Check Unify -

Can be "ON" or "ON, INCLUDE POINTS ON LINES" or "OFF" or "LOGIC ONLY". "ON" stands for checking the global parcel contour against the same contour as automatically calculated from the unified parcels contours. Also, "ON" enables validity checks for all unified parcels contours (especially: no crossing lines). "ON, INCLUDE POINTS

ON LINES" stands for the same checkings, except that points on lines must be included in parcel contours. "OFF" stands for skipping any such checks (do not try to calculate the global parcel contour). "LOGIC ONLY" enables the global parcel contour check – logically only – and disables the contours validity checks.

Round Digits -

Number of digits at the right side of the decimal point, as round digits, used for the division table.

Repeated parameters:

Parcel Name(s) -

Name of internal parcel, or group of parcels, participates in the division. Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Division2

Divide a main parcel into internal parcels. Define the unified parcel, if undefined. Creates division table. The internal parcels can be undefined.

The area units for the report, defined in the "PrintSwitches" command, are used also for the tables file which is exported to Map-2000. The base units and factor, defined in this units picture, for areas, determine the base units in the tables file: Square Meters, square Feet, Dunam (factor of 1000), Acre (factor of 43560), Hectar (factor of 10000). The numbers in the tables file no not contain any special symbols (such as "M") defined by the units picture.

Constant parameters:

Unified Parcel Name -

Name of the global (unified) parcel.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Unified Master Plan -

Master plan name of the global parcel. Optional.

Unified Legal Area -

Legal area of the global parcel. Must be given.

Unified Calc. Area -

Calculated area of the global parcel. Must be given.

Round Digits -

Number of digits at the right side of the decimal point, as round digits, used for the division table.

Repeated parameters:

Parcel Name -

Name of internal parcel, participates in the division.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Master Plan -

Master plan name of the internal parcel. Optional.

Calc. Area -

Calculated area of the internal parcel.

Division3

Parcel division command. The method of division can be one of three: not proportional, partially proportional, or proportional.

In the first case – not proportional – all the calculated and legal areas of the internal parcels must be given. They can be given in the command itself, or in previous defined parcels. The sum of calculated areas is set to be the calculated area of the global parcel. The sum of legal areas is set to be the legal area of the global parcel. The area adjustment table is built according to this (all areas do not changed, at most can be rounded).

In the second case – partially proportional – all the calculated areas of the internal parcels must be given. They can be given in the command itself, or in previous defined parcels. Also, some of legal areas of the internal parcels are given. The legal area of the global parcels must be given. The legal areas, also, can be given in the command itself, or in previous defined parcels. The sum of calculated areas is set to be the calculated area of the global parcel. The legal area of the global parcel, minus the sum of given legal areas for the internal parcels, is set to be the sum of legal areas for the other parcels (those who do not have legal areas). So, the division is proportional for those parcels (who do not have legal areas), and not proportional for the other parcels (which have legal areas). all given areas do not changed, at most can be rounded. The parcels, which do not have legal areas, get new adjusted legal areas, using a proportional calculation.

The third case – proportional – is a private case of the partially proportional case, in which all internal parcels do not have legal areas.

The program automatically identifies the case, by the legal areas given (in the command itself and also in previous defined parcels).

In all three cases, legal areas can be updated in previous defined parcels, as a result of this command execution. Legal areas given in the command, which are different from the corresponding legal areas given in previous defined parcels, are updated. The details are listed in the report.

The area units for the report, defined in the “PrintSwitches” command, are used also for the tables file which is exported to Map-2000. The base units and factor, defined in this units picture, for areas, determine the base units in the tables file: Square Meters, square Feet, Dunam (factor of 1000), Acre (factor of 43560), Hectar (factor of 10000). The numbers in the tables file no not contain any special symbols (such as “M”) defined by the units picture.

Constant parameters:

Unified Parcel Name -

Name of the global (unified) parcel.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Unified Master Plan -

Master plan name of the global parcel. Optional.

Unified Legal Area -

Legal area of the global parcel. Optional.

Unified Calc. Area -

Memory variable number where to put the result of the global parcel calculated area. Optional.

Check Unify -

Can be “ON” or “ON, INCLUDE POINTS ON LINES” or “OFF” or “LOGIC ONLY”. “ON” stands for checking the global parcel contour against the same contour as automatically calculated from the unified parcels contours. Also, “ON” enables validity checks for all unified parcels contours (especially: no crossing lines). “ON, INCLUDE POINTS ON LINES” stands for the same checkings, except that points on lines must be included in parcel contours. “OFF” stands for skipping any such checks (do not try to calculate the global parcel contour). “LOGIC

ONLY" enables the global parcel contour check – logically only – and disables the contours validity checks.

Round Digits -

Number of digits at the right side of the decimal point, as round digits, used for the division table.

Repeated parameters:

Parcel Name(s) -

Name of internal parcel, or group of parcels, participates in the division. Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Master Plan -

Master plan name of the internal parcel. Optional.

Legal Area -

Legal area of the internal parcel. Optional.

Calc. Area -

Calculated area of the internal parcel. Optional.

FindRadius

Change the radius of a parcel leg, so the parcel calculated area would become a requested value. The original leg can be a vector or an arc, and can be changed into a vector or an arc. The leg is redefined (as a vector or an arc) and also the parcel is redefined.

Constant parameters:

Parcel Name -

Name of the parcel.

Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Req. Calc. Area -

The requested calculated area for the parcel.

From Point -

First edge point name of the leg.

To Point -

Second edge point name of the leg.

Arc Size -

Optional limitation for the arc size in the solution: smaller or larger than half a circle. Leave empty for no limitation.

Out Radius Var -

Memory variable number where to put the result of the calculated radius. Optional.

Redefine Parcels -

“ON” for redefining all other parcels which lean on the changed leg, or “OFF” otherwise (not to redefine other parcels).

Repeated parameters:

None.

HanitAttrib12

Define values for entity attributes, for compatibility with Hanit 1.2 format.

The HanitAttrib12 command is used to define values for attributes. It can be inserted anywhere in the command-script and it's definitions are set active from it's insertion location on, until change. The attribute values are given to the general information (GI), point entities (PT), line entities (LN) or parcel entities (PR).

It is recommended to insert a HanitAttrib12 command at the top of the command-script, with the general information defined in it, and defaults for the entire command-script. Later, while exporting to Hanit format, it is possible to edit the attribute values in convenient tables, possibly changing the defaults where necessary.

If, for example, the value "3" is set to the "PT/CROSS" attribute, then every new point will get the value "3" attached to it's "CROSS" attribute. Another HanitAttrib12 command can change that, starting at its location and down the command-script.

Other attributes not included in the selection window, are such that the program fill automatically.

Constant parameters:

> **None.**

Repeated parameters:

> **Hanit Attribute -**
>
> > Attribute name to which to give a value. Double click opens a window from which the attribute name is selected.
>
> **Value -**
>
> > Input value for the selected attribute.

HanitAttrib13

Define values for entity attributes, for compatibility with Hanit 1.3 format.

The HanitAttrib13 command is used to define values for attributes. It can be inserted anywhere in the command-script and it's definitions are set active from it's insertion location on, until change. The attribute values are given to the general information, point entities, line entities or parcel entities.

It is recommended to insert a HanitAttrib13 command at the top of the command-script, with the general information defined in it, and defaults for the entire command-script. Later, while exporting to Hanit format, it is possible to edit the attribute values in convenient tables, possibly changing the defaults where necessary.

If, for example, the value "3" is set to the "POINT-BASE:CLASS" attribute, then every new base point will get the value "3" attached to it's "CROSS" attribute. Another HanitAttrib13 command can change that, starting at its location and down the command-script.

Other attributes not included in the selection window, are such that the program fill automatically.

Constant parameters:

None.

Repeated parameters:

Hanit Attribute -

Attribute name to which to give a value. Double click opens a window from which the attribute name is selected.

Value -

Input value for the selected attribute.

See CadCad.pdf file.

HelmertParams

Define parameters of Helmert transformation.

The default definition is stored in the transformations setup file. It can be edited using the setup windows (Options / Geo Setup / Geo / Transformations).

This command picks the default parameters from the transformations setup file and shows filled with them. Then, changes are possible without effecting the setup file. Adding this command to the geo file guarantee that the Transform command will execute independent of the setup file, which is subject to changes.

Constant parameters:

Permitted Mdx,Mdy -

Permitted MSE on each axis (X,Y).

Factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Repeated parameters:

None.

Layer

Defined a layer name. The following new entities will be inserted into this layer, until a new "Layer" command is defined. Entities are: points, known points, vectors, arcs, polylines and parcels.

At this stage, there is no use of layers.

Constant parameters:

Layer Name -

Layer name.

Repeated parameters:

None.

LineType

Define color and line type for new vector and arc entities, until a new "LineType" command is defined.

When exporting to Map-2000, the color is passing as pen number, and the line type (the first code only) is passing as line type.

When exporting to SRV, the color is passing as color, and the line type (all of the codes) is passing as line type through a translation table.

Constant parameters:

Color -

Color (pen number) in the range 1 – 255.

Repeated parameters:

Line Type -

Line type in the range 0 – 65535. Double click to open the line type table, which can be edited and select from. A line type can be a set of many line type codes.

Load

Load a point file and create point entities.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows “Open dialog”.

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a “RegevFormat” command, or by a “TextFormat” command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the “Transform” command, select the known class.

Repeated parameters:

None.

LoadCode

Load a point file and create point entities.

Use one of the point codes as a filter. Define the type of code and the ranges of values to be loaded.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows “Open dialog”.

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a “RegevFormat” command, or by a “TextFormat” command.

Code -

The type of code. Double click to open the selection table.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the “Transform” command, select the known class.

Repeated parameters:

Min Value -

Low limit of code range (min).

Max Value -

High limit of code range (max). Many ranges can be defined, all connected with “OR” operator.

LoadCodes

Load a point file and create point entities.

Use all of the point codes as a filter. Define the combinations of codes to be loaded. Within each combination, an "AND" operator is used. Between combinations, an "OR" operator is used. Use the zero (0) value as a special indicator for "any value will fit".

Constant parameters:

File Name -

Full file name. Double click to open the standard windows "Open dialog".

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a "RegevFormat" command, or by a "TextFormat" command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the "Transform" command, select the known class.

Repeated parameters:

Source Code -

Double click to open the source code table, from which you can select the requested values for source code. Leave zero (0) if any value will fit your needs. Source code do not exist in Regev-DOS.

Type Code -

Double click to open the type code table, from which you can select the requested values for type code. Leave zero (0) if any value will fit your needs. Type code is the 3 right digits of Regev-DOS code.

Desc. Code -

Double click to open the description code table, from which you can select the requested values for description code. Leave zero (0) if any value will fit your needs. Description code is the 2 left digits of Regev-DOS code.

LoadPoints

Load a point file and create point entities.

Use point names as a filter. Define the groups of names to be loaded. Between groups, an "OR" operator is used.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows "Open dialog".

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a "RegevFormat" command, or by a "TextFormat" command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the "Transform" command, select the known class. The options are:

REGULA POINTS – Requested regular points. The names at the Point(s) column are the regular points to load.

KNOWN POINTS – Requested known points. The names at the Point(s) column are the known points to load.

REGULAR POINT – EXCLUDE – Rejected regular points. The names at the Point(s) column are the regular points to reject. All other are loaded.

KNOWN POINTS – EXCLUDE – Rejected known points. The names at the Point(s) column are the known points to reject. All other are loaded.

Repeated parameters:

Point(s) -

Define the points to load, or reject, by names or groups of names.

LoadWindow

Load a point file and create point entities.

Use coordinates windows as a filter. Define the windows to be loaded. Between windows, an "OR" operator is used.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows "Open dialog".

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a "RegevFormat" command, or by a "TextFormat" command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the "Transform" command, select the known class.

Repeated parameters:

Y Min -

Window west limit.

X Min -

Window south limit.

Y Max -

Window east limit.

X Max -

Window north limit.

Lot

Defines a parcel using point names.

In Geo2, a parcel contour is defined using vectors, arcs and polylines. But, this command uses points only. Also identifies and use the necessary vectors, arcs and polylines. If those entities do not exist, then the “Lot” command creates them. Duplicate entities can never be created (overwritten only).

Constant parameters:

Parcel Name -

Name for a new parcel.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Master Plan -

Master plan name.

Legal Area -

Legal area. Optional.

Out Calc. Area Var -

Memory variable number where to put the result of the calculated area.

Vector Name 1 -

Name for the first new vector, automatically created by this command. For the following vectors, this name will be incremented by 1. If you leave this parameter empty, the software will give automatic vector numbers.

Arc Name 1 -

Name for the first new arc, automatically created by this command. For the following arcs, this name will be incremented by 1. If you leave this parameter empty, the software will give automatic arc numbers.

Repeated parameters:

Point(s) -

Point name or group of points, on the parcel contour. Between those points, the software will create vectors and arcs. The point in this set of repeated parameters (or the last in the group), is connected with the next point in the next set of repeated parameters (or the first in the next group).

Legal Length -

Optional vector legal length.

Arc Radius -

Optional arc radius. Positive when the arc goes at the right side of its chord, negative otherwise. If this parameter is empty, then a vector is created, from this point to the next, otherwise an arc is created. Even if the radius is unchanged, it must be rewritten from one arc to the next.

Arc Size -

Identify the angular size of the arc. "LONG" for more than half a circle, "SHORT" or empty otherwise.

Color -

Color (pen number) in the range 1 – 255. Can be left empty, so the color is taken from the previous "LineType" command.

Line Type -

Line type in the range 0 – 65535. Can be left empty, so the line type is taken from the previous "LineType" command.

The line type codes defined in the “Lot” command are added to the line type codes already defined in existing vectors and arcs.

LotWithIslands

Defines a parcel containing islands.

The parameters for this command are defined and existing parcel names. It constructs and defines a new parcel containing islands.

Among the parameters, one is the parent parcel, and all others are island parcels, inside or outside the parent parcel. In case of an "inside" island, its area is subtracted from the parent area. In case of an "outside" island, its area is added to the parent area.

Special lines are added to the new parcel definition – one line for each island. Those lines serve as bridges connecting the islands to the parent parcel. This command creates them automatically. For each bridge line, one of its edges is found on the parent parcel, and the other edge is found on the island parcel. Both edges must be defined as parameters for this command.

The new parcel definition contains duplicate point names (the edges of all bridge lines). To avoid warning messages about duplicate names, you need to insert the CheckLot command before the LotWithIslands command, with the "Duplicate Names" parameter set to "OFF".

Constant parameters:

Parcel Name -

Name for a new parcel.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Master Plan -

Master plan name.

Legal Area -

Legal area. Optional.

Out Calc. Area Var -

Memory variable number where to put the result of the calculated area.

Parent of Islands -

Defined and existing parent parcel name, containing the islands. This parcel can be, by itself, containing islands.

Repeated parameters:

Island Parcel -

Defined and existing island parcel name – to be connected to the parent parcel. This parcel can be, by itself, containing islands.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Connect Vector Name -

Defined and existing vector name – to serve as the bridge line between this island and the parent parcel. If such a vector is not defined, leave this parameter empty, and define instead the next two parameters.

Connect From Point -

Point name – to be the first edge of the bridge line for this island.

Connect To Point -

Point name – to be the second edge of the bridge line for this island.

Color -

Color (pen number) for the bridge line, in the range 1 – 255. Can be left empty, so the color is taken from the previous “LineType” command.

Line Type -

Line type for the bridge line, in the range 0 – 65535. Can be left empty, so the line type is taken from the previous “LineType” command. In export to SRV the line type must be 0.

MatchPoints

Match between known point names and regular point names, saying that each pair is the same point with different names. This command serves the Transform command (only), which transform coordinates, when it searches to match regular points from the source coordinates system with known points from the target coordinate system. Also, the report of the Transform command is affected by the MatchPoints command.

This command stay in effect until a new MatchPoints command is inserted. The last one overwrites its previous.

Constant parameters:

Use Same Names -

This parameter can be set to YES, or NO. When set to YES, same point names are matched automatically, even if they are not defined within this command. When set to No, same names must be defined within this command to be active.

Repeated parameters:

Known Point Name -

Known point name to be matched with a regular point name, at the same line.

Regular Point Name -

Regular point name to be matched with a known point name, at the same line.

MeasDist

Calculates measured distance as a sum of front projections.

This command takes a list of distance pairs – front and offset – along a measured line. For each pair, calculates the front projection length on the line, and sum up those lengths. The result is the measured distance of that line.

Constant parameters:

Result Measured Length Var -

Memory variable number where to put the result of the calculated measured distance. Optional.

First Offset -

First offset at the first edge of the measured line, positive on the right side, negative on the left side of the line, or zero. The first front starts at this offset location.

Repeated parameters:

Front Length -

Front distance, from the previous offset location, to the next offset location.

Offset -

Offset distance from the line, positive on the right side, negative on the left side of the line, or zero.

MeasLine

Calculate new points on a measured line or arc, using run and offset distances.

Constant parameters:

From Point -

Point name of the line/arc first edge.

To Point -

Point name of the line/arc second edge.

Measured Length -

Measured distance of the line, or measured length of the arc. The run distances will be adjusted according to this value. If left empty, then no such adjustment will occur.

Arc Radius -

Optional arc radius. Positive when the arc goes at the right side of its chord, negative otherwise. If this parameter is empty, then this is a measured line, otherwise a measured arc.

Arc Size -

Identify the angular size of the arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Adjust Fronts -

This can be empty or “ADJUST FRONTS”. When “ADJUST FRONTS” is set, the program tries to fix the corrupted fronts, by minimally moving run and offset distances, without corrupting the fixed fronts, using the permitted deviations of measurement regulations. The parameters for this process can be defined in Geo2000 setup (“Options” menu, “Geo Setup” command, “Geo” menu, “Adjust fronts on measured line” command) or by the “AdjFrontsParams” script command. When using “ADJUST

FRONTS", the measured line can be calculated forward or backward – the results will be the same. Actually, the program calculates the moved run and offsets, and then calculate the point coordinates based on them.

Final Front -

The last front, beteen the last calculated point and the second edge point. Relevant only when "ADJUST FRONTS" is defined.

Repeated parameters:

Front From Point -

Optional front point name. If the parameter is empty, and "Front length" is given, then the front is defined between the previous calculated point (by this command) and the current calculated point. If this parameter and "Front length" are both given, then the front is defined between this parameter point and the current calculated point.

Front Length -

Optional front distance.

Run -

Run distance, from the measured line/arc first edge, towards the line/arc second edge. The run distance is measured along the arc (not the chord).

Offset -

Offset distance from the line/arc, positive on the right side, negative on the left side of the line/arc, or zero. For an arc, the offset goes towards the arc center (circle center).

New Point -

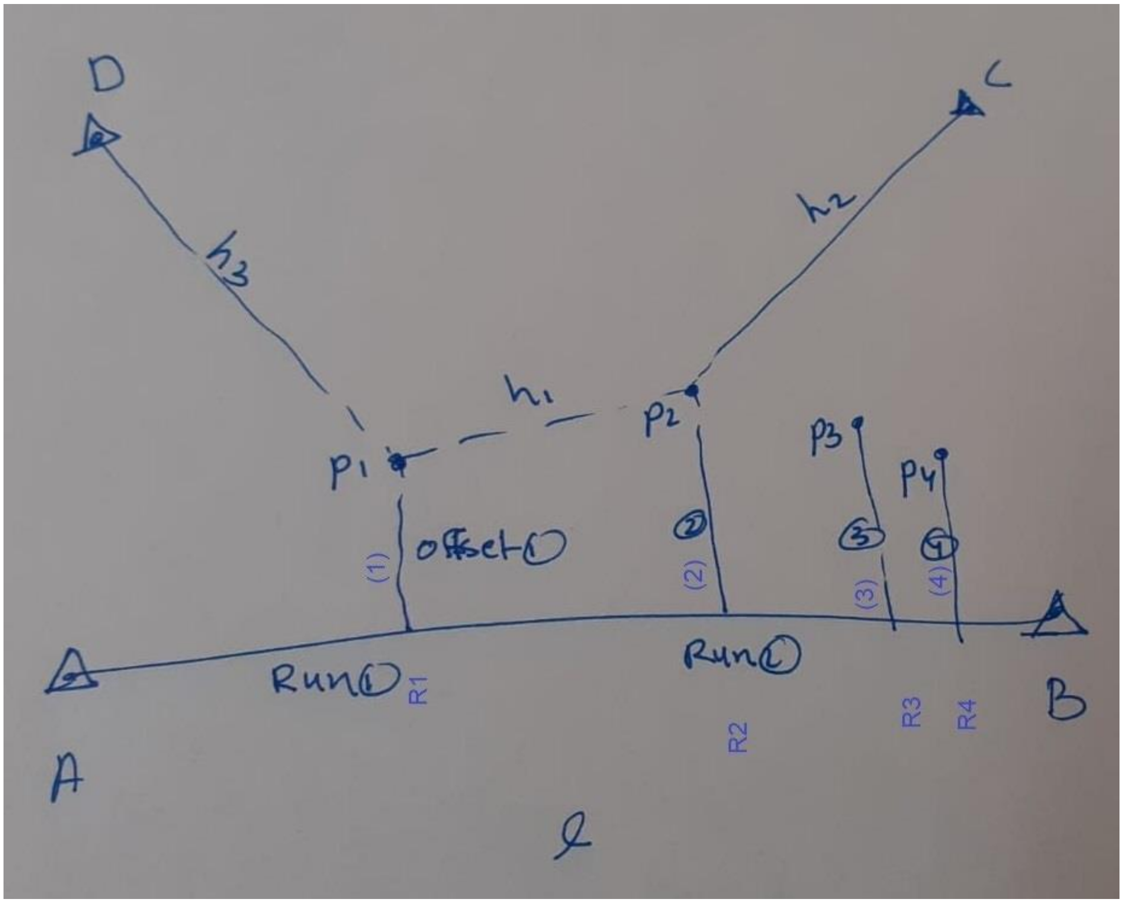
Name for the new calculated point (current point).

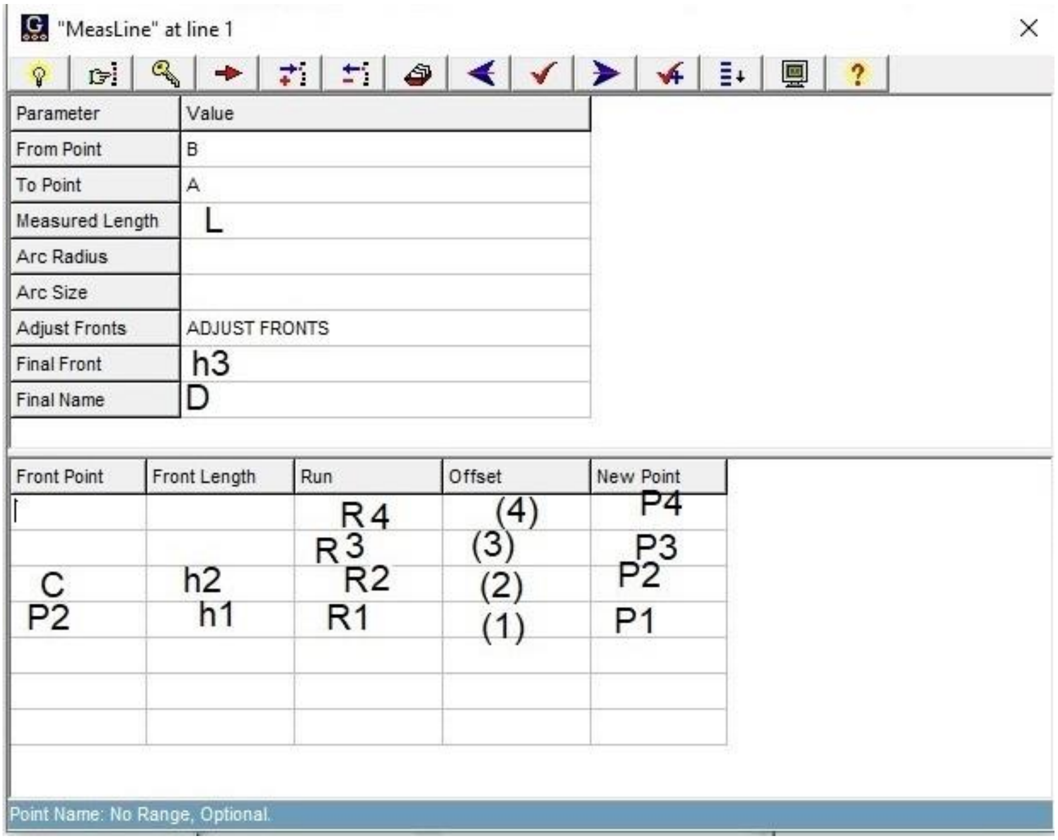
Remarks:

- No special order is needed on the run distances.

✡ Each new point is calculated according to the run and offset. Afterwards, if a front is defined, its length is checked. If the front length is out of the standard, then the point is moved along the front line, until the standard is meet.

Complex example:




"MeasLine" at line 1
Parameter
Value
From Point
B
To Point
A
Measured Length
L
Arc Radius
Arc Size
Adjust Fronts
ADJUST FRONTS
Final Front
h3
Final Name
D
Front Point
Front Length
Run
Offset
New Point
R4
(4)
P4
R3
(3)
P3
C
h2
R2
(2)
P2
P2
h1
R1
(1)
P1
Point Name: No Range, Optional.

MeasLine2

Calculate new points on a measured line or arc, using run and offset distances, or crossing two circles, or crossing three circles including adjustment of the solution.

Constant parameters:

From Point -

Point name of the line/arc first edge.

To Point -

Point name of the line/arc second edge.

Measured Length -

Measured distance of the line, or measured length of the arc. The run distances will be adjusted according to this value. If left empty, then no such adjustment will occur.

Arc Radius -

Optional radius. Positive when the arc goes at the right side of its chord, negative otherwise. If this parameter is empty, then this is a measured line, otherwise a measured arc.

Arc Size -

Identify the angular size of the arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Adjust Report -

ON/OFF switch. “ON” for creating and adding adjustment report, “OFF” otherwise. When a third circle do not exist, this parameter is irrelevant.

Repeated parameters:

Front From Point -

Point name from which a front is measured. Optional. If the parameter is empty, and “Front length” is given, then the front is defined between the previous calculated point (by this command) and the current calculated point. If this parameter and “Front length” are both given, then the front is defined between this parameter point and the current calculated point.

Front Length -

Front distance. Optional. When a third circle and a front, both exist, then the front plays a role in the adjustment, as a fourth distance.

Run 1 -

First run distance, from the measured line/arc first edge, towards the line/arc second edge. The run distance is measured along the arc (not the chord).

Radius 1 -

Circle radius, around the location of the first run distance. If “Radius 2” is missing, then this parameter is the offset distance from the line/arc, positive on the right side, negative on the left side of the line/arc, or zero. For an arc, the offset goes towards the arc center (circle center).

Run 2 -

Second run distance, from the measured line/arc first edge, towards the line/arc second edge. The run distance is measured along the arc (not the chord). Optional.

Radius 2 -

Circle radius, around the location of the second run distance. Optional.

Run 3 -

Third run distance, from the measured line/arc first edge, towards the line/arc second edge. The run distance is measured along the arc (not the chord). Optional.

Radius 3 -

Circle radius, around the location of the third run distance. Optional.

New Point -

Name for the new calculated point (current point).

Remarks:

- No special order is needed on the run distances. But, when a front is given without the name of the point from which the front is measured, then that points is taken as the previous calculated point on this line (or the first edge point).
- When only the first run distance is given, then “MeasLine2” command works the same as “MeasLine” command, were “Radius 1” is the offset distance.
- When two run distances are given, then the calculated point is a result of crossing two circles. The sign of “Radius 1” is selecting the solution – positive for the right side of the line/arc, negative otherwise.
- When three run distances are given, then the calculated point is a result of crossing three circles – including adjustment! The sign of “Radius 1” is selecting the solution – positive for the right side of the line/arc, negative otherwise.
- Each new point is calculated according to the run and offset, or crossing circles. Afterwards, if a front is defined, its length is checked. If the front length is out of the standard, then the point is moved along the front line, until the standard is meet.
- If the new point already exists, and it is calculated using adjustment, then its coordinates are taken as approximate coordinates for the adjustment, instead of the coordinates, which can be calculated from the input data.

- The adjusted distances accuracies are automatically calculated using the defined in the last “MeasReg” command, or the defaults for it, found in the “User\MeasReg.stp” file, which can be edited using Regev2000 \ Applications \ Setup \ Geo \ Measurement regulations. The front distance is regarded more accurate, so its weight is multiplied by the square root of 2. The calculated accuracies are listed in the adjustment report.
- Other parameters used in the adjustment process, are fount in the “User\AdjDists.stp” file, which can be edited using Regev2000 \ Applications \ Setup \ Geo \ Distance adjustment.

MeasLinePlan

Calculate a net of measured lines.

Each set of repeated parameters defines a measured line between two edge points, the measured line distance, a run distance, and a new point name to calculate on the line according to this information. The new point names can also be used to as edge points for the measured lines. The order of all data is not important. The software find the correct order all by itself. The “MeasLinePlan” command calculates all of the new points defined within this net.

Constant parameters:

None.

Repeated parameters:

From Point -

Name of first edge point of a measured line. In the following rows, it can be left empty, until changed.

To Point -

Name of second edge point of a measured line. In the following rows, it can be left empty, until changed.

Measured Length -

Measured distance of the line. Used to adjust the run distance. In the following rows, it can be left empty, while it is the same line.

Run -

Run distance, along the measured line, up to a new point.

New Point -

Name for the new point.

MeasReg

Define meassurment regulations for checking calculated areas and lengths against legal areas and lengths.

The defaults are defined in the file “MeasReg.stp” which can be edited using the “Options” menu in Geo2000 (Options/Geo Setup/Geo/Meassurment-regulations) and remain in effect until changed by this command. This command, also, remain in effect until changed by another MeasReg command.

Constant parameters:

Area Formula -

Select formula for calculating permitted area difference. The options are:

1) Empty – Continue using the previous definition.
2) “Default” – Return to the default (in “MeasReg.stp” file).
3) “New Israel” – Use the new formula. In this case: A1=0.3, A2=0.005.
4) “Old Israel” – Use the old formula. In this case: A1=0.8, A2=0.002.
5) “User defined” – A1 and A2 need to be defined.

A1 Coeff -

The first coefficient used in the formula of calculating the permitted area difference. Multiplied by the square root of the legal area.

A2 Coeff -

The second coefficient used in the formula of calculating the permitted area difference. Multiplied by the legal area and added to the result.

Length Limit -

Make a distinction between short and long line lengths. Usually: 50.005 meter.

Short Length Formula -

Select formula for calculating permitted length difference for short lines. The options are:

1) Empty – Continue using the previous definition.

2) “Default” – Return to the default (in “MeasReg.stp” file).

3) “New Israel” – Use the new formula. In this case: L1=0, L2=0.065 meter.

4) “Old Israel” – Use the old formula. In this case: L1=0, L2=0.085 meter.

5) “User defined” – L1 and L2 need to be defined.

L1 Coeff -

The first coefficient used in the formula of calculating the permitted length difference for short lines. Multiplied by the legal length.

L2 Coeff -

The second coefficient used in the formula of calculating the permitted length difference for short lines. Added to the result.

Long Length Formula -

Select formula for calculating permitted length difference for long lines. The options are:

1) Empty – Continue using the previous definition.

2) “Default” – Return to the default (in “MeasReg.stp” file).

3) “New Israel” – Use the new formula. In this case: L3=0, L4=0.105 meter.

4) “Old Israel” – Use the old formula. In this case: L3=0.0016, L4=0 meter.

5) “User defined” – L3 and L4 need to be defined.

L3 Coeff -

The first coefficient used in the formula of calculating the permitted length difference for long lines. Multiplied by the legal length.

L4 Coeff -

The second coefficient used in the formula of calculating the permitted length difference for long lines. Added to the result.

Extreme Factor -

A multiplication factor on the permitted deviations, used to identify and report an extreme deviation ("very big").

Repeated parameters:

None.

Remark:

If "Short Length Formula" and "Long Length Formula" are both set to "Default", then "Length Limit" is also set to default (in "MeasReg.stp" file).

MoveLots

Creates a table, which describes moved parcels, from one block into another. Each row in this command creates one row in the table.

The area units for the report, defined in the "PrintSwitches" command, are used also for the tables file which is exported to Map-2000. The base units and factor, defined in this units picture, for areas, determine the base units in the tables file: Square Meters, square Feet, Dunam (factor of 1000), Acre (factor of 43560), Hectar (factor of 10000). The numbers in the tables file no not contain any special symbols (such as "M") defined by the units picture.

Constant parameters:

None.

Repeated parameters:

Old Parcel Name -

Old parcel name. Can be defined or not.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Legal Area -

Legal area of the old parcel. If left empty, then it is picked from the parcel definition.

Block Name -

The block name where the parcel is moved into.

New Parcel Name -

The name of the parcel within the new block.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For

example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Overwrite

Defined switches (ON/OFF) which accept or deny, the overwritten of existing entities, by names. A different switch is defined for each type of entity (points, known points, vectors, arcs, polylines, parcels).

All switches are in effect until changed by this command.

When a switch is OFF, new entities can't overwrite existing entities. If a new entity is about to be created, a point for example, with a name of an existing point, then the point is not created, and an error message is reported.

When a switch is ON, new entities overwrite existing entities with the same name. In the results window, there is a column with an icon describing the entities status – normal, overwritten or deleted. Note: if some command creates new entities, which overwrite existing entities, the results for this command show the new entities. But, the results for previous commands still show the overwritten (old) entities.

Constant parameters:

Overwrite Points -

Overwrite switch for regular point.

Overwrite Known Points -

Overwrite switch for known point.

Overwrite Vectors -

Overwrite switch for vectors.

Overwrite Arcs -

Overwrite switch for arcs.

Overwrite Polylines -

Overwrite switch for polylines.

Overwrite Parcels -

Overwrite switch for parcels.

Repeated parameters:

None.

OvrCodes

Change code/codes for existing points (regular or known).

Constant parameters:

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the “Transform” command, select the known class.

Source Code -

Source code. Do not exist in Regev-DOS. Double click it to open a selection table, which can be also edited. Empty for unchanged.

Type Code -

Type code. The three right characters in Regev-DOS code. Double click it to open a selection table, which can be also edited. Empty for unchanged.

Desc. Code -

Description code. The two left characters in Regev-DOS code. Double click it to open a selection table, which can be also edited. Empty for unchanged.

Repeated parameters:

Point(s) -

Existing point name or name group, for which to change the code/codes. The new code/codes are defined in this command. Existing points are overwritten with new points.

PerspectiveParams

Define parameters of Perspective transformation.

The default definition is stored in the transformations setup file. It can be edited using the setup windows (Options / Geo Setup / Geo / Transformations).

This command picks the default parameters from the transformations setup file and shows filled with them. Then, changes are possible without effecting the setup file. Adding this command to the geo file guarantee that the Transform command will execute independent of the setup file, which is subject to changes.

Constant parameters:

Permitted Mdx,Mdy -

Permitted MSE on each axis (X,Y).

Factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Repeated parameters:

None.

Plot

Define a parcel.

The parcel can be regular parcel or containing islands, defined by point names or line names (vectors, arcs, polylines), as needed.

A regular parcel is defined as a closed line sequence (vectors and/or arcs and/or polylines) - not point names. But, the Plot command permits the input of point names along the parcel contour. The Plot command execution will create line entities between those points, as necessary, or will identify and use existing line entities. The uses of line entities ensure that neighbor parcels are defined with the same exact contour (using the common line entities for both).

A parcel having islands is defined as a collection of regular parcels - one for each island - along with a definition saying which island is inside which, so their area is added or subtracted.

To define a regular parcel, select the “ADD” value for the **Action** parameter on the first line of the bottom grid. All other values of the **Action** column need to be empty. The parcel contour will occupy a block of lines in that grid.

To define a parcel having islands, each island (closed contour) need to occupy a separate block of lines on the bottom grid. It’s **Action** parameter on the first line must have a value, and all other values of the **Action** column need to be empty. The value will be “ADD” for added area, or “SUBTRACT” for subtracted area.

For compatibility with Hanit and SRV formats, connection lines must be defined also. Each such line is connecting a point on the main parcel contour with a point on the island contour. A line can be a vector or polyline. Every such line is defined the same way as an island, except that it is not closed and starts with the value “CONNECT” for the **Action** parameter. When a connection line is defined by point names, the program creates vector(s) for it. There is no need to define a connection line between two island who touch each other (not separated).

Constant parameters:

Parcel Name -

Name for a new parcel.

Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

Master Plan -

Master plan name. It is possible to add the purpose in "[…]".

Legal Area -

Legal area. Optional.

Out Calc. Area Var -

Memory variable number where to put the result of the calculated area.

Vector Name 1 -

Name for the first new vector, automatically created by this command. For the following vectors, this name will be incremented by 1. If you leave this parameter empty, the software will give automatic vector numbers.

Arc Name 1 -

Name for the first new arc, automatically created by this command. For the following arcs, this name will be incremented by 1. If you leave this parameter empty, the software will give automatic arc numbers.

Repeated parameters:

Action -

Action type as described above. On the first line of the parcel definition, or main parcel definition, or island definition, which it’s area is added, the value “ADD” need to be selected. On the first line of an island definition which area is subtracted, the value “SUBTRACT” need to be selected. On the first line of every line connecting an island to the main parcel (for compatibility with Hanit and SRV formats), the value "CONNECT" need to be selected. All other cells of Action must be empty.

Entity(s) -

Point name or group of points by increasing or decreasing order, along the contour. Between those points, the software will create vectors and arcs, if missing. The point in this set of repeated parameters (or the last in the group) is connected with the next point in the next set of repeated parameters (or the first in the next group). This parameter can also accept vector or arc or polyline names.

Legal Length -

Vector legal length (optional). The vector is the last one in a group of names.

Arc Radius -

Arc radius (optional). The arc is the last one in a group of names. Positive when the arc goes at the right side of its chord, negative otherwise. If this parameter is empty, then a vector is created, from this point to the next, otherwise an arc is created. Even if the radius is unchanged, it must be rewritten from one arc to the next.

Arc Size -

Identify the angular size of the arc. "LONG" for more than half a circle, "SHORT" or empty otherwise.

Color -

Color (pen number) in the range 1 - 255. Can be left empty, so the color is taken from the previous "LineType" command.

Line Type -

Line type in the range 0 - 65535. Can be left empty, so the line type is taken from the previous "LineType" command.

The line type codes defined in the “Plot” command are added to the line type codes already defined in existing vectors and arcs.

Point

Create new point entities.

The point codes can be selected from the code tables, which are opened by a double click on the code parameters. Many points can be created using a single “Point” command.

Constant parameters:

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the “Transform” command, select the known class.

Source Code -

Source code. Do not exist in Regev-DOS. Double click it to open a selection table, which can be also edited.

Type Code -

Type code. The three right characters in Regev-DOS code. Double click it to open a selection table, which can be also edited.

Desc. Code -

Description code. The two left characters in Regev-DOS code. Double click it to open a selection table, which can be also edited.

Repeated parameters:

Name -

New point name.

Y -

Y coordinate.

X -

X coordinate.

Elevation -

Elevation.

Polyline

Defines a polyline using existing connected vectors and arcs. A polyline can be open or closed.

Constant parameters:

Polyline Name -

Name for a new polyline. A polyline name begins with a "~" symbol (entity ID) followed by a number. For example: ~68.

Repeated parameters:

Vector/Arc Name(s) -

Name of existing vector/arc, or group of vectors/arcs, on the polyline contour. The line in this set of repeated parameters (or the last in the group) is connected with the next line in the next set of repeated parameters (or the first in the next group). Vector names begins with the symbol "\" (entity ID). For example: \54. Arc names begin with the symbol ")". For example:)318.

PrintSwitches

Define main switches in refer to reports and tables. All of them remains in effect for the following commands, until changed by another PrintSwitches command. Each switch can be left empty, meaning: “unchanged from the previous PrintSwitches command”.

Constant parameters:

Create Report -

Main switch for generating report. When ON – all commands above this PrintSwitches command will generate reports. When OFF – all commands above this PrintSwitches command will not generate reports. The default is ON.

Create Tables -

Main switch for generating tables (unify, division, move lots, area list). When ON – all commands above this PrintSwitches command will generate tables. When OFF – all commands above this PrintSwitches command will not generate tables. The default is ON.

Units ID -

Define the units for the reports and tables. Double click will open the list of possible values, according to the contents of the units library of the current Geo file. The “AS RESULTS” value defines the same units as those used by the results window. The default is “AS RESULTS”.

Columns Filter -

Filter out unwanted tables columns written into reports. Double click will open the list of possible values. The default is to include all columns without any filtering.

Language -

Selects language for the reports and tables. Double click will open the list of possible values. The default is “HEBREW”.

Justify -

Selects text justify for the reports and tables. Double click will open the list of possible values: all lines tied to left (ALL LEFT), all lines centered (ALL CENTER), all lines tied to right (ALL RIGHT), tables centered and all other lines tied to left (LEFT, TABLES CENTER), tables centered and all other lines tied to right (RIGHT, TABLES CENTER), titles tied to left and all other lines centered (CENTER, TITLES LEFT), titles tied to right and all other lines centered (CENTER, TITLES RIGHT).

Command Titles -

Define whether or not to write the title lines, which begins each command in the report.

Report Messages -

Define whether or not to write the commands execution information (warning and error messages) in the report.

Repeated parameters:

None.

RegevFormat

Define parameters for Regev-DOS files format. Load/Save commands can later use this format.

The parameters are: coordinates units (meter or feet), elevation units (meter or feet), and number of rounded digits after the decimal point (for write only).

Constant parameters:

Format Name -

An identification name for the entire format definition. Load/Save commands can use this format name. If empty, then the format name is "".

X,Y Base Units -

Coordinates units. Double click to open the selection table between Meter and Feet.

H Base Units -

Elevation units. Double click to open the selection table between Meter and Feet.

Decimal Digits -

Number of decimal digits (for writing files only).

Repeated parameters:

None.

Remarks

Write free remarks into the report.

Constant parameters:

Report ON/OFF -

A switch used internally be this command. When ON – remarks are written into the report. When OFF – remarks are not written.

Repeated parameters:

Remark -

Some free remark (text).

Double click on this parameter content, or click on the button which opens a select list, will open a new special editor window for editing remarks. Using this window, it is possible to select and insert memory variable values into the remark. To do so, use the buttons: “Scalar”, “Length”, “Angle”, “Area”, “Coord”, “Elev”. Each one of them, according to its units, opens the standard window from which it is possible to select memory variables. After selection, the selected variable is inserted into the remark.

When “Mode of operation” is selected as “Insert variable ID…”, then the inserted text takes a format as: “Length^5”, or “Angle^22”, or “Area^40”, etc. In this case, the memory variable value is printed into the report. This value is automatically updated according to the selected memory variable ID number – as it is created in previous commands.

When “Mode of operation” is selected as “Insert variable value…”, then the inserted text is just the value of the selected variable. In this case, the value is not automatically updated.

When “Mode of operation” is selected as “Insert both…”, then the inserted text takes a format as: “Length^5{250.00m}”. Within the {…} there is the actual value of the variable, but only as a note – anything within {…} is deleted from the report! So, only "Length^5" is left, and – as the first case operates – the value is automatically updated.

In any case, the text inserted into the remark, is inserted relative to the cursor position within the edited remark (under the title "Edit the remark"). If some part of the edited remark is selected, then that part is replaced by the inserted text.

Click OK at end (this editor handles only one line of remark at a time).

A remark containing the single symbol "|" can be used to define a new page in the report.

Rename

Translate entity names (points, vectors, arcs, polylines, parcels) from the names defined in the script, to any new names. This translation affects the report and tables only. In export to SRV files, this translation affects parcel names only.

Constant parameters:

> **None.**

Repeated parameters:

> **Script-Name -**
>
> > Entity name as defined in the script.
>
> **Report-Name -**
>
> > The entity name as will appear in the report.

RepeatFile

Calculate a *.GEO file as a single command.

This is just like inserting a block of commands into the current script, between two lines. The only difference is that the inserted block takes the place of a single command.

Constant parameters:

File Name -

The name of the *.GEO file to be inserted and calculated. Within that file, RepeatFile commands are not allowed.

Enable Commands -

The commands within the *.GEO file can be set Enabled or Disabled. This parameter defines one of two options:

1) Do not change the Enabled/Disabled state if the command in the file.

2) Automatically set all commands state to Enabled (without changing the contents of the file on the disk).

Loop Count -

The inserted *.GEO file (block of commands) can be copied and inserted several times, in sequence. This parameter defines how many times – usually 1.

Repeated parameters:

None.

ReportNearPoints

Create a report for pairs of points, which are near each other under a certain distance.

Constant parameters:

Points Class -

Define the point class: regular or known. Double click to open the selection table.

Search Radius -

Defines the maximum distance between near points. Pairs of points distant more than this value are not reported in the output of this command.

Repeated parameters:

None.

Road

Calculates the two sides of a road, parallel to a given road center line. The center line is defined using a list of point names and parameters connected to each name. This command is exactly the same as the Road command in GEO-DOS.

Constant parameters:

Right Offset -

Parallel distance from the center line, positive to the right side, negative to the left side, zero for the center itself, empty when you do not wish to create this side of the road.

Left Offset -

Parallel distance from the center line, positive to the left side, negative to the right side, zero for the center itself, empty when you do not wish to create this side of the road.

Stakeout Length 1 -

First Stakeout distance, from the first road point, up to the first Stakeout point along the center line. If empty, then 0 is used.

Stakeout Length -

Constant distance between each two consecutive Stakeout points. Empty when you do not wish to create Stakeout points on the center line.

Out Last Radius Var -

Memory variable number where to put the result of the last arc radius, which is calculated at the end of the road.

Repeated parameters:

Point(s) -

Point name on the center line. The points here, by their order, define the center line. For each of these points, new points are calculated, based on three consecutive points: the previous point, the current point, the next point. Also, the parameters connected to the current point are used. The only exceptions are the two road edge points (the first and the last). No previous point exists before the first, and no next point exist after the last. So, for the edge points, perpendicular offsets are used, instead of mid-angle offsets. It is possible to define here, groups of point names, instead of single names. In this case, the parameters are connected to the last point in the group only. As a rule, all parameters are kept active, until change.

Arc -

Define if the center line (at this current point) is found on an arc or straight line. “ON” stands for an arc, “OFF” for straight line, empty for no change. The default is “OFF”. When “ON”, the circle center and radius are calculated, using the three points. The offsets are calculated towards the circle center. When “OFF”, the offsets are calculated along the mid-angle, which the current point is its head.

Radius -

Define arc radius for the current point as an IP point. The previous and next points, defines the arc tangents. The center line is located on this arc. A radius of 0 cancels the previous radius, and an empty radius stands for no change. When “Arc” is “ON” and a radius is also given, then the radius is taken and the “Arc ON” is ignored. Radius has no meaning when given for the first and last points.

Right Point -

Define the name for the new point on the right side of the road. This name will be incremented by 1 for each new point on the right side. Input a “-“ symbol, to cancel this name. An empty name stands for no change. When no name is given at all, then no points are created on the right side.

Left Point -

Define the name for the new point on the left side of the road. This name will be incremented by 1 for each new point on the left side. Input a “-“ symbol, to cancel this name. An empty name stands for no change. When no name is given at all, then no points are created on the left side.

R.Tan Point 1 -

Define the name for the new first tangent point on the right side of the road, which is created when radius is defined. “First” means found on the line between the current point (IP) and the previous point. This name will be incremented by 1 for each new point of the same kind. Input a “-“ symbol, to cancel this name. An empty name stands for no change. When no name is given at all, then no points of this kind are created.

L.Tan Point 1 -

Define the name for the new first tangent point on the left side of the road, which is created when radius is defined. “First” means found on the line between the current point (IP) and the previous point. This name will be incremented by 1 for each new point of the same kind. Input a “-“ symbol, to cancel this name. An empty name stands for no change. When no name is given at all, then no points of this kind are created.

R.Tan Point 2 -

Define the name for the new second tangent point on the right side of the road, which is created when radius is defined. “Second” means found on the line between the current point (IP) and the next point. This name will be incremented by 1 for each new point of the same kind. Input a “-“ symbol, to cancel this name. An empty name stands for no change. When no name is given at all, then no points of this kind are created.

L.Tan Point 2 -

Define the name for the new second tangent point on the left side of the road, which is created when radius is defined. “Second” means found on the line between the current point (IP) and the next point. This name will be incremented by 1 for each new point of the same kind. Input a “-“ symbol, to cancel this name. An empty name stands for no change. When no name is given at all, then no points of this kind are created.

Stakeout Point -

Define the name for the new point on the center line of the road (Stakeout point). This name will be incremented by 1 for each new Stakeout point. Input a “-“ symbol, to cancel this name. An empty name stands for no change. When no name is given at all, then no Stakeout points are created.

RoadIP

Calculates a parallel side for a road given by its center line. The center line is defined using a list of IP point names and their radiuses. An arc is located between the two tangent points of each IP point. All other lines are straight.

Constant parameters:

Parallel (Left-) -

Parallel distance from the center line, positive to the right side, negative to the left side, zero for the center itself.

Tangent Point 1 -

Define the name for the new first tangent point on the calculated side of the road. This name will be incremented by 1 for each new point of that kind. It must be defined, because tangent points must be created.

Stakeout Length 1 -

First Stakeout distance, from the first road IP point, up to the first Stakeout point along the road. If empty, then 0 is used.

Stakeout Length -

Constant distance between each two consecutive Stakeout points. Empty when you do not wish to create Stakeout points.

Stakeout Point 1 -

Define the name for the first new Stakeout point. This name will be incremented by 1 for each new Stakeout point. When empty, no Stakeout points are created.

Vector Name 1 -

Define the name for the first new vector. This name will be incremented by 1 for each new vector. When empty, no vectors are created.

Arc Name 1 -

Define the name for the first new arc. This name will be incremented by 1 for each new arc. When empty, no arcs are created.

Polyline Name -

Define the name for the new polyline, which represent the new road side. It will be build from the sequence of the created vectors. When empty, no polyline is created.

Stakeout Status -

Two options for the Stakeout points: “Connect lines” to connect them with vectors and arcs and a polyline, or “Points only” to create points only.

Repeated parameters:

IP Point -

An IP point name.

Radius -

The radius of the arc in front of the IP point. Leave empty for the first and last IP points.

RoadLN

Calculates a parallel side for a road given by its center line. The center line is defined using a list of corner point names, which are connected with straight lines between them.

Constant parameters:

Parallel (Left-) -

Parallel distance from the center line, positive to the right side, negative to the left side, zero for the center itself.

New Corner Point 1 -

Define the name for the new corner point on the calculated side of the road. This name will be incremented by 1 for each new point. It must be defined, because corner points must be created when the "Parallel" distance is nonzero.

Stakeout Length 1 -

First Stakeout distance, from the first road point, up to the first Stakeout point along the road. If empty, then 0 is used.

Stakeout Length -

Constant distance between each two consecutive Stakeout points. Empty when you do not wish to create Stakeout points.

Stakeout Point 1 -

Define the name for the first new Stakeout point. This name will be incremented by 1 for each new Stakeout point. When empty, no Stakeout points are created.

Vector Name 1 -

Define the name for the first new vector. This name will be incremented by 1 for each new vector. When empty, no vectors are created.

Polyline Name -

Define the name for the new polyline, which represent the new road side. It will be build from the sequence of the created vectors. When empty, no polyline is created.

Stakeout Status -

Two options for the Stakeout points: “Connect lines” to connect them with vectors and a polyline, or “Points only” to create points only.

Repeated parameters:

Corner Point -

A corner point name along the road center line.

RoadLN2

Calculate the missing points allong both sides of a road. On each corner, allong the road, one point is given, on the left or on the right side, and the ROADLN2 command calculates its parallel point on the other side. Each of the road's sides is a sequence of streight lines.

Constant parameters:

Road Size -

The road size (must be input, positive).

Vector Name 1 -

Define the name for the first new vector. This name will be incremented by 1 for each new vector. When empty, no vectors are created.

Left Polyline Name -

Define the name for the new polyline on the left side. It will be build from the sequence of the vectors created allong the left side. When empty, no polyline is created for the left side.

Right Polyline Name -

Define the name for the new polyline on the right side. It will be build from the sequence of the vectors created allong the right side. When empty, no polyline is created for the right side.

Repeated parameters:

Left Corner Point -

Corner point name – existing or new – on the left side. Each corner allong the road is a pair of points – one on the left side and one on the right side. One of them must exist and the other is calculated and created. The ROADLN2 command identifies the exising point automatically.

Right Corner Point -

Corner point name – existing or new – on the right side.

RoundXY

Round coordinates for existing points (regular or known).

Constant parameters:

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the “Transform” command, select the known class.

Decimal Digits -

Count of decimal digits after the rounding. Double click to open the selection table.

Repeated parameters:

Point Name(s) -

Existing point name or name group, for which to round the coordinates. You can leave empty for all points! Existing points are overwritten with new points.

RunOffset

Calculate the run and offset distances of points relative to a measured line or arc.

Constant parameters:

From Point -

Point name of the line/arc first edge.

To Point -

Point name of the line/arc second edge.

Measured Length -

Measured distance of the line, or measured length of the arc. The run distances will be adjusted according to this value. If left empty, then no such adjustment will occur.

Arc Radius -

Optional arc radius. Positive when the arc goes at the right side of its chord, negative otherwise. If this parameter is empty, then this is a measured line, otherwise a measured arc.

Arc Size -

Identify the angular size of the arc. “LONG” for more than half a circle, “SHORT” or empty otherwise.

Repeated parameters:

Point -

Existing point name for which to calculate the run and offset. Also, permitted names group.

Run -

Memory variable number where to put the result of the calculated (and adjusted) run distance.

The run distance is measured from the line/arc first edge, towards the line/arc second edge. The run distance is measured along the arc (not the chord).

Offset -

Memory variable number where to put the result of the calculated offset distance.

The offset distance is measured from the line/arc, positive on the right side, negative on the left side of the line/arc, or zero. For an arc, the offset goes towards the arc center (circle center).

New Point -

New point name to create on the calculated run distance, with offset of zero (on the line/arc).

Save

Save all points into a new file.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows “Open dialog”.

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a “RegevFormat” command, or by a “TextFormat” command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the “Transform” command, select the known class.

Repeated parameters:

None.

SaveCode

Save points into a new file.

Use one of the point codes as a filter. Define the type of code and the ranges of values to be saved.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows "Open dialog".

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a "RegevFormat" command, or by a "TextFormat" command.

Code -

The type of code. Double click to open the selection table.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the "Transform" command, select the known class.

Repeated parameters:

Min Value -

Low limit of a code range (min).

Max Value -

High limit of a code range (max). Many ranges can be defined, all connected with "OR" operator.

SaveCodes

Save points into a new file.

Use all of the point codes as a filter. Define the combinations of codes to be saved. Within each combination, an "AND" operator is used. Between combinations, an "OR" operator is used. Use the zero (0) value as a special indicator for "any value will fit".

Constant parameters:

File Name -

Full file name. Double click to open the standard windows "Open dialog".

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a "RegevFormat" command, or by a "TextFormat" command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the "Transform" command, select the known class.

Repeated parameters:

Source Code -

Double click to open the source code table, from which you can select the requested values for source code. Leave zero (0) if any value will fit your needs. Source code do not exist in Regev-DOS.

Type Code -

Double click to open the type code table, from which you can select the requested values for type code. Leave zero (0) if any value will fit your needs. Type code is the 3 right digits of Regev-DOS code.

Desc. Code -

Double click to open the description code table, from which you can select the requested values for description code. Leave zero (0) if any value will fit your needs. Description code is the 2 left digits of Regev-DOS code.

SaveLayers

Save points into a new file.

Use layer names as a filter. Define the layer names to be included or excluded.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows “Open dialog”.

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a “RegevFormat” command, or by a “TextFormat” command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the “Transform” command, select the known class.

Condition -

Two options for selecting the saved points: Inside the defined layer names, or outside the defined layer names.

Repeated parameters:

Layer Name -

Layer name as defined by the “Layer” command. Many layers can be defined.

SaveLots

Save points into a new file.

Use parcels as a filter. Define the parcels to be saved. Between parcels, an “OR” operator is used.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows “Open dialog”.

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a “RegevFormat” command, or by a “TextFormat” command.

Repeated parameters:

Parcel Name(s) -

Define the parcels to save, by names or groups of names.
Parcel names begins with a “T” for Temporary, or a “F” for Final. For example:]T102]F102. In case of]102 (without “T” or “F”) the default is known from the “Options / Default Parcel Status” command. An example for a parcel set is:]T100_109.

SavePoints

Save points into a new file.

Use point names as a filter. Define the groups of names to be saved. Between groups, an "OR" operator is used.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows "Open dialog".

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a "RegevFormat" command, or by a "TextFormat" command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the "Transform" command, select the known class. The options are:

REGULA POINTS – Requested regular points. The names at the Point(s) column are the regular points to save.

KNOWN POINTS – Requested known points. The names at the Point(s) column are the known points to save.

REGULAR POINT – EXCLUDE – Rejected regular points. The names at the Point(s) column are the regular points to reject. All other are saved.

KNOWN POINTS – EXCLUDE – Rejected known points. The names at the Point(s) column are the known points to reject. All other are saved.

Repeated parameters:

Point(s) -

Define the points to save, or reject, by names or groups of names.

SaveWindow

Save points into a new file.

Use coordinates windows as a filter. Define the windows to be saved. Between windows, an "OR" operator is used.

Constant parameters:

File Name -

Full file name. Double click to open the standard windows "Open dialog".

File Format -

The file format. Double click to open a selection table: Field-book format, old-Regev format, or Text format (DOS).

Format Name -

Format name as defined previously by a "RegevFormat" command, or by a "TextFormat" command.

Points Class -

Define the point class: regular or known. Double click to open the selection table. Usually load files into the regular class. Only when you need known points for the "Transform" command, select the known class.

Repeated parameters:

Y Min -

Window west limit.

X Min -

Window south limit.

Y Max -

Window east limit.

X Max -

Window north limit.

Segment

Defines a polyline using point names.

In Geo2, a polyline contour is defined using vectors and arcs. But, the “Segment” command takes only points, and identifies and use the necessary vectors and arcs. If those entities do not exist, then the “Segment” command creates them. Duplicate entities can never be created (overwritten only).

A polyline can be open or closed.

Constant parameters:

Polyline Name -

Name for a new polyline. A polyline name begins with a “~” symbol (entity ID) followed by a number. For example: ~68.

Vector Name 1 -

Name for the first new vector, automatically created by this command. For the following vectors, this name will be incremented by 1. If you leave this parameter empty, the software will give automatic vector numbers.

Arc Name 1 -

Name for the first new arc, automatically created by this command. For the following arcs, this name will be incremented by 1. If you leave this parameter empty, the software will give automatic arc numbers.

Repeated parameters:

Point(s) -

Name of existing point, or group of points, on the polyline contour. Between those points, the software will creates vectors and arcs. The point in this set of repeated parameters (or the last in the group), is connected with the next point in the next set of repeated parameters (or the first in the next group).

Legal Length -

Optional vector legal length.

Arc Radius -

Optional arc radius. Positive when the arc goes at the right side of its chord, negative otherwise. If this parameter is empty, then a vector is created, from this point to the next, otherwise an arc is created. Even if the radius is unchanged, it must be rewritten from one arc to the next.

Arc Size -

Identify the angular size of the arc. "LONG" for more than half a circle, "SHORT" or empty otherwise.

Color -

Color (pen number) in the range 1 – 255. Can be left empty, so the color is taken from the previous "LineType" command.

Line Type -

Line type in the range 0 – 65535. Can be left empty, so the line type is taken from the previous "LineType" command.

The line type codes defined in the "Segment" command are added to the line type codes already defined in existing vectors and arcs.

ShiftParams

Define parameters of Shift transformation.

The default definition is stored in the transformations setup file. It can be edited using the setup windows (Options / Geo Setup / Geo / Transformations).

This command picks the default parameters from the transformations setup file and shows filled with them. Then, changes are possible without effecting the setup file. Adding this command to the geo file guarantee that the Transform command will execute independent of the setup file, which is subject to changes.

Constant parameters:

Permitted Mdx,Mdy -

Permitted MSE on each axis (X,Y).

Factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Repeated parameters:

None.

ShiftIG05Params

Define parameters of Shift transformation from Israel new grid to Israel 2005 (IG05).

The default definition is stored in the transformations setup file. It can be edited using the setup windows (Options / Geo Setup / Geo / Transformations).

This command picks the default parameters from the transformations setup file and shows filled with them. Then, changes are possible without effecting the setup file. Adding this command to the geo file guarantee that the Transform command will execute independent of the setup file, which is subject to changes.

Constant parameters:

Permitted Mdx,Mdy -

Permitted MSE on each axis (X,Y).

Factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Check points factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points and filtering out wrong points.

Permitted average Mdx,Mdy for accurate points -

Permitted deviation for averaged MSE when the known points are accurate. Used to determine if a wrong points filtering need to take place.

Permitted average Mdx,Mdy for inaccurate points -

Permitted deviation for averaged MSE when the known points are inaccurate. Used to determine if a wrong points filtering need to take place.

Minimal type code for accurate known points -

Minimal type code – to identify accurate known points.

Maximal type code for accurate known points -

Maximal type code – to identify accurate known points.

Minimal shift vector -

Minimal shift vector as a condition for executing the transformation.

Maximal shift vector -

Maximal shift vector as a condition for executing the transformation.

Repeated parameters:

None.

ShiftRotateIG05Params

Define parameters of Shift and rotate transformation from Israel new grid to Israel 2005 (IG05).

The default definition is stored in the transformations setup file. It can be edited using the setup windows (Options / Geo Setup / Geo / Transformations).

This command picks the default parameters from the transformations setup file and shows filled with them. Then, changes are possible without effecting the setup file. Adding this command to the geo file guarantee that the Transform command will execute independent of the setup file, which is subject to changes.

Constant parameters:

Permitted Mdx,Mdy -

Permitted MSE on each axis (X,Y).

Factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Check points factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points and filtering out wrong points.

Permitted average Mdx,Mdy for accurate points -

Permitted deviation for averaged MSE when the known points are accurate. Used to determine if a wrong points filtering need to take place.

Permitted average Mdx,Mdy for inaccurate points -

Permitted deviation for averaged MSE when the known points are inaccurate. Used to determine if a wrong points filtering need to take place.

Minimal type code for accurate known points -

Minimal type code – to identify accurate known points.

Maximal type code for accurate known points -

Maximal type code – to identify accurate known points.

Minimal shift vector -

Minimal shift vector as a condition for executing the transformation.

Maximal shift vector -

Maximal shift vector as a condition for executing the transformation.

Repeated parameters:

None.

ShiftRotateParams

Define parameters of Shift and rotate transformation.

The default definition is stored in the transformations setup file. It can be edited using the setup windows (Options / Geo Setup / Geo / Transformations).

This command picks the default parameters from the transformations setup file and shows filled with them. Then, changes are possible without effecting the setup file. Adding this command to the geo file guarantee that the Transform command will execute independent of the setup file, which is subject to changes.

Constant parameters:

Permitted Mdx,Mdy -

Permitted MSE on each axis (X,Y).

Factor on Mdx,Mdy -

Factor on permitted MSE for checking the transformed known points deviations and reporting their validity.

Repeated parameters:

None.

TextFormat

Define parameters for Text files format. Load/Save commands can later use this format.

The parameters are: units (meter or feet), number of rounded digits after the decimal point, and the list of fields in each line. For each field, you must define its name from a list of key names, its width in characters, and the separator symbol after its value (on its right side). Separator symbol can be also a string of characters.

Constant parameters:

Format Name -

An identification name for the entire format definition. Load/Save commands can use this format name. If empty, then the format name is “”.

Base Units -

Coordinates and elevations units. Double click to open the selection table between Meter and Feet.

Decimal Digits -

Number of decimal digits.

Repeated parameters:

Field Name -

Field key name. Double click to open the selection list of names. The special field name “Unknown field” stands for any field which have no meaning and need to be skipped.

Width -

The field width in characters.

Separator -

Separator symbol after the field value (on its right side). Separator symbol can be also a string of characters. Must not include numeric digits (0-9) or period (.).

Remarks:

- ✡ Each field name can appear only once.
- ✡ The field name “Name”, “East”, “North” must be included.
- ✡ Width and/or Separator must be defined for each field, except for the last.

TransCoord

Transform point coordinates using a free formula.

Constant parameters:

Points Class -

On which type of points the command operate: REGULAR POINTS for regular points, KNOWN POINTS for known points.

Selected Points -

Which are the selected points for the operation: ALL POINTS mean all of the points from the defined class, SELECTED POINTS mean the points which there names are listed in the command itself, ALL EXCEPT SELECTED POINTS mean all of the points except the points which there names are listed in the command itself.

Swap Y,X -

Swap between Y and X of each transformed point: NO mean no, BEFORE TRANSFORM mean swap Y and X before transform (calculation of the Y and X formulas), AFTER TRANSFORM mean swap Y and X after transform.

Factor for Y -

Magnify parameter used in the formula for Y.

Shift for Y -

Shift parameter used in the formula for Y.

Formula for Y -

The formula for transforming Y. Double click to open a selection list. The word “COORD” in the formula stands for the value of the Y coordinate of the transformed point (the original Y or the swapped X). The words

"FACTOR" and "SHIFT" stands for the values of the factor and shift parameters for Y.

Factor for X -

Magnify parameter used in the formula for X.

Shift for X -

Shift parameter used in the formula for X.

Formula for X -

The formula for transforming X. Double click to open a selection list. The word "COORD" in the formula stands for the value of the X coordinate of the transformed point (the original X or the swapped Y). The words "FACTOR" and "SHIFT" stands for the values of the factor and shift parameters for X.

Repeated parameters:

Known Point Name(s) -

Selected known point name, or group of names. Relevant only when POINTS CLASS is set to KNOWN POINTS and SELECTED POINTS is set to anything except ALL POINTS.

Point Name(s) -

Selected regular point name, or group of names. Relevant only when POINTS CLASS is set to REGULAR POINTS and SELECTED POINTS is set to anything except ALL POINTS.

Remark:

The transformed points are overwritten, even of the overwrite points flag is set to OFF.

Transform

Coordinate transformation from a source net into a target net.

Known points in the target net are given in the results window, in its known points page. You can create known points using the "Point" command, or load them from a file using one of the "Load" commands (using Points Class = Known Points).

The points to be transformed are defined in the "Transform" command itself. Among them, the known points in the source net are also included. So, the software can find common known points in both nets, by point names, and calculate the transformation parameters.

As a result of this command, the transformed points are recreated with overwrite, with new coordinates, including creation of a report, and including the creation (using overwrite) of the file "TRNS_PRM.SRV".

See transformations setup in: Options / Geo Setup / Geo / Transformations.

The scale used for the output sketch is taken from the HanitAttrib command, from the GI/SCALE attribute. The default is 1250. In that sketch, a triangle is drawn around known points used to calculate the transformation parameters, a circle is drawn around eliminated known points, a smaller circle is drawn around known points copied with a new name (the sign # added to their original name).

Constant parameters:

Method -

The method of transformation. Double click to open a selection table between "Helmert", "Affine", "Shift", "Shift+Rotate", "Shift IG05", "Shift+Rotate IG05", and Perspective.

Axis System -

Define the relationship between the source and target axis systems. Double click to open a selection table between "Same X,Y" and "Reversed X,Y".

Manual Debug -

Optional. Known point names to be manually eliminated, but included in the report. The names are separated by "," symbols.

In case of IG05 transformation, these points are used as control points. The count of control needed points, by the technical instructions, at least half of the known points – the program round this number down.

Auto Debug -

ON/OFF switch. Defines if to activate an automatic elimination of irregular known points.

Digitation Scale -

Map scale in case of digitation. If this parameter is empty, then it means that digitation is not the case. It is needed for calculating the criterion for irregular known points, for auto debug, and for the report.

Points Option -

Define the points to be transformed. Double click to open a selection table:

"All points" – Transform all points.

"All points, Copy known points" – Transform all points, but copy the known points instead of transforming them. Known points which are eliminated while processing the transformation parameters, are copied with the character # added to the names or transformed – depending if they need to be transformed.

"All except known points" – Transform all points, except the known points.

"Selected points" – Transform selected points only.

"All except selected points" – Transform all except selected points.

For the 3 first cases, there is nothing to define in the repeated parameters. For the next two cases, the selected points are defined in the repeated parameters.

Repeated parameters:

Selected Point(s) -

Selected point name for transformation, or group of names for transformation. Relevant only when "Points Option" is "Selected points" or "All except selected points".

In addition, it is possible to input here known points, instead of inputing them under the "Manual Debug" parameter – for convinient only.

Triangle

Calculate all parameters of a triangle, according to some known parameters.

Constant parameters:

Input Leg A -

Optional first leg length.

Input Leg B -

Optional second leg length.

Input Leg C -

Optional third leg length.

Input Angle A -

Optional angle against the first leg.

Input Angle B -

Optional angle against the second leg.

Input Angle C -

Optional angle against the third leg.

Input Area -

Optional triangle area.

Out Leg A Var -

Memory variable number where to put the result of the calculated first leg. Optional.

Out Leg B Var -

Memory variable number where to put the result of the calculated second leg. Optional.

Out Leg C Var -

Memory variable number where to put the result of the calculated third leg. Optional.

Out Angle A Var -

Memory variable number where to put the result of the calculated angle against the first leg. Optional.

Out Angle B Var -

Memory variable number where to put the result of the calculated angle against the second leg. Optional.

Out Angle C Var -

Memory variable number where to put the result of the calculated angle against the third leg. Optional.

Out Area Var -

Memory variable number where to put the result of the calculated area. Optional.

Repeated parameters:

None.

Unify

Unify internal parcels into a global parcel. Define the unified parcel, if undefined. Creates unify table.

The area units for the report, defined in the "PrintSwitches" command, are used also for the tables file which is exported to Map-2000. The base units and factor, defined in this units picture, for areas, determine the base units in the tables file: Square Meters, square Feet, Dunam (factor of 1000), Acre (factor of 43560), Hectar (factor of 10000). The numbers in the tables file no not contain any special symbols (such as "M") defined by the units picture.

Constant parameters:

Unified Parcel Name -

Name of the global (unified) parcel.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Unified Legal Area -

Legal area of the global parcel. Optional.

Unified Calc. Area -

Memory variable number where to put the result of the global parcel calculated area. Optional.

Check Unify -

This is a switch, which can be "ON" or "ON, INCLUDE POINTS ON LINES" or "OFF" or "LOGIC ONLY". "ON" stands for checking the global parcel contour against the same contour as automatically calculated from the unified parcels contours. Also, "ON" enables validity checks for all unified parcels contours (especially: no crossing lines). "ON, INCLUDE POINTS ON LINES" stands for the same checkings, except that points on lines must be included in parcel contours. "OFF" stands for skipping any such checks (do not try to calculate the global parcel contour). "LOGIC ONLY" enables the global parcel contour check – logically only – and disables the contours validity checks. When using "TABLES ONLY", all parcel names must be input, without "_" for group names, and also all the legal area must be input! This option is used to output tables only.

Color -

Color (pen number) in the range 1 – 255 to be set on the unified parcel contour. Can be left empty for no change.

Line Type -

Line type in the range 0 – 65535 to be set on the unified parcel contour. Can be left empty for no change.

Repeated parameters:

Parcel Name(s) -

Name of parcel, or group of parcels, which participates in unify.
Parcel names begins with a "T" for Temporary, or a "F" for Final. For example:]T102]F102. In case of]102 (without "T" or "F") the default is known from the "Options / Default Parcel Status" command. An example for a parcel set is:]T100_109.

Legal Area -

Legal area.

Vector

Create new vector entities. A vector is a line between to point edges.

Constant parameters:

None.

Repeated parameters:

Vector Name -

Name for a new vector. For example: \54.

First Point -

First edge point (name).

Next Point -

Second edge point (name).

Legal Length -

Legal length. Optional.

Color -

Color (pen number) in the range 1 – 255. Can be left empty, so the color is taken from the previous “LineType” command.

Line Type -

Line type in the range 0 – 65535. Can be left empty, so the line type is taken from the previous “LineType” command.