Digital Photogrammetric System

PHOTOMOD

Version 7.5

USER MANUAL

Hotkeys

RACURS

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The system provides using of customized and non-customized hotkeys, that partially duplicate *menu items* and *toolbars buttons*.

The most of hotkeys used in the system could be changed in the **Customize hotkeys** window (**Service › Customize hotkeys** - see the detailed description in the "Customize hotkeys" chapter of the "General information" User Manual).

1. Opening windows and toolbars

Shortcuts like **Ctrl+Alt+<letter>** are used to open the following windows, toolbars and modules:

Keyboard shortcut	Action
Ctrl+Alt+B	allows to open the **Block editor** window
Ctrl+Alt+C	allows to open the **Marker** window
Ctrl+Alt+D	allows to open the **Measurements** window
Ctrl+Alt+E	allows to open the **Explorer** window
Ctrl+Alt+G	allows to open the **Triangulation points** window on the **GCP list** tab
Ctrl+Alt+I	allows to open the **Manage project cameras** window
Ctrl+Alt+K	allows to open the **Points measurement** module with images containing marker position
Ctrl+Alt+L	allows to open the **Block layout** window
Ctrl+Alt+M	allows to open the **Mosaic** module
Ctrl+Alt+O	allows to open the **Project management** window
Ctrl+Alt+P	allows to open the **Settings** window
Ctrl+Alt+R	allows to open the **Relative orientation report settings** window
Ctrl+Alt+T	allows to open the **Triangulation points** window on the **All triangulation points** tab
Ctrl+Alt+W	allows to open the **2D-window (stereopair)** window

2. Navigation

2.1. Windows with a list of files/folders of Windows file system

Keyboard shortcut	Action
Ctrl+Alt+O	allows to open the **Project management** window
Left arrow/**Backspace**	allows to move to a folder that includes selected file, i.e. to rise one level *up* in the **Project management** window
Right arrow	allows to display content of selected folder, i.e. to open the folder in the **Project management** window
F3	in the **Project management** window (**Project › Open/manage** ) allows to pass from the projects list to input field used for input of key word for project search. Moreover,

Keyboard shortcut	Action
	you can click the **F3** button after keyword input for projects search to perform sequential search for projects in the list

2.2. The Explorer window and windows for resources load/save

Keyboard shortcut	Action
Ctrl+Alt+E	allows to open the **Explorer** window
Left arrow/**Back-space**	allows to move at one subfolders level *up*
Right arrow	allows to show content of selected folder, i.e. to open the folder

For example, keys **Left arrow**/**Backspace** and **Right arrow** also work in **Raster Converter**, **Add images**, **Add pushbroom images** windows.

3. The main system window and layer manager

The following hotkeys are available in the main system window:

Keyboard shortcut	Action
F1	allows to open user manual
Shift+F8	allows to show/hide brightness/contrast/gamma correction pane located on the bottom of the window
Ctrl+F8	allows to show/hide scroll bars
Ctrl+F11	allows to show/hide layer manager window, and also navigation window
Ctrl+Shift+F11	allows to expand/collapse 2D-window, and also show/hide layer manager window, and also navigation window
Ctrl+S	allows to save active layer
Ctrl+Shift+S	allows to save active layer with a new name
Ctrl+Q	allows to close active layer
Ctrl+I	allows to display information about active layer
H	allows to show/hide active layer
Ctrl+H	allows to show/hide titles in active layer
Ctrl+Shift+H	allows to show/hide titles in *all* layers
Shift+arrows	“panning” for 0,9 of the window size, i.e. shift of the window content for 0,9 of the window size
Alt+arrows	“panning” for 8 pixels, i.e. shift of the window content for 8 pixels
Ctrl+arrows	move selected objects in plane by 4 directions
Ctrl+12346789 [numeric key-board]	move selected objects in plane by 8 directions

Keyboard shortcut	Action
Ctrl+PgUp / **Ctrl+PgDn** / **Ctrl+mouse wheel**	move selected objects along Z axis
Mouse wheel	scroll list of points/coordinates/files in windows with scrollbars
Tab	allows to temporarily hide toolbars

- **Ctrl+O** – allows to open context menu, containing layer loading preferences

Keyboard shortcuts in context menu	Action
T	allows to open layer, containing DTM, represented as a triangular irregular network (TIN)
V	allows to open layer, containing vector objects
D	allows to open layer, containing DTM, represented as a DEM

- **Ctrl+N** – allows to open context menu, containing the options of data construction or new layer preferences

Keyboard shortcuts in context menu	Action
D	allows to create DTM as a DEM, based on triangular irregular network (TIN)
T	allows to create DTM as triangular irregular network (TIN), based on points and structural lines
C	allows to create a contours, based on triangular irregular network (TIN)
V	allows to create vector layer
S	allows to create vector layer with the Classifier
G	allows to create grid layer

- Press and hold the **Alt** key during opening of new 2D-window for single image (**Window › New 2D-window (single image)**) allows to open the image in 1:1 zoom, otherwise, it will be opened in 2D-window in full.

Press and hold left mouse button during the operation **Window › New 2D-window (single image)** instead of mouse clicks.

- Press and hold the **Alt** during choosing the **Rasters › Load georeferenced images (files/resources)** menu item to load selected image to 2D-window immediately using parameters of the last loading, otherwise prior to load selected image file a settings window is opened (used to select coordinate system and background color).

Press and hold left mouse button during the operation **Window › New 2D-window (single image)** instead of mouse clicks.

- Press and hold the **Ctrl** key while opening the **Measurement** window (the button of the main toolbar), that allows to not change current active layer in Manager, otherwise the *Marker* layer becomes active. In the same way, press and hold the **Ctrl** key while closing the **Measurement** window, that allows to not change the *Marker* active layer (if the window was opened without using the **Ctrl** key), otherwise the layer which was active before opening the window becomes active.

3.1. Scaling

Keyboard shortcut	Action
Alt+1	1:1 zoom
Alt+2–**Alt+4**	customized zoom
Alt+0	previous zoom
Alt+5	“preset zoom” (used to switch between two customized zooms)
Alt+Enter	show window content in a whole (zoom to fit)
= [main keyboard]	zoom management
- [main keyboard]	zoom management
* [numeric keyboard]	zoom management
/ [numeric keyboard]	zoom management
Ctrl+Alt+mouse move with pressed left button	zoom in of image part located inside of rectangle defined by mouse ( )
Ctrl+Alt+Shift+ mouse move with pressed left button	zoom out of image part located inside of rectangle defined by mouse ( )
Ctrl+Alt+mouse wheel	zoom change
Ctrl+Alt+mouse click	1 step zoom in
Ctrl+Alt+Shift+mouse click	1 step zoom out

Press **Ctrl+Alt** hotkeys (or click an appropriate button to enable the mode) and drag a rectangle by mouse to zoom in area of image. Press **Ctrl+Alt+Shift** hotkeys (or **Shift** key only, if the mode is already enabled) and drag a rectangle by mouse to zoom out area of image.

3.2. Marker

Keyboard shortcut	Action
Ctrl+Alt+C	allows to open the **Marker** window
Ctrl+mouse move with pressed left button	allows to drag selected object in plane
Alt+mouse move with pressed left button	enables panning mode
Shift+mouse move with pressed left button	allows to select by rectangle in group selection mode (the and buttons in **Tools** additional toolbar)
Esc	cancel selection
F4	turn on/off “marker=mouse” mode
F6	turn on/off fixed marker mode (*roam-mode*)
F7	center window by marker
~	move marker to current vertex
PgUp / **PgDn**	move marker along Z axis
Alt+Shift+mouse move with pressed left button along vertical line	fast marker move along Z axis
Arrows	move marker in plane by 4 directions
123456789 [numeric keyboard]	move marker in plane by 8 directions
Ctrl+Alt+-	allows to copy position of marker in 2D-window to clipboard (**Edit › Copy marker to clipboard**)
Alt+Shift+-	allows to move marker to position in 2D-window copied to clipboard (**Edit › Paste marker from clipboard**)

Objects selection by polygon in group selection mode by polygon (the button of the **Tools** toolbox): **Shift** + mouse click – used to define first vertex of polygon, mouse click – to specify every next vertex, double click – to define the last vertex of polygon (to finish a polygon drawing), **Esc** – to cancel polygon drawing for objects selecting

3.2.1. Snapping and multi-snapping modes

For work in *snapping* mode (**V**, **B**, **N**, **M**) *only* the hotkeys are used.

Keyboard shortcut	Action
V	allows to execute **3D snapping to vertices** (when the mode was enabled with hotkey, marker moves to the vertex nearest to the marker position)
B	allows to execute **2D snapping to vertices** (when the mode was enabled with hotkey, marker moves to the vertex nearest to the marker position without changing marker’s height value)
N	allows to execute **3D snapping to lines** (when the mode was enabled with hotkey, marker moves to the point on vector object segment, closest to the marker position, with exact match with XYZ coordinates)

Keyboard shortcut	Action
M	allows to execute **2D snapping to lines** (when the mode was enabled with hotkey, marker moves to the point on vector object segment, closest to the marker position, without changing marker's height value)
2	allows to turn on/off **2D multi-snapping** mode – marker moves to vector object elements (vertices, medians etc.), XY-plane marker coordinates match to coordinates of object elements, Z-height of marker is not changed (button in **Vectors** additional toolbar)
3	allows to turn on/off **3D multi-snapping** mode – marker moves to vector object elements (vertices, medians etc.), XYZ marker coordinates match to coordinates of object elements (button in **Vectors** additional toolbar)
4	allows to turn on/off **Snapping to points** mode – marker snaps to vertices of vector objects. Label `End` appears near that vertices (button in **Vectors** additional toolbar)
5	allows to turn on/off **Snapping to medians** mode – marker snaps to medians of vector objects. In case of detecting object segment at the distance of lower than **Detect radius**, its median is highlighted by small grey circle symbol. Label `Midpoint` appears near that medians (button in **Vectors** additional toolbar)
6	allows to turn on/off **Snapping to lines** mode – marker snaps to segments of vector objects. Label `Nearest` appears near segment point closest to the marker position (button in **Vectors** additional toolbar)
7	allows to turn on/off **Perpendicular snapping** mode (allows to build orthogonal polylines/polygons and to snap segments of drawing objects to segments of existed objects in perpendicular manner) – button in **Vectors** additional toolbar
8	allows to turn on/off **Snapping to coords** mode (allows to build polylines/polygons orthogonal to the basic or additional coordinate system, as well as accurately orient drawing objects regarding vertices of existed vector objects) – button in **Vectors** additional toolbar

2D snapping is used while creation an object coinciding with existing one only in XY plane. If, for example, it is necessary to add an extension to building with different height.

In snapping mode there is a possibility to draw a part of the created object over existing one.

4. Other system windows

4.1. Progress bar

- **Ctrl+C** / **Ctrl+Ins**, as well as the **Copy** context menu item, allow to copy event log to clipboard.
- **Ctrl+Shift+C** / **Ctrl+Shift+Ins** allow to copy event log to clipboard in inner format.

Click an event log area to use hotkeys.

4.2. The “Block editor” window

Keyboard shortcut	Action
Ctrl+Alt+B	allows to open the **Block editor** window
Ctrl+F	search for an image by name (part of name)
Ctrl+A	choosing (highlighting) of all block images
Shift+Ins	add a new strip
Shift+Del	delete chosen strip
Ins	add images from files, located *out* of active profile resources
Del	delete chosen images
Ctrl+arrows	move chosen images right/left/up/down

4.3. The “Camera” window

- **Ctrl+Ins**/**Ctrl+Del** in tables of the **Camera** window (, in the **Manage project cameras** window) allow to add/delete the table row. Press the **Shift** key while clicking the 10^3/10^{-3} buttons to multiply/divide distortion coefficients specified in the table by 10, otherwise by 1000.

- Press and hold the **Alt** key during closing of the **Camera** window (the , buttons in the **Project management** window) that allows to not re-calculate interior orientation.

4.4. The “Classifier” window

- **Ctrl+F** on the **Codes** tab in the **Classifier** window (**Window › Classifier**) allows to search for specified keyword in the Code table, **F3** – to move to the next code, containing the keyword specified.

4.5. The “Undo log” window

Keyboard shortcut	Action
Ctrl+Z	allows to cancel the last operation of vector objects editing on a layer (button in main toolbar)
Ctrl+Shift+Z	allows to redo the last undone operation (button in main toolbar)

5. Work in “Points measurement” module

Keyboard shortcut	Action
Space, **Ctrl+Space**	are used to search for and add a tie point on two (**Space**) or on all (**Ctrl+Space**) opened images (duplicate the or buttons)
Q	shows correlation coefficient of current image and left image in the marker position (duplicates the R button)

Keyboard shortcut	Action
F, **Ctrl+F**	allows to perform search for a point with marker position, but without proposition about new point adding (or press and hold the **Alt** key while clicking the or button)
Shift+C	allows to synchronize markers in all windows with images and center by marker the image in active window
Shift+*, **Shift+/** [numeric key-board]	allows to zoom images in all opened windows at once (synchronously)
Ctrl+123456789	allow to adjust a step of move in **Stereowindow** ( )
Alt+Ins/ **Alt+Del**/ **Ctrl+F**	allow to add/delete/search for GCP on the **GCP list** tab ( ) of the **Triangulation points** window (with automatic enabling of editing mode during points adding or delet-ing)
Alt+	**Alt** during adding of GC point ( ) allows to add only one measurement on selected image, otherwise – on all opened images
mouse double click	click in the **Map** window (opened using the button in the **Points measurement** window) allows to search for marker position only on opened images of the **Points measurement** window;
Shift+mouse double click	click in the **Map** window (opened using the button in the **Points measurement** window) allows to search and open only the images that contain marker position

6. Work in stereomode

- **F9** – turn on/off stereomode in 2D-window with stereopair;
- **F11** – toggle a phase in stereo window when stereomode is enabled, or toggle left/right frame when stereomode is disabled;
- **F2** – adjust depth – allows to change images parallax to superpose marker;
- **F3** – restore depth – allows to set images parallax to stereopair default value;
- **Shift+PgUp**/ **Shift+PgDn**/ **Shift+mouse wheel** – used to change parallax of image (not marker);
- **Shift+F2** – set marker parallax to zero value (at current images parallax);
- **Shift+F3**, **Home** – set marker parallax to default value for stereopair;
- **Shift+F7** – turn on/off mode of fixed parallax marker;
- **Ctrl+Shift+mouse wheel** – change images Y-parallax;
- **Alt+Shift+mouse move with pressed middle button along horizontal line** – fast change of image parallax;

- Press and hold the **Shift** key while clicking OK in the **Select stereopair** window (**Window › Stereopairs › Select stereopair**) after *highlighting* of one of two *selected* images on the **All images** tab, leads to opening of the *highlighted* image in 2D-window as a *right* stereopair image, otherwise (by default) images position in a strip is considered during stereopair opening.

  Enabled checkbox in the list means choosing the object, blue highlight – object highlighting in the list.

- **Space** – allows to place marker on a model surface automatically using correlator.

6.1. “Change stereopair” toolbar / “Stereopairs” menu

Сочетание клавиш	Команда
Ctrl+Alt+’	allows to open next stereopair in strip
Ctrl+Alt+Down arrow	allows to open stereopair one strip down
Ctrl+Alt+Left arrow	allows to open previous stereopair in the strip
Ctrl+Alt+Up arrow	allows to open stereopair one strip up
Ctrl+J	allows to jump to the best stereopair automatically

7. Rasters

Keyboard shortcut	Action
Ctrl+Shift+1	allows to use one of three modes of displaying raster images in 2D-window: **Cached only**
Ctrl+Shift+2	allows to use one of three modes of displaying raster images in 2D-window: **Depending on zoom**
Ctrl+Shift+3	позволяет использовать один из трех режимов показа растровых allows to use one of three modes of displaying raster images in 2D-window: **Source only**

8. Vectors

Keyboard shortcut	Action
Ctrl+O,**V**	allows to open layer, containing vector objects
Ctrl+N,**V**	allows to create vector layer
Ctrl+N,**S**	allows to create vector layer with the classifier
Ctrl+N,**C**	allows to create a contours, based on triangular irregular network (TIN)
I	allows to display selected vector object properties (**Vectors › Polyline properties**)

Keyboard shortcut	Action
Z	allows to open **Elevations interpolating** window (see the "Vectorization" User Manual)

8.1. The "Vectors" toolbar

Keyboard shortcut	Action
P	allows to enable point objects input mode (button in **Vectors** additional toolbar)
L	allows to enable non-closed polylines input mode (button in **Vectors** additional toolbar)
G	allows to enable polygons input mode (button in **Vectors** additional toolbar)
C	allows to enable CAD-objects creating mode (button in **Vectors** additional toolbar)
R	allows to enable roofs creating mode (button in **Vectors** additional toolbar)
A	allows to enable orthogonal input mode of vector objects (button in **Vectors** additional toolbar)
S	allows to enable orthogonal input mode of vector objects for additional coordinate system (button in **Vectors** additional toolbar)
Y	allows to enable streamline input mode of vector objects (button in **Vectors** additional toolbar)
T	allows to turn on tracing mode (button in **Vectors** additional toolbar)
X	allows to enable curve check points editing (button in **Vectors** additional toolbar)
W	allows to select a vertex, located in marker area on a distance specified in the **Swath** field (**Service › Settings › Vectors**) (button in **Vectors** additional toolbar)
E	allows to move marker to the selected vertex automatically (button in **Vectors** additional toolbar)
2	allows to turn on/off **2D multi-snapping** mode – marker moves to vector object elements (vertices, medians etc.), XY-plane marker coordinates match to coordinates of object elements, Z-height of marker is not changed (button in **Vectors** additional toolbar)
3	allows to turn on/off **3D multi-snapping** mode – marker moves to vector object elements (vertices, medians etc.), XYZ marker coordinates match to coordinates of object elements (button in **Vectors** additional toolbar)
4	allows to turn on/off **Snapping to points** mode – marker snaps to vertices of vector objects. Label `End` appears near that vertices (button in **Vectors** additional toolbar)
5	allows to turn on/off **Snapping to medians** mode – marker snaps to medians of vector objects. In case of detecting object segment at the distance of lower than **Detect radius**, its median is highlighted by small grey circle symbol. Label `Midpoint` appears near that medians (button in **Vectors** additional toolbar)
6	allows to turn on/off **Snapping to lines** mode – marker snaps to segments of vector objects. Label `Nearest` appears near segment point closest to the marker position (button in **Vectors** additional toolbar)
7	allows to turn on/off **Perpendicular snapping** mode (allows to build orthogonal polylines/polygons and to snap segments of drawing objects to segments of existed objects in perpendicular manner) – button in **Vectors** additional toolbar

Keyboard shortcut	Action
8	allows to turn on/off **Snapping to coords** mode (allows to build polylines/polygons orthogonal to the basic or additional coordinate system, as well as accurately orient drawing objects regarding vertices of existed vector objects) – button in **Vectors** additional toolbar
D	allows to change default axes direction of additional coordinate system (button in **Vectors** additional toolbar)

8.2. The “Tools” toolbar

Keyboard shortcut	Action
Ctrl+Alt+A	turns the alignment mode on (button in **Tools** additional toolbar)
Ctrl+Alt+S	allows to scale vector objects during their transformation in the alignment mode (button in **Tools** additional toolbar)
Ctrl+Alt+-	allows to copy position of marker in 2D-window to clipboard (button in **Tools** additional toolbar)
Alt+Shift+-	allows to move marker to position in 2D-window copied to clipboard (button in **Tools** additional toolbar)
Ctrl+Shift+V	allows to paste vector objects from clipboard to active vector layer into marker position (button in **Tools** additional toolbar)
Shift+mouse move with pressed left button	allows to select by rectangle in group selection mode (the and buttons in **Tools** additional toolbar)

Objects selection by polygon in group selection mode by polygon (the button of the **Tools** toolbox): **Shift** + mouse click – used to define first vertex of polygon, mouse click – to specify every next vertex, double click – to define the last vertex of polygon (to finish a polygon drawing), **Esc** – to cancel polygon drawing for objects selecting

8.3. The “Topology” toolbar / The “Topology” menu

Keyboard shortcut	Action
Shift+C	allows to convert polyline to polygon (button in **Topology** additional toolbar)
Shift+B	allows to convert polygon to polyline (button in **Topology** additional toolbar)
Shift+P	allows to merge selected polylines into a single one by adding a segment between two last vertices of merging polylines (button in **Topology** additional toolbar)
Shift+G	allows to merge selected polygons that have overlap or common border (button in **Topology** additional toolbar)
Shift+X	allows to split a polyline into two ones in the closest to marker vertex (button in **Topology** additional toolbar)
Shift+I	allows to split several polygons and polylines using “cutting” polyline (button in **Topology** additional toolbar)

Keyboard shortcut	Action
Shift+D	allows to remove a segment connecting two vertices of polyline/polygon (button in **Topology** additional toolbar)
Ctrl+D	allows to remove a vertex with adjoining segments
Shift+S	allows to select polyline/polygon vertex closest to marker position
Shift+V	allows to connect creating line to existed one in a closest to marker vertex (button in **Topology** additional toolbar)
Shift+L	allows to connect creating line to existed one in arbitrary place of segment (button in **Topology** additional toolbar)
Shift+N	allows to continue construction of the previously created polyline
Shift+M	allows to draw a border of one polygon along a border of another one (button in **Topology** additional toolbar)
Shift+A	allows to create polyline along another polyline up to marker position (button in **Topology** additional toolbar)
Shift+F	allows to continue creating polyline along another polyline up to nearest join vertex (button in **Topology** additional toolbar)
Shift+Z	allows to continue creating polyline/polygon along other vector objects up to selected vertex (button in **Topology** additional toolbar)
Shift+R	allows to substitute a polyline/polygon fragment (button in **Topology** additional toolbar)
Alt+S	(**Vectors › Topology › Object fragment › Select start point of fragment**, see the “Adding/deleting object fragment” chapter of the “Vectorization” User Manual)
Alt+D	allows to delete polyline/polygon fragment (**Vectors › Topology › Object fragment › Delete line fragment**)

8.4. The “Geometry” menu

Keyboard shortcut	Action
J	allows to move *point/vertices to marker position* (**Vectors › Geometry › Move point to marker**)
K	allows to move *all vertices to marker height* (**Vectors › Geometry › Move to marker height**)
~	allows to move *marker to selected vertices* (**Vectors › Geometry › Move marker to selected point**)
Ctrl+F	(**Vectors › Geometry › Orthogonalization forward**, see the “Vertices editing” chapter of the “Vectorization” User Manual)
Ctrl+B	(**Vectors › Geometry › Orthogonalization backward**, see the “Vertices editing” chapter of the “Vectorization” User Manual)

8.5. The “Selection” menu

Keyboard shortcut	Action
Ctrl+<	allows to select an object, previous to selected
Ctrl+>	allows to select an object, next to selected
<	allows to select a polyline vertex located *before* the selected one; sequence of vertices is displayed when you select a vector object (see the “Vector object properties” chapter of the “Vectorization” User Manual)
>	allows to select a polyline vertex located *after* the selected one; sequence of vertices is displayed when you select a vector object (see the “Vector object properties” chapter of the “Vectorization” User Manual)

8.6. The “Clipboard” menu

Keyboard shortcut	Action
Ctrl+C	allows to copy selected vector objects to the clipboard
Ctrl+V	allows to paste vector objects from clipboard to active vector layer
Ctrl+X	allows to cut vector objects from active layer and copy them to clipboard
Ctrl+Shift+V	allows to paste vector objects from clipboard to active vector layer into marker position

8.7. Grid

Keyboard shortcut	Action
Ctrl+N,**G**	allows to create grid layer

9. Terrain

9.1. Points

Keyboard shortcut	Action
Ctrl+O,**V**	allows to open layer, containing vector objects (points)

9.2. TIN

Keyboard shortcut	Action
Ctrl+O,**T**	allows to open layer, containing DTM, represented as a triangular irregular network (TIN)
Ctrl+N,**T**	allows to create DTM as triangular irregular network (TIN), based on points and structural lines
Ctrl+T	allows to enable/disable editable TIN layer visibility

9.3. DEM

Keyboard shortcut	Action
Ctrl+O,**D**	allows to open layer, containing DTM, represented as a DEM
Ctrl+N,**D**	allows to create DTM as a DEM, based on triangular irregular network (TIN)

9.4. Contours

Keyboard shortcut	Action
Ctrl+N,**C**	allows to create a contours, based on triangular irregular network (TIN)

10. Work in Geomosaic program

- Press and hold the **Shift** key while creating a preview (**Mosaic › Preview** and **Mosaic › Preview (current sheet)**) to perform re-calculating of brightness adjustment (duplicate the **Mosaic › Rebuild brightness adjustment** button).