

BLITZKRIEG 2

EDITOR MANUAL

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Chapter 1

1-01 Introduction



This reference file contains the manual and information on the map editor for the game “Blitzkrieg 2”.

The reference file describes the map editor’s main functions in the sequence recommended for examining the map editor and also creating maps and missions for the game “Blitzkrieg 2”.

After reading this manual you will get to know:

- What can be done with the help of the map editor and its main functions (see 2-01 General information)
- What the map editor’s interface (see 2-03 Interface), its main menu (see 2-04 Map editor’s commands) and toolbars look like
- What tools (see 2-05 Tools) are used for creating maps
- How to fulfill the main repeated actions (see 2-07 Main operations and terms) in the editor and what hot keys (see 2-14 Hot keys) should be used
- How to save (see 2-08 Creating and saving a map), load (see 2-09 Opening the map for editing), transfer to each other (see 2-14 Share and transfer custom maps) and run (see 2-13 Running the new map in the game) missions designed in the map editor
- How to set the editor’s appearance (see 2-06 Interface setting), and also filters and tables (see 2-15 Tables and filters)
- What to start with in creating missions (see 3-01 Before you start...) and what the differences (see 3-02 Defining the missions type) between the singleplayer and multiplayer missions are.

Also, you will learn everything about creating maps for “Blitzkrieg 2”:

- How to create a new map, choose the season or the setting and choose players and sides they play for (see 4-01 Creating a new map)
- How to prepare the landscape of the map (see 4-05-1 Preparing the landscape of the map), create heights (see 4-05-3 Designing the terrain) and pattern textures (see 4-05-4 Patterning textures)
- How to place common objects and units on the map (see 4-09 Map objects) and terrain objects (see 4-07 Placing terrain objects), and, also, automatically fill the parts of the area with the flora and terrain patterns (see 4-05-5 Fields)
- How to set start commands for units (see 5-07 - Unit Start Commands) and set their parameters (see 4-12 Objects parameters)

- What players' parameters consist of and how to set diplomacy (see 5-02 Player's parameters)

And, of course, the main info, what creation of the complete mission consists of:

- What Map Info consists of (see 4-02 MapInfo) and what useful information it contains (see 4-04 The parameters of the map)
- How to set the weather on the map (see 4-03 Setting the weather) and what it influences
- How to create your own hyper screenshot (see 6-01 Hyperscreenshot) and how to create a minimap (see 6-02 MINIMAP)
- How to attach music (see 6-03 Music) to your map or create your movies on the game's engine (see 6-06 Script Movie)
- How to set start cameras (see 5-03-1 Setting Start Cameras), players' positions in the multiplayer mission (see 5-03-2 Setting Multiplayer Start Position) and final points (see 5-04 Final Positions)
- What reinforcements are (see 5-05 - Reinforcements), how to set them (see 5-05-2 Setting reinforcement units parameters) and what reinforcements points are (see 5-05-5 Reinforcement points)
- How to set the computer opponent and what AI General is needed for (see 5-08 – AI General)
- What script is (see 5-12 Making script) in the missions for “Blitzkrieg 2”, why we need script zones (see 5-14 Script Zones) and how to write Objectives (see 5-15 – Objectives)
- Also you will learn the full list of script functions (see) and our recommendations (see 2-16 Tips when working with the editor) on creating the map.

And, finally:

- In the appendix (see) you can find the sample scenario and sketch of one original Blitzkrieg 2 map, which can be used as a sample for creating your own maps.

1-02 Warning

This manual does not describe 100% map editor's functions for the game “Blitzkrieg 2”. Mainly, it is connected with the fact, that the map editor is the company Nival's internal tool and initially was assigned to produce the entire work cycle for the game “Blitzkrieg 2”.

All the commands and tools, which ought to be known and used, when creating maps and missions, are completely described in this manual.

If you want to know how to do something greater than maps and separate missions for the game “Blitzkrieg 2” or you are ready to try yourself in MOD's creation, you can attend “Blitzkrieg 2”'s official site and forum. The list of all sites and game forums are in the “Blitzkrieg 2” game manual.

1-03 Copyrights and info

Blitzkrieg 2 Map Editor © 2005 Nival Interactive. All rights reserved. Blitzkrieg is a trademark of Nival Interactive.

The following trademarks of other companies mentioning in this manual: Microsoft, Windows, Windows 98, Windows NT, Windows 2000, Windows XP, Visio, Excel, Excel 97, Excel 2000, Excel 2002, UDA, OLE DB and ODBC are registered trademarks of Microsoft Corporation in the United States and/or other countries.

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All other trademarks are the property of their respective owners.

Chapter 2

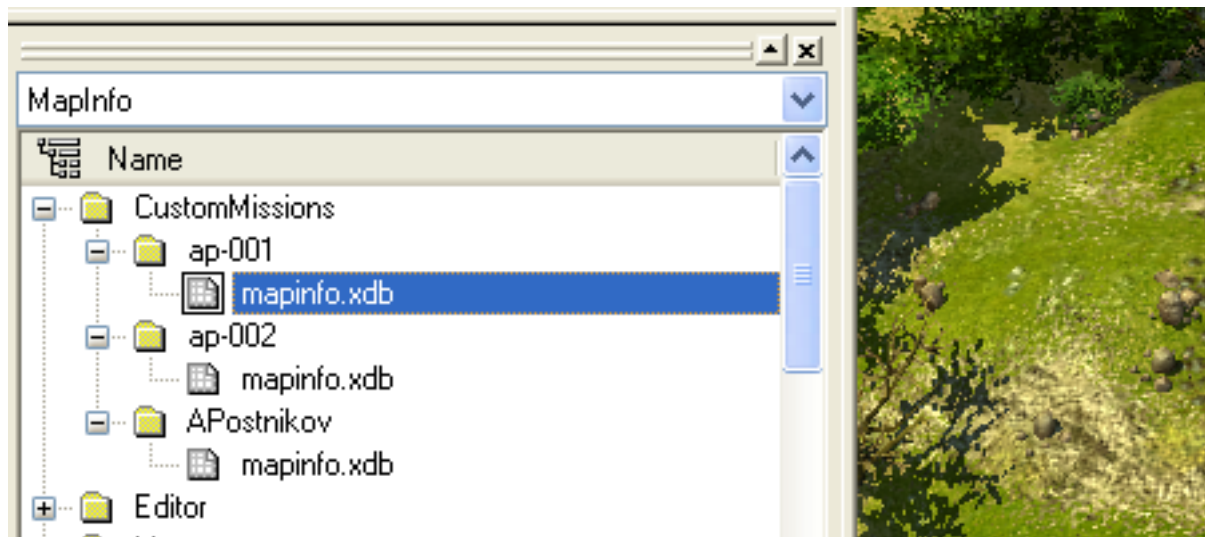
2-01 General information

The map editor is used for creating and editing maps for the game “Blitzkrieg 2”. However, maps from the game “Blitzkrieg” (published in 2003) cannot be opened and edited with the map editor.

Every map for the game “Blitzkrieg 2” is the set of files, kept in one folder (as a rule, the name of the folder is the name of the map/mission, given when creating the map). Generally, these files contain information in XML format, but there are some binary ones (for example, a minimap), too.

The key file, containing the main information about the map and used when loading as in the editor and also in the game, is “mapinfo.xdb”.

The folder with the files ought to be located in “<Blitzkrieg 2_Game>\Data\Custom\Mission\<Your_Map_folder>” so that the editor and the game can find it and load maps for editing.



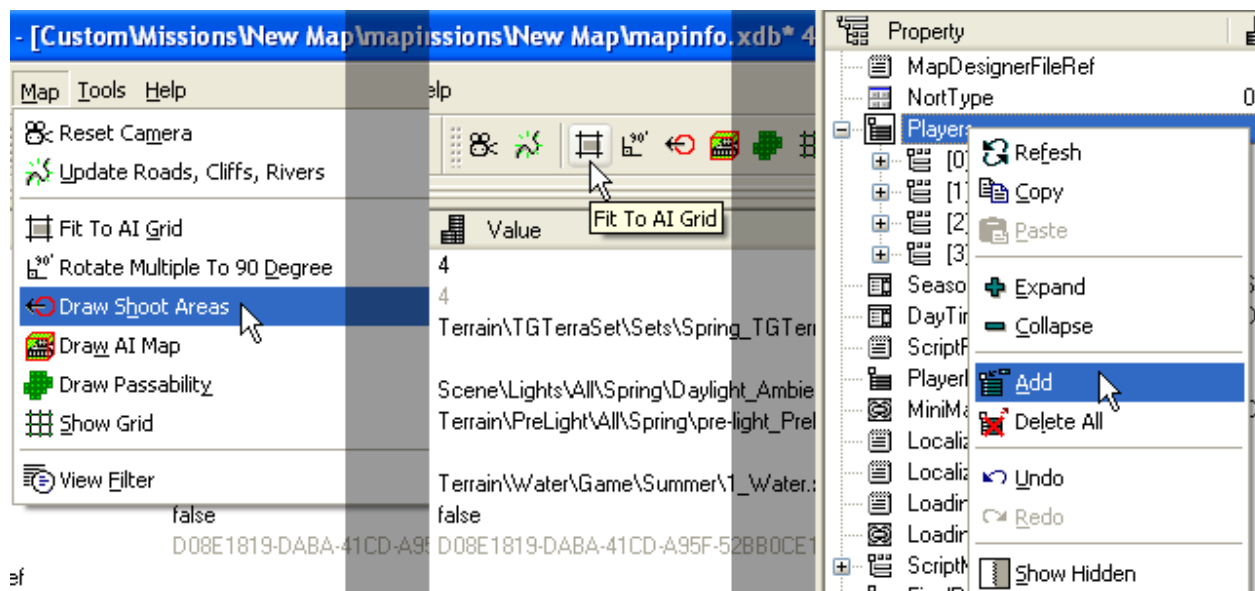
Yet, the editor will not see the map if it is not indexed (all the maps, you are creating on your computer, are indexed automatically and are available in your editor). Maps, created on your computer or indexed, are available in the table Mapinfo and can be opened in the editor.

(I)You can open all the maps of the chapters and campaigns of the game “Blitzkrieg 2” in the editor – they have already been indexed. However, you can edit these maps only if you have data.pak unpacked.

See Chapter 2-10 “Indexing a map” for more information on indexing and opening a map, created by the other user, in the editor.

2-02 Working with the map editor

In the Blitzkrieg 2 editor there are three main ways to work with the data: using different menus, toolbars or context menus.



(the menu)

(the toolbar)

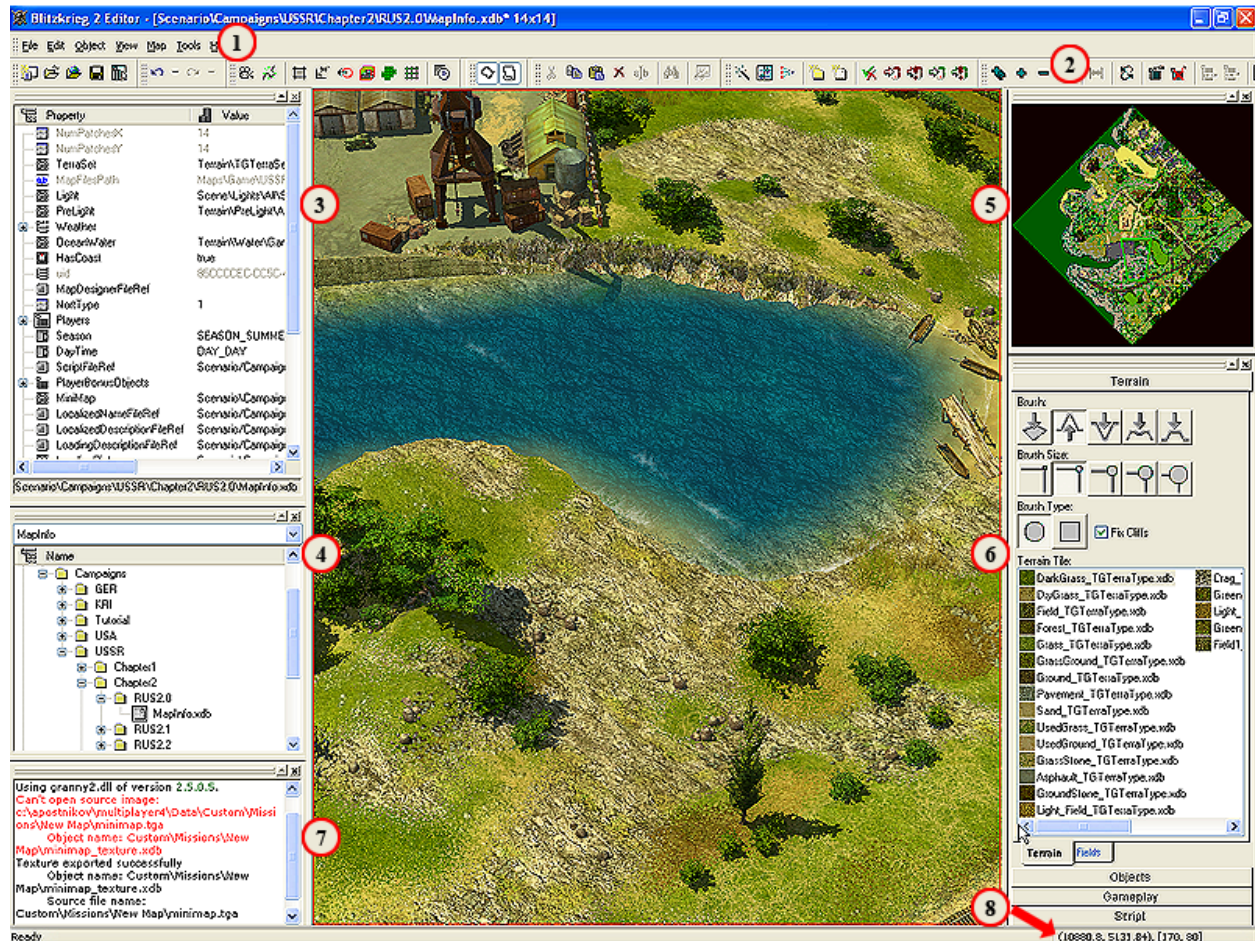
(the context menu)

All these methods almost entirely duplicate each other. But some commands appear only in the certain map editors working modes – for example, when working with terrains, objects on the map (units, building etc.), in properties tables etc.

Besides, there are some info windows and Tools Window, including the main tools for working with the map.

2-03 Interface

The map editor interface for the game “Blitzkrieg 2” consists of:



1. *Different menus*

Several menus contain all the necessary commands for working with the map editor.

2. *Toolbars*

Toolbars display icons of the commands, duplicating commands in different menus. You can hide or show toolbars choosing the options in the menu View.

3. *Selection Property Window*

This window displays properties of the selected or chosen object. As a rule, these are properties of the map and units / buildings. You can hide or show windows choosing the options in the menu View.

4. *Game Database Window*

This window displays the list of the objects in the current game's data table. As for the map editor – it displays the list of maps, indexed by the editor.

5. *Minimap Window*

The window with the minimap. It displays the sketchy view of the terrain's peculiarities in the current map.

6. **Tools Window**

The window with the main tools, used when creating and setting the map. It contains tools Terrain, Objects, Gameplay and Script (for details see Chapter 2-05 “Tools”).

7. **Log Window**

The window with the editor’s work log. It records the operations, such as opening and saving a map, creating a minimap and a hyper screenshot, and also about all the errors occurred in the editor’s work.

8. **Coordinates**

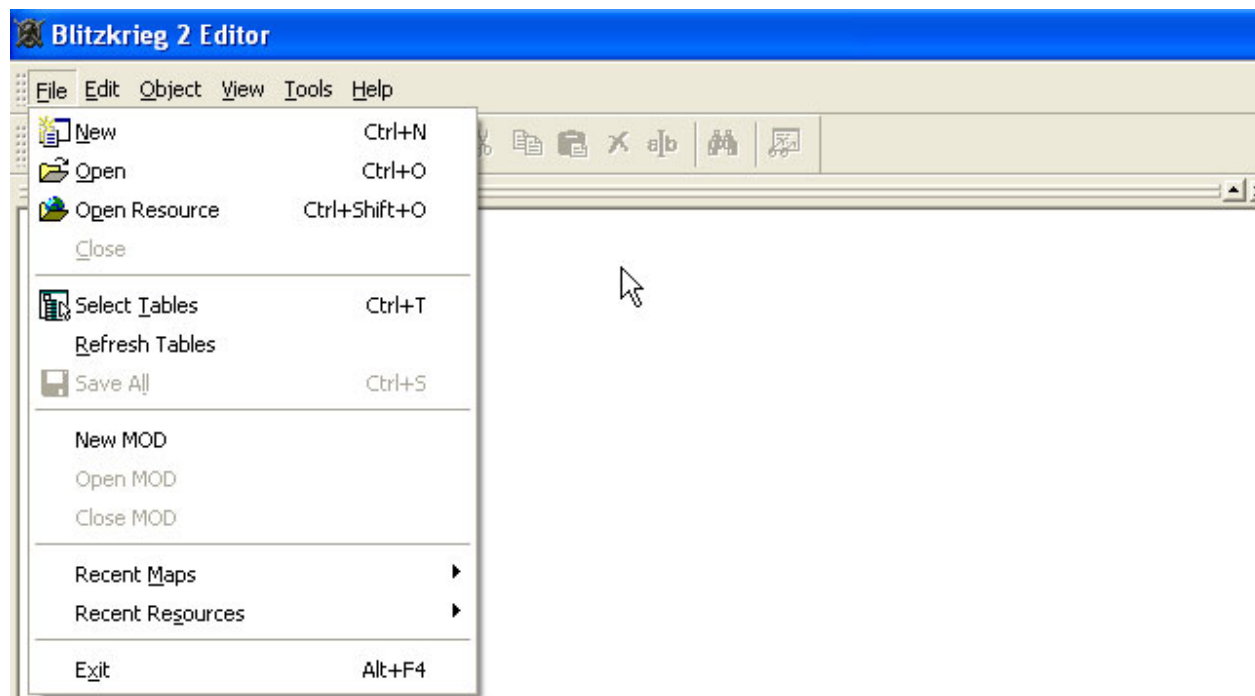
The current cursor coordinates are displayed here (both in pixels and tiles).

2-04 Map editor’s commands

Before you start working with the Blitzkrieg 2 map editor, you should get to know the structure and functions of the Blitzkrieg 2’s main commands and tools.

Important Note: This manual describes only the commands used for creating maps and missions.

2-04-1 Menu **File** commands



New – create a new Blitzkrieg 2 map

Open – open a Blitzkrieg 2 map

Close – close a current map (if the map has changes, which were not saved, the dialogue window will appear suggesting that you should save the changes)

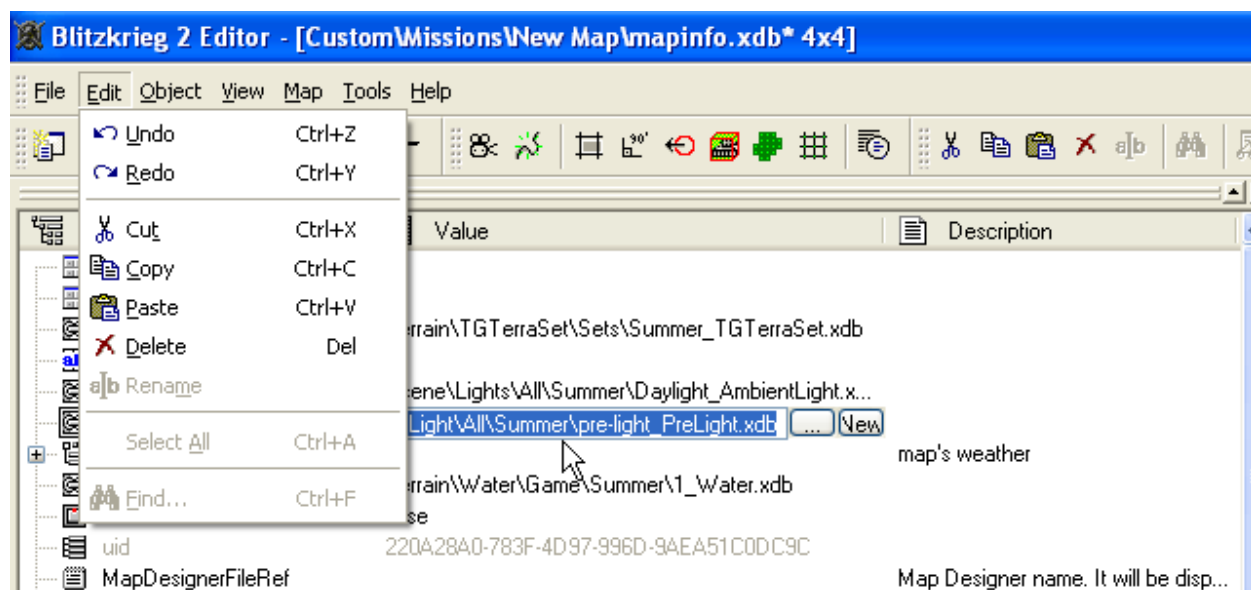
Save All – Save all the data (a map, object’s properties etc.)

Recent Maps – the list of the links to the maps created/edited earlier

Recent Resources - the list of the links to the resources created/edited earlier (set for MOD’s creators)

Exit – exit the editor (if the map has changes, which were not saved, the dialogue window will appear suggesting that you should save the changes)

2-04-2 Menu **Edit** commands



Undo – Undo the last action.

This command works only with the objects and when changing the terrain

Redo – Repeat the last action (works in the same cases as Undo)

Cut – Cut (copy and delete) the resource / object / value

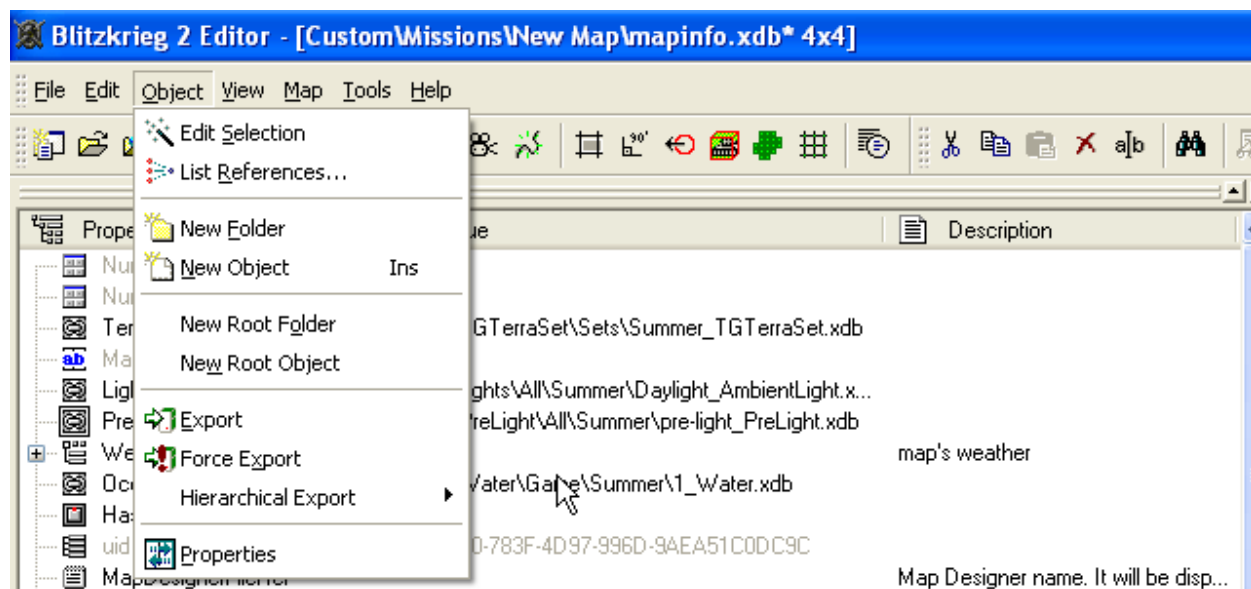
Copy – Copy the resource / object / value

Paste – Paste the copied resource / object / value

Delete – Delete the resource / object / value

Rename – Rename the resource / object / value

2-04-3 Menu **Object** commands



Edit Selection – Open for editing (edit) the object / resource

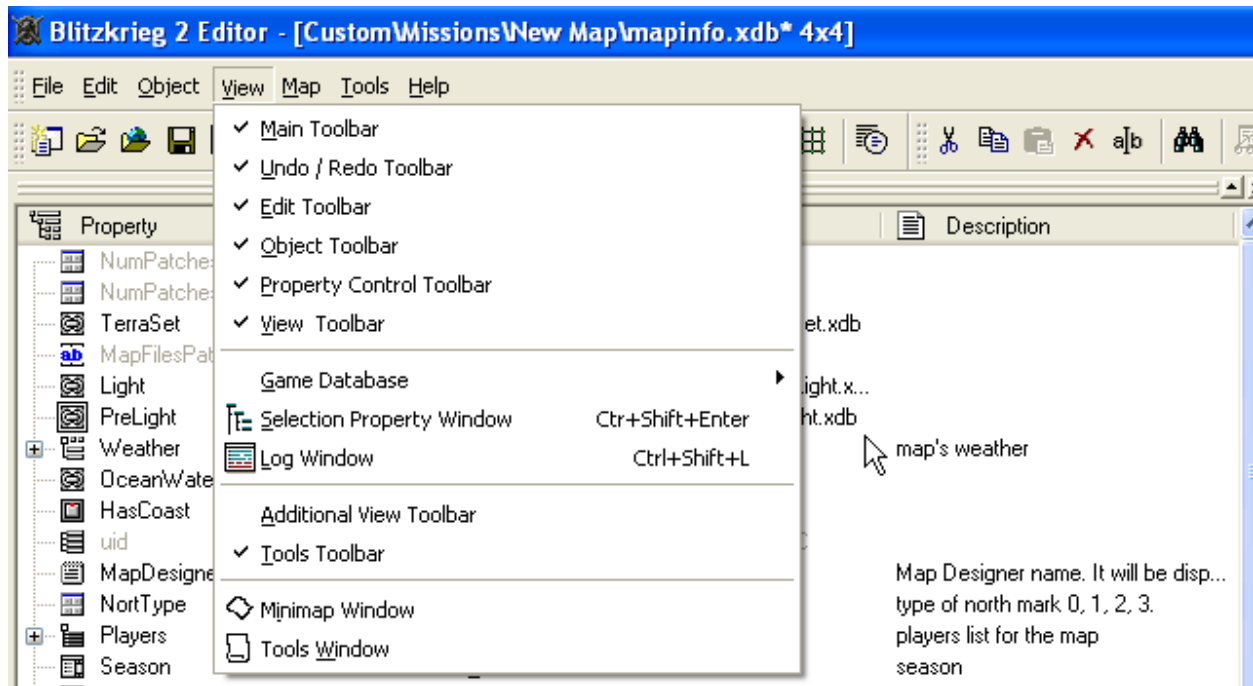
New Folder – Create a new folder

New Object – Create a new object / resource

Export – Export the texture into the data file (used when creating the screenshot)

Properties – Open the properties of the current map (in Selection Property Window)

2-04-4 Menu View commands



Main Toolbar – Show / hide the main toolbar

Undo / Redo Toolbar – Show / hide the Undo / Redo toolbar

Edit Toolbar – Show / hide the Edit toolbar

Object Toolbar – Show / hide the Object Toolbar

Property Control Toolbar – Show / hide the Property Control Toolbar

View Toolbar – Show / hide the View Toolbar

Game Database – Open / close Game Database Window

Selection Property Window - Open / close Selection Property Window

Log window - Open / close Log window

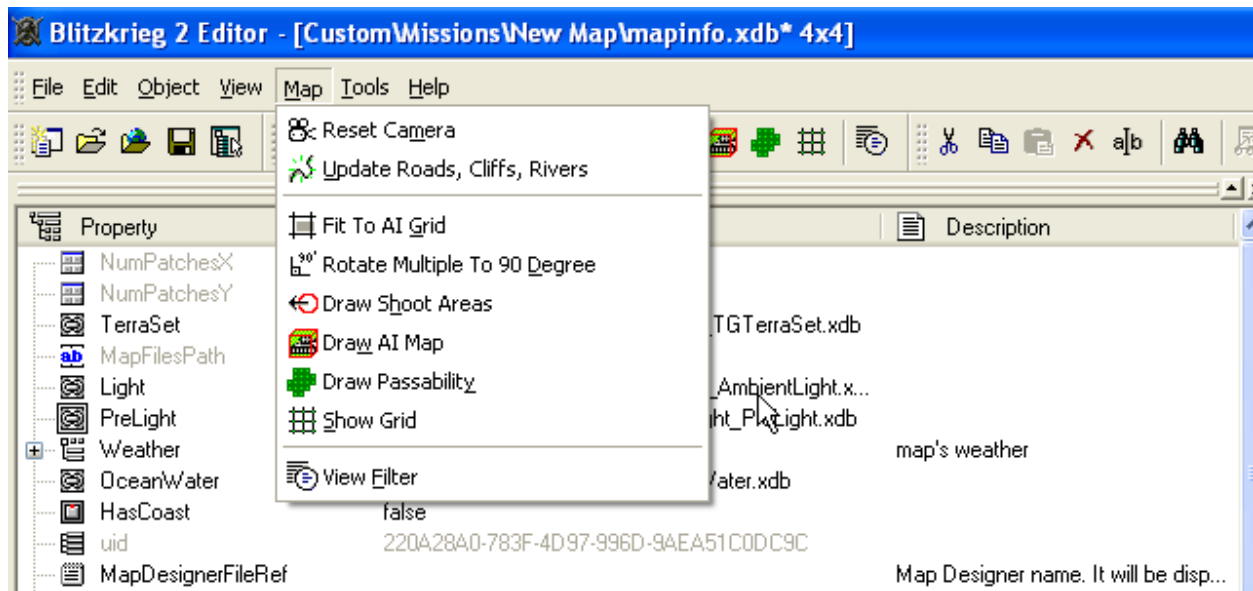
Additional View Toolbar – Show / hide Additional View Toolbar

Tools toolbar – Show / hide Tools toolbar

Minimap window - Open / close Minimap window

Tools Window - Open / close Tools Window

2-04-5 Menu Map commands



Reset Camera – Return the camera (the angle, height and orientation) to the standard position over the map.

Update Roads, Cliffs, Rivers – Allows to solve the problem of showing the vector objects on the map with compulsory re-render.

Fit to AI Grid – When placing Map objects (except units), “stick” to the mesh point (Grid) in the mode AI Tile.

(I) This option is necessary when placing buildings and other objects on the map, which can be obstacles for the units on their way. If this option is off – the objects can be moved on the map by pixel.

Rotate Multiple To 90 Degree – When orienting the map objects (except units) they rotate by 90 degrees.

Draw shoot areas – Show unit’s fire range and area

Draw AI Map – Show units’ borders as they are recognized by AI.

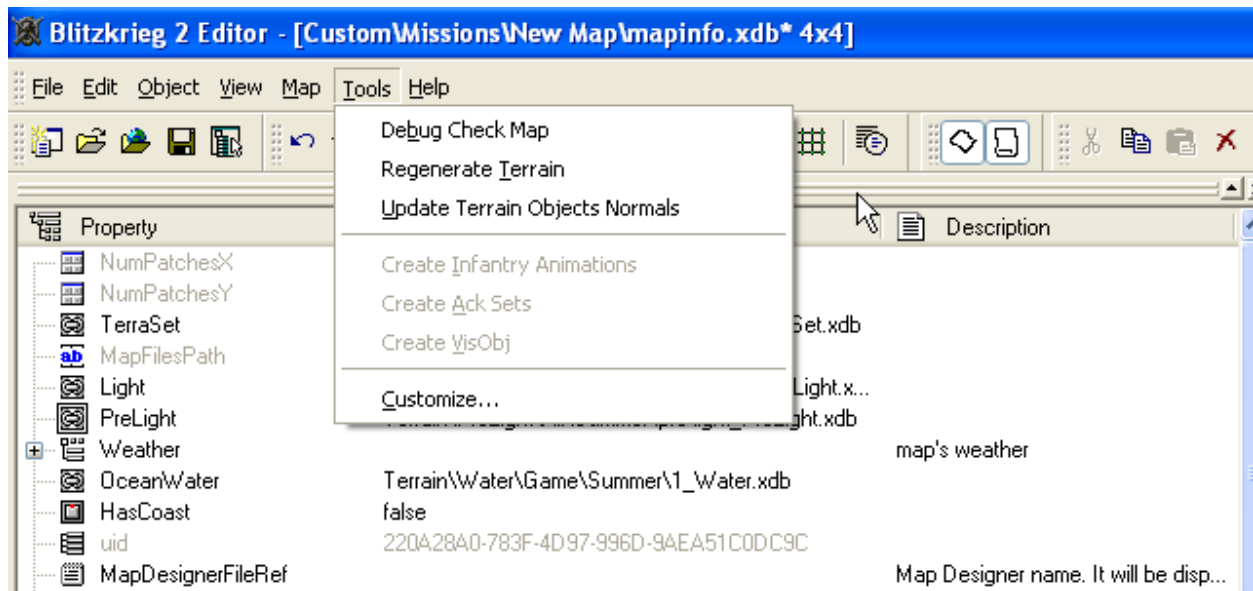
(I) As the complicated geometry of the objects in the game, AI recognizes them not by the form of the object, but by the special form, shown especially for AI.

Draw Passability – show the parts of the terrain impassable for the ground units

Show Grid – Show grid (the grid tile modes can be set)

View filter – Open the filters’ setting window

2-04-6 Menu Tools commands



Regenerate Terrain - Allows to solve the problem of showing the heights on the map with compulsory re-render.

Customize – Customize toolbars.

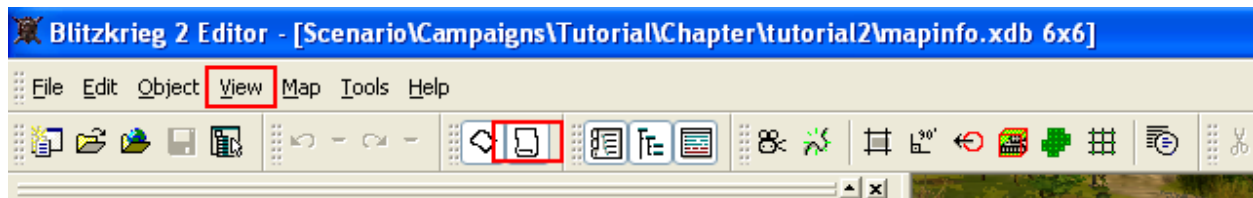
2-04-7 Objects Properties

The command “Show the selected object properties” (equivalent to pressing the key Enter) is available only in the toolbar and marked with the icon shown.



2-05 Tools

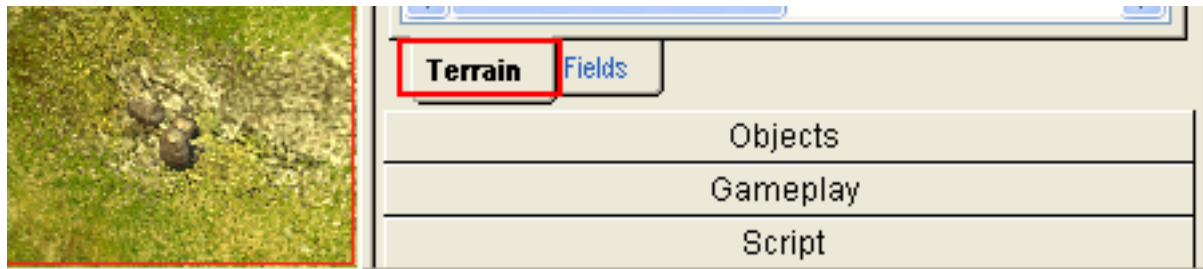
The main tools necessary for creating maps and missions are in Tools Window. If you cannot find Tools Window after running the map editor – try to run it with the help of the menu View or the icon on Toolbar.



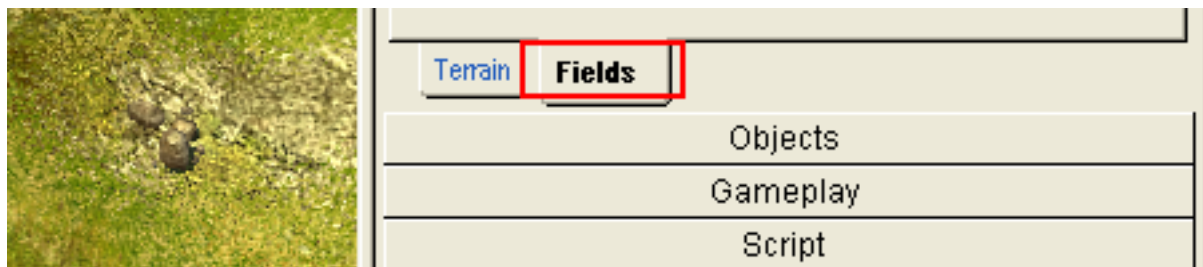
Tools Window includes several main sections with the tools grouped as:

2-05-1 Terrain

The tools section for working with the terrain.



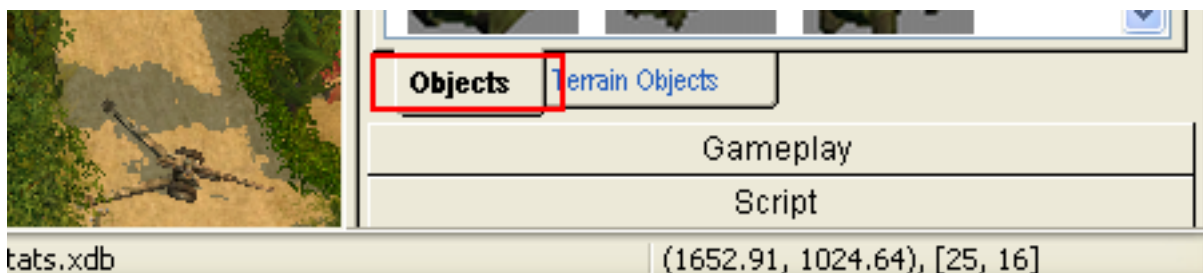
The tab **Terrain** includes tools changing heights on the map and patterning certain textures types on the surface parts (for details see Chapter 4-05-2 Preparing the terrain of the map).



The tab **Fields** allows to create a lot of different automatically generated fields with the patterns available (for details see Chapter 4-05-5 Fields).

2-05-2 Objects

The tools section for placing common objects or units and terrain objects (VSO) on the map.



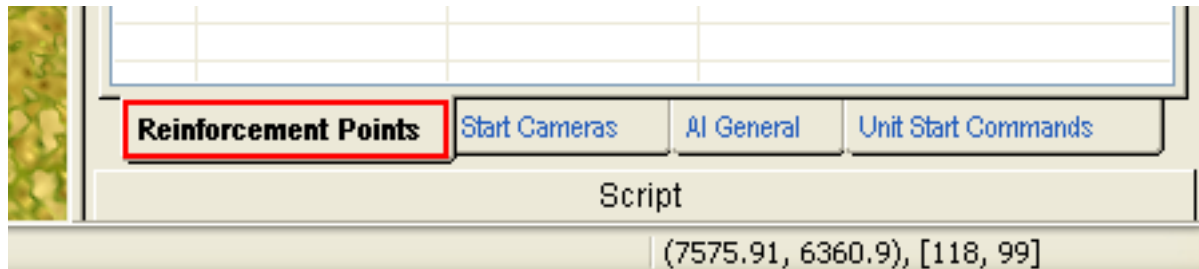
The tab **Objects** allows to place all map objects, which do not require additional setting of the shape and etc., on the map – i.e. all *unites types*, *buildings*, *fortifications*, *bridges*, *simple objects*, *flora* etc. (for details see Chapter 4-10 Placing objects on the map). Within this manual, they are called map objects for convenience.



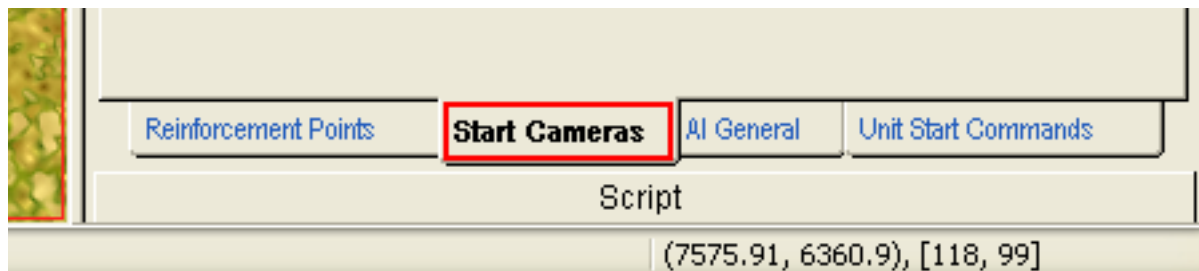
Terrain objects tab allow to place Terrain objects – the main landscape modifiers in Blitzkrieg 2. Terrain objects are also called Vector Stripe Objects or VSO - i.e. objects, whose shape and some parameters require additional configuration, when being placed on the map: rivers, roads, lakes, cliffs and a coast (for details see Chapter 4-07 Placing terrain objects).

2-05-3 Gameplay

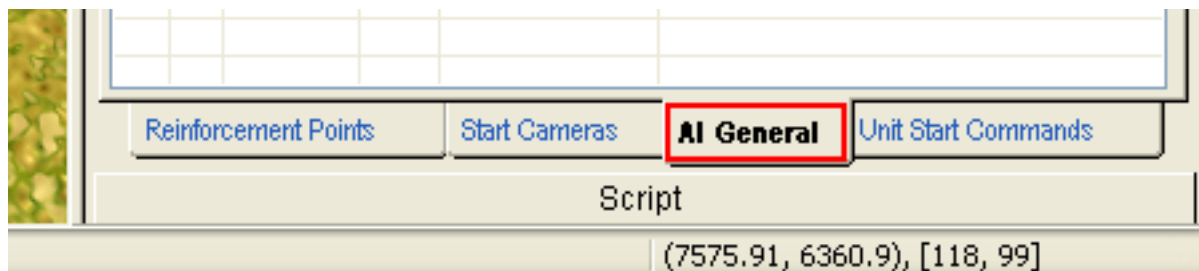
The tools section for setting *Reinforcement Points*, *Start Cameras*, *AI General* and *Unit Start Commands*.



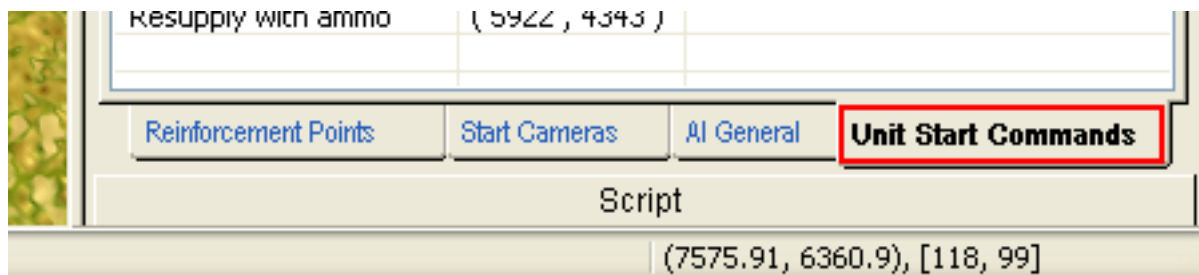
The tab ***Reinforcement Points*** allows to place and set the reinforcements points (for details see Chapter 5-05-5 Reinforcement points).



The tab ***Start Cameras*** is necessary for placing start cameras on the map – coordinates and positions, in which players of the different sides (teams) will start the game (for details see Chapter 5-03-1 Setting Start Cameras).



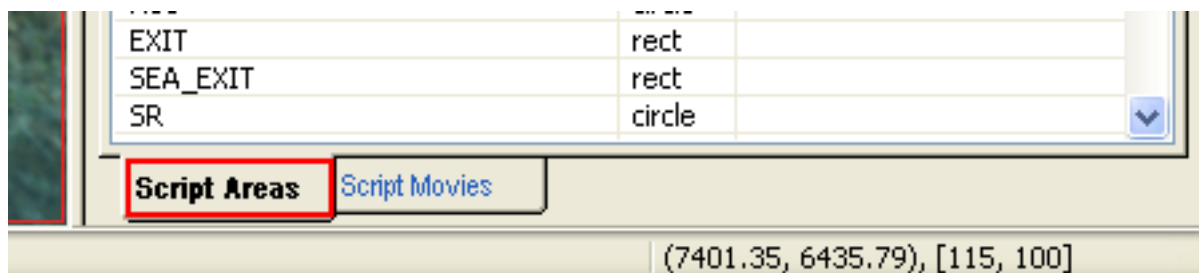
The tab ***AI General*** allows to set the computer opponents' (called AI General) actions and attention zones (used for designing singleplayer missions) (for details see Chapter 5-08 – AI General).



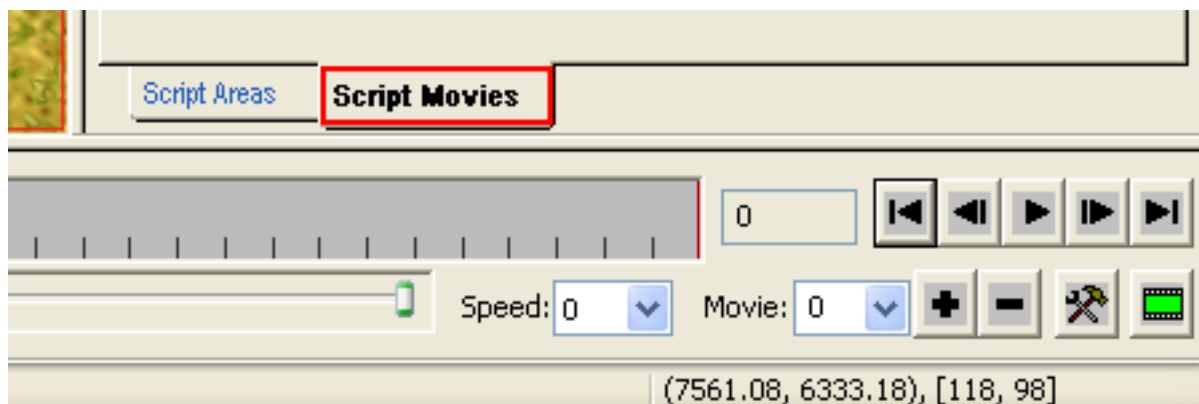
The tab **Unit Start Commands** allows to assign the starting commands to the units on the map – i.e. commands, which will be executed by these units immediately after starting the mission (used, mainly, when designing singleplayer missions) (for details see Chapter 5-07 - Unit Start Commands).

2-05-4 Script

The tools section for placing and setting *Script Areas* and *Script Movies* on the game's engine.



The tab **Script Areas** allows to place the certain areas on the map, which will be used afterwards when scripting missions (used, mainly, when designing singleplayer missions) (for details see Chapter 5-14 Script Areas).

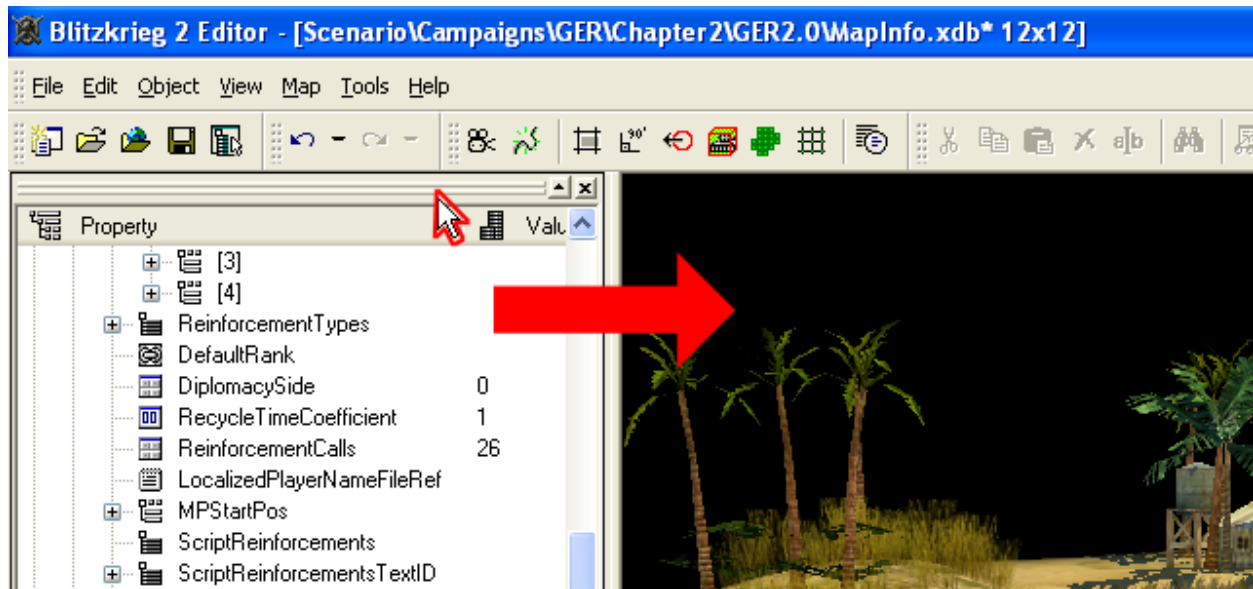


The tab **Script Movies** allows to create a script movie on the game's engine. Switching to this tab opens the special keyframes editor and camera's positions, where the user can set the keyframe sequence and set the position and orientation of the camera in every keyframe (for details see Chapter 6-06 Script Movie).

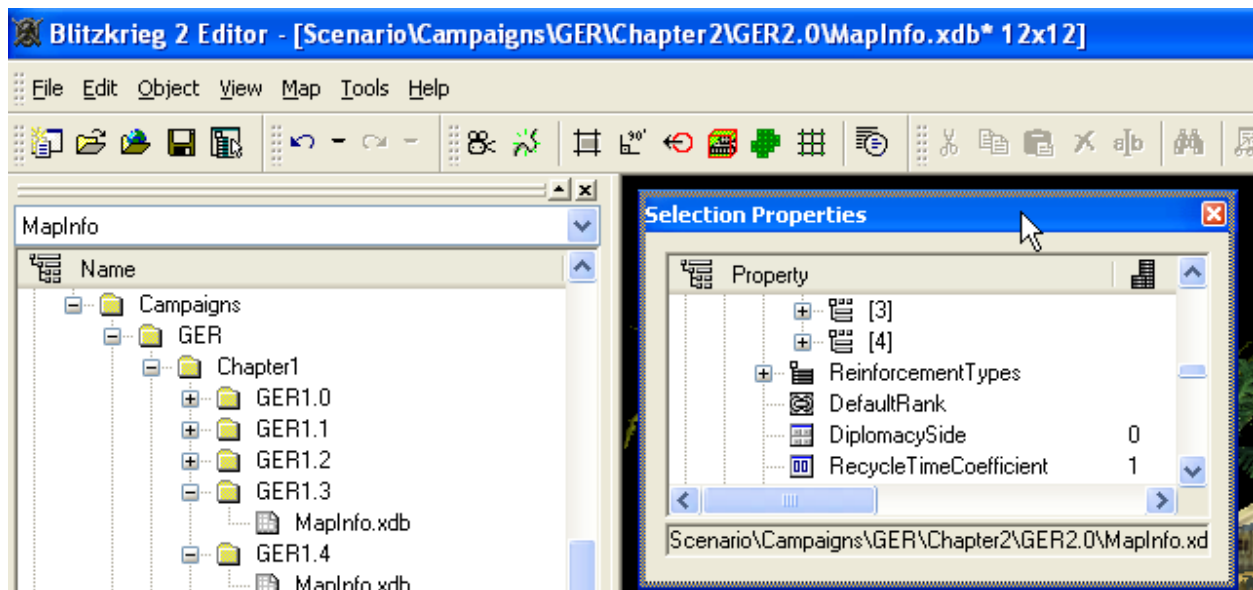
2-06 Setting Interface

What is comfortable when working with a program is individual for every user. So, in Blitzkrieg 2 map editor every user can set the view, the size and position of all main windows (Selection Property, Game Database, Minimap, Tools and Log) according to his preferences.

To change the position of the window – point the cursor at the two stripes at the top.



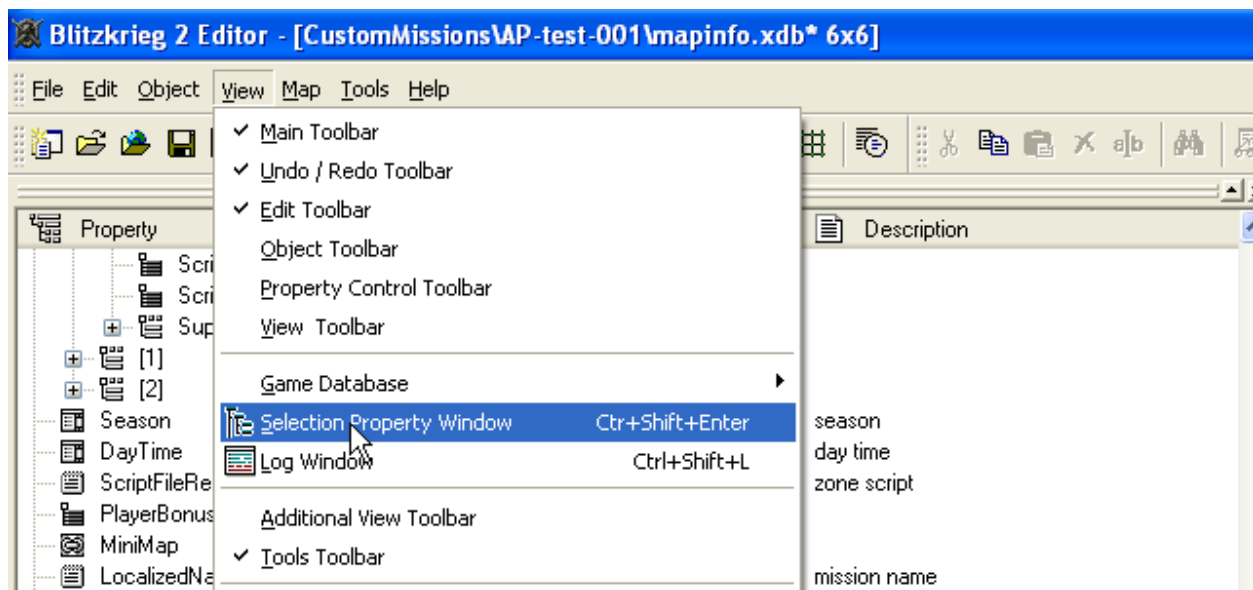
Pressing and holding LMB drag the window to any convenient place of the editor workspace. When approaching the borders of the workspace the window will stick to it taking the optimal form.



And when moving away from the borders of the workspace there will be the separate window.

To change the sizes of the window pull one of the borders to any direction.

Besides, you can maximize / minimize or close the window with the buttons in the top right corner of every window.

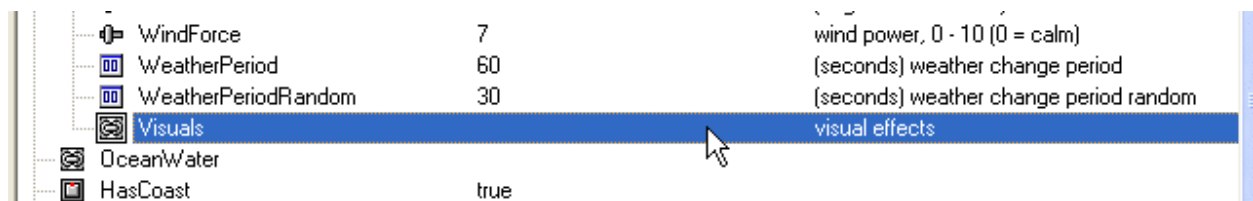


All windows are shown / hidden also with the help of the menu.

2-07 Main operations and terms

When you are working in the map editor you will often have to fulfill the same operations.

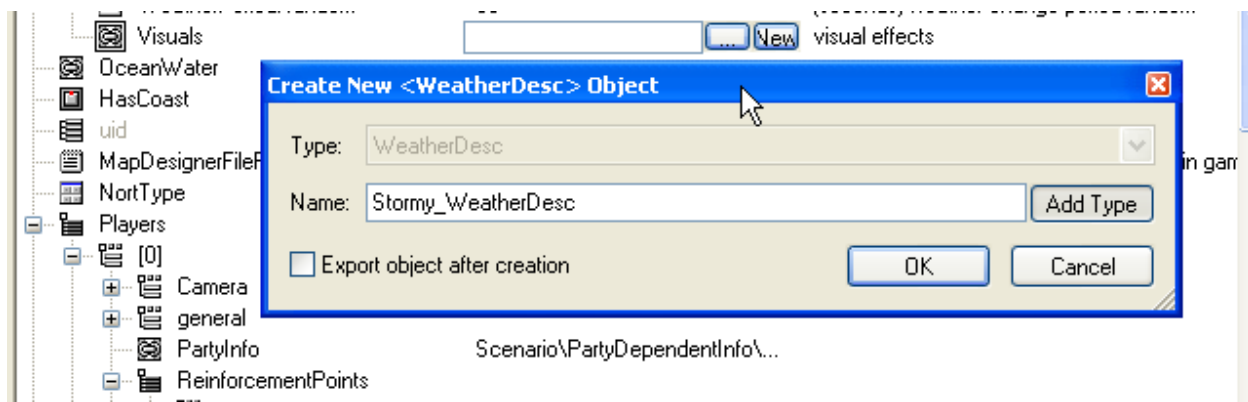
2-07-1 Create a new object (file) for a parameter



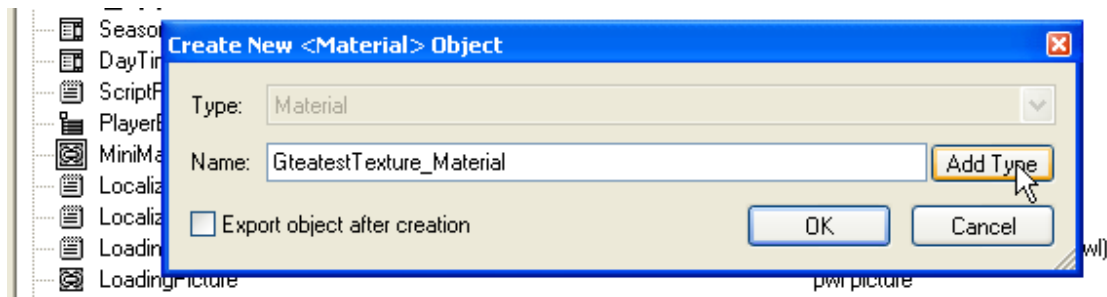
To create a new object (file) for a parameter choose the line with this parameter...



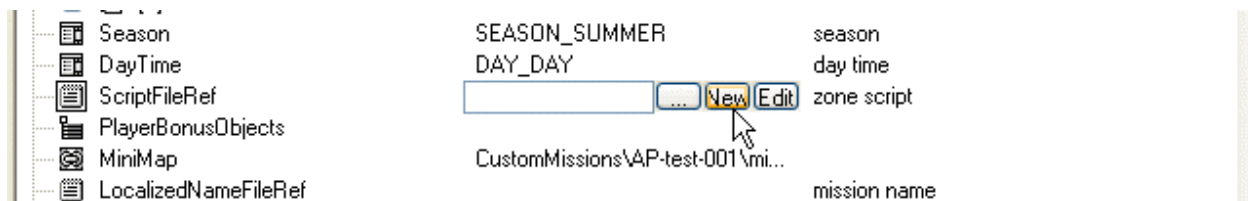
... and left-click in the column Value. Two buttons will be displayed – the ellipsis and New. To create a new object / file press the button New.



The new window will be displayed, in which you should enter the name of the new object (file name).



If you press the button Add Type, the type of the object (file) will be added to the name automatically.



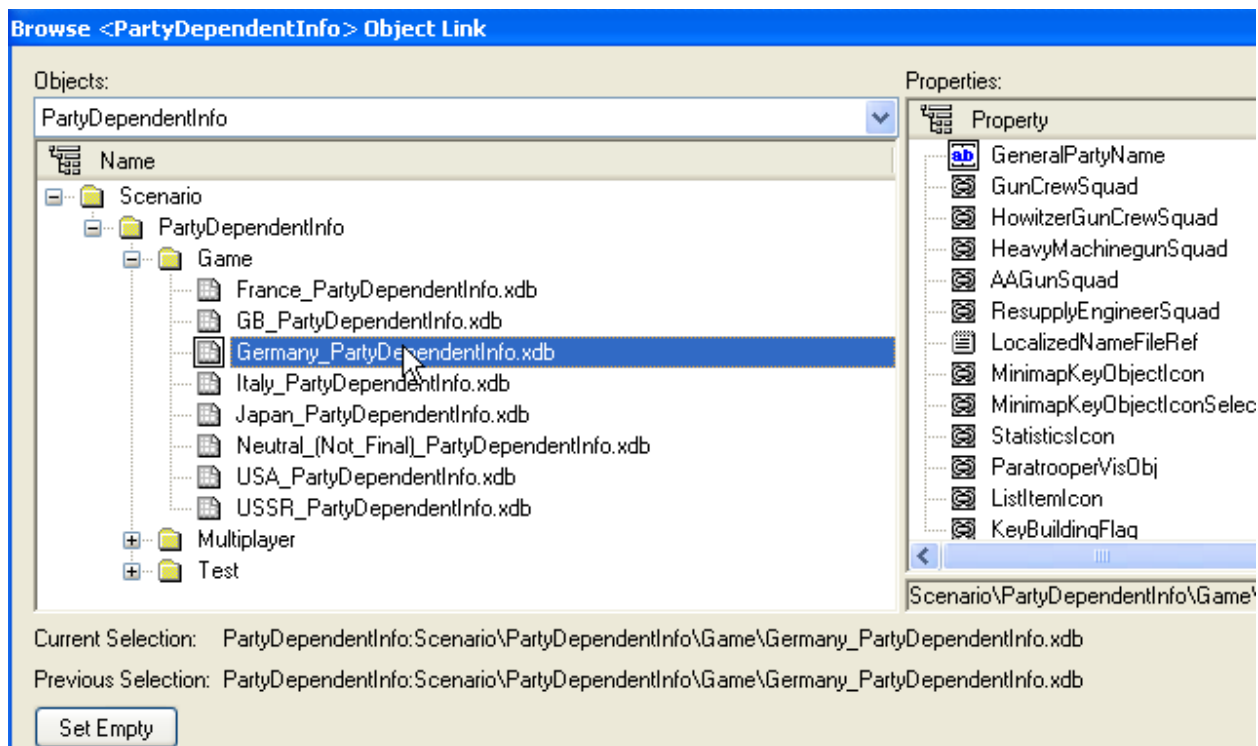
In some cases the third button “Edit” is added. It means that this file can be edited with the internal text or script editor.

2-07-2 Select the path to the object (file) for a parameter

If you do not want to create a new object (file) and just want to choose the object (file), which already exists, choose the line with this parameter and left-click in the column value. Two buttons will be displayed – the ellipsis and New.



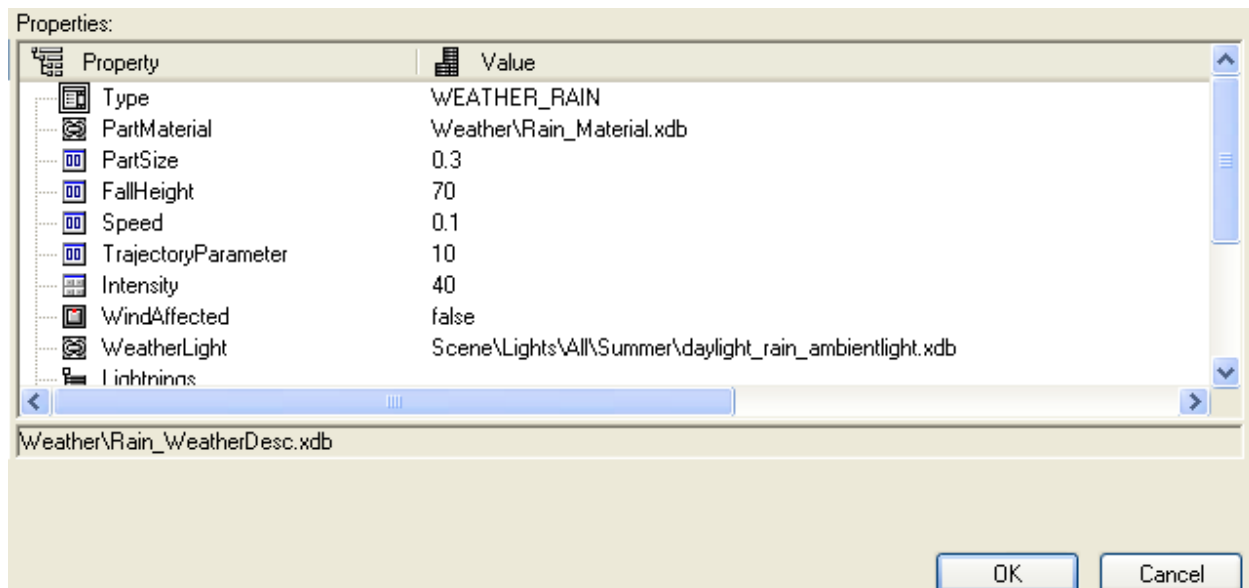
To open the window with the list of the objects (files) of this class available press the ellipsis.



In the left part there is the tree with the list of the objects (files) of this class.
Choose the one you want and press OK.

2-07-3 Editing the value of the object (file) parameter

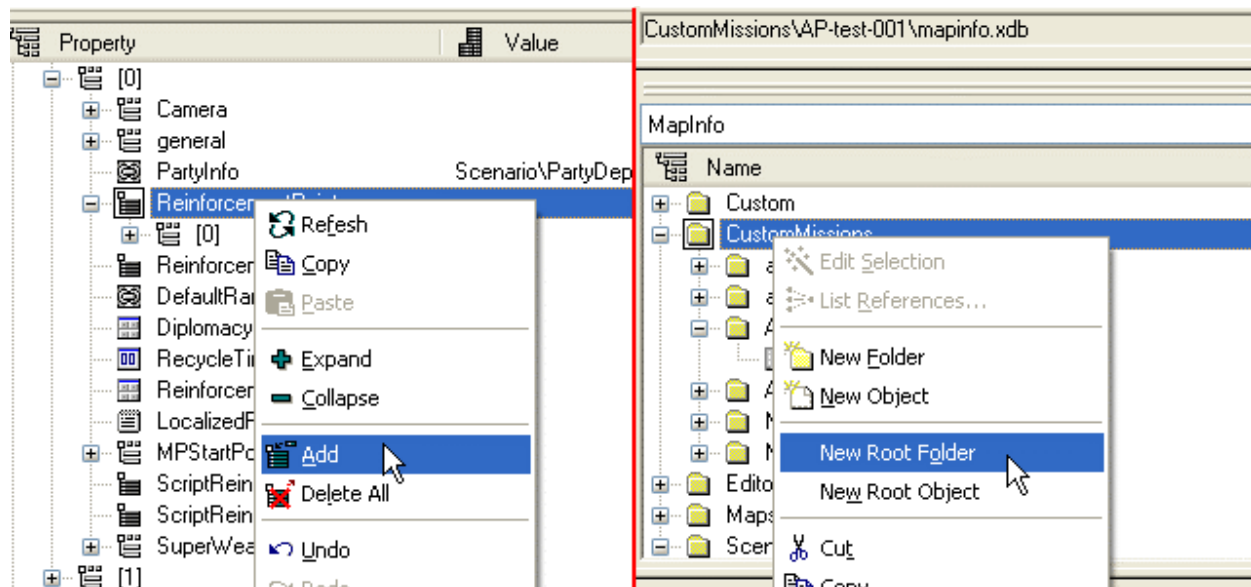
If you want to change properties of the object (file) for some parameter, it must be opened for editing. The steps are the same as indicating the path to the object (file). (see above)



In the window of choosing objects (files) displayed the window of the object (file) properties is on the right.

Sometimes when setting and editing parameters of the object (file) you may need to open the subordinate objects (files) for editing. (For example – see Chapter 6-03 Music)

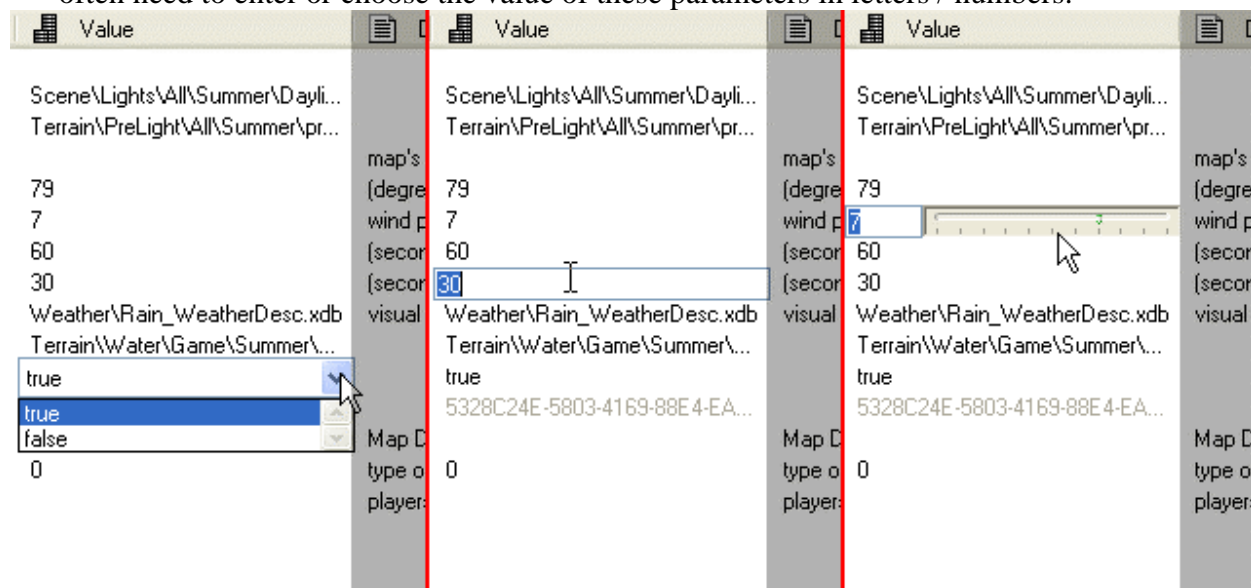
2-07-4 Using context menu



When working with the map and objects properties you often have to add / delete parameters and objects and also to minimize (Collapse) and maximize (Expand) their lists. Use the context menu to do it. To call up the context menu choose the field with the parameter you need and right-click on it. In the menu displayed choose the operation you need.

2-07-5 Choosing or entering the parameter

Also, when working with different properties and parameters of the map or objects you often need to enter or choose the value of these parameters in letters / numbers.



You can do it with the jump-menu, type the value or choose it with a slider.

Choose the parameter you need and left-click in the column Value of the corresponding line. After that choose the value in the jump-menu or with the slider. Or just type it.

2-08 Creating and saving a map

For creating a new map choose the item *New* in the File menu or press the keys [Ctrl]+[N].

To save the current map and all changes that have been done choose the item *Save all* in the File menu or press the keys [Ctrl]+[S].

2-09 Opening the map for editing

To open the map already created for editing – it must be in the maps and missions list (Game Database Window).

If the map you need is in the list – just double left-click on it. Also, you can open the map through the item *Open* in the menu File or with the keys combination [Ctrl]+[O]. When opening the map with the help of the menu or keys combination – the window with the list of all maps known to the editor will open.

If in the maps list, known to the editor there is no map you need, it means that it has not been indexed and put in the files list, used by the editor. How to index the map, see the next chapter – *Indexing maps*.

If at the moment you are opening the map you have already the other map opened – you will be offered to save all the changes made on the current map.

2-10 Indexing maps

You can index the map in two different ways.

Variant 1:

Put the map folder into the *Data* folder of *Blitzkrieg 2* game so that the path looks as follows: “<Blitzkrieg 2_Game>\Data\<Your_Map_folder>”.

Make sure the map folder contains the file “*mapinfo.xdb*”.

Open the map editor and Windows Explorer.

Drag the file “*mapinfo.xdb*” from Windows Explorer to the *map editor workspace*. Save the map. After that the new map will be automatically indexed and afterwards it will be available in the list of the maps indexed.

Variant 2:

Put the map folder into the *Data* folder of *Blitzkrieg 2* game so that the path looks as follows: “<Blitzkrieg 2_Game>\Data\<Your_Map_folder>”.

Make sure the map folder contains the file “*mapinfo.xdb*”.

Find the file “*dbindex.bat*” in the folder “<Blitzkrieg 2_Game>\Data\” and run it. After that all files in the folder “<Blitzkrieg 2_Game>\Data\” will be indexed again and all new maps will be available in the map editor for editing.

2-11 Exiting the editor

To exit the editor – choose the item *Exit* in the menu File or use the keys combination [Alt]+[F4].

When exiting the editor you will be offered to save all the changes made on the current map.

2-12 Links history

When working with files the map editor saves all links history of the maps opened before. You can load any of the maps opened earlier, choosing them from the list (the item *Recent Maps*) in the menu *File* on the condition that the map opened was not renamed or removed.

2-13 Running the new map in the game

To run the map created before is possible in two different ways:

Variant 1:

If the map created in the editor or the map folder are in <Blitzkrieg 2_Game>\Data\Custom\Missions\<Path_to_Your_Map_folder>, it can be run with the help of the menu item *Custom Missions*, available from the main game menu.



When choosing the item *Custom Missions* in the main game menu the window of choosing users maps is opened. Choose the map and run it, pressing OK.

Variant 2:

To run the mission in “**Blitzkrieg 2**” game created in the map editor before do the following (the map folder must be in the folder “<**Blitzkrieg 2_Game**>\Data\Custom\Missions\<Path_to_Your_Map_folder>”):

1. Run “Blitzkrieg 2” game
2. In the main menu open the console with the help of the key tilde (~)
3. In the console displayed type (without quotes) the command “map” (in lower-case) and the path to your map, beginning with the folder which is the first after the folder Data. You will get something like this: “map Custom\Missions\MyTestMap-003\mapinfo.xdb”
The full path to this map will be as follows:
“C:\ Blitzkrieg 2\data\Custom\Missions\MyTestMap-003\mapinfo.xdb”
4. After pressing the key Enter the map will be loaded. If you have not done the hyper screenshot for your map yet– the map will be loaded with the standard hyper screenshot.

2-14 Share and transfer custom maps

If you want to share a map you’ve created with your friends or publish it on an Internet resource, dedicated to Blitzkrieg 2, you must pack the whole folder with your map (or mission)

For example, if you’ve created the map that is located in «C:\ Blitzkrieg 2\data\Custom\Missions\MyTestMap-003\» folder, you must pack the whole contents of the folder. Make sure, that no files are missed, especially – mapinfo.xdb.

You can send the archive that you’ve made to your friends or publish it in the Internet.

2-15 Hot keys

When working with the map editor some actions are easier to fulfill with the help of hot keys. Here are the keys combinations, which will be useful when creating maps.

[**Ctrl**]+[**N**] – create a new map

[**Ctrl**]+[**O**] – open the map created and indexed before

[**Ctrl**]+[**S**] – save all the changes on the map

[**Alt**]+[**F4**] – save all the changes on the map and exit the editor

[**Insert**] – insert an object, value (file name), control point

[**Delete**] - delete an object, value (file name), control point

[**Home**] – unlink objects

[**Enter**] – open object properties (unit / building etc.) in the Selection Property Window / Complete creating VSO or Field

[**Ctrl**]+[**C**] – copy the value (file name)

[**Ctrl**]+[**V**] – insert the value (file name)

[**Ctrl**]+[**Z**] – undo the last change (only when working with objects and the terrain)

[**Ctrl**]+[**Y**] – redo the last change if it has not been cancelled before (only when working with objects and the terrain)

[**Ctrl**]+[**Shift**]+[**Enter**] – show / hide Selection Property Window

[**Ctrl**]+[**Shift**]+[**B**] – show / hide Game Database Window

[**Ctrl**]+[**Shift**]+[**L**] – show / hide – Log Window

When working on the map you can use the left key **ALT** and the mouse cursor for rotating the map.

Moving the mouse when pressing **RMB** you can zoom in and out.

The unit and the object will be linked if you drag the unit on the object (or the vehicle) when pressing the key **Shift**.

2-16 Tables and filters

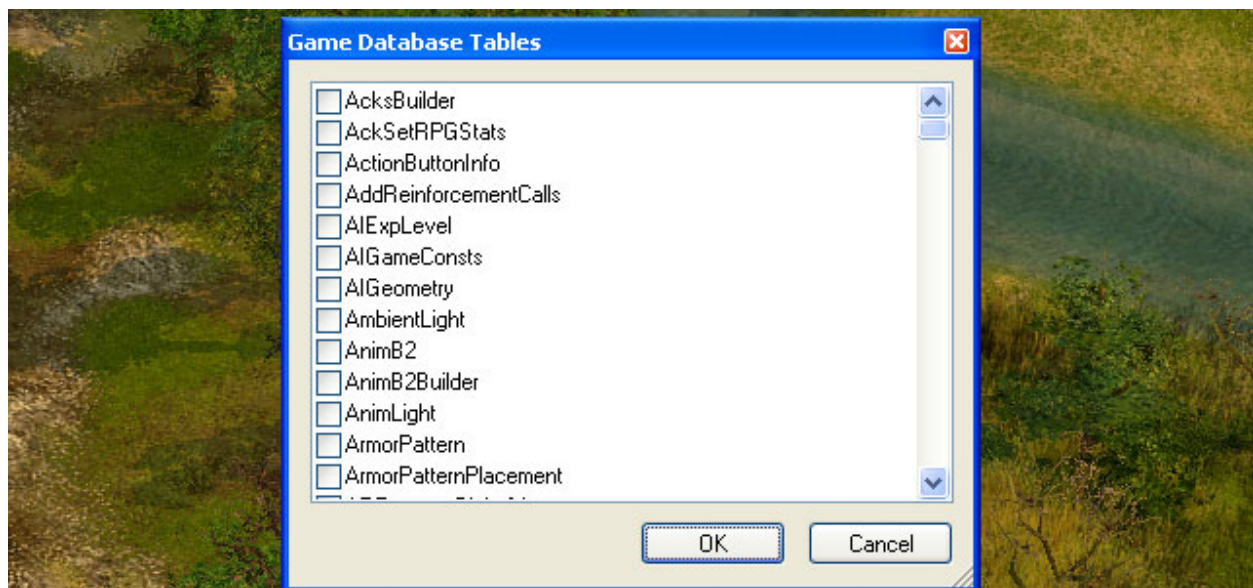
The experienced users can use the opportunity to set the filters and additional database tables.

2-16-1 Game Database Tables

Game Database Tables – all the game data are sorted out in types. For example, when you are editing the map, you automatically work with the table MapInfo. You can work with many other objects and data types of “Blitzkrieg 2” game in the same way.

Important Note: We recommend only experienced users to work directly with the tables, as in the working process the game data can be changed, what can lead to the incorrect game's or users map's functioning.

As it is recommended only to the experienced users to work with the data through Game Database Tables, this manual does not contain the descriptions of the tables and data types. You can change them at your own risk.



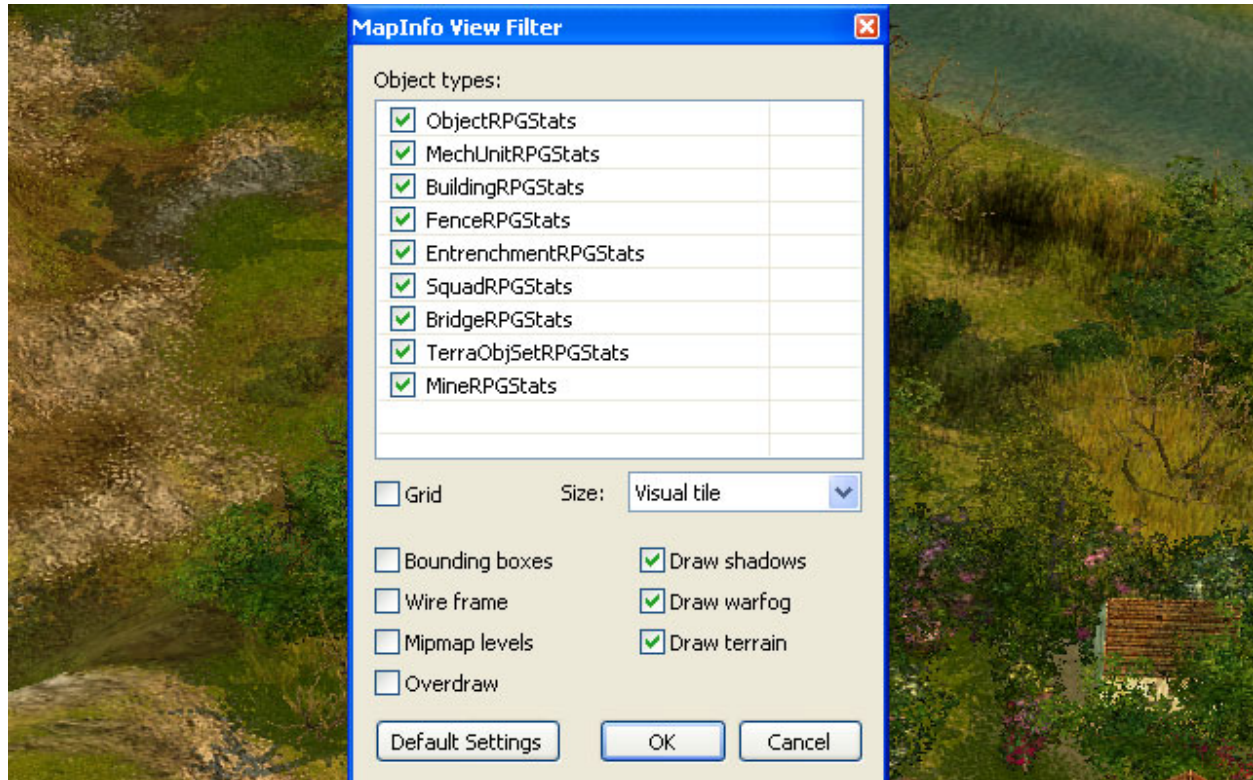
To call up the Game Database Tables of Blitzkrieg 2 press the key combination [**Ctrl**]+[**T**], alternatively, use the command Select Tables in the menu File or its analogue on the toolbar.

To use the table with one or the other data type put a tick in the corresponding line.

2-16-2 Filters

When creating and editing maps you can use the opportunity to work with objects filters and map's properties. Also you can turn on and set the Grid according to your needs – when working with the terrain and placing objects on the map.

To call up the window of filters setting choose the line View Filter in the menu tools or use the button on the toolbar.



In the window displayed you can turn on the filters of the objects visible on the map:

Object – turn on / off all the simple objects, including Flora.

MechUnit – turn on / off all the vehicles

Building – all the buildings

Fences – all the fences

Entrenchments – the entrenchments

Squad – the personnel

Bridge – the bridges

Terra – the spots of the terrain

Mine – the mines and mine fields

Besides filters, you can turn on or off the Grid for different objects and switch it to on the Tiles menu – **Visual tile** or **AI tile**. It is convenient, for working with the terrain and when placing objects.

2-17 Tips when working with the editor

General tips.

- Often save your map.
- Check passability on the map.

- When placing objects on the map do not forget to optimize your map. For example, you should not cover the map 14 by 14 with a thick layer of grass even it is the jungle. The grass will not be seen under the trees.
- A great number of the forces densely deployed on the map will not guarantee that the mission will be interesting, but it will be complicated and slow.
- Before placing cliffs it is more reasonable to make a hill first and then to surround it with the cliffs.
- If at the start of the mission the air force must be on the map, you can just place aircraft on the map and set start command for them. For example, it is suitable for placing the recon aircraft.
- If the game hangs right after the loading the mission, the most probably it is because of the script. Unfortunately, despite the syntax check, the editor cannot reveal errors.

Chapter 3

The optimal order of the stages for creating a map (mission) can be arranged based on the experience of “Blitzkrieg 2” maps creation:

Preparation (defining the type, scenario, map, sketch)

Creation of the map (terrain, VSO, settlements)

Creation of the mission (players’ parameters, units, reinforcements, AI General, scripting)

The following information on maps and missions creation lists these stages in the order given.

3-01 Before you start...

So, before starting to work with the editor, some preparation must be done.

It consists of the following stages:

- *Define the type of the mission*
- *Make up the scenario of the mission*
- *It is advisable to find the map of the area or the historic map* (if the mission is based on the historic events)
- *Draw the sketch of the mission* (you can use the programs such as Microsoft VISIOTM and others)

This preparation allows to solve a lot of questions, appearing in the process of creating a map and not to waste time on doing the same thing many times.

3-02 Defining the missions type

Before you start to create a map you should define the future missions’ type.

The first question – if it is a *single player* or a *multiplayer mission*?

The multiplayer mission assumes less amount of setting without such work as setting AI General and scripting missions. In any case it is unlikely to make a great map in just one hour. A long tuning and balancing procedure will be required.

The single player mission, as a more complicated one, assumes more amount of laborious work. But single player missions stand out against a background of numerous multiplayer missions.

Thus, we choose:

The multiplayer mission

or

The single player mission

If you choose the single player mission, you have to decide if you keep to the historic events:

The historic mission is entirely based on the historic events and follows the known facts about this event (the troops ratio for all sides, the sequence of main events, the terrain etc.).

The alternative (hypothetical) mission is based on the historic events, but something like “if the Fifth Cavalry meet Guderian’s iron fist ...”

The fictitious mission is an entirely imaginary mission, based on the fabricated events.

After defining the missions’ type you can proceed to the next stage.

3-03 The scenario of the mission

When creating any mission even the multiplayer one you have to be aware of the events and their sequence happening on the map. The scenario can help you to do it.

After describing the main objects and units on the map, main terrain elements and the sequence of events in the mission the map designer can see if the idea is viable and define the priorities.

The scenario allows to plan the events in the mission and understand if it will be interesting for the player to participate in the events occurring.

(I) You can view the example of mission scenario for Blitzkrieg 2 game in the appendix.

3-04 The map

In case you are making a single player or a multiplayer mission based on the historic events, it will be useful to find an authentic map of the area where these events happened or the map with the positions and directions of the main blows and forces movements within this historic events.

Generally speaking, transferring the topography of the real area (corresponding to the historic events or not) simplifies the map creation process. So, even if you are creating an imaginary mission, try to find the topographic or geographic maps something suitable among the topographic or geographic maps. It is desirable to keep a reasonable compromise between a real map and the map used in the game.

(I) You can view the example of the used map and the result in the appendix.

3-05 The mission's sketch

In any case, if you find a real map or not, you have to make a sketch of the mission. You should mark the main terrain elements, forests and settlements, the key buildings and reinforcements points and also plan the missions' objectives and position of the units of all sides, participating in the mission.

Sometimes you have to create several sketches, which show the stages of the situation development on the map and allow to plan the sequence and correlation of the script events, the conditions of the victory and defeat.

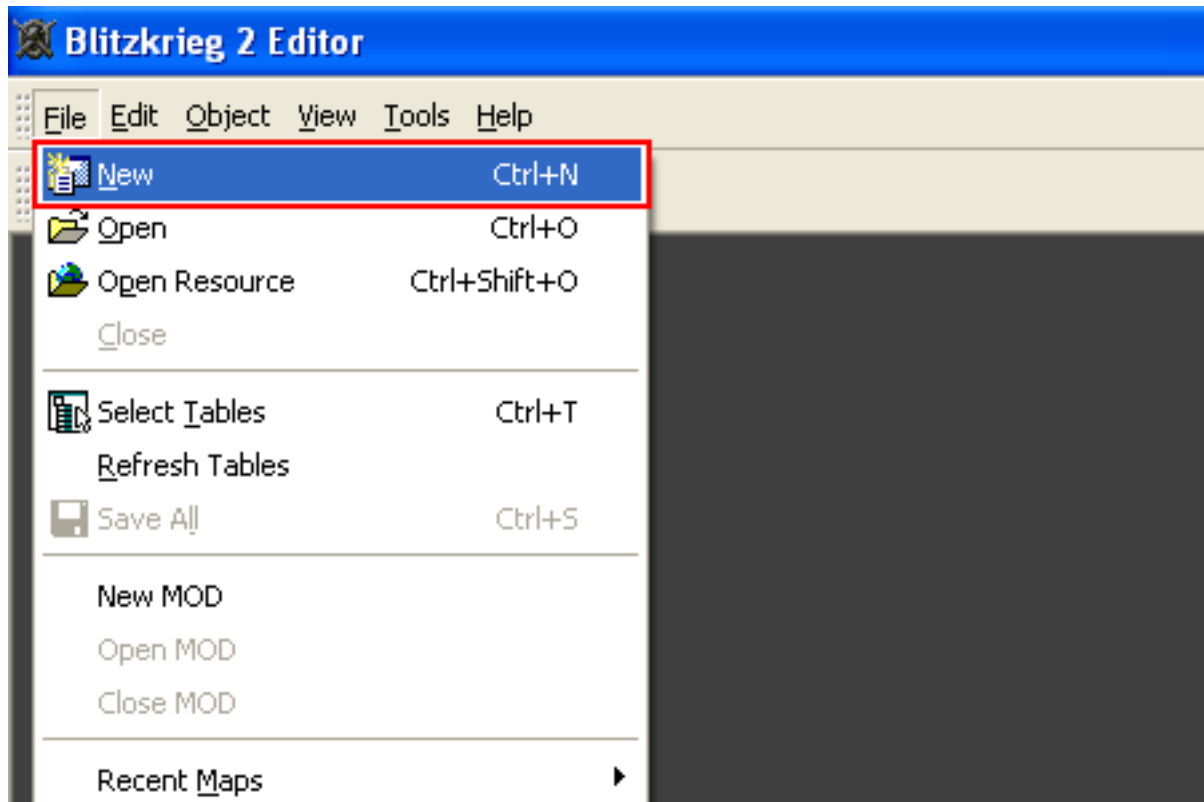
(I) You can view the example of the mission sketch in the appendix.

Chapter 4 – Creating a map

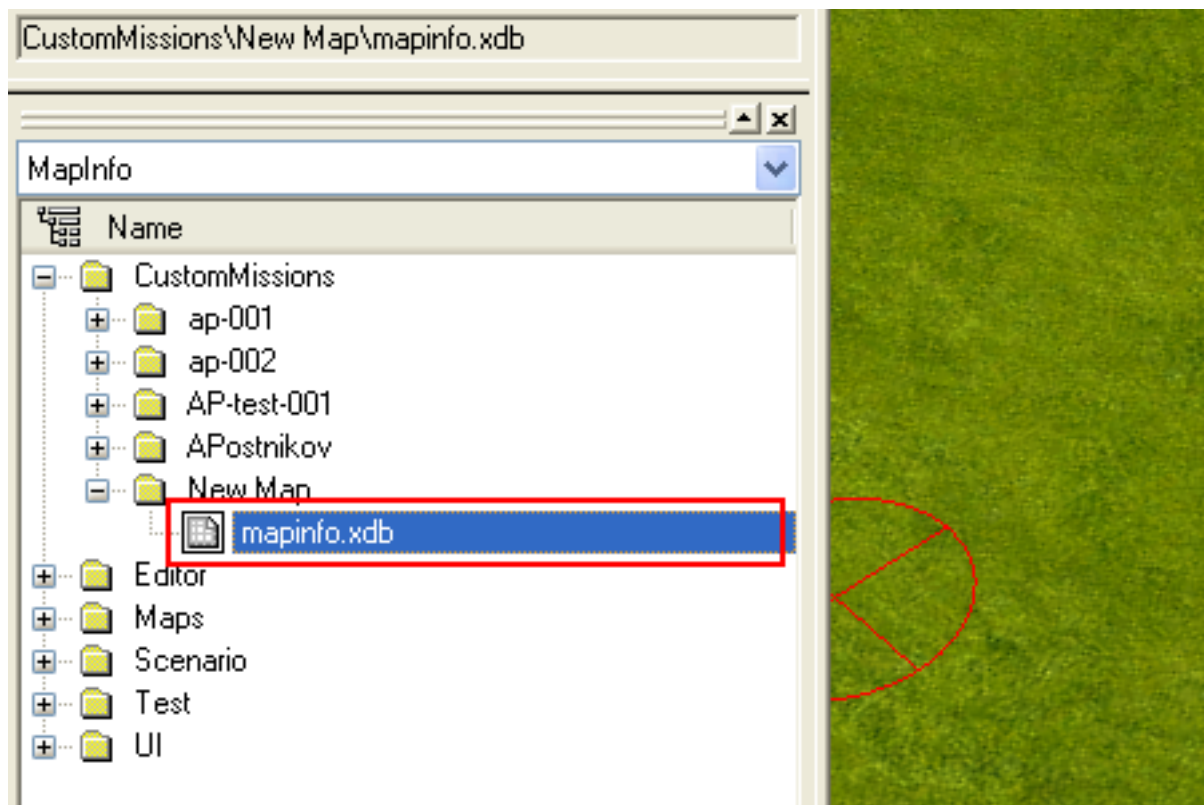
4-01 Creating a new map

You can create a new map in two different ways:

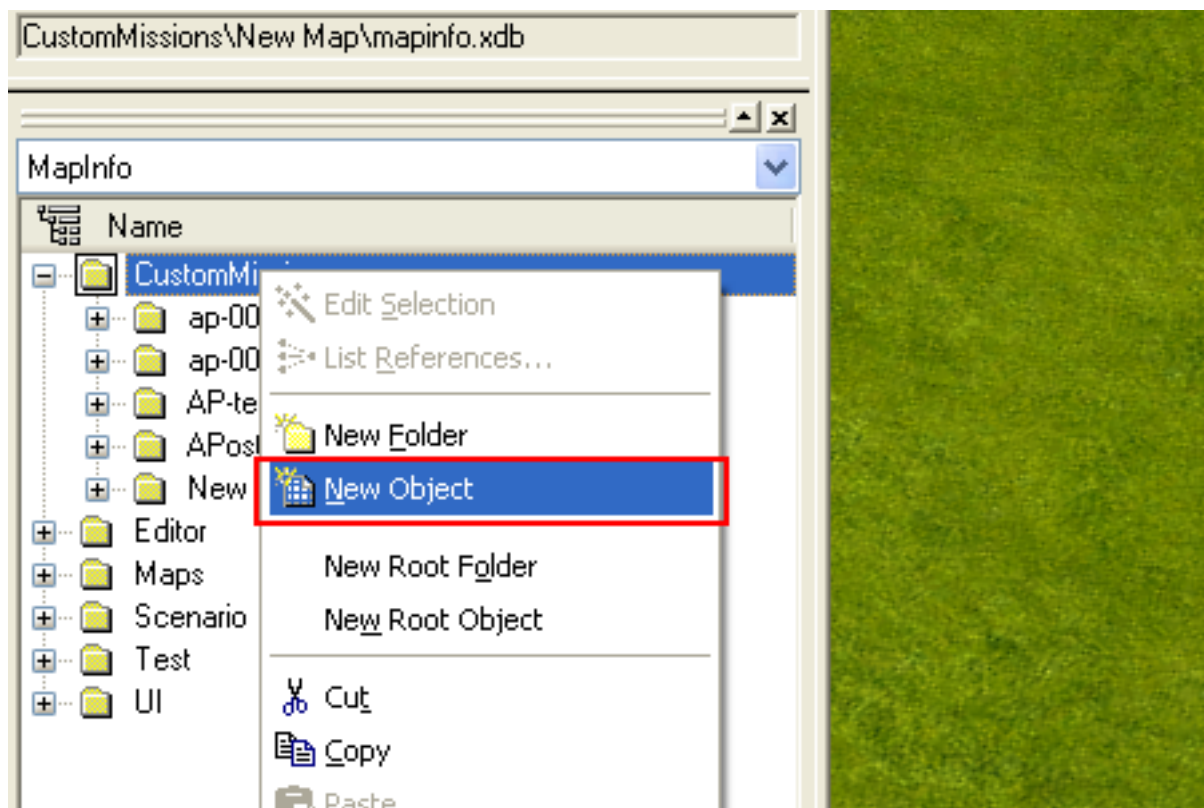
1. Using the command *New* in the *File* Menu (recommended for beginners).



In this case a new map is created automatically in «Custom/Mission» of MapInfo table.

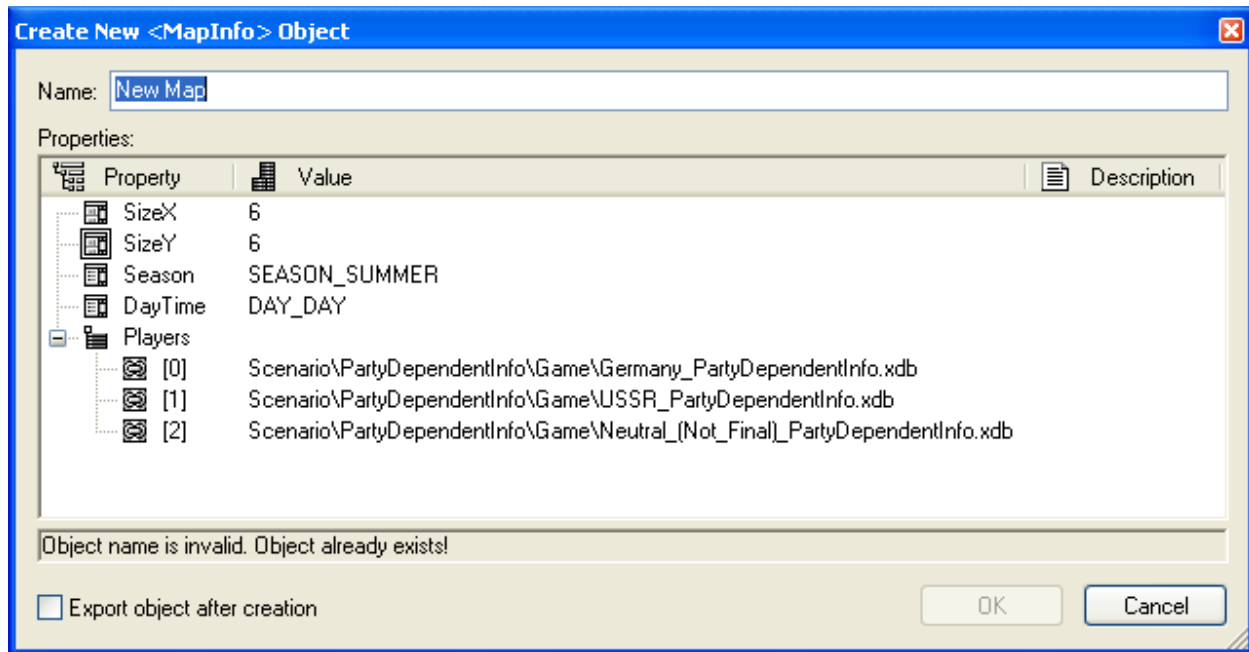


2. Using the commands list calling by right-click in MapInfo table (recommended for experienced users only).



In the commands list choose *New Object* for creating a new map.

In both cases when creating a new map a window with the main parameters opens.



Name – enter the name for the new map

Size X, Size Y – these parameters define the relative sizes of the map. For changing these values left-click in the column Value of the corresponding row. Choose the value in the jump-menu.

Season- choosing the season for the map or the scene. This parameter defines the set of textures for terrain, flora and other objects, characterizing the scenery. For changing this value left-click in the column Value of the corresponding row. Choose the value in the jump-menu.

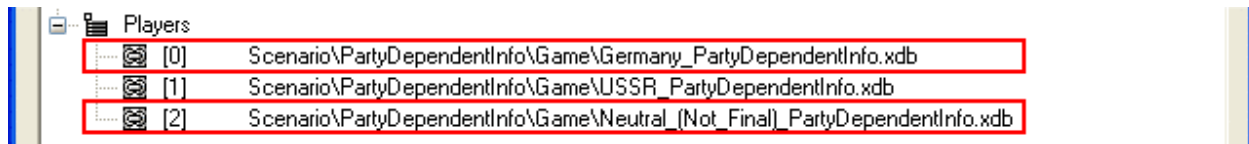
Daytime – choosing the time of day for the map. This parameter defines the characteristics of the light. For changing this value left-click in the column Value of the corresponding row. Choose the value in the jump-menu.

Players – defines the number of the players and sides they play for.

4-01-1 THE RULES OF CHOOSING THE PLAYERS

You can add or remove players from the list, always following the two rules:

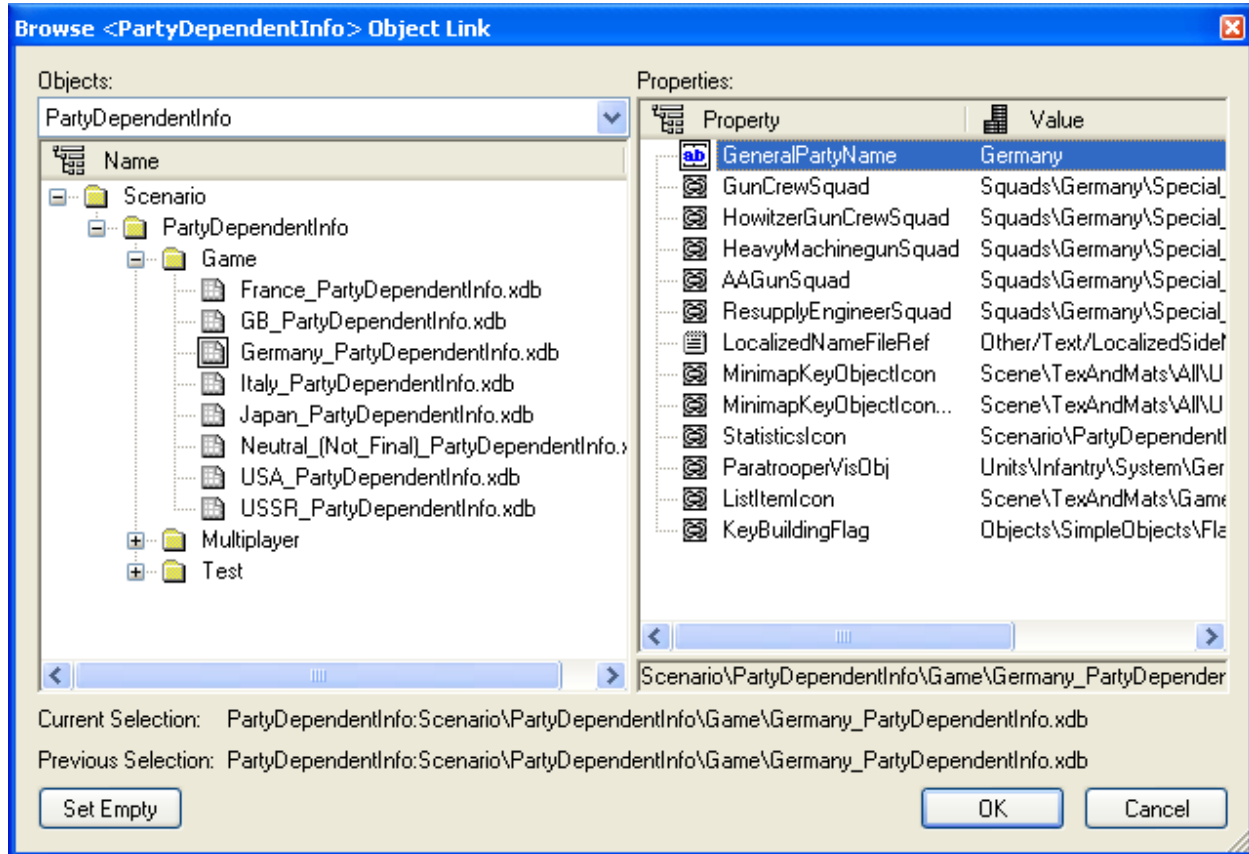
1. The user always plays for the zero player (in single player missions)
2. The neutral side always plays for the player last in the list



Important note: if these rules are not kept when choosing the players for the map created – such map will function incorrectly.

For every player in the list the side he plays for should be defined. For that left-click in the column Value of the corresponding row and press ellipsis to choose the side.

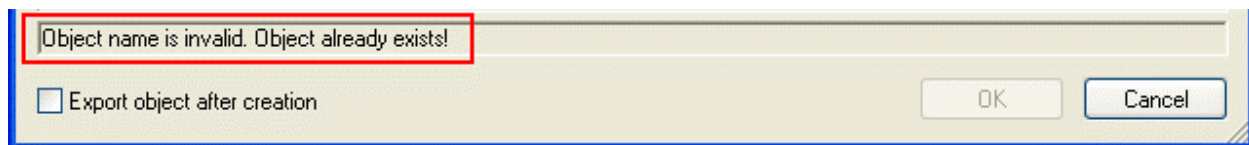
You will see the list of sides available to be chosen



Choose the side required and press OK.

(I) The neutral side is needed for placing such objects, which, according to the designer's conception, must not belong to any side (for example, the cannon on the map that can be captured) or must be invisible for all players.

If you do not choose the side for one of the players, in the status line you will see the reminder, that the field defining the side for the player should be filled.



If you are creating a map for a multiplayer game, there is no difference, which side is assigned for the player, as at the beginning of the multiplayer game the players choose the side they play for by themselves. However, do not forget to put the neutral player even when creating a multiplayer map.

For completing the creation of the new map – press OK.

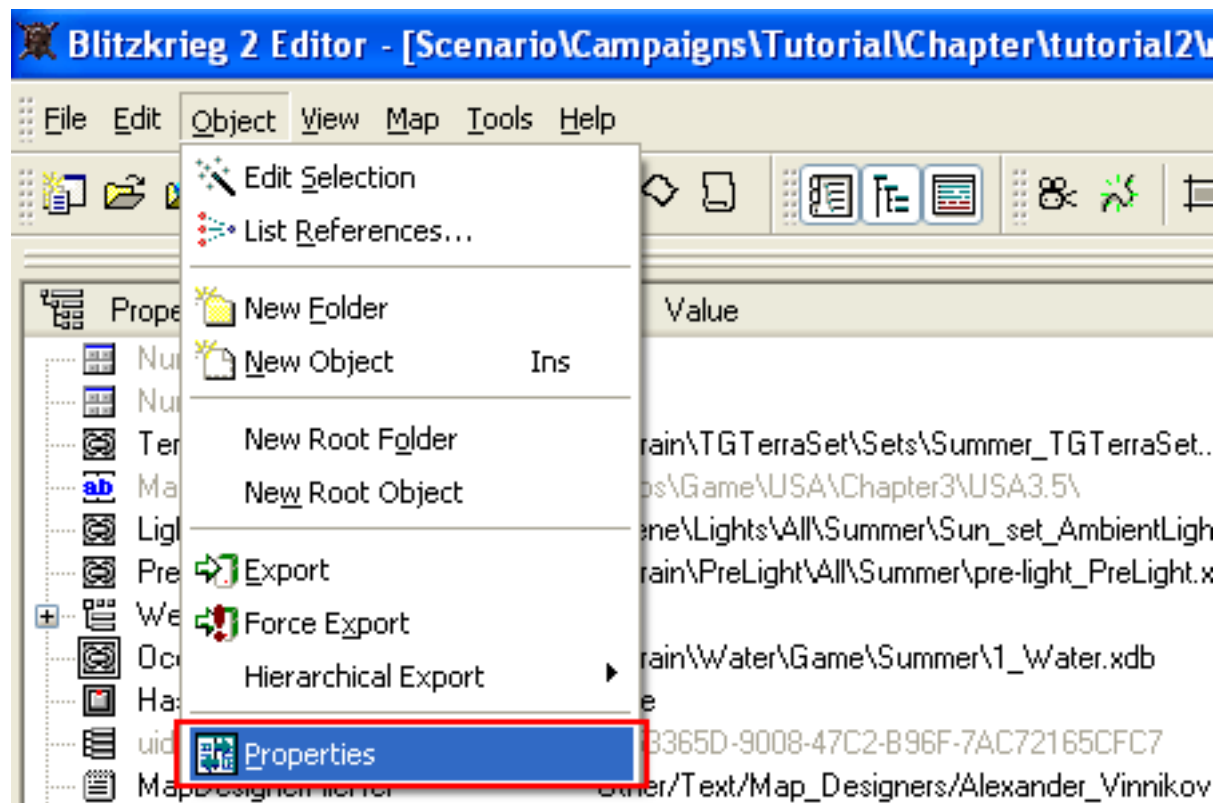
4-02 MapInfo

Setting the main parameters of the map

Every map has a number of parameters, set by the map's properties (besides of doubling the other setting means). In this section the map's parameters are considered. Setting the player's parameters is considered in Chapter 00-00 The parameters of the player.



To switch to the map's properties choose file mapinfo.xdb in the folder with your map's name in the MapInfo table.



Or use the command Properties in the Object menu and the appropriate toolbar.

In the Selection Property Window you will see the information on the map's properties.

Property	Value	Description
MapDesignerFileRef	Other/Text/Map_Designers/Alexander_Vinnik...	Map Designer name. It will be displayed
NortType	0	type of north mark 0, 1, 2, 3.
Players		players list for the map
Season	SEASON_SUMMER	season
DayTime	DAY_MORNING	day time
ScriptFileRef	Scenario/Campaigns/Tutorial/Chapter/tutorial...	zone script
PlayerBonusObjects		
MiniMap	Scenario\Campaigns\Tutorial\Chapter\tutorial...	
LocalizedNameFileRef	Scenario/Campaigns/Tutorial/Chapter/tutorial...	mission name
LocalizedDescriptionFileRef		mission short description
LoadingDescriptionFileRef	Scenario/Campaigns/Tutorial/Chapter/tutorial...	mission long description (for pwl)
LoadingPicture	Scenario\Campaigns\Tutorial\Chapter\tutorial...	pwl picture
ScriptMovies		
FinalPositions		final win/lose camera points
Objectives		mission objectives
Music	SoundAndMusic\Game\Tutorial\tutorial2\day...	mission music
MusicWin		

Further some parameters which draw attention when creating a new map will be explained. The other map's properties parameters are either default, i.e. do not require to be changed when creating a new map, or informational.

4-03 Setting the weather

The weather on the map (in particular atmospheric precipitates), besides visual design of the map and giving the natural atmosphere to the game, influences the air forces and ground units' field of vision. For example, if it is raining or snowing on the map, you cannot call air forces as the support, and the aircraft, which are already on the map, when it starts raining, immediately leave the map.

All the types of the weather are set in the **Weather** parameters group.

Weather		map's weather
WindDirection	75	(degrees from Y axis) wind direction
WindForce	3	wind power, 0 - 10 (0 = calm)
WeatherPeriod	60	(seconds) weather change period
WeatherPeriodRandom	30	(seconds) weather change period rand
Visuals	Weather\RainThunder_WeatherDesc.xdb	visual effects

WindDirection

Defines the wind direction in degrees from Y datum line. This parameter influences the behaviour of the trees and the direction the white surfs are coming from on the sea surface (in case there is a coastline on the map).

WindForce

Defines the strength of wind. If it is equal to 0 – there is no wind.

WeatherPeriod

Defines, how often the weather on the map changes from fine (by default) to nasty. When the weather is changing the effect chosen with the help of Visuals is shown (see below). Specified in seconds.

If the value=0 is set, the weather does not change and remains fine all the time.

Important Note: If the value is nonzero, but at the same time the nasty effects are not set in Visuals, anyway, the game will count the periods of changing the weather, and at the moment when the weather will be considered nasty, units will react at it in an appropriate manner (the air force will not fly to the call etc.), even though there are no visual effects shown.

WeatherPeriodRandom

Defines what number of seconds, selected randomly from the set range, is added to the period, set in WeatherPeriod. It is done to make the weather changing periods uneven. Specified in seconds.

Visuals

This parameter defines the weather on the map. If this parameter has not been valued (the field Value is left empty), there will be no visual effects of the nasty weather shown, even though the weather changes.

You can choose rainy weather with thunderstorms or without it, a snowstorm or a sand-storm (depending on the map's setting).

4-04 The parameters of the map

MapDesignerFileRef

If you are planning to spread your map among your friends or in the Internet, do not forget to indicate your personal information. For that use the parameter MapDesignerFileRef in the map's properties.

Season

The season influences the choice of textures for terrain, different objects (including units), flora etc. Also, the season chosen or the scene of action (in case it is Asia or Africa) influences some available patterns of automatic generating the surface in the tab Fields of Terrain Section.

The same parameter can be set when creating a new map.

DayTime

The daytime has a certain influence on gameplay – for example, when DAY_NIGHT is chosen – the ground units' field of vision is restricted.

Also, depending on daytime, the state of headlights and lamps changes (on/off).

The same parameter can be set when creating a new map.

ScriptFileRef – the main parameter, which allows to include script events into the map etc. Nothing will happen in the single player mission without the script – even the conditions of win/lose will not be processed. (for details see Chapter 5-12 Making script)

PlayerBonusObjects – defines key points and buildings on the map and reinforcements call points. This parameter is set individually for every player. (for details see Chapter 5-05 – Reinforcements)

Minimap – displays the way to the minimap created automatically. Not to be changed.

LocalizedNameFileRef – the name for your map.

LocalizedDescriptionFileRef – the short description of the map.

LoadingDescriptionFileRef – the more detailed description of the map, displayed when loading pwl file.

LoadingPicture – the hyper screenshot, displayed when loading the level.
(for details see Chapter 6-01 Hyper screenshot)

ScriptMovies – the parameters and settings of the movies on the game’s engine.
(for details see Chapter 6-06 Script Movie)

FinalPositions – the points, which will be automatically shown when winning or losing. (for details see Chapter 5-04 Final Positions) If the parameters FinalPosition are not defined – at the end of the mission the point, where the player completed the mission, will be displayed.

Objectives – the list of objectives and their main parameters.
(for details see Chapter 5-15 – Objectives)

Music – specifies playlists for performing during the mission.
(for details see Chapter 6-03 Music)

ScriptEffects – is not used.

4-05 The terrain on the map

Designing the terrain on the map consists of cyclic changing of heights on the map, patterning textures, placing VSO and map objects etc.

This process is recommended to be divided into several stages, which allow to estimate the scale of the changes made and their mutual correspondence. For example:

First, you should start with ***Marking the map***, using the patterning textures tool and mark the places where the future main peculiarities of terrain will be located – heights, roads, rivers, settlements and flora.

After that you can proceed to ***Working out in details*** on the map.

4-05-1 Landscape of the map

When creating any kind of a map, the most important indicator of its excitement and equilibrium is the well prepared landscape.

(I) Landscape is the integration of nature elements, such as terrain, fields, forests and lakes and man-made objects (roads, buildings, bridges, fortifications, etc.)

The landscape of the map in “Blitzkrieg 2” can be divided into several parts:

Terrain (height differences and cliffs)

Lakes

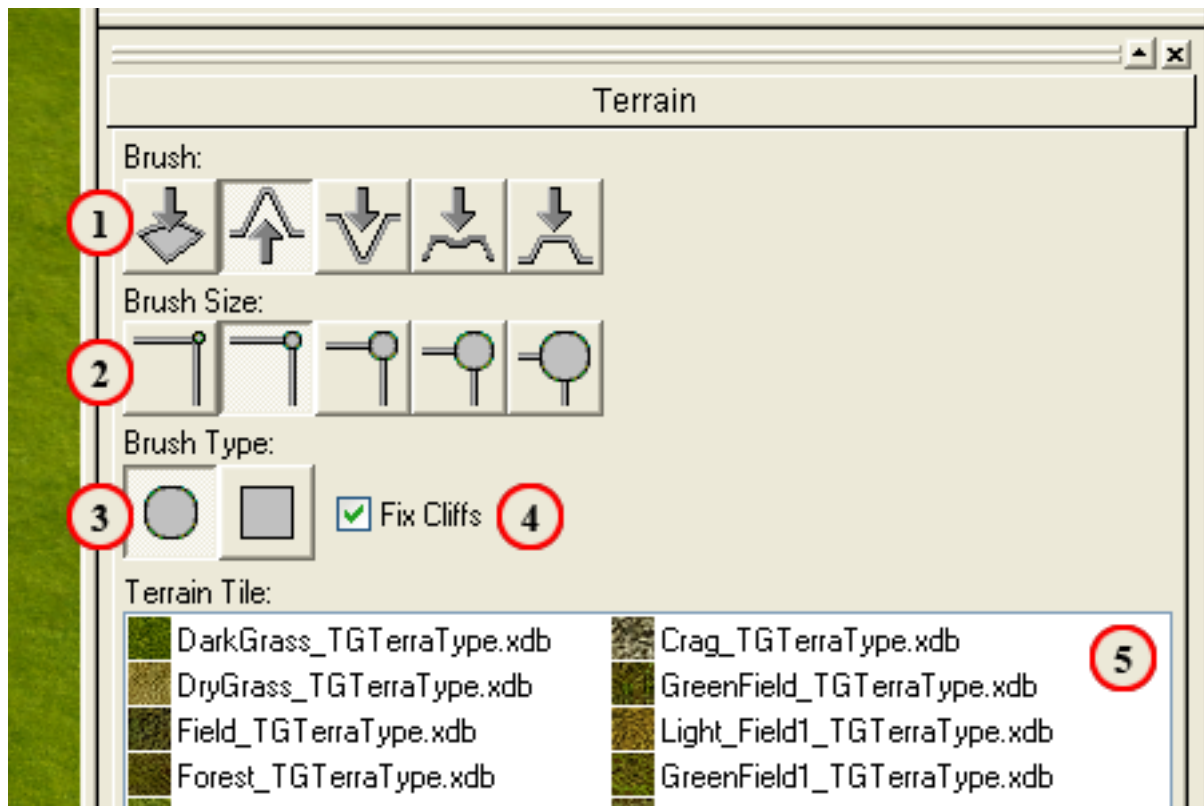
Forests and flora

Man-made objects objects (roads, buildings and settlements, fortifications, units placed on the map, etc.)

Changing the map terrain, patterning textures and designing regions with the given type of flora (rapid designing forests and fields) are described further.

4-05-2 Preparing the terrain of the map

To start working with terrain proceed to the section Terrain in the Tools Window. Choose the tab Terrain.



There are the main tools for designing terrain and patterning textures of the surfaces:

1. Choosing the brush type: Patterning textures (*Fill Terrain*); Raising heights (*Up Terrain Height*); Lowering heights (*Low Terrain Height*); Smoothing terrain (*Low Terrain Height*); Aligning terrain (*Make Plato*).
2. Choosing the size of the effect area: Very small (*Very Small Brush*); Small (*Small Brush*); Medium (*Medium Brush*); Large (*Large Brush*) and Very Large (*Very Large Brush*).
3. Choosing the shape of the effect area: Circle (*Circle Brush*) or Square (*Square Brush*)
4. Switched off parameter: Refresh terrain (*Fix Cliffs*)
5. Choosing the type of texture for patterning on the surface from the list *Terrain Tile* (for the tool *Fill Terrain* only)

The process of designing terrain is iterative, i.e. divided into repeating cycles. First, rough patterning with the textures is recommended for scheme marking the future map, then –

designing the terrain, after that – basic patterning the terrain and in the end – completing patterning the terrain.

4-05-3 Designing the terrain

For designing the terrain choose brush, the size and the shape of the effect area, according to your goals.

Heights

For changing heights choose the brush type Raising heights (*Up Terrain Height*) or Lowing heights (*Low Terrain Height*). These two tools work similarly. The only difference between them – assigning the mouse buttons.

When using the tool Raising heights (*Up Terrain Height*) and pressing the left mouse button, the processed spot of the map rises up, when pressing the right mouse button – the spot of the map goes down.

When using the tool Lowing heights (*Low Terrain Height*) the functions of the mouse button switch - when pressing the left mouse button, the processed spot of the map goes down, when pressing the right mouse button – the spot of the map rises up.

Smoothing the terrain

When using tools for changing heights it is difficult to achieve the smooth terrain when it is necessary for some purposes.

If you use the tool *Smoothing terrain*, the desired result can be achieved.

This tool functions as follows: the average height of the processed area is calculated, and all the heights in the processed borders are gradually (according to the number of uses) aligned up to this parameter.

Aligning the terrain

This tool appears to be convenient when you have to design a flat ground on the certain height for a building, settlement, etc.

When using this tool, a flat ground is created according to the parameters of the point chosen as a standard. On this processed surface all points, regardless of their own height are aligned up to the height required.

To create a flat ground on the height given, first, you should choose the point, whose parameters will be used afterwards for aligning the terrain. To do it, right-click on the point desired. The height of this point will be used for aligning the terrain.

For aligning the terrain left-click on the point desired (under the condition that the parameters of the standard point, which will be used for aligning the terrain, have been saved).

4-05-4 Patterning textures

Any terrain ought to be filled with special textures, which represent hills, mountains, forests, settlements, etc.

The process of patterning textures often take turns with changing the terrain.

Moreover, before starting to create the terrain and to place objects, it is recommended to mark the map with the texture tools. It simplifies the further work on the map.

For patterning textures the tool *Fill Terrain* and the list of textures available (*Terrain Tile*) are used. Choose the desired texture type, the tool *Fill Terrain* will be used automatically, and “fill” the spot of the map surface, you want to.

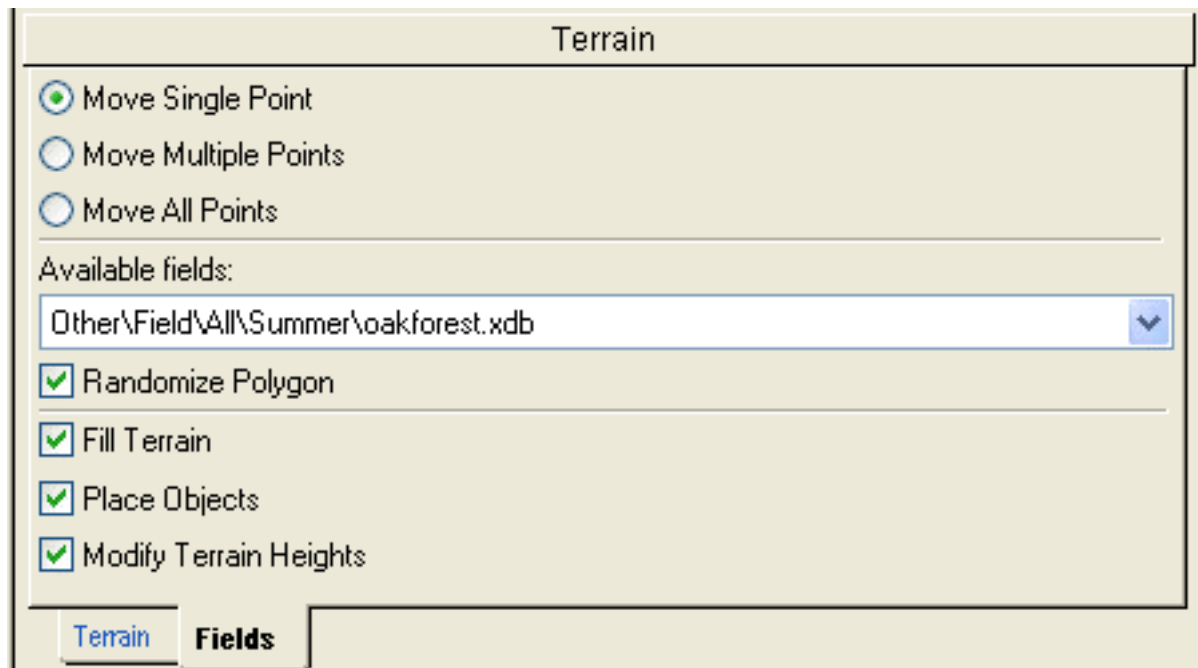
Use the texture types according to your goals – for example, to place the region of the future forest – choose the type *Forest* from the textures list and for the farmer’s field – choose *LightField*.

4-05-5 Fields

For automatic creating and filling chosen regions with textures and objects use the tool of creating Fields – the tab Fields in the section Terrain.

The function of this tool is automation of the textures patterning process (patterning tiles on the surface), placing the flora and changing the terrain in the certain region, chosen by the user.

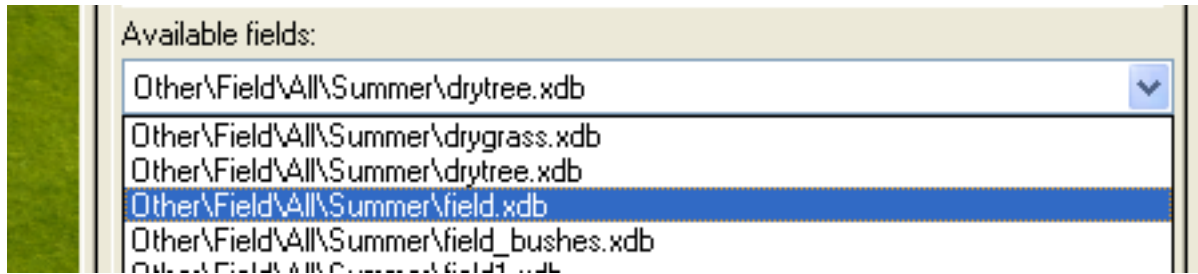
Also, the user can perform the same actions separately, using the tools of the sections Terrain and Objects, and the tool Fields is used for saving time and designing a great variety owing to random placing the objects and tiles.



For working with Fields open the tab in the section Terrain.

1. Choosing the template for creating a field.

To start work on creating a field you should choose the pattern first. For that find the field **Available Fields**, in which the current path to the pattern of the field, being generated, is indicated. This path is as follows:
“Other\Fields\All\Spring\FirPineForest\Field”.



Choose one of the available patterns in the list-box.

Note the fact that every pattern contains information on the season (setting), for which it is assigned (Other\Fields\All\Spring\FirPineForest\Field), and, accordingly, the name of the pattern (Other\Fields\All\Spring\FirPineForest\Field).

The parts “Other\Fields\All” and “Field”
(**Other\Fields\All**\Spring\FirPineForest**Field**) are standard and do not change.

All the patterns available for our map *depend on the season (setting)*, which were chosen when creating a map. I.e. – if when creating a map you chose the season *Spring*, only the patterns of the fields, created for this season, will be available for you. It is connected with the fact that every season needs its tiles, the state of the leaves and other flora.

There are some universal patterns for creating mine fields, which can be used regardless of the season and setting on the map.

In the present editor version the patterns for the fields Africa and Autumn are not provided.

Therefore, if the field of choosing the pattern (Available Fields) is empty, it means that for the season and current set of your map no patterns are provided. Try to change the season or current set or visit our official site Blitzkrieg 2 for searching the updates and additional information.

2. The function Randomize Polygon

After choosing the pattern for the field you can use the function of random generating of the field borders – in this case the marked borders of the field will be randomly provided with the additional guiding points and slightly distorted.

3. Parameters of filling the planned field

When creating a field you can choose the parameters of filling this field:

Fill Terrain – defines, if the surface of the field is filled with tiles (i.e. if the surface textures are changed according to the pattern).

Place objects – defines if the different objects, such as trees, bushes and other flora and environment objects are placed automatically.

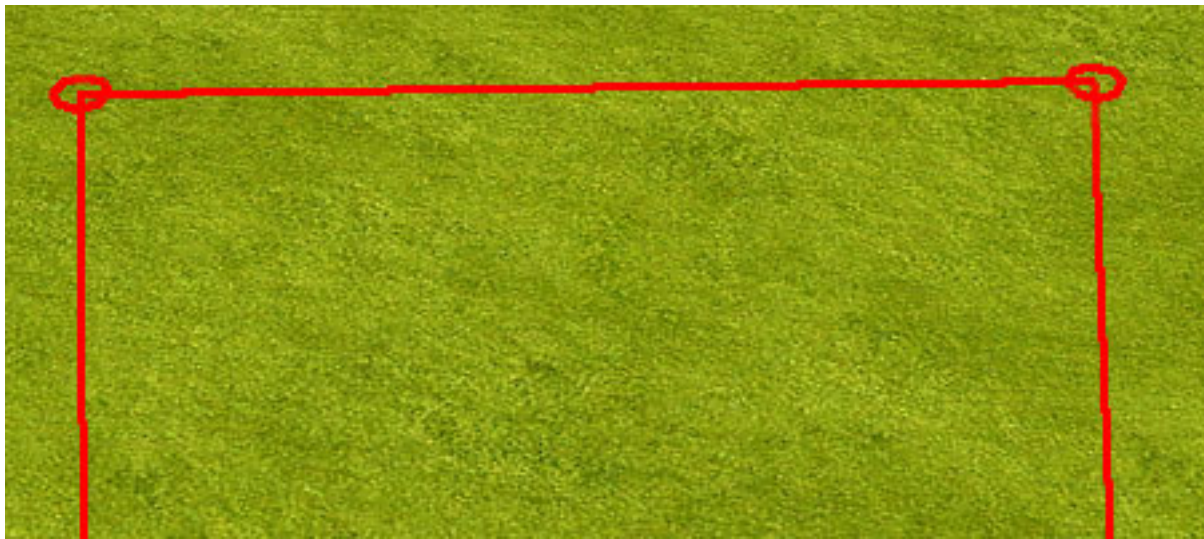
Modify Terrain Heights – defines, if the terrain is modified within the field.

4. The field borders

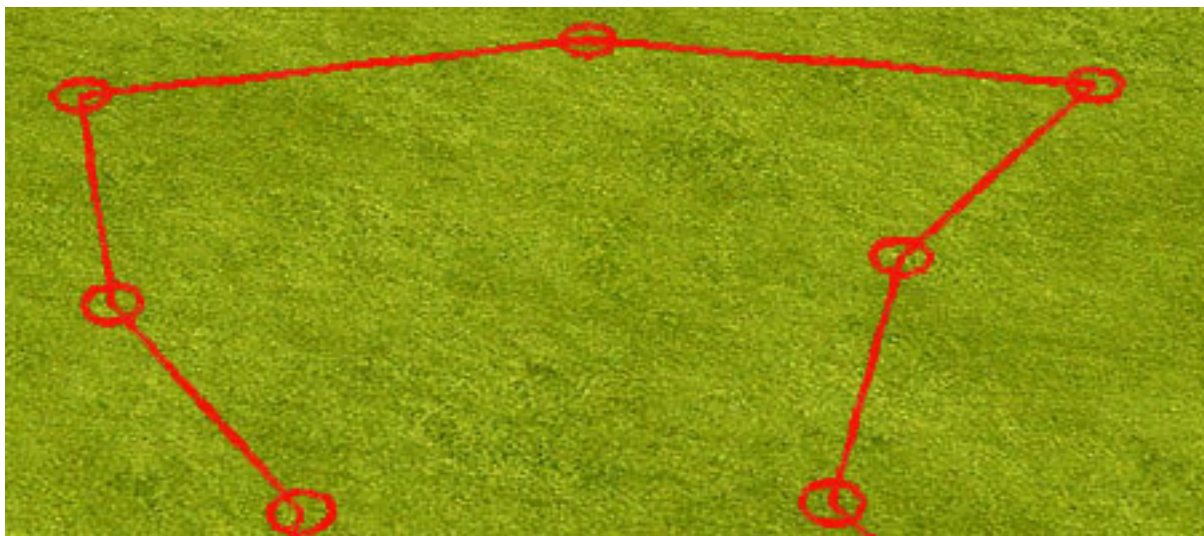
After choosing the pattern and all the necessary parameters are defined, it needs to place the borders of the field. Left-click on any point on the map, and a red circle appears with the cursor.

To start marking the field on the map – click on the first (start) point, then add the required number of the guiding points to the contour, with the help of which, afterwards, it will be possible to change the borders of the field created.

For completing defining the field borders – press ***Enter***.



If you have not activated the function Randomize Polygon, you will get the field...



...exactly corresponding to the control points specified.

After the field borders are defined – you can change them or move the whole field, using the control points on the field borders.

When choosing the field borders on one point your actions influence only this point and borders, which connect this point with the next points.

When choosing the field borders on several points, your actions influence several points at once.

When working with the field borders on all points, you move the **whole object at once**.

5. Filling the field

After the field borders are placed and have the appropriate shape – fill the field with the pattern chosen, pressing ***Enter***.



The picture shows that the borders marked before are filled with the objects and textures according to the pattern chosen.

After the field has been filled – you cannot change or move it.

4-06 Terrain objects

Terrain objects are the main terrain modifiers in Blitzkrieg 2. Terrain objects are also called Vector Stripe Objects or VSO – i.e. the objects whose shapes, sizes and height is set and defined with the vectors and guiding points on them. In this manual we will use the VSO acronym to denote any terrain objects.

VSO are terrain defining elements of any map. In the other words – location of rivers, lakes, roads etc. define the structure of the map in many respects.

That is the reason why it is recommended to place VSO at the very beginning of creation of the map.

1. The difference between VSO and other objects

The difference between VSO and common map objects is in the fact that VSO are placed on the map as contour, which can be easily modify and set, and then are integrated as terrain modifier.

VSO contours, as common objects, can be easily moved on the map. At that the vector objects have no *damage extent* and some parameters – unlike common map objects VSO have no object properties which can be modified and whose settings influence something.

2. VSO guiding points and their distinction from the control points of the other objects.

Every vector object has several types of points, at that their functions differ from control points of the common objects.

They are red points, defining the contour of the object and its curvature; red points, defining the width of the whole object or, “shores” (rising/falling adjacent spot); blue points, defining the height of the object (for the cliffs only).

3. VSO objects are divided into several categories:

Roads

Roads are used for marking the main transport communications, connecting settlements and military bases and are the main way for the rapid transportation of the troops and military equipment. Roads are the most possible ways for placing traps, mine fields and artificial obstacles.

Roads differ from the rest of the scenery by constant passability and the units speed.

Rivers

River is the main water obstacle on the scenery. The rivers are one of the main factors taken into consideration when strategic planning. Forcing the rivers, searching and controlling the places, suitable for crossing, and also repair and destroying the bridges are the most important stages of any military action.

In the game Blitzkrieg 2 you cannot build bridges during the mission.

Lakes (swamps)

Lakes are one of the water obstacles, which can be used by the above-water equipment for operations.

Swamps in Blitzkrieg 2 differ from the lakes by textures, though are the objects with the same functions.

Cliffs

Modifiers of the scenery which are insurmountable obstacles.

Coastline

The coastline allows to create the region of the map, covered with the water with waves and surf, which is used for depicting seas or big lakes.

The coastline is on the map also if it is necessary to realize the troops landing or the above-water ships battle. The coast differs from the lakes and swamps by the waves, indicating that it is a big pond.

All these objects differ from each other by the principle of placing them on the map.

Every category of VSO is divided into several types, divided into geographic and seasonal, which in their turn consist of several object types. Choose the type of the object, which is suitable for the scene of your script and season.

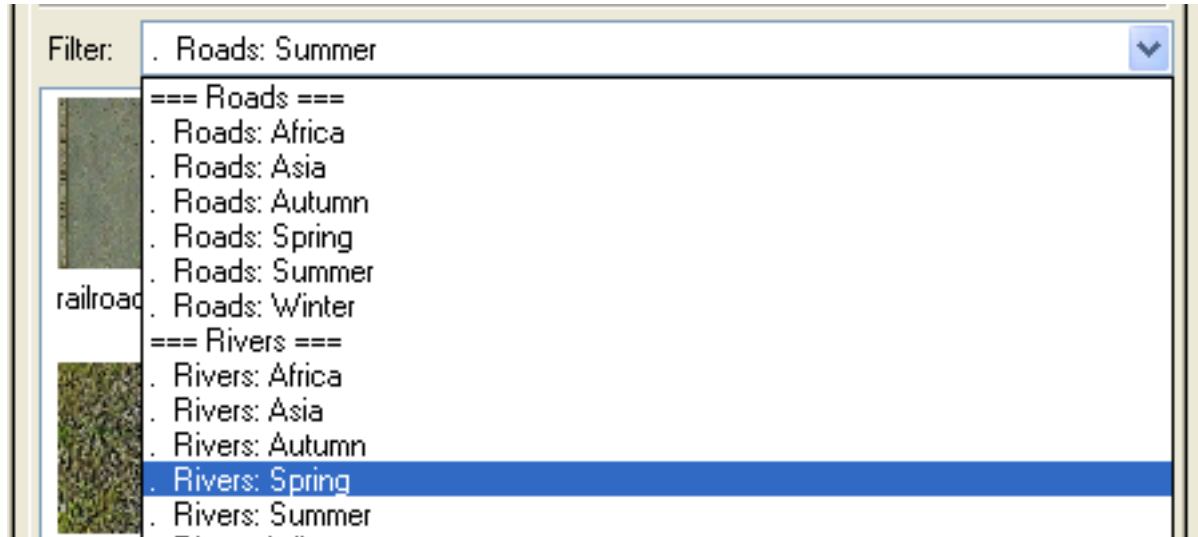
For example, the VSO category ***Crags*** is divided into several types: Africa, Asia, Autumn, Spring, Summer, Winter (at that seasons relate to the objects typical for Europe). The type chosen define the appearance of the objects. Every type contain several types of objects, decorated according to the type they belong to. As a result, you can choose European summer stone cliff (Crags >> Summer >> Rock Crag)

4-07 Placing terrain objects (VSO)

Before placing VSO on the map you should decide on the general topology of the map. Decide, where you will have height differences. It is connected with the fact that placing rivers and other obstacles on the heights has its peculiarities, which will be described below.



For placing VSO on the new map or on the map, created before, it is necessary to use VSO working mode. Choose the tab **VSO** in the section **Objects** in **Tools Window**. The editor will get to the VSO working mode.



This tab contains the drop down category and VSO type filter and also additional settings parameters. Before placing any vector object on the map you can change the values of the two parameters – Width and Opacity. However, we recommend to change the parameters of the objects, already placed on the map.

Choosing the vector objects for placing is identical to choosing **Map objects**.

Placing all vector objects on the map consists of choosing the start and intermediate points, defining the object's contour.

To place a VSO object on the map – choose the required type from the list.

Important Note: when choosing vector objects the cursor on the map does not change its shape and is not connected with the shape of the object, as in the case of placing equipment, forces, etc.

4-07-1 Placing roads

The roads are divided into the following types:

Path – a path

Railroadembankment – a railroad with embankment

Railroadgravel – a railroad with gravel

Railroadtown – a railroad in town (recommended to be placed in towns)

Roadground – a two-sided ground road

Roadpaved – a two-sided road, paved with stone (recommended to be placed in towns)

Townasphalt – a two-sided road, paved with asphalt (recommended to be placed in towns)

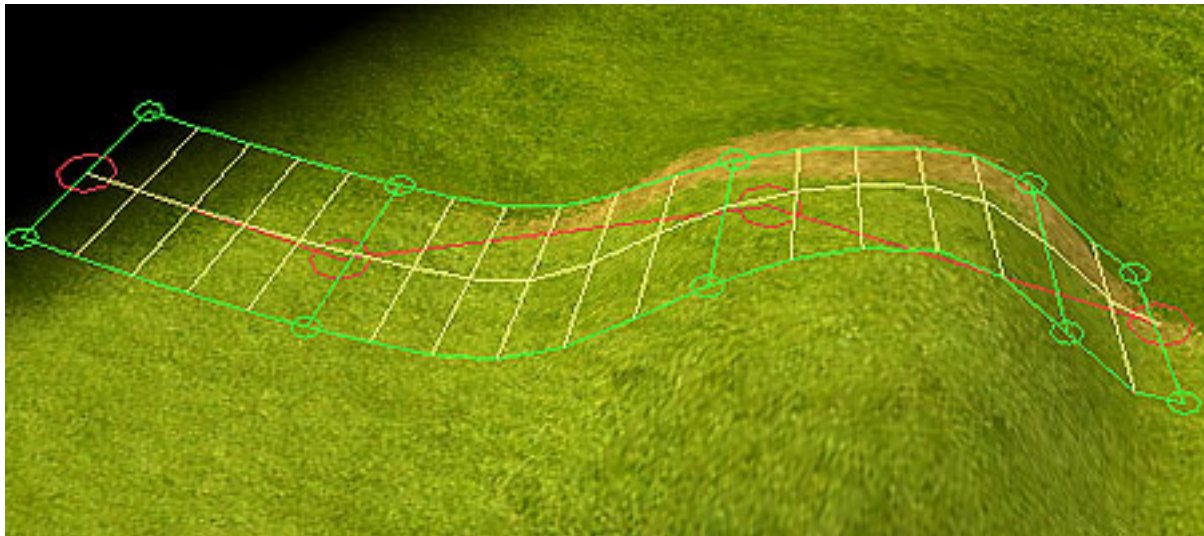
Track – a track (recommended to be placed in the country)

Usedasphalt – a two-sided old broken asphalt road (recommended to be placed in the settlements, where there are actions or have been actions)

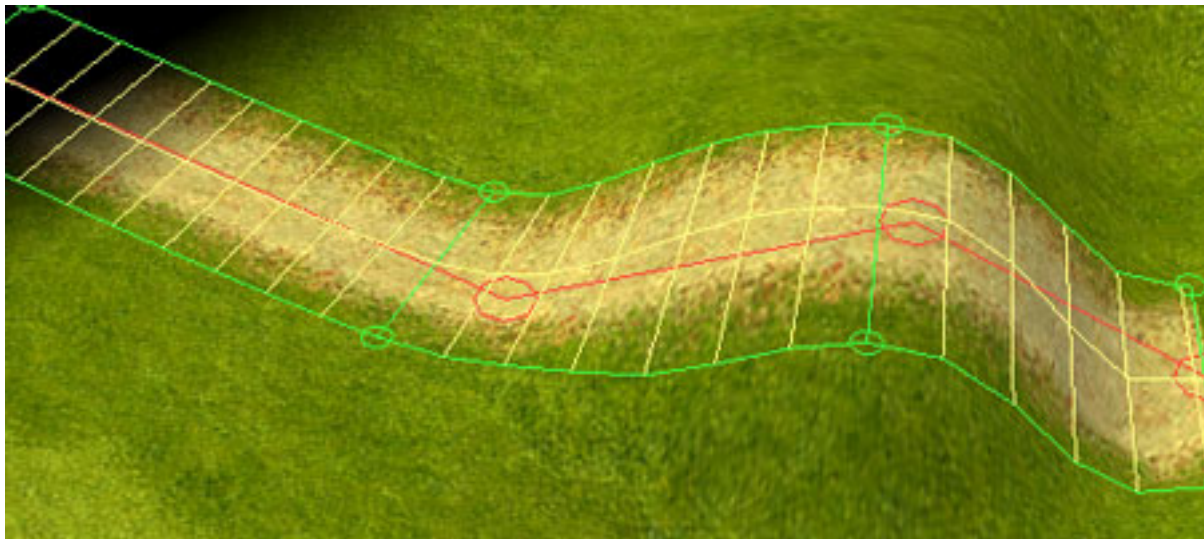
Having chosen the type of the road left-click on the point, where the road starts.



As a rule, the road starts from under the edge of the map, at that the start point must be beyond the border of the map.



After that build the road in the places where you want, putting intermediate points. These points define the main contour and curve of your road. To complete building the road press Enter.



After that the marked road will be created on the map, at that all control points will still show the contour of the map. With their help you can change the way, the road was built, its width and opacity.

One characteristic trait of placing roads is automatic connection to the terrain heights. In the other words, the road will always be located on the map surface, entirely following all height differences. Therefore, if you are building the road in the hill or mountain region, you should choose the places without steep height differences, or smooth the terrain under the road deliberately before or after building it.

When placing roads on the map we especially recommend not to change parameter Width neither before, nor after building the road. The standard width of all roads is already set according to the equipment parameters in the game. Change this parameter only if you really want it.

For details of modifying parameters and also about working with guiding point of the vector objects already placed see in the section “Setting the placed VSO”.

Roads passability (the transportation speed on the roads)

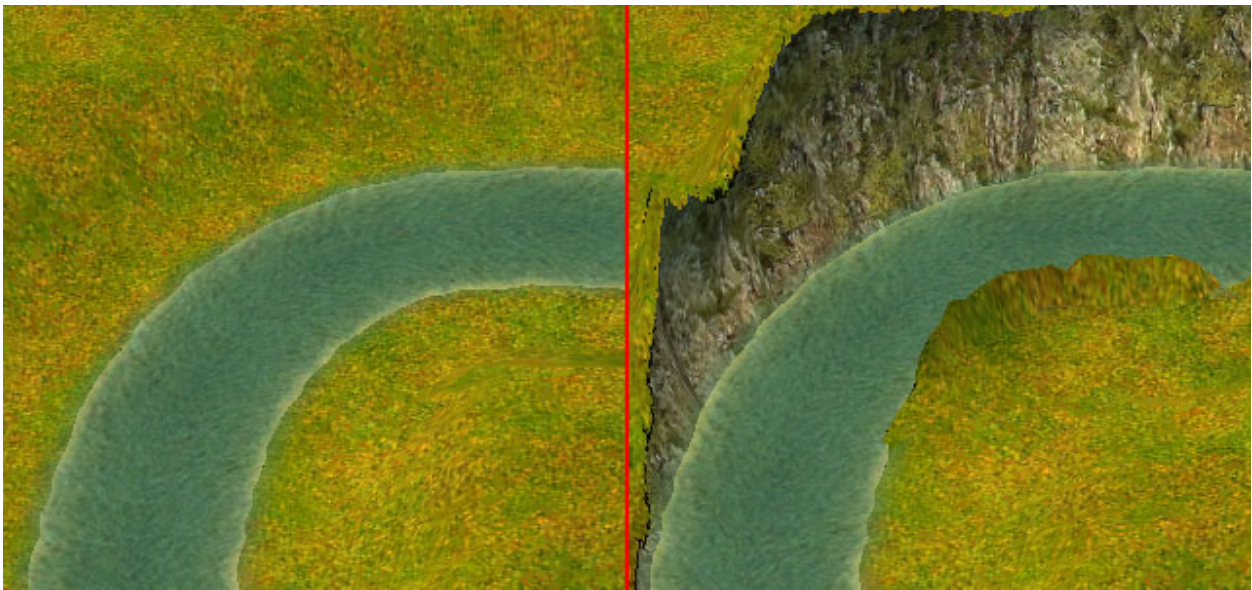
Unlike B1, when every type of the road had its own passability coefficient for different units types, in B2 every type of the road has the same passability coefficient for all types of ground units.

(I): You can change the width, opacity and the way, the road is laid on.

4-07-2 Placing the rivers

Rivers are divided into two main types – a *usual river* and a *quay river*.

A usual river has a broken riverside and grass along the edge (as the riverside usually looks like), a quay river a riverside is smooth and has no grass (for example, as the riverside or embankment in settlements looks like).

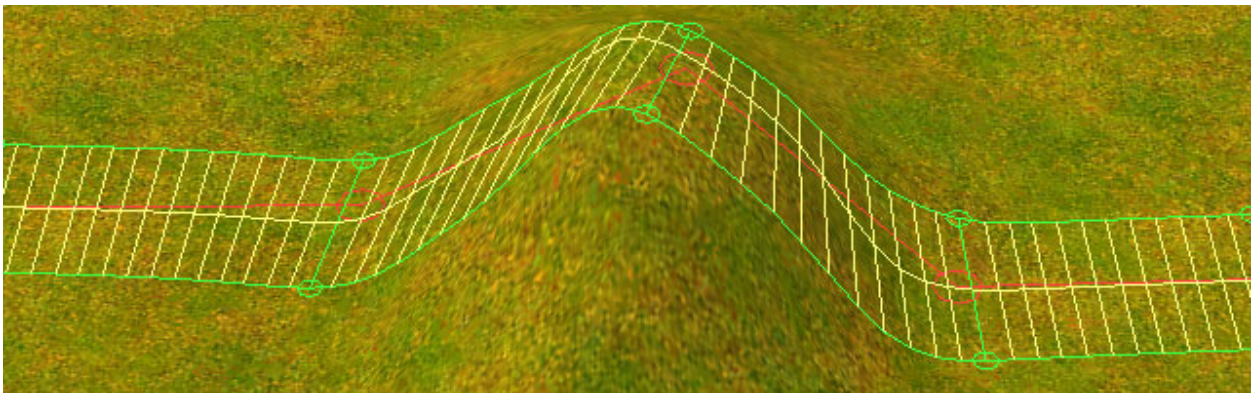


(before raising heights)

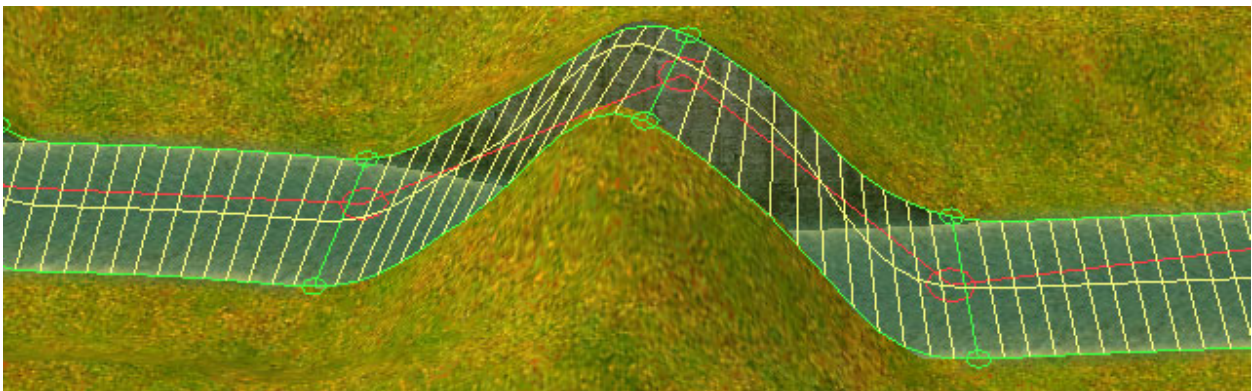
(after raising heights)

It is also worth mentioning that if you raise the spot of the terrain in the river region, the river bank will get steep.

In practice, placing rivers on the map does not differ from building roads



There is only one distinguishing feature – rivers are placed not on the terrain surface, but on the level of start point and below. I.e. the river will always begin approximately on the level of the start point.



At the next stage you can see that the river lowers itself to the start point level despite the fact that the model was laid above the hill.

Choose the type of the river. Left-click the start point, where your river begins. Define intermediate points.

Press Enter to create a river.

Now you can modify the width and the channel of the river. Unlike roads, whose width correlates with the mobile units parameters, you can modify the width of the river, at that you should pay attention to the changes of the river's bottom textures.

For details on changing parameters and also about working with control points of the vector objects already placed see the section "Setting the placed VSO".

(I): You can change the width, opacity and the channel, the river flows in.

4-07-3 Placing cliffs

The cliffs differ in the form of "the shear".

Crag – usual

Excavation - unpaved

Ground - ground

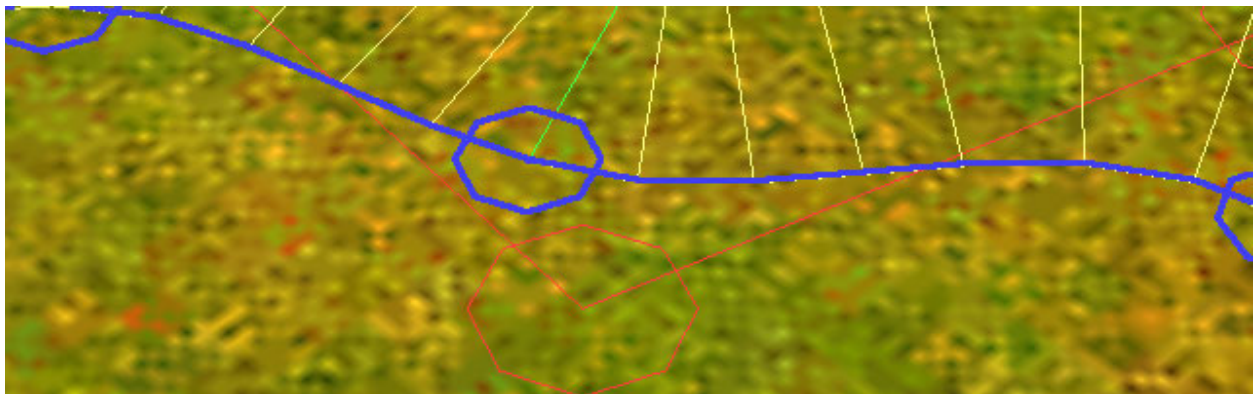
Groundgrass – grass-grown

Quay – a smooth rock (is right for designing embankments in the settlements)

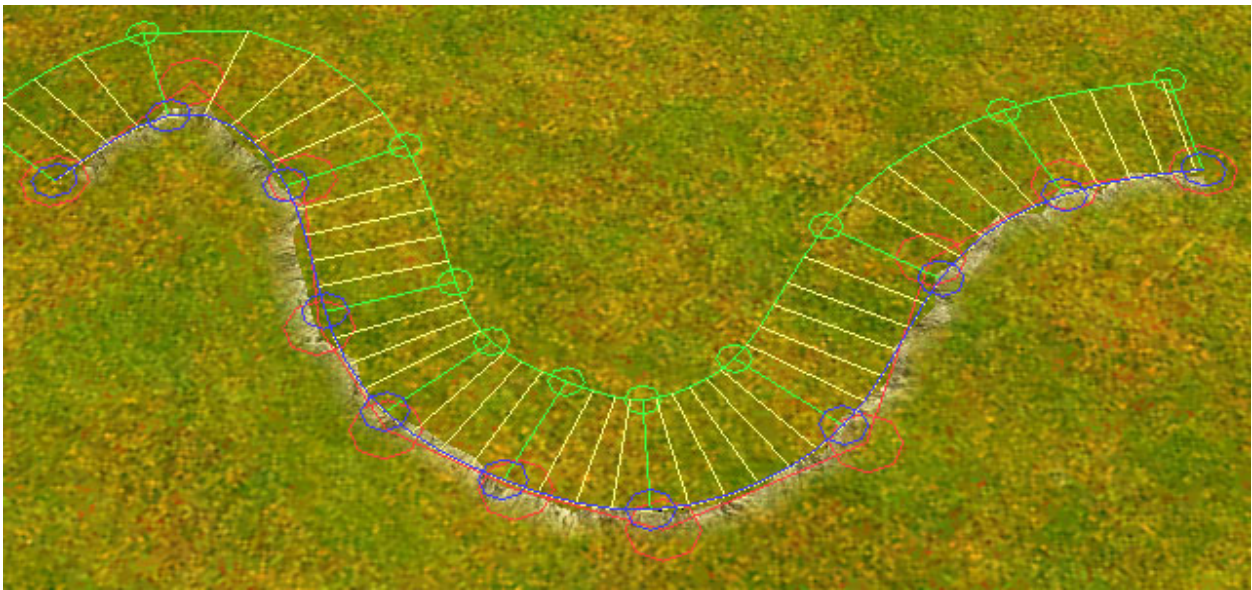
Rock - rocky

Sand – sand

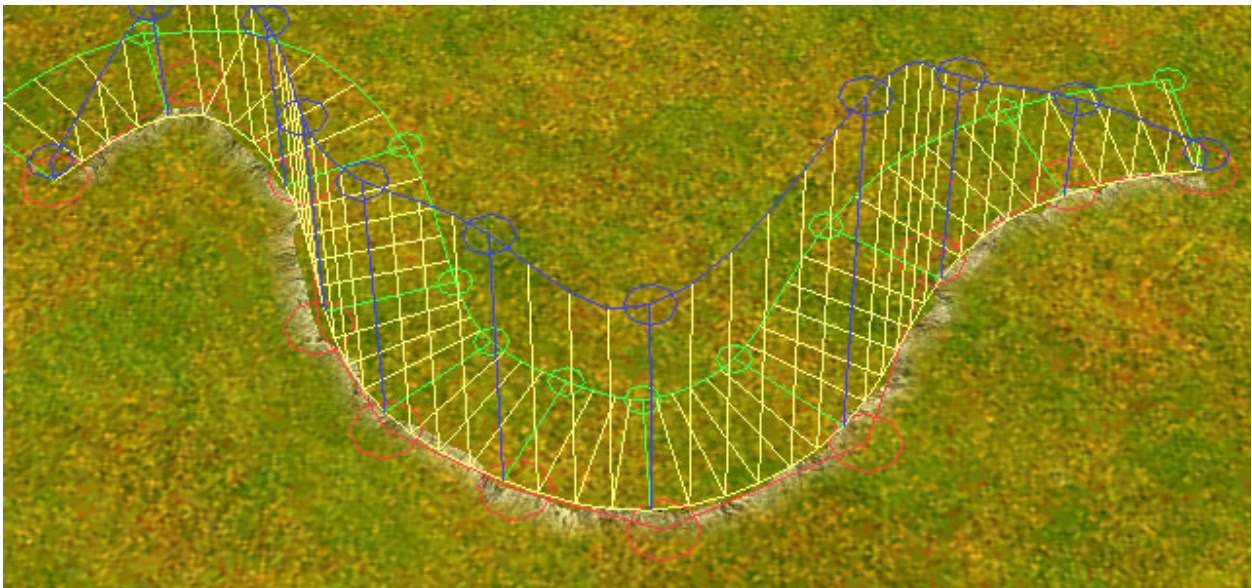
Cliffs can be used in several cases – steeps, rocks, cliffs and canyons.



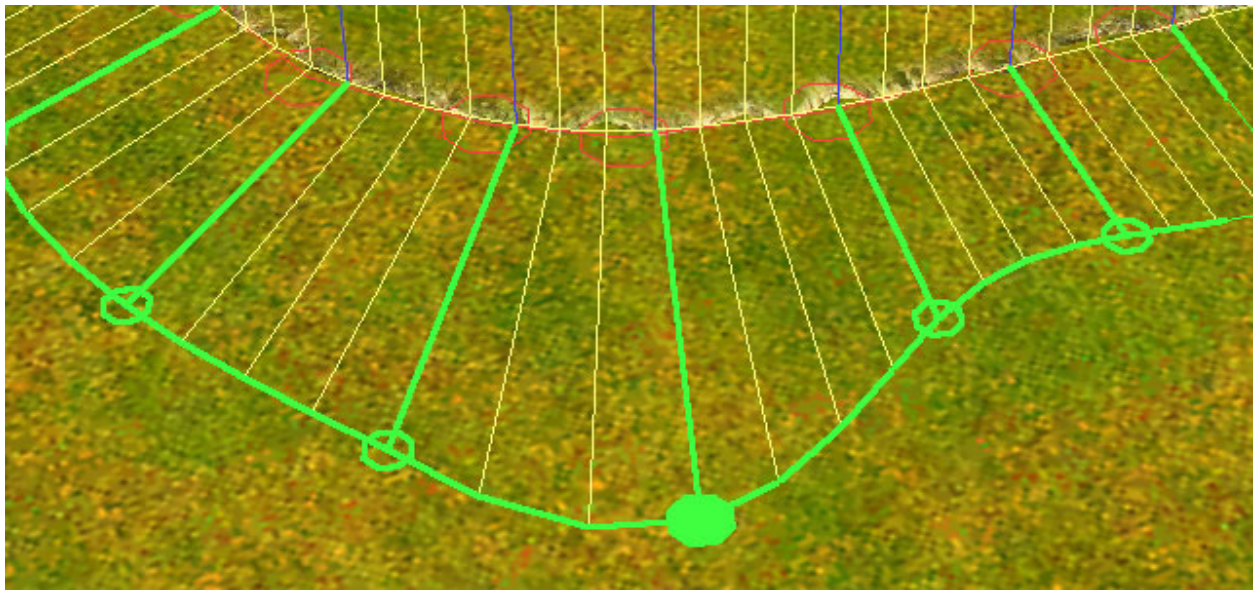
Unlike the other VSO cliffs has an additional setting parameter – height (using blue control points). This parameter cannot be negative.



Having chosen the type of the cliff, Left-click on the start point, where your cliff will begin. After that create as many intermediate points as you need for the further *setting heights* and *curves of the cliff*. Press Enter.



After marking the contour of the future cliff you should set its height. Choose the blue point and *pull* it up. As it has already been mentioned, the height of the cliff cannot be negative.



Then you should set the width and the contour of the slightly sloping side. Find green points on the cliffs model and pull the ones you need. The green contour defines the width of the sloping side.



Press Enter, when the contours and heights are set, to create this cliff on the map.

Important Note: when placing cliffs do not forget that they are impassible landscape modifiers.

Creating canyons

To create a canyon in the mountains you should first raise a big terrain spot, and then create lowland on this spot (which will be the canyon) and only after that surround it from inside with the cliffs. As a result, you will get the canyon in the mountains.

Creating mountains and passes with the cliffs

Creating beautiful mountains and passes with the cliffs is one of the most laborious processes, which require attentiveness. Before you start bulking rocks, you should understand what you want to get as a result: just a picturesque view or an artificial obstacle for units

movement; a rocky coastline along the river or a forbidding mountain pass. Mind the fact that rocky mountains are the most problem part for units pathfinding. For example, you should not count on exciting battles in the narrow mountain serpentine or send a big script group through such place.

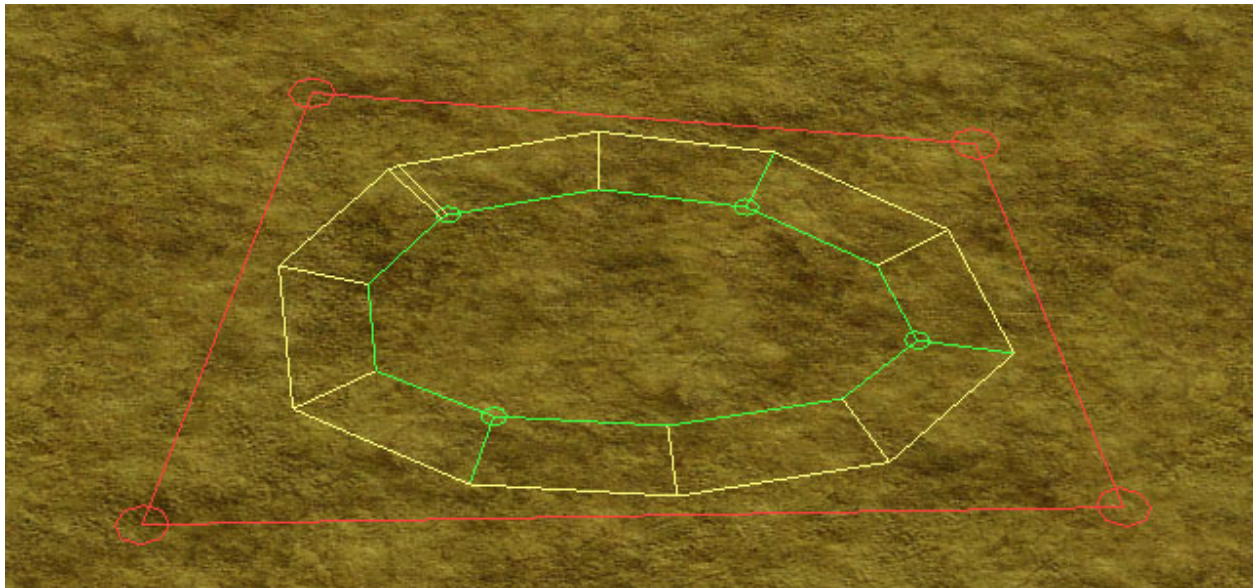
After you have put the cliff to the slope, try to get right angles along the cliff's sides. You can align terrain on the cliff's edge with a small brush.

Generally, before you create rocky mountains on your dream map, you would better train on the test map.

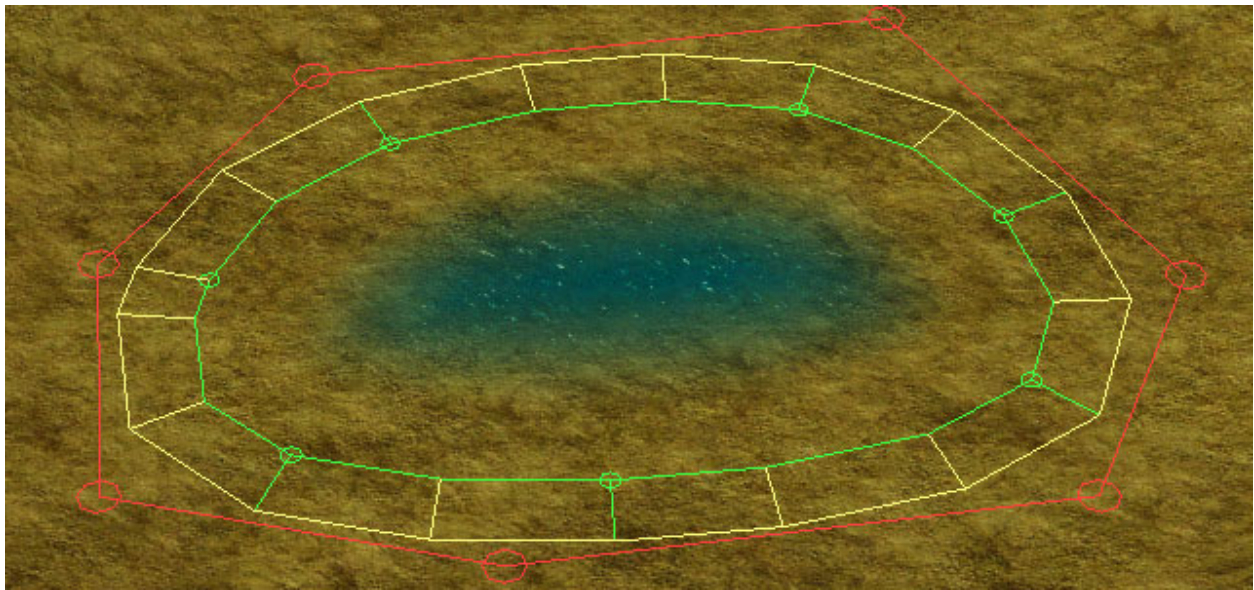
(I)Information: You can change the width, the contour of the steep and slightly sloping sides, and also the height of the steep side.

4-07-4 Placing lakes and swamps

Lakes can be of the two types – lakes and swamps. Swamps differ by the texture.



To place a lake on the map choose the start point and put the required number of the control points. To create a natural-looking lake you will need to put at least three points clockwise (the coastline inside and marked with a green contour). The lake will take the smooth shape without angles.

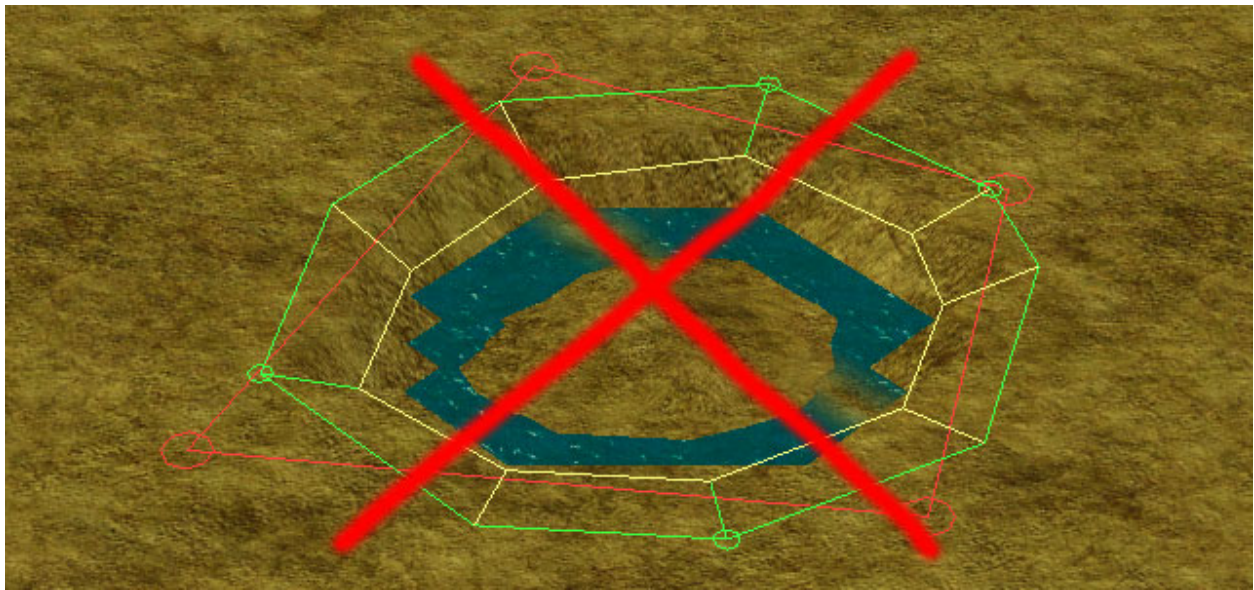


Press enter to create lake.



Placing the model of a lake counter-clockwise is incorrect. The coastline is oriented outside, which is impossible in case it is a lake.

Important Note: If you create a lake putting control points counter-clockwise, the lake will be created incorrectly.



(the lake created incorrectly)

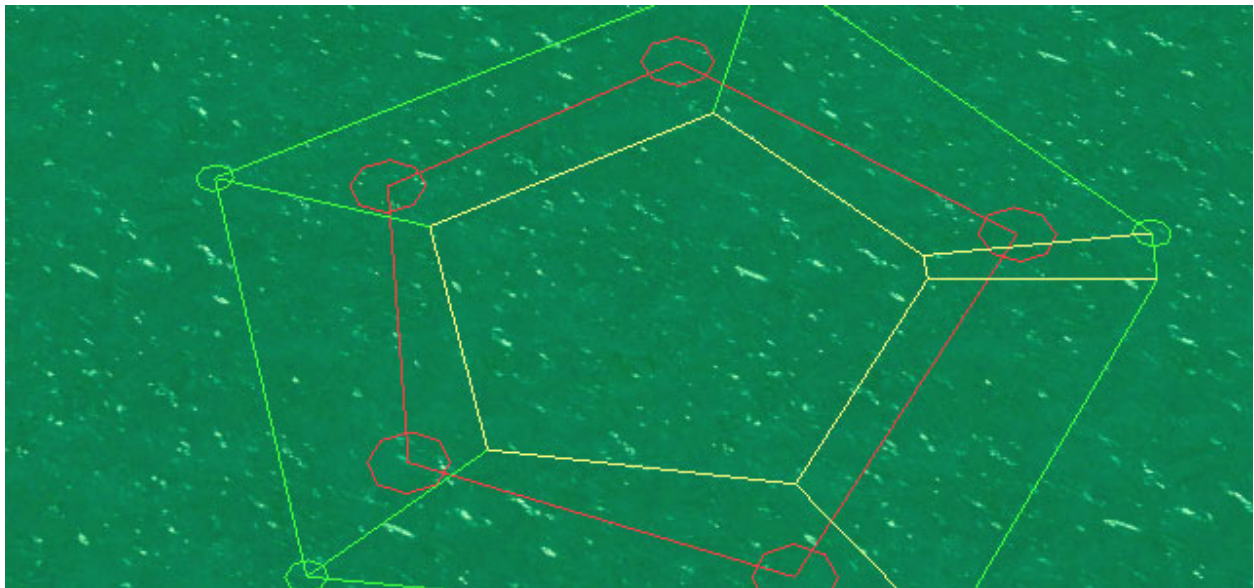
It is connected with the position of the coastline (marked with the green contour) and marking the depths of the lake. So, it is not recommended to create a lake putting control points counter-clockwise.

Having put the required number of the control points, you can change its contours and the width of the coastline. You should take into consideration that a coastline, which is too wide, is not good – to create a natural-looking lake you need a certain minimum of space.

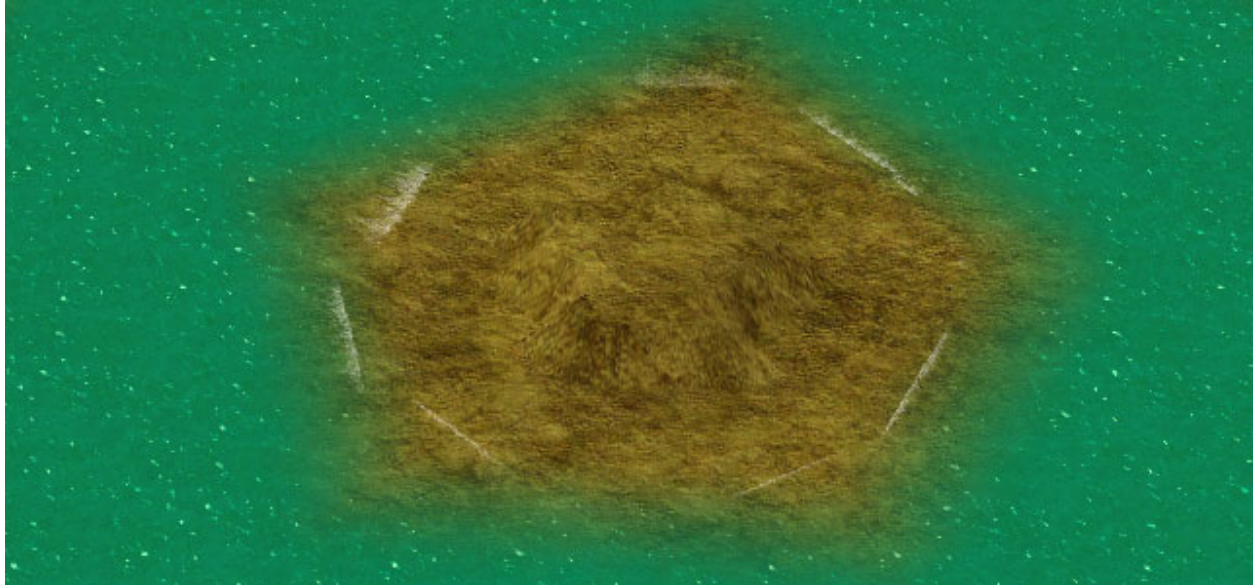
Important Note: Unlike rivers, which, partly, can be placed on the hills, when the start point is high enough, lakes are always created on the so called zero level. Therefore, you will not succeed in creating a fascinating mountain lake.

Islands

The third type of the lakes objects are islands.



They are placed in the same way as the lakes, but only on the lakes surfaces. The islands are created counter-clockwise (with the coastline outside), in contrast to the lakes.



The islands created correctly have a coastline washed by surf.

Important Note: When creating clockwise the islands will have the incorrect, steep shore without any surf.

If you want to create hills in the midst of a lake or a swamp, you would better create an island first and then create a hill on its surface. *One of the characteristic features of the islands is that you can compute a surf for them.*

(I)Information: You can change the width of the coastline and the contour of the lake. You can place islands on the lakes surface.

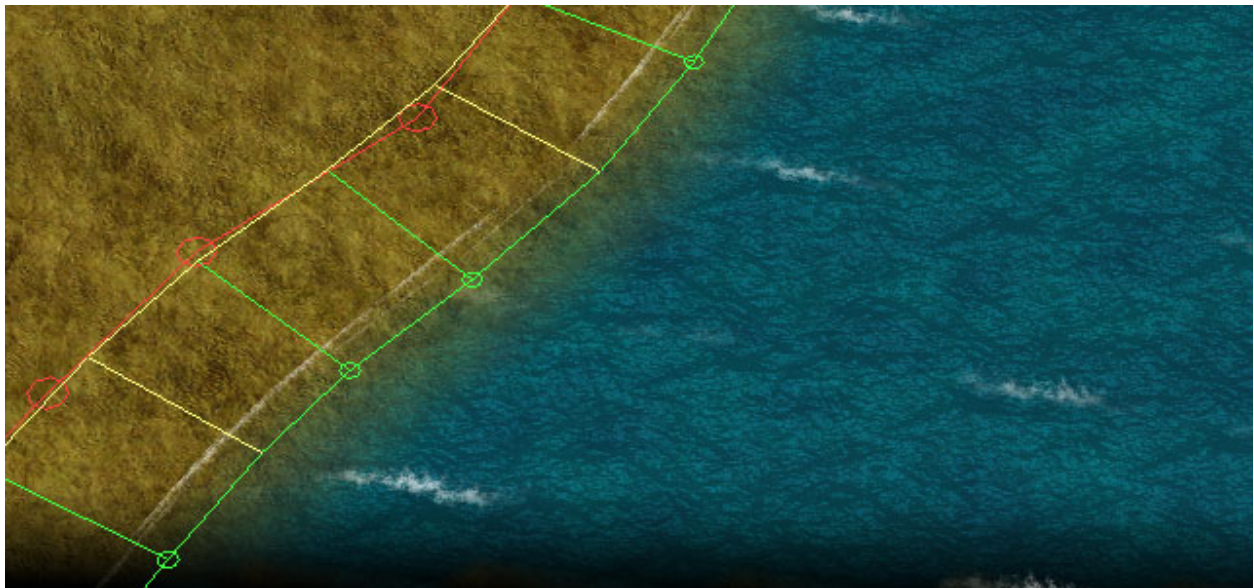
4-07-5 Placing a coastline

A coastline has only one form and is used for marking the seaside, the coast of the ocean or a big lake when the map design needs it, when troops landing/reinforcements arrivals on the water or taking part in the operations of the above-water ships are planned.

The start and intermediate points for the coastline must be put clockwise, so that the coast can take the shape of the coastline, but not a circle like a lake. Accordingly – the beginning and the ending of the coastline must be located beyond the map.



When placing a coastline, remember, that its position define the position of the water to be placed. In the picture the place of the future sea is indicated with an arrow. It corresponds to the position of the green contour, which shows where the coastline will be placed.



Note, that after creating a coastline on the water surface, there are surfs moving in the same direction. They're react at the wind force and wind direction, set in the map's properties. (See the section Map's properties settings)

*(I) When creating a coast, you can modify the coastline.
On the surface of the coastal waters there will be white
surfs, indicating wind direction.*

4-08 Setting placed VSO

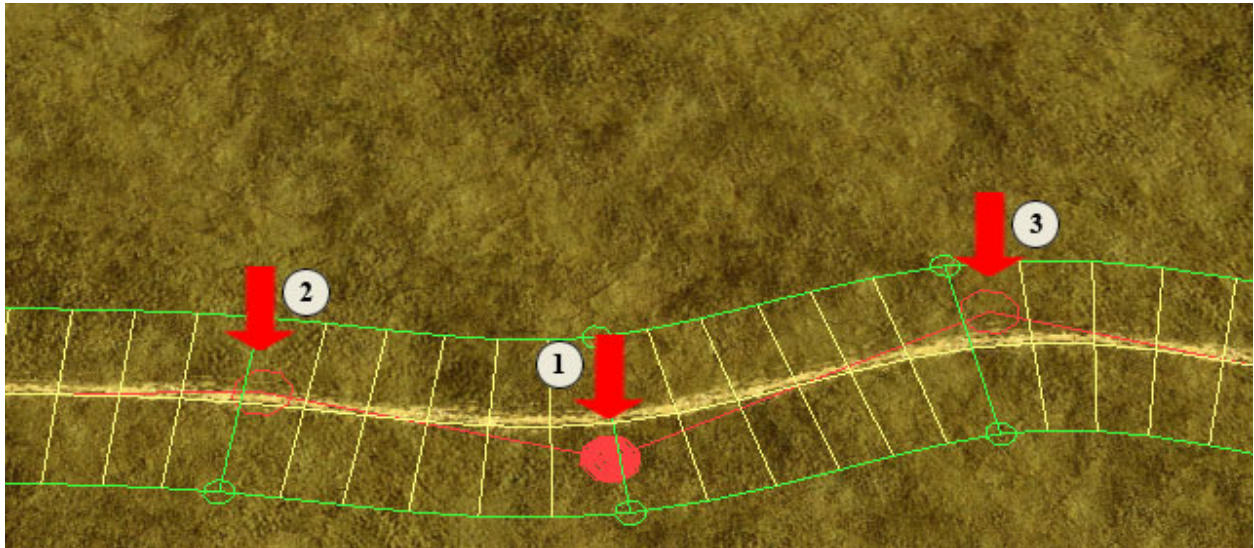
Setting and modifying VSO, already placed on the map, can be accomplished in three different ways, depending on the number of points, which are affected by your actions.

They are:

Single Point – one point

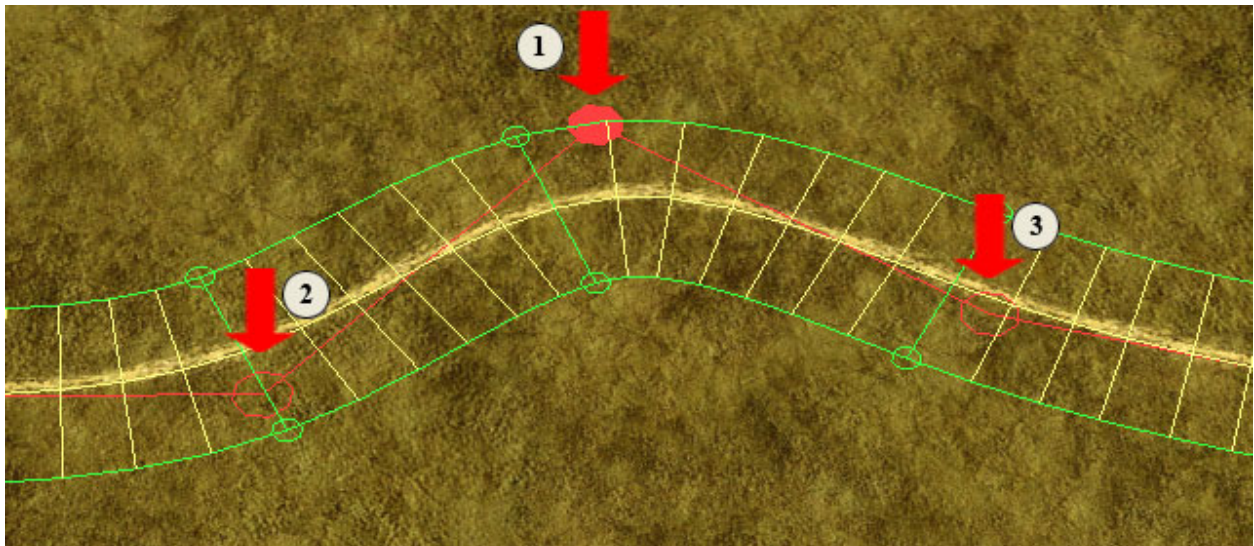
Multi Points – several points

All Points – all the points

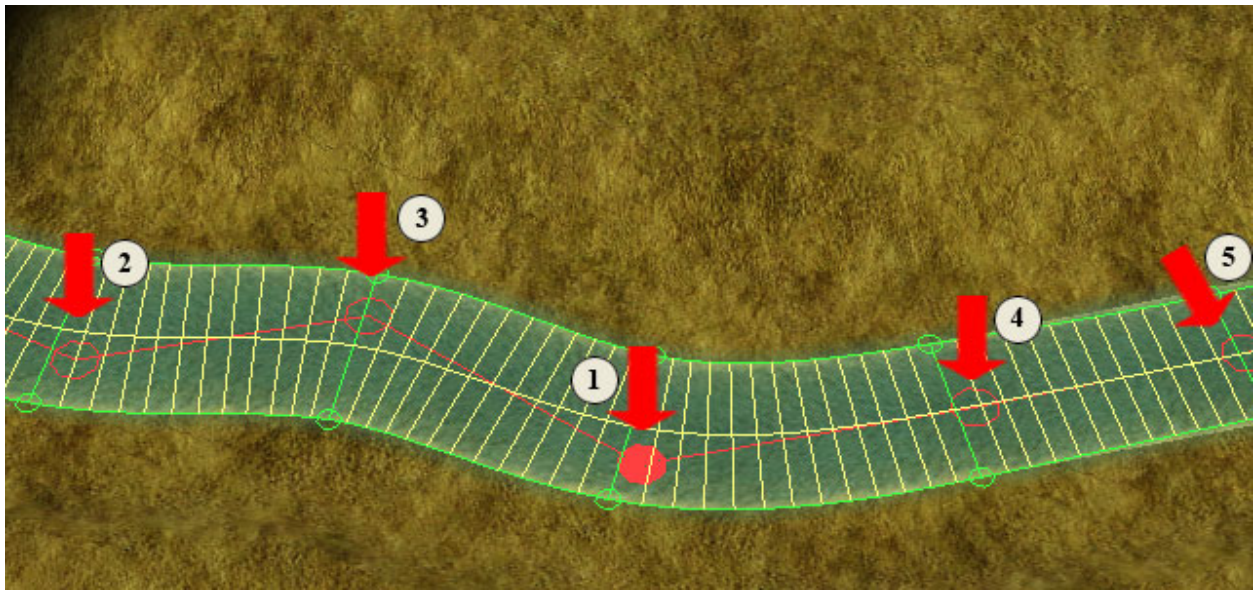


(point 1 is moved)

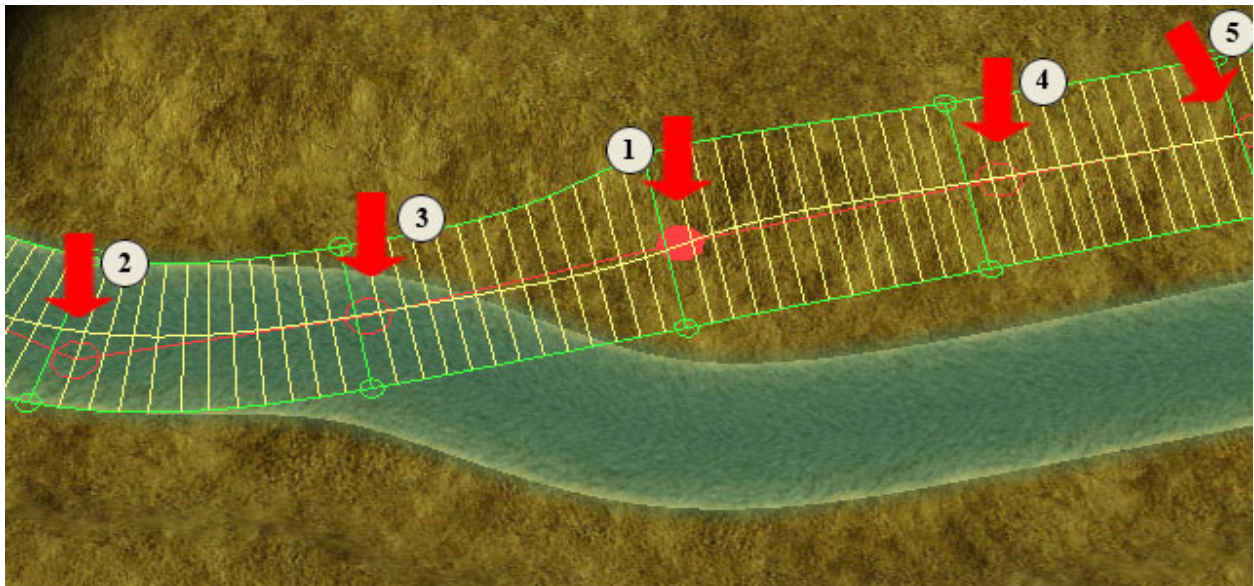
When modifying a VSO on one point, your actions affect only one point and vectors, connecting this point with the next ones.



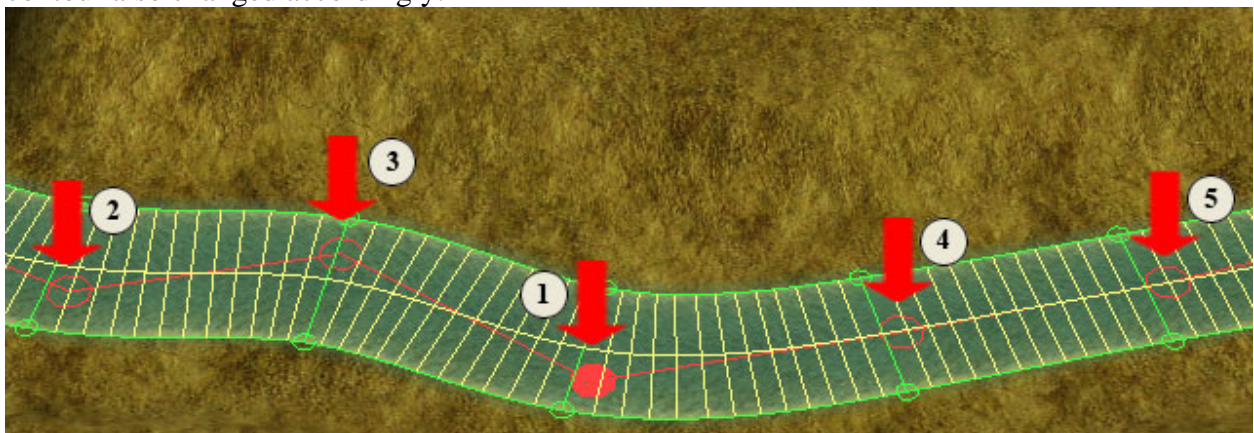
As you can see in the picture, after point 1 having been moved, points 2 and 3 are on the same place. The whole VSO contour changes in accordance with point 1.



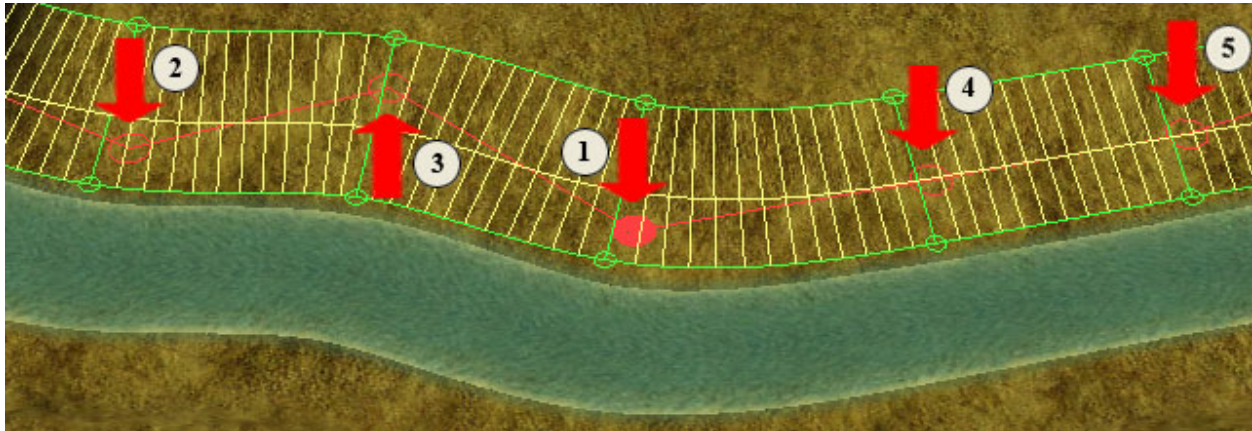
When modifying a VSO on several points, your actions affect the points located next to the chosen. For example, for the rivers it means that you will affect all the end of the river, etc. It allows to achieve better flow of the lines when working with the object's model.



As you can see in the picture all the points after the one being moved also moved. The VSO contour also changed accordingly.



When modifying a VSO on all the points, you either move all points of the same type or move the **whole object** (if you move the red points). Therefore, if you want to move the VSO object, which has already been created on the map, switch on the mode of working with all the points (All points).



As you can see in the picture, despite the fact that the user moves only point 1, all the other points move synchronously in the same way.

When creating a VSO you can use the special value fields, located just above the objects filter, to set such parameters as Width and Opacity.

The field **Width** indicates the value for the green contour. Accordingly, this value changes, when you move the green control points away.

For example, if you want to change the width of the river, choose the mode of working with the points (with one, several or all at once) and pull on of the green control points in one or the other direction. You will see, that the value in the field Width changes.

When it is necessary, you can set the required width of the VSO in the field Width before placing it on the map. For that enter the value in the field Width and press Enter. After that the VSO, which is being placed, will be set for this width.

The field **Opacity** indicates the value of opacity for the selected part of the VSO. To find out, what value is set for the selected part of the VSO, click the appropriate green control point.

The roads' opacity allows to join several roads or imitate the effect of the old road.

The rivers' opacity allows to create an effect of the shallow water on the certain parts of the river or along all the river.

To change the opacity value for the selected part or for the whole object, choose the mode of working with control points (one, several or all) and, having chosen the green point, pull *up or down* (in the same way as you changed the cliff's height). You will see that the opacity value in the field will change. Press Enter to confirm the changes.

Notice – there are two more settings on the same tab VSO: Predefined Stats and Custom Stats. In the present version of the editor these parameters are off and using them does not change anything.

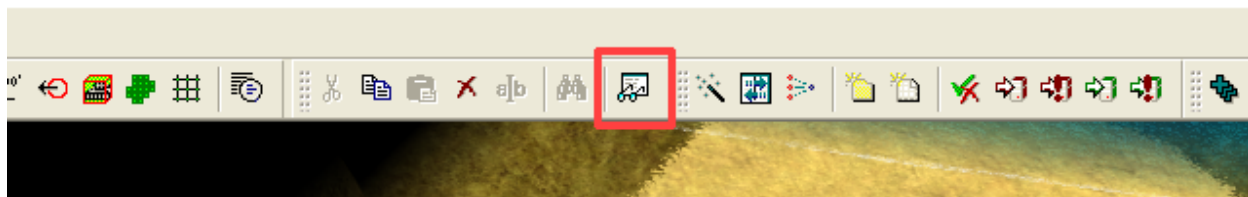
4-09 Map objects

When creating maps in B2 map editor one of the main stages is placing different *Map Objects* on the map.

In B2 *Map Objects* there are all types of ground, above-water and air units, buildings and constructions; all kinds of flora; different environment objects; and also the special group, including Bridges, Fences, Entrenchments, Mines и Spots.

For placing objects on the new map or the map created earlier choose the mode of working with the objects. For that in the section *Objects* of *Tools Window* choose the tab *Objects*. The editor will start to work with the objects.

(I) If you have difficulty in finding the window or the bar in the editor – try switching it in the View menu.



When placing objects it is often necessary to check parameters or execute the additional settings of the object. To open the list of the object's parameters press Enter when the object is selected or press the icon on the Toolbar.

4-10 Placing objects on the map

Almost every object, being placed on the map, has two control points. One is in the central part of the object and is used for moving the object on the map or up/down (for the objects which can be moved up or down), the second one is on the border of the object's selection circle and is used for orienting and turning the object around.

Almost all Map Objects, especially different units, must be placed on the map only when the player, they will belong to, is defined.

It is not correct to define the player when placing Map Objects on the map, as it can result in mess, and everything will have to be done again. Or you will have to change the Player, whom this object belong to, manually.

4-10-1 Choosing the player (side)

In the window opened you should choose the Player, whom these objects will belong to.



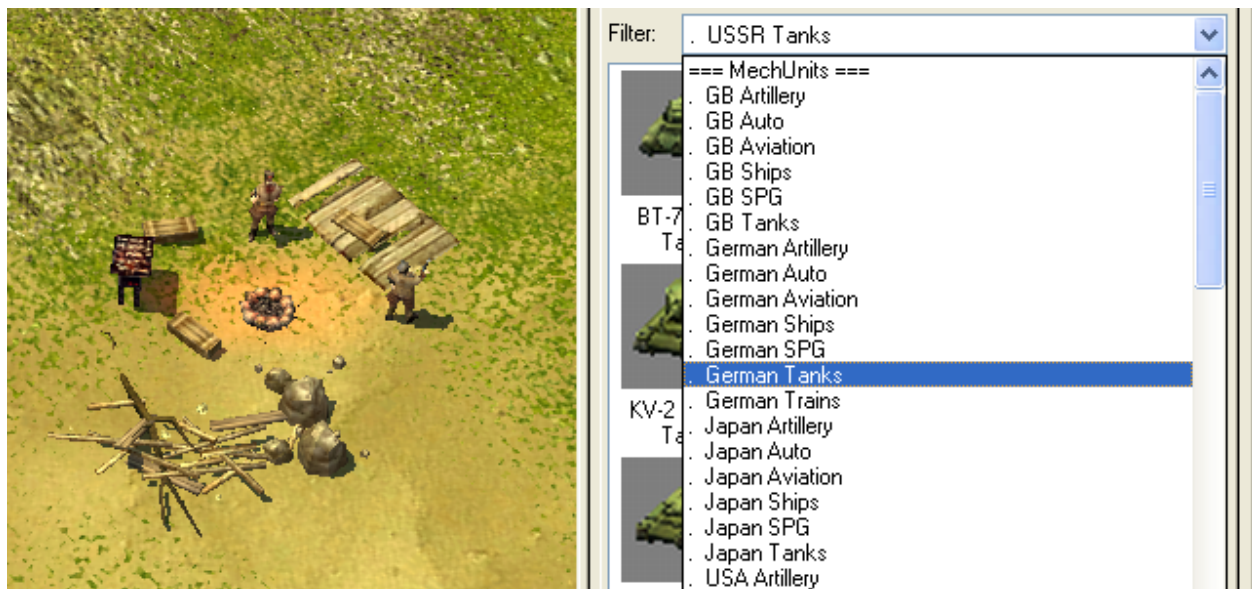
Choose the player in the jump-menu. After that all the objects, you will place on the map, will refer (belong) to this player.



Check, which player this object belongs to, looking in the object's properties (pressing Enter when the object is selected or the corresponding command on the Toolbar).

4-10-2 Choosing the type of the objects

Choose the type of the objects, which you are going to place on the map. Choose the jump-menu Filter.

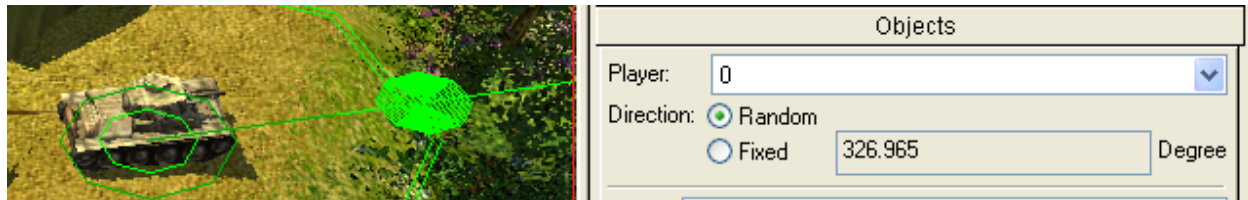


The list of objects in the jump-menu is divided into MechUnits, Squads, Buildings, Flora, Objects and Other. The Others include Bridges, Fences, Entrenchments, Mines and Spots.

(I) You can choose the way the objects are represented in the list. For that right-click on any object in the list. In the menu displayed choose the List or Thumbnails.

4-10-3 Choosing the method of orienting the objects

Before placing the objects on the map, you should establish the method of orienting the objects (direction, where the front side of the object will face).



There are two ways of orienting the objects – **Random** and **Fixed**.

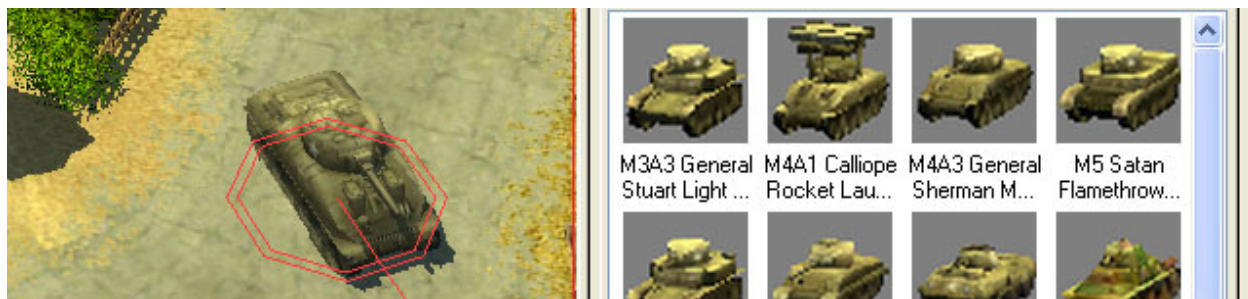
If the random orienting is chosen, the editor will orient this object randomly. The Field Degree shows the orientation of the next object to be placed on the map.

When orienting is fixed, the player set direction to one of the objects already set on the map and switch the orientation mode (the orientation is displayed in the field Degree). The orientation of this object is saved, and all the following objects placed on the map will be oriented in the same direction.

(I) Orienting parameters affect all the objects which will be placed on the map after choosing the method. It is very convenient when the mechs and squads placed on the map are of one group.

To indicate the fixed orientation of the object, choose the item Fixed.

4-10-4 Placing Map Objects on the map



In the list of the chosen type of objects left-click on the object to select it. The cursor will take the shape of the object being placed. As you can see in the picture, the circle around the object to be placed is red.

Choose the place for placing this objects and left-click on it. To stop placing the object – right-click.



The circle around the object, which has been placed on the map, is green.

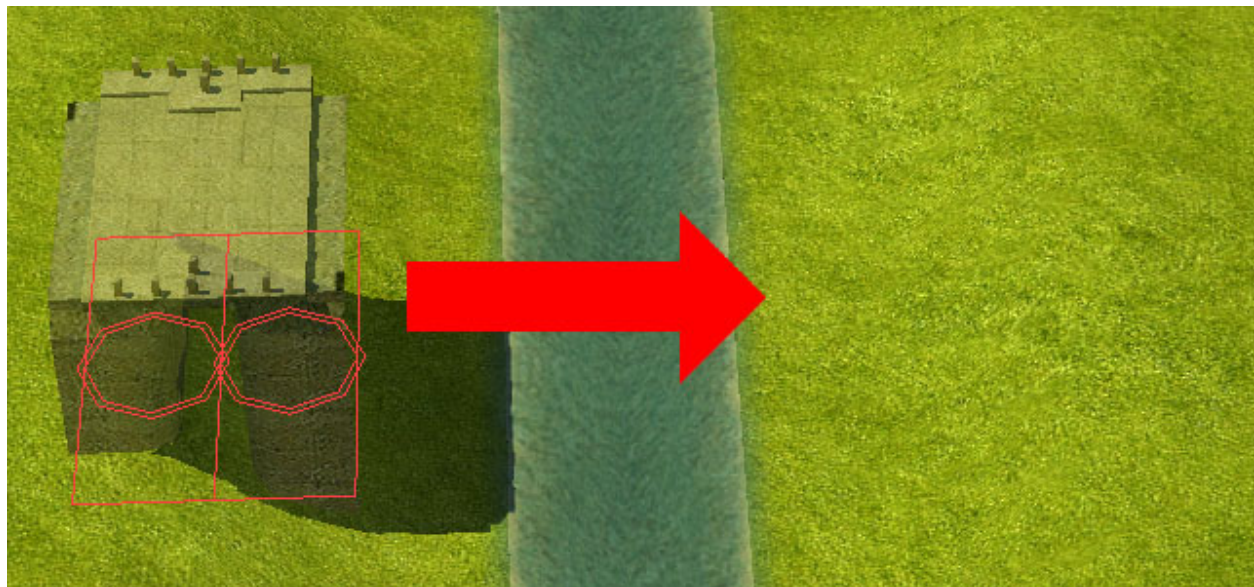
(1) To place the object on the map in a correct way you can using the mode of representing sectors and fire ranges. To activate this mode choose the item Draw Shoot Areas in the Tools menu.

The objects which have been placed on the map, especially units, must have extra settings of some parameters. (for details see below, Section Objects Parameters)

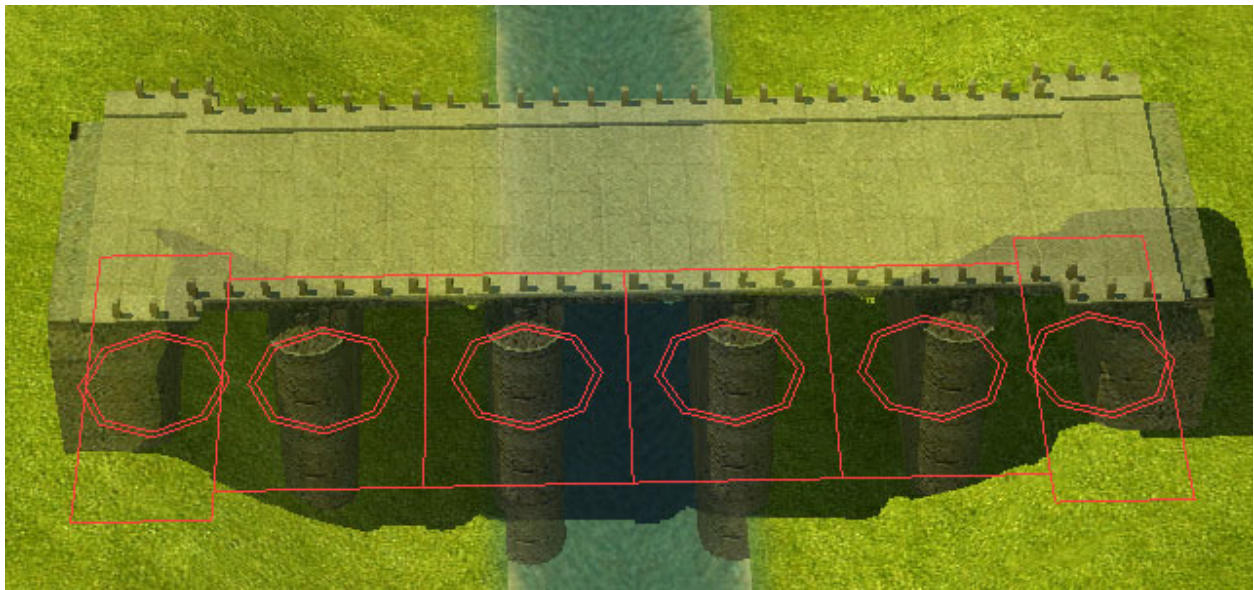
4-10-5 Placing Bridges, Fences and Entrenchments

There are three types of Map Objects, whose placing on the map differ from the others – Bridges, Fences and Entrenchments. These types of objects do not the fixed length, so when being placed on the map the user should define their length with extra parameters.

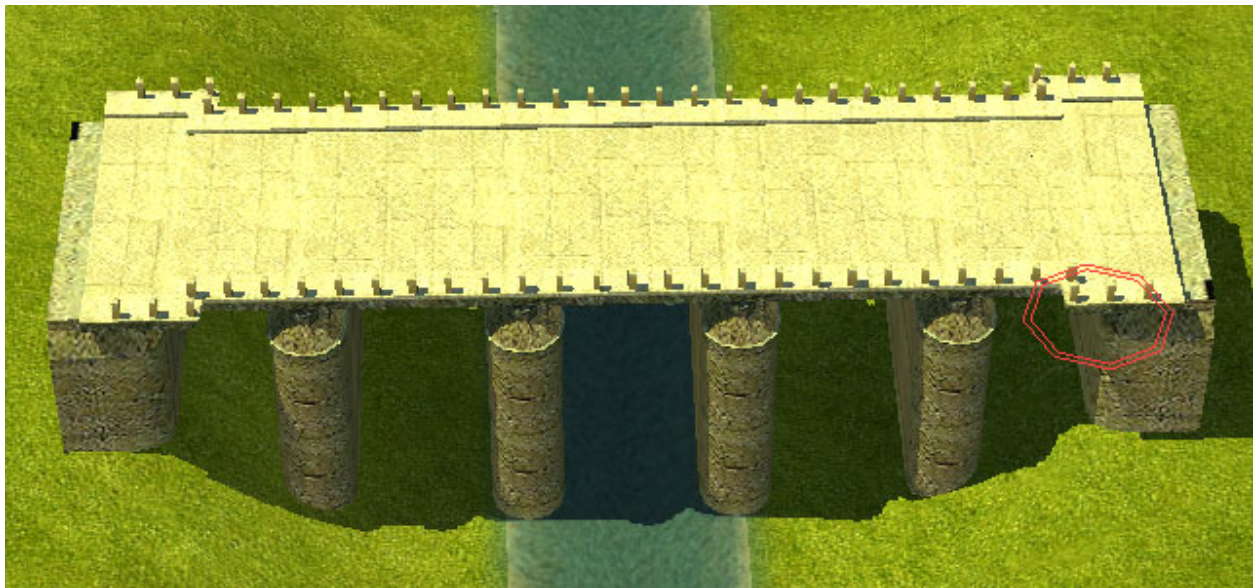
To place such object on the map choose it in the list of objects. At that the contour of the object will not appear on the map unlike the other Map Objects.



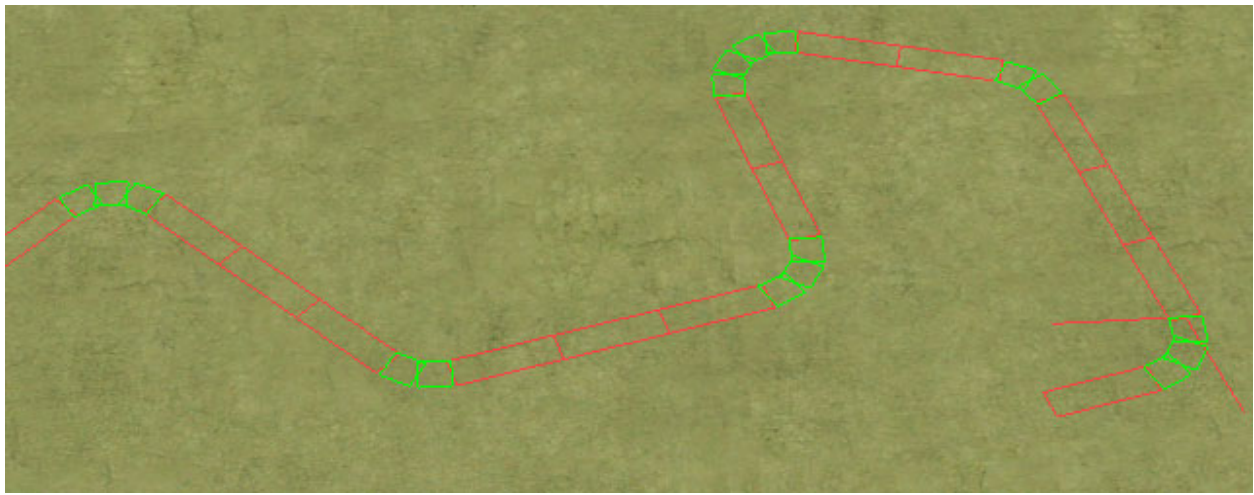
Indicate the start point – where the object will begin from. The arrow shows the supposed direction, where the bridge will stretch.



Then point the final point, which will define the length of the object.



And press Enter to create the bridge.



Putting intermediate points, when Fences and Entrenchments are being placed, you can change the direction of the next section

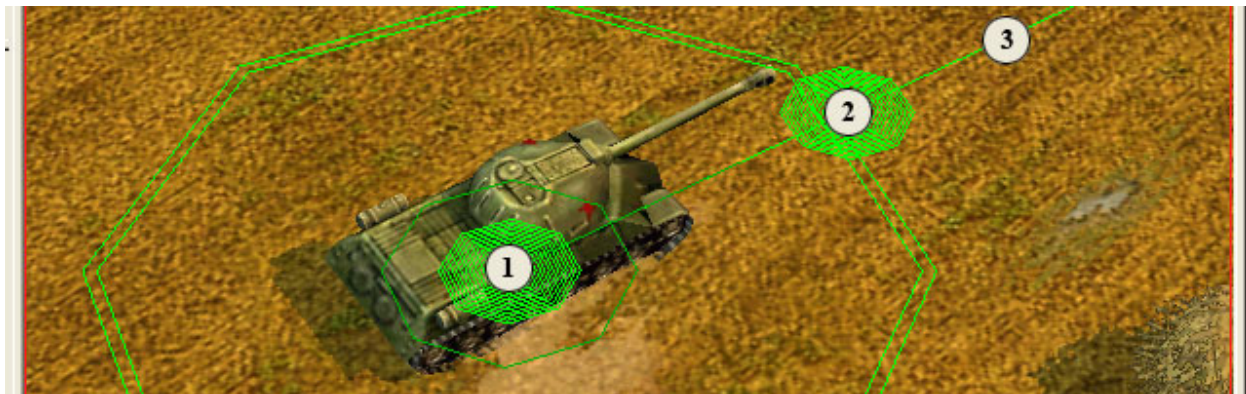
For completing Bridges and Fences just indicate the final point. For completing Entrenchments press Enter.

The Bridge placed on the map requires adjustment of the height for the terrain. (for details see below)

4-11 Objects on the map

All objects placed on the map can be oriented or moved on the map both individually and in the group. Also you can change the height of their position on the map. (for details see below)

For the further actions with the object on the map left-click on it to select it.



The circle around the object's centre will appear with two control points (1 and 2) and an indicator of the direction (3).

4-11-1 Moving the placed objects

For moving one object: Press and hold LMB on the control point in the center (point 1 on the previous picture) of the circle of the selected object and drag it to any place on the map. When being moved the object keeps orientation, set during placing it.

For moving a group of objects: Select the group of objects with the frame or Shift + LMB (selection of the objects is similar to the selection of the units in the game B2). Press and hold

LMB on the control point in the center of the circle of the selected group and drag the group to any place on the map. When being moved the group of objects keeps their position regarding each other and fixed orientation.

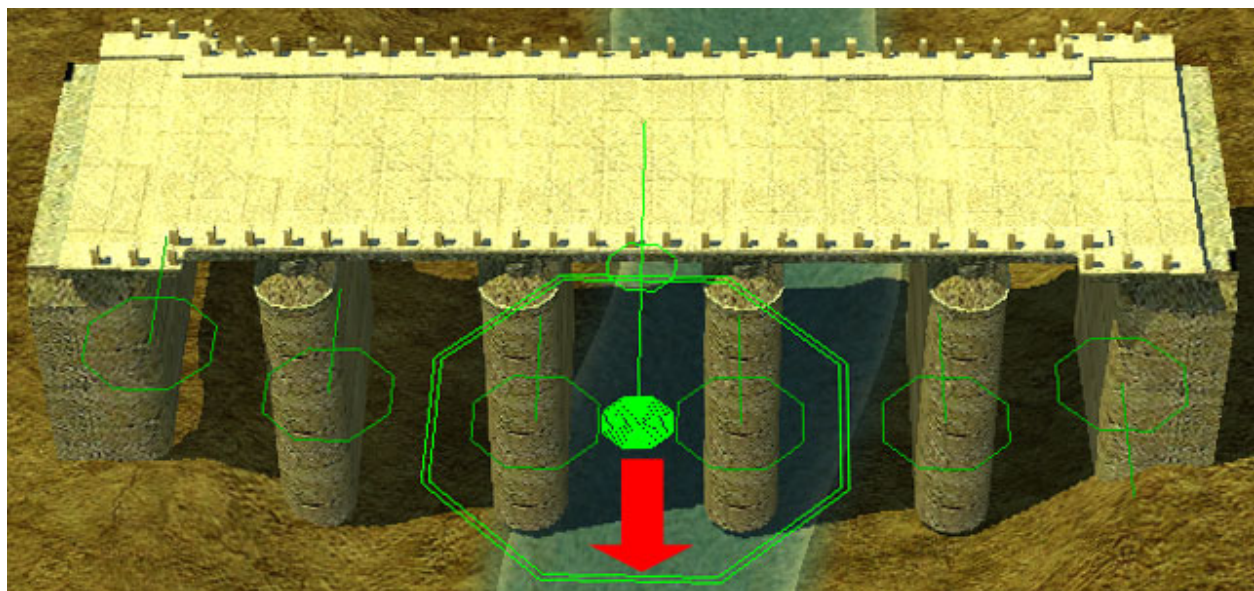
4-11-2 Orientation of the objects placed on the map

For changing orientation of one object: Press and hold LMB on the control point, located on the crossing of the direction indicator and the circle (point 2 on the previous picture) . Holding LMB drag the direction indicator to the side you want. Now the selected object is oriented according to the direction indicator.

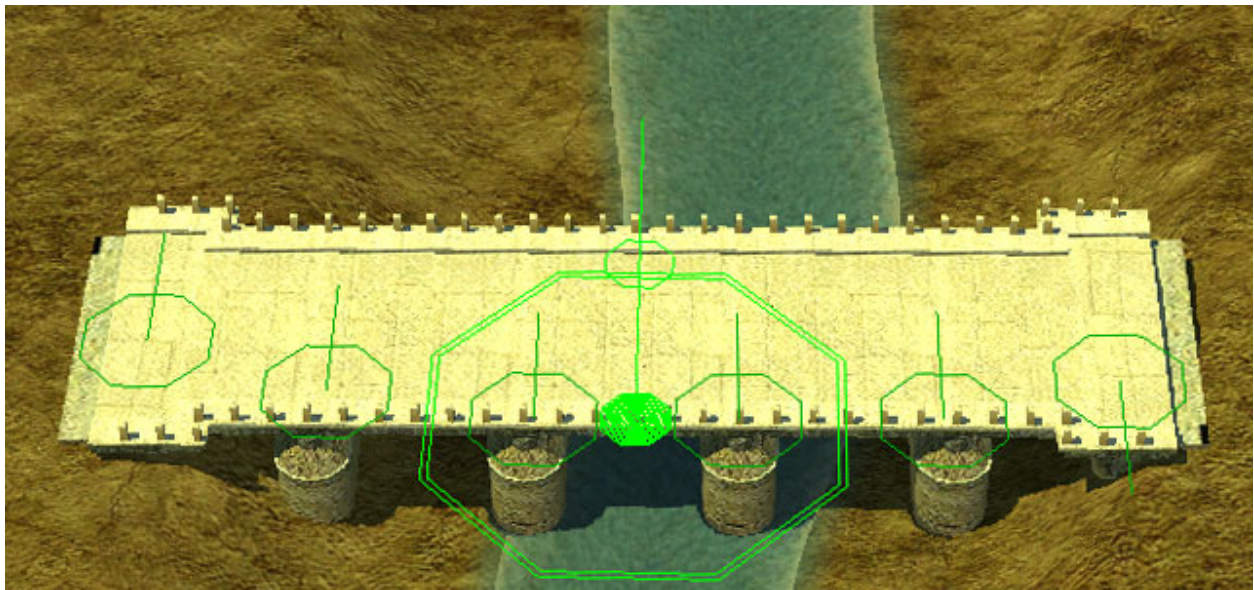
For changing orientation of the group of objects: Select the group of objects. Press and hold LMB on the control point, located on the crossing of the direction indicator and the circle. Holding LMB drag the direction indicator to the side you want. Now the selected group of objects will turn around the relative centre of the group according to the direction indicator. It is comfortable, if you want to orient a group of forces or artillery position to the other direction.

4-11-3 Changing the height of the objects placement

Some objects will require extra settings height of their placement on the map. First of all, it relates to the bridges, but also it can be applied to air forces and other objects, which you want, for example, to sink in the ground.



To change the placement of the height press right-click on the central control point of the object and pull up or down.



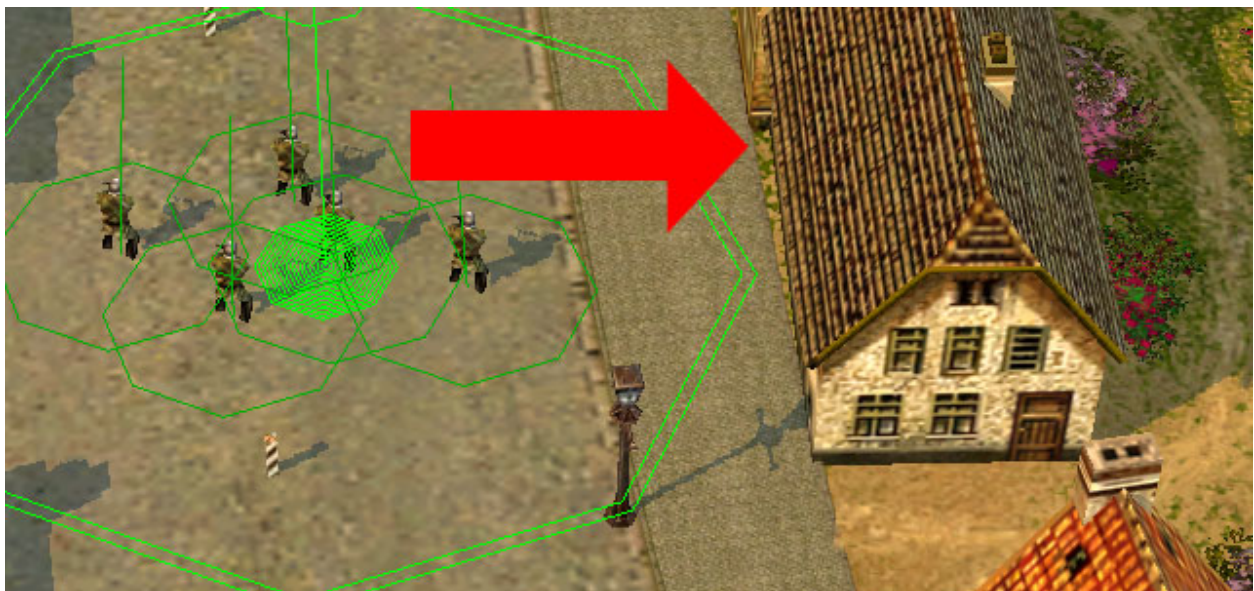
To leave the height of the object with the height fixed just pull it down.

Important Note: All objects, except air forces cannot be placed above the surface of the map. When you are trying to raise them, all the objects will tend to descend on the surface of the map as soon as the user releases them.

Units cannot be sunk in the ground. Even if in the map editor all unit or half of it is in the ground, in the game it will be on the surface of the map.

4-11-4 Placing units in the other objects (Link Objects)

It often happens that when you are placing objects, you need to place, for example, an infantry squad in the entrenchment, truck or building or to link a cannon and a track. For that **Linking objects** is used.



To link objects select an infantry squad and, pressing and holding a key Shift drag it to the object, you want link it with.

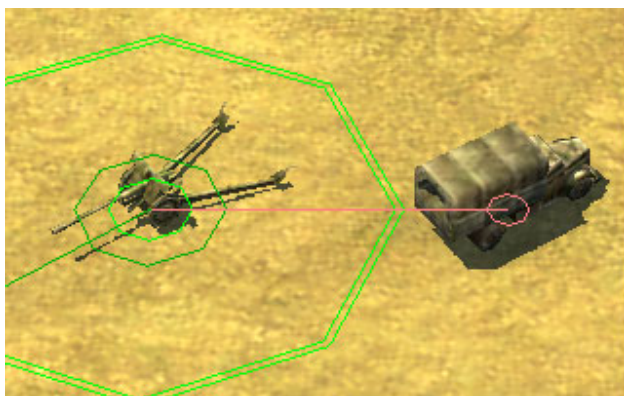


After that an orange line linking them appears.

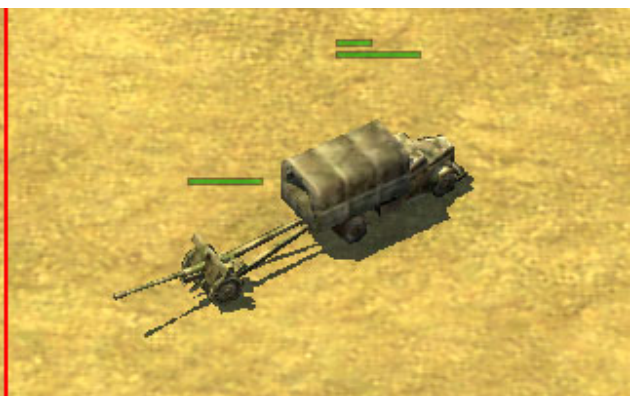
Property	Value
Dir	33672
Pos	
x	4567.49
y	3159.25
z	0
Player	0
ScriptID	-1
HP	1
FrameIndex	-1
Link	
LinkID	394
LinkWith	313341
Intention	false
Object	squads\germany\elite
ConstructorProfile	



LinkID of the object, which the first object is linked to, is displayed in the objects properties in the field LinkWith.



(Linked objects in the MapEditor)



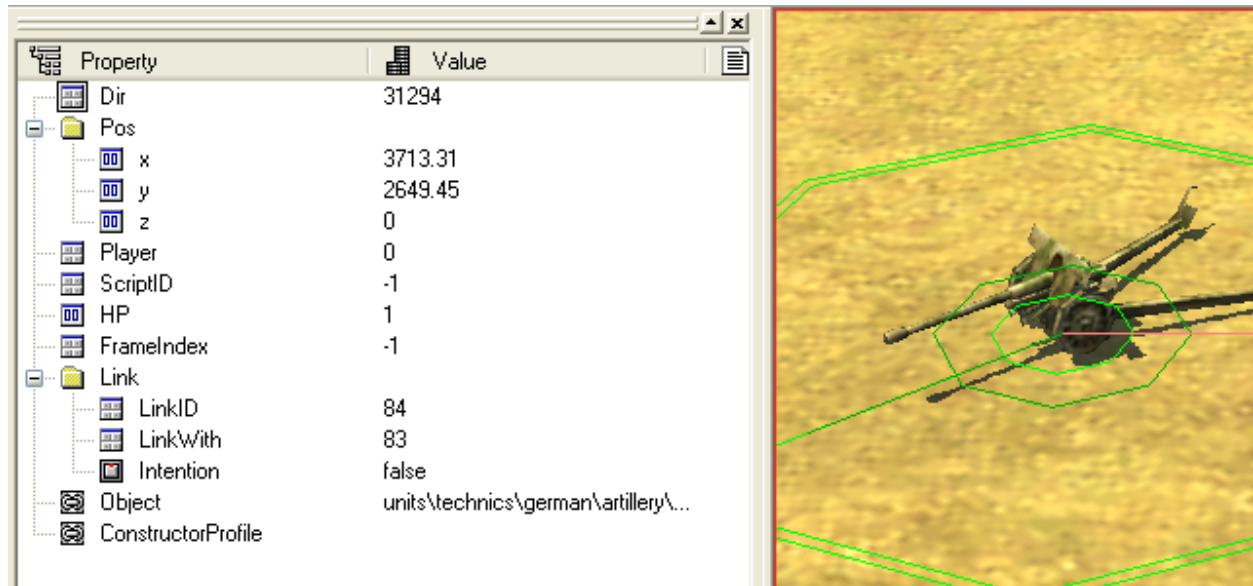
(Linked objects in the Game)

At the same time the infantry squad will not enter the building, as we want, but when loading this map in the game, this squad will be in the fixed building. Accordingly, the linked cannon and a track will appear linked in the game.

4-12 Objects parameters

Every object in the game has a range of parameters available in its Properties. To open object's properties, press Enter when the object is selected or press the icon on the Toolbar.

On the information panel the list of properties of this object will be displayed. To change one of parameters double left-click in the column Value.



From the parameters the most important ones are:

Player

Indicates the player, whom the object (unit) belong to. You can change the belonging with the value of the field in the column Value.

ScriptID

ScriptID is given, as a rule, to the different units or groups of units.

Assigning ScriptID is needed for its usage (and the unit/group of units corresponding to it) in the mission script. If the value is -1, it means that this object has no ScriptID and it cannot be used in the script.

Property	Value	Property	Value
Dir	31294	Dir	31294
Pos		Pos	
x	3713.31	x	3713.31
y	2649.45	y	2649.45
z	0	z	0
Player	0	Player	0
ScriptID	-1	ScriptID	200
HP	1	HP	1
FrameIndex	-1	FrameIndex	-1
Link		Link	
LinkID	84	LinkID	84
Link\With	83	Link\With	83
Intention	false	Intention	false
Object	units\technics\german\artil	Object	units\technics\german\artil
ConstructorProfile		ConstructorProfile	

Assigning ScriptID

For assigning ScriptID to the single object: switch the editor to the working with objects mode. Select the object and press Enter on the keyboard or the icon on the Toolbar. You will see the window with extra object's parameters on the information bar.

Find the row ScriptID. If the object is not given an ID, you will see the value -1. To give the object an ID double left-click in the column Value and enter the value. It is recommended to avoid value 0 because of the peculiarities of LUA language.

You can use this script in the mission script in future.

For assigning ID to the group of objects: Select the group of objects and press Enter on the keyboards. On the information bar the window with extra parameters of the group of objects will open. **ATTENTION! In case when the information on the group of objects is presented, only the SAME parameters of all objects in the group have the digital values.** If the value is substituted with the ellipsis – not all objects in the group have this parameter identical. In this case you CANNOT change this parameter for the group of objects.

If you assign ID for the group of objects, all objects in the group must have the identical ScriptID value, so that you could change it.

HP

This parameter indicates the coefficient of the start margin of safety/health of the object. The value 1 corresponds to 100%. For changing it enter the coefficient different from 1. For example – 0.4 (corresponds to 40%).

Changing the start margin of safety/health is used when you want to give the object or the unit the effect of damage or neglect.

At that if you just put the value 0, the object will get on the map in totally disabled state and will not be able to function (it refers to mechnits and buildings).

Important Note: Bridges are worth mentioning – when changing this value, their margin of safety is not changed. Damaging bridges is possible with the help of the script and the corresponding function.

For changing this parameter switch to the object's properties and double click in the column Value of the **HP** parameter.

LinkID

When placing any object on the map the editor gives it LinkID automatically – a special identifier, which is used for linking objects.

LinkWith

Used when you want to link this object with the other. For example, when linking a cannon and a track, placing infantry into the entrenchments, creating reinforcement as paratroopers on the aircraft, etc.

You should enter the value of the field LinkID of the object, you would like to link this object with. The linking logics should be kept – you should link the infantry with the entrenchment, but not vice versa.

Chapter 5

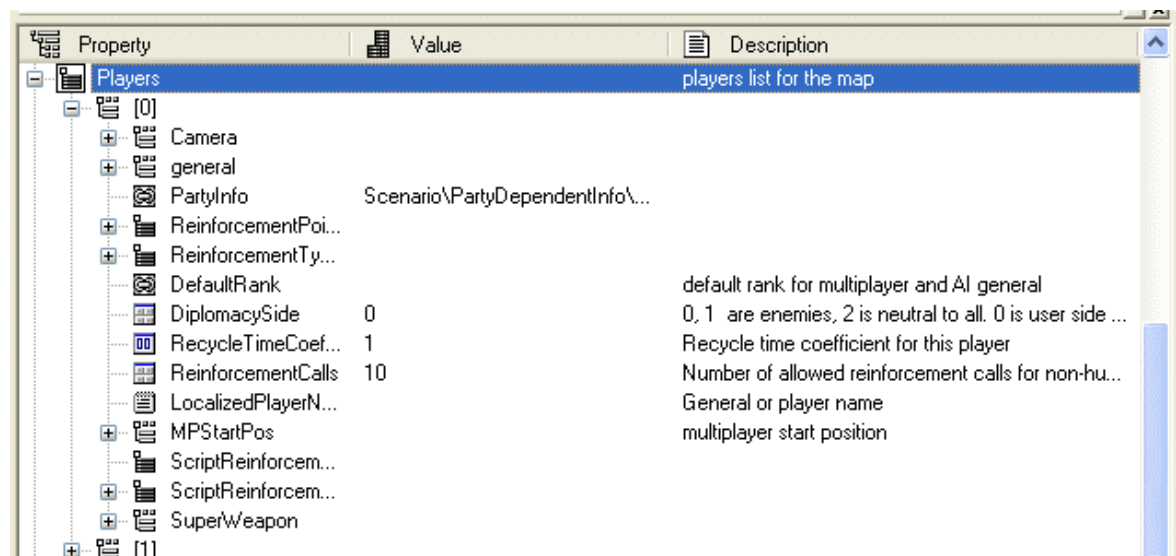
5-01 Creating a mission

Creating a mission – is the process of filling the previously created map with the objects and events, setting up the parameters and objectives, creating the map name, description etc.

In case of single player mission, an important part of the process is setting up the computer opponent (AI General) and scripting the mission.

The experienced users and enthusiasts can link the self-made music play lists to the map for the custom soundtrack. Creating in-game engine movies is also possible.

5-02 Player's parameters



The group of parameters **Players** is responsible for all settings of the playing sides. *Further we will consider in details only those parameters, which are not described in the special sections.*

Camera – Setting the start camera (For details see Chapter 5-03-1 Setting Start Cameras)

General – Setting AI General (For details see Chapter 5-08 – AI General)

PartyInfo – Choosing the side of the player in the single player game. Also chosen when creating a new map.

ReinforcementsPoints – Reinforcements points
(For details see Chapter 5-05 Reinforcements)

ReinforcementsTypes – The types of reinforcements available in the mission
(For details see Chapter 5-05 Reinforcements)

DefaultRank – The military rank given to AI General in the single player game or to the player in the multiplayer game.

DiplomacySide – Choosing the side of the player. You can between 0,1,2. Teams (and players), assigned as 0 and 1 – are always enemies. At that 0 is always assigned to the user (the side, for which the user will play in the single player game). Accordingly, in the multiplayer game the players who have the same value (0 or 1) will play in one team. “2” is always used to specify the neutral side.

RecycleTimeCoefficient – assigns the coefficient of reinforcements recycle time. For example, the standard alert of the reinforcements for call, after calling medium tanks, is 30 seconds. If the coefficient preset is, for example, 0.8, the player’s alert for calling these reinforcements, after calling medium tanks, will be 24 seconds.

ReinforcementCalls – the number of the reinforcements calls available to the player
(For details see Chapter 5-05 Reinforcements)

LocalizedPlayerNameFileRef – used for identifying the side as, for example, a historic personality, the user or AI General can play for.

MPStartPos – used to mark flags coordinates on the mini-map in the multi-player game
(For details see Chapter 5-03-2 Setting Multiplayer Start Position)

ScriptReinforcements – not used

ScriptReinforcementsTextID – used to give a name to the units, which can be called by this name in the script afterwards.

SuperWeapon – using this parameter you can make the call of the ultimate unit as reinforcement available to the certain side (For details see Chapter 5-05 Reinforcements)

Also, the item **PlayerBonusObject** refers to the player’s parameters, its functions and settings are described in Chapter 00-00 Reinforcements

5-03 - Start Cameras & Multiplayer start Position

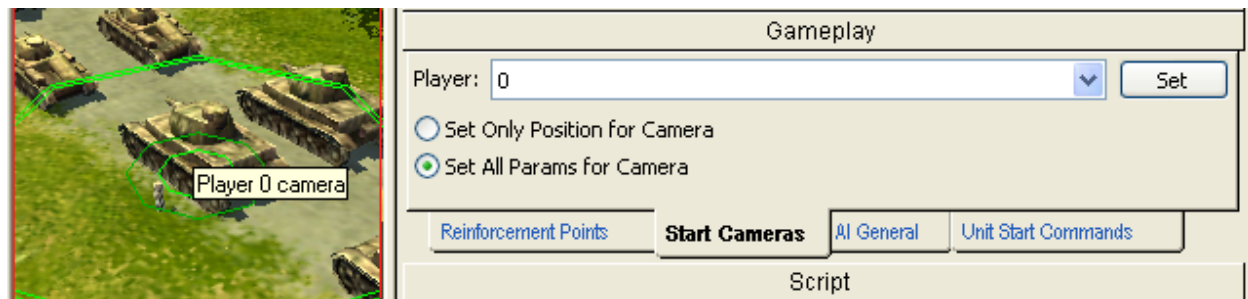
When creating any map, for a single or multiplayer game, you should appoint positions of the start camera for the players.

The start camera defines the position, where the player starts a game, and is set for every player separately.

For the single player game it is reasonable to set the start camera only for Player 0 and in the multiplayer game – for all players, whose positions are specified in the editor.

(I) At the beginning of the multiplayer game the start positions of one side are distributed randomly between the players of this team.

5-03-1 Setting Start Cameras



To set the position of the start camera, choose the tab Start Cameras in the section Gameplay of the toolbar.

Choose the player, for whom you set the position of the start camera.

After that orient the view of the map so that you want the player to see it at the beginning of the game.

Then press the button Set. The marker, which identifies the position of the start camera for the player, will be displayed on the map in the centre of the visible space.

In the same tab you can choose one of the two variants:

Set Only Position for Camera – when setting the start camera only the camera coordinates are saved. Accordingly – the user will start the game in these coordinates with the standard height of the camera.

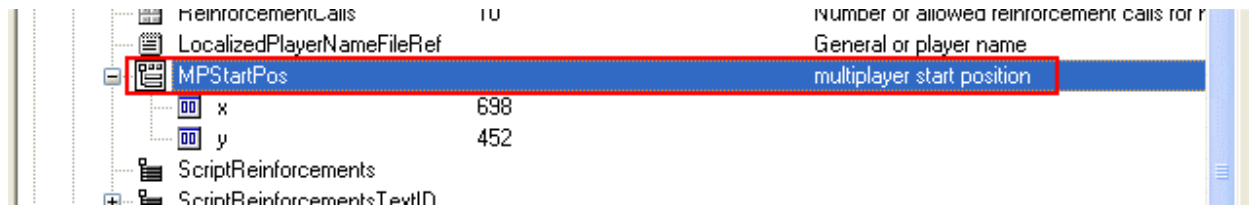
Set All Params For Camera – when setting the start camera the coordinates and the height of the camera above the map are set.

(I) All parameters of the start cameras are also displayed in the field Players\Camera in the table of the map properties. Vary them only if you are an experienced user.

5-03-2 Setting Multiplayer Start Position

In the multiplayer maps properties you should specify the coordinates of the flag, highlighting the start position of the player of the team, if he participates in the game.

You can do it varying the value of **MPStartPos** parameter in the parameters group of the player present on the map.

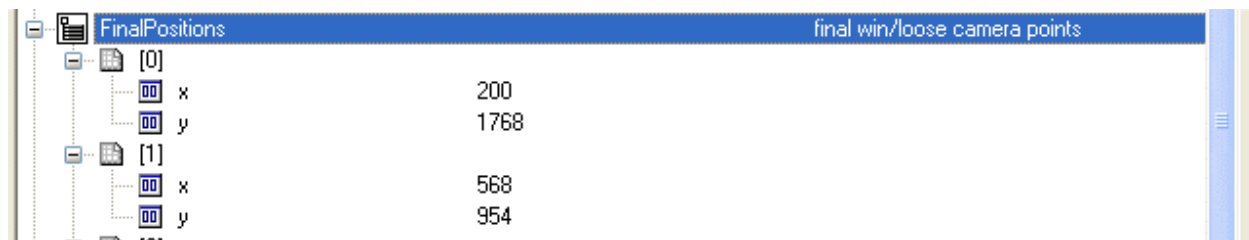


The parameter MPStartPos has only two values – coordinates x and y – it is enough for displaying the flag on the minimap.

Enter the values of the coordinates of the main (start) reinforcements points or key buildings, belonging to the player, in round figures.

5-04 Final Positions

When creating singleplayer missions it is recommended to show the player, what was the reason for the victory or defeat. I.e. to show the spot on the map or the object, which the player captured / destroyed or, on the contrary, did not defend. Otherwise, after completing the missions the automatic camera shows the spot of the map, which the player saw, when he was completing the mission.



To do it use the special parameter **Final Positions** in map properties.

(I) Final Positions – points, which will be automatically displayed in the view of the script movie when the player is winning or losing in the mission.

The parameter Final Position is used to show, in case the player won or lost, the spot of the map or the object, which were of decisive importance in the mission, i.e. the players' actions on this spot of the map or with this object led to the victory or defeat.

5-05 - Reinforcements

In the mission the Player (or the other participating side) can get the extra mechunits and forces for command.

There are two main ways of transferring units for one side's control – calling units from the reinforcements pool with reinforcements call interface or transferring units for one side's control with the script.

Further we will name the units, called by the player from the reinforcements pool, reinforcements, and the units, transferred for the player's command with the script – bonus units.

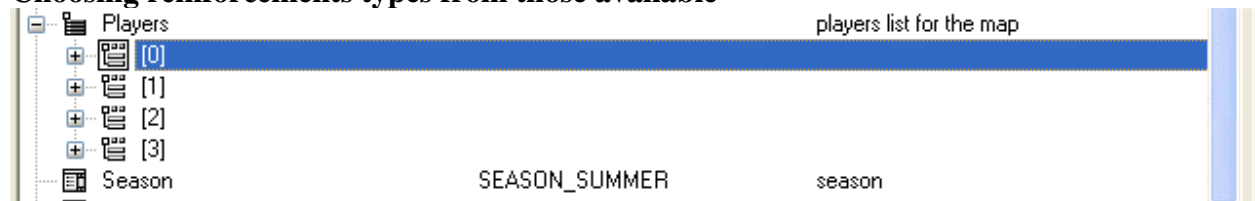
The number of the calls and reinforcements types available for every mission cannot be changed during the mission.



To allow the player to call reinforcements in the game – for every map (mission) reinforcements types and staff, available in this mission, their number and reinforcements respawn points must be indicated.

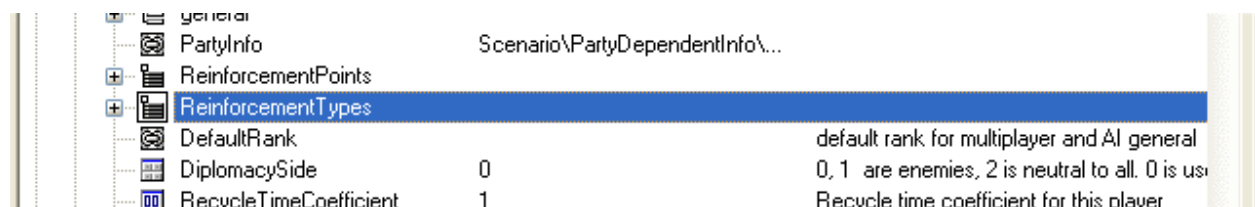
Also the recycle time coefficient for reinforcements can be given.

Choosing reinforcements types from those available

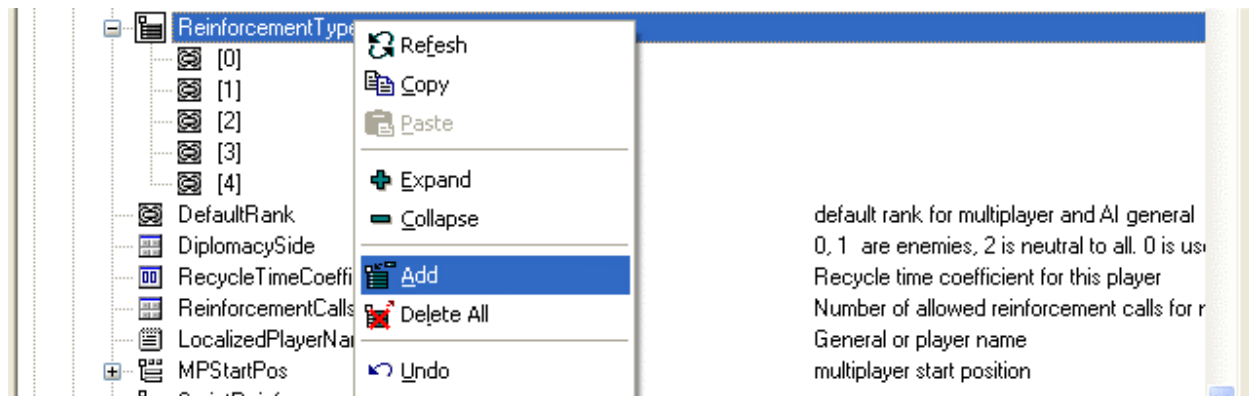


To choose the reinforcement's type and staff switch to map properties and find the players' (sides') settings present on the map.

Choose the player, whose list of available reinforcements will be edited.



Choose the line **ReinforcementsTypes**

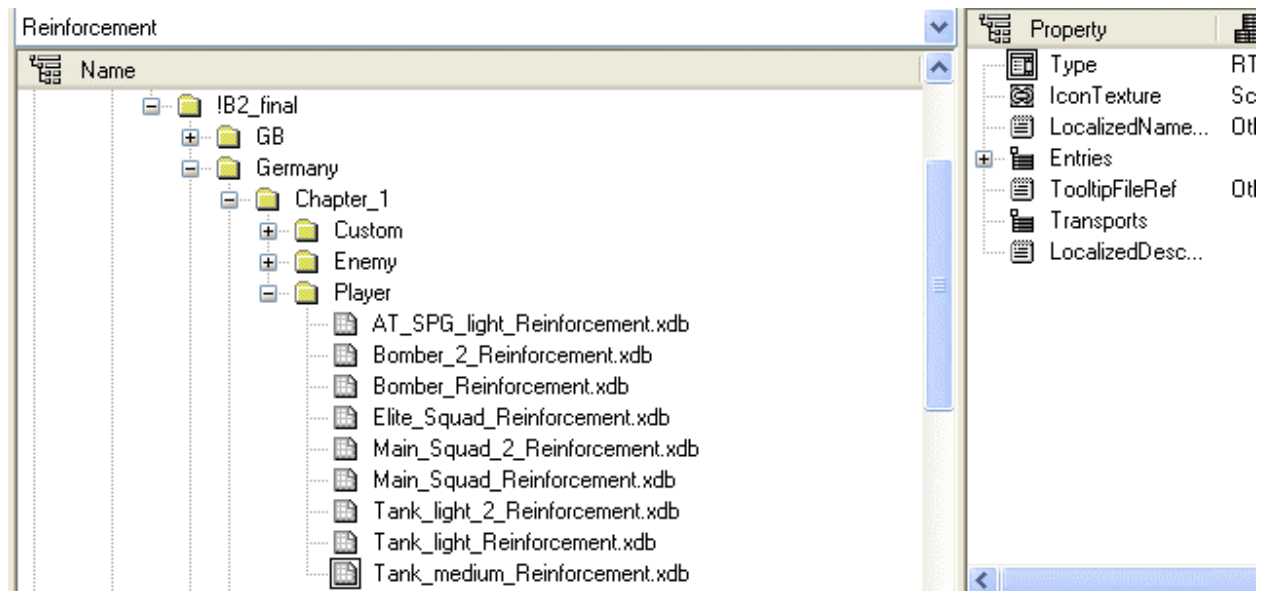


Add as many reinforcements as needed – every reinforcement added specifies the type and the staff of the reinforcements group, which can be called.

Left-click in the column Value for the reinforcement needed to specify the type and staff of this reinforcement.

Press the button with the ellipsis to choose the type of reinforcements from those available or the button new to create a new type of reinforcements.

In case the new type of reinforcements is being created you need to enter its name. For the further setting the reinforcements of this type it is necessary to press the button with the ellipsis (For details of creating the new type of reinforcements see below).



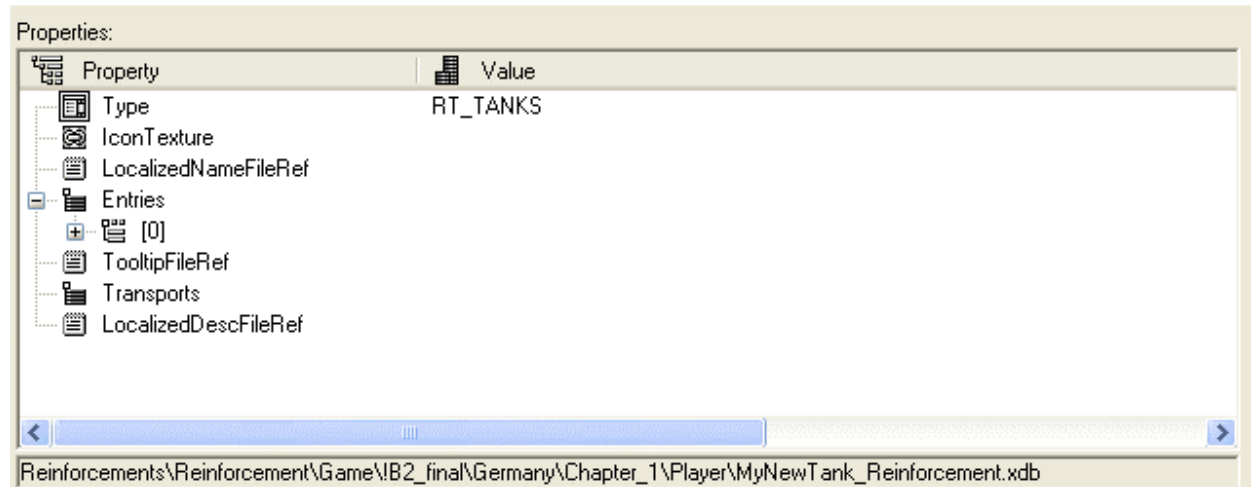
In the window opened the list of all reinforcements as the tree is displayed.

As qualitative and quantitative units staff has been changed significantly during WW2 all reinforcements types in this list are in the folders of missions, chapters and campaigns of the corresponding historic periods.

Important note: Be careful when using reinforcements assigned for B2 missions! If you change the reinforcement attached to the mission, it will affect the gameplay. So, if you want to change the reinforcements type – first copy it to the other file and only then edit it.

5-05-1 Creating your own reinforcements type

Besides reinforcements, created by B2 designers, you can create your own reinforcements types.



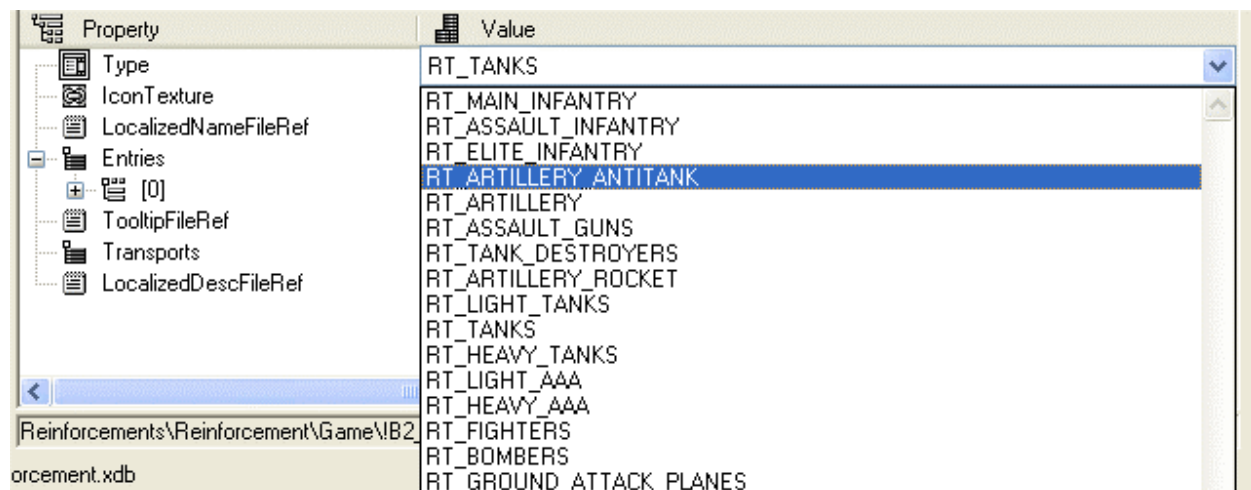
Information on reinforcements and their parameters to be set consist of the following (the information given further concerns only the parameters, changing and setting which is reasonable):

Type

In B2 game all units store the experience. After completing the mission the experience, stored by different units is accounted to that TYPE which these units were assigned to.

For example, if you create a reinforcement and specified its type as LIGHT TANKS, but included assault infantry squads, all experience got by this infantry will be accounted to the type light tanks. As this method is not correct, it is recommended to set up correspondence between the reinforcement's type and their staff.

(1) If the unit is on the map initially, the experience saved will also be given to the corresponding reinforcements type. The correspondence table is available in AIGameConsts



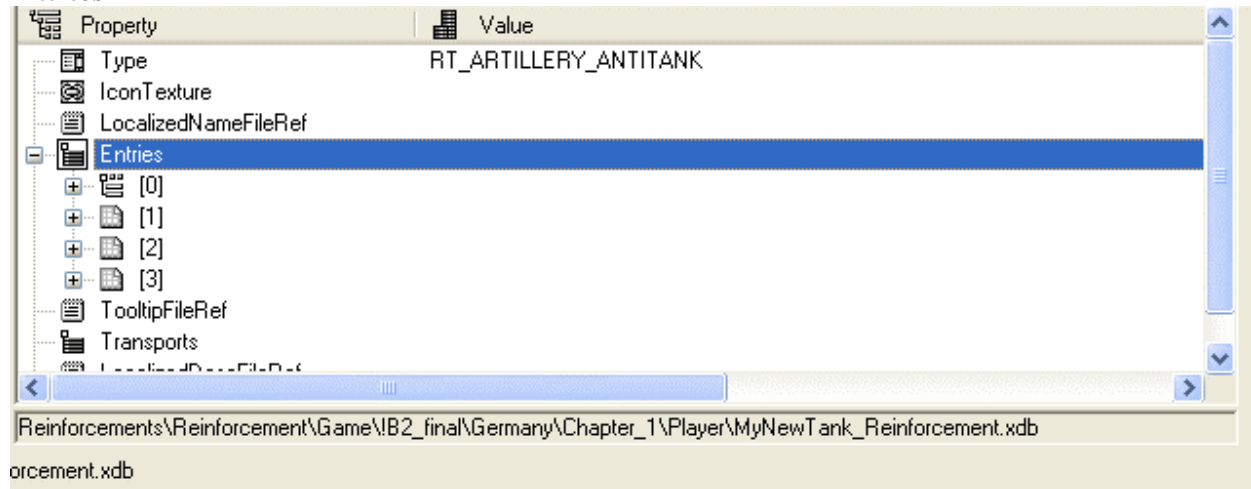
To choose the reinforcements type – left-click in the column value for the Type parameter and choose the type needed in the list-box.

(1) There are 21 reinforcements types in the game.

IconTexture, LocalizedNameFileRef, TooltipFileRef, LocalizedDescFileRef

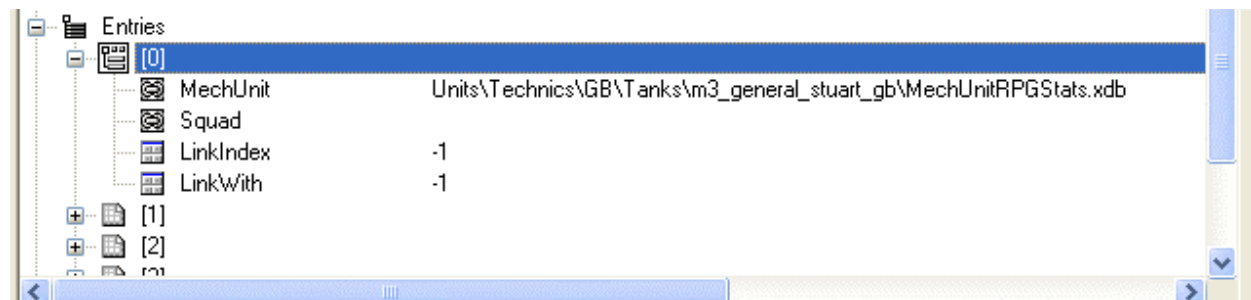
Important Note: Changing these parameters is recommended only for creating MODs.

Entries



If you are working with the reinforcement just created, it is necessary to add as many entries in this field, as many units you are planning to include in this reinforcement.

5-05-2 Setting reinforcement units parameters (in the field Entries)



MechUnit

This field is used for the mechunits – armored units, artillery, air forces etc. – you should identify the unit in the line.

Squad

Identify the infantry squad in this field.

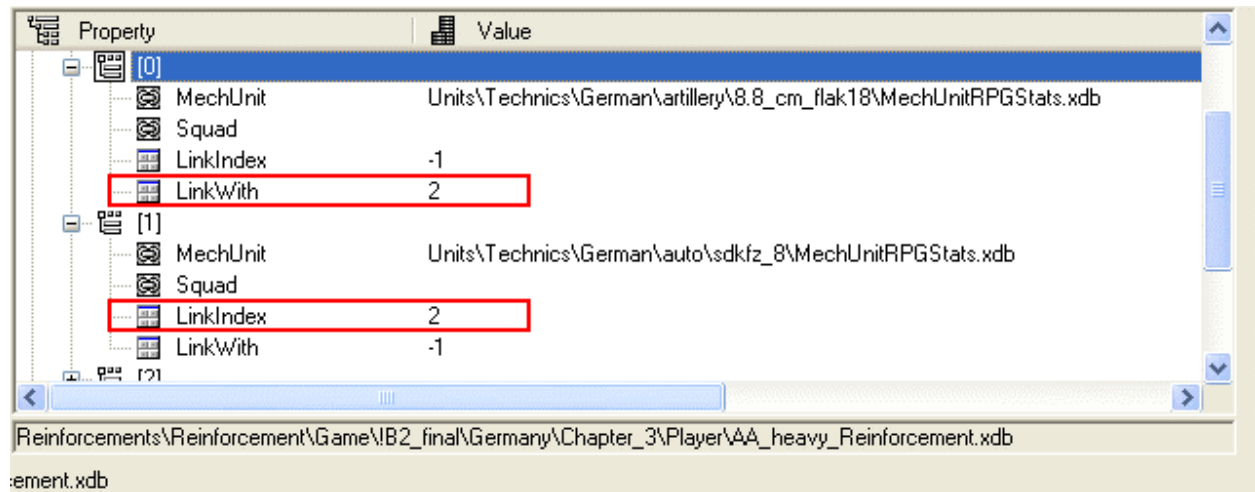
Important note: you cannot identify a mechunit and an infantry unit in one Entry simultaneously!

LinkIndex

In the case, when the units staff includes units, acting together or depending on each other (for example, artillery, needing to be towed, or paratroopers, needing to be transported), you should identify LinkID, which value must be entered in the field LinkWith of the unit, which is dependant on this one. In case, when the value of this field is -1, linking is not possible.

LinkWith

You should enter the value of the parameter LinkIndex of the unit, to which you want to link the current unit. If the value in this field is -1, linking is not possible.



In the picture you can see two units, one is linked to the other (the value of the field LinkWith of one unit is equal to the value in the field LinkIndex of the second one).

5-05-3 Defining the number of reinforcements calls



To appoint the number of available reinforcements calls, find the line **ReinforcementsCalls** in the map properties and set the value you want.

5-05-4 Recycle Time Coefficient

Setting the **RecycleTimeCoefficient** you can vary the recycle time of the next reinforcements call after processing the previous call.

For every reinforcements type there is a defined recycle time of the next reinforcements call.

By default the field **RecycleTimeCoefficient** has the value 1. It means that recycle time of the reinforcements call for this player is 100% of the time fixed by developers. If this parameter is equal to 0.4, accordingly, the reinforcements recycle time for this player will be 40 %, i.e. 2.5 times faster.

5-05-5 Reinforcement points

To give the player the possibility to call reinforcements, at least one reinforcement point must be shown on the map.

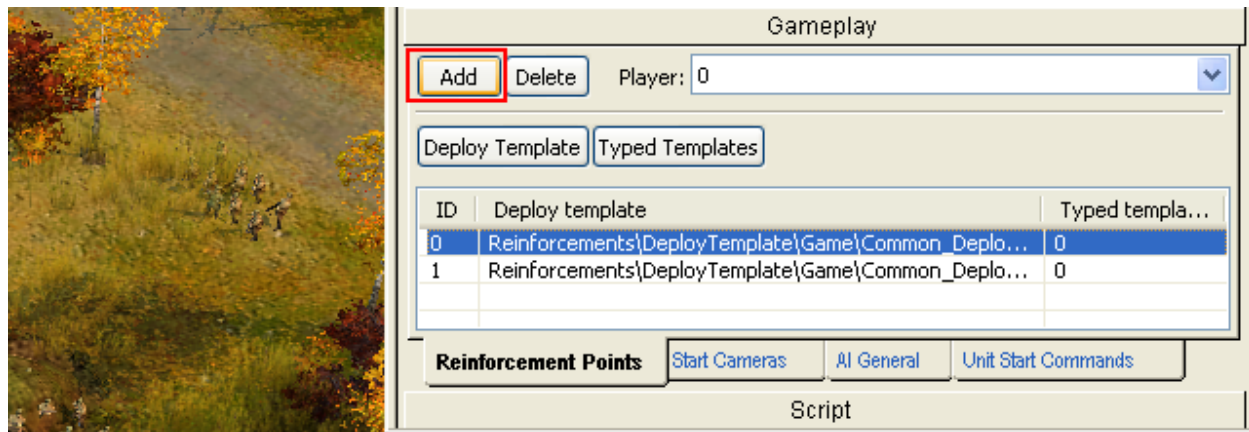
During the game all reinforcements called arrive through *the nearest available reinforcement point*.

(I) For calling reinforcements on the map there must be one reinforcement point at the minimum.

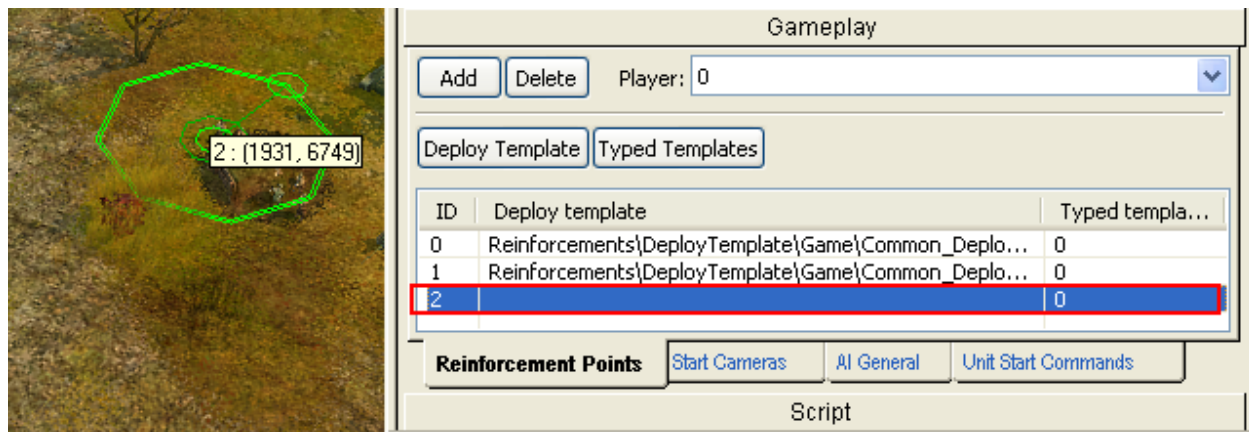
5-05-6 Placing reinforcement points on the map

For placing reinforcement points on the map switch to the section Gameplay in the Tools Window and open the tab Reinforcement Points.

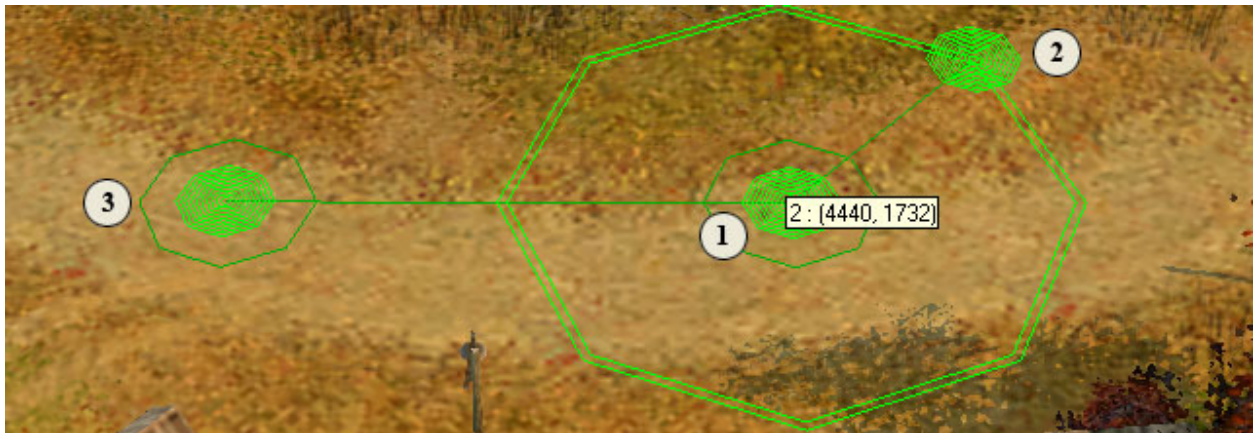
Reinforcement Points are unique for every player (side), so make sure, that you have chosen the desired side when placing reinforcement points.



To add a reinforcement point on the map, press the button Add to the left of the player's options field.



The reinforcement point will be displayed on the map automatically. The picture shows that the new reinforcement point was added to the list (point 2), at that in the field Deploy template there is no appointed template of reinforcement call in this point.



The reinforcement point is the circle of a small diameter with one control point (point 1 in the center), which defines the reinforcement point coordinates, a vector of orienting datum line y of the deployment template (point 2) and a special airforces respawn point (point 3), which is connected with this reinforcement point, but can be placed at any distance from it.

The reinforcement point center (the control point in the center) is the origin of coordinates for the deployment template of the reinforcement called. I.e. the reinforcement point center will be the zero coordinates for the deployment template. (for the details of the deployment template parameters see below)

In most cases, especially on the multiplayer maps, reinforcement points are linked with key buildings. About linking reinforcement points and key buildings see below.

5-05-7 Reinforcement point parameters

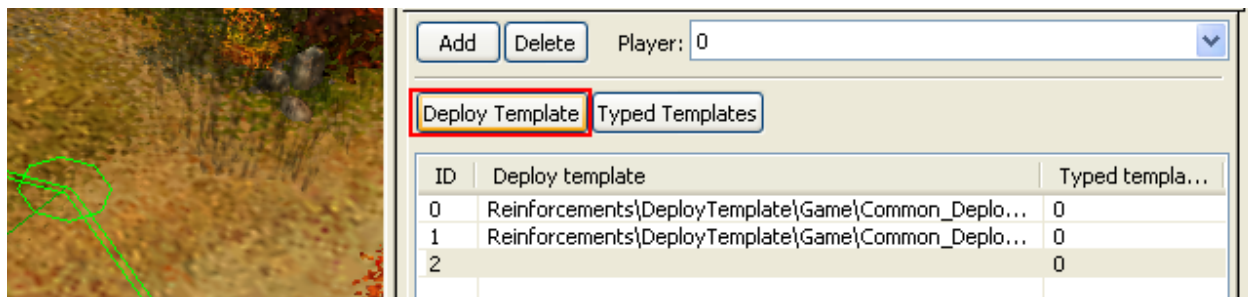
Besides parameters described above every reinforcement point has such characteristics as Deployment template, attribute to the player and Typed Template.

The most important of them are the Deployment template and the Attribute to the player.

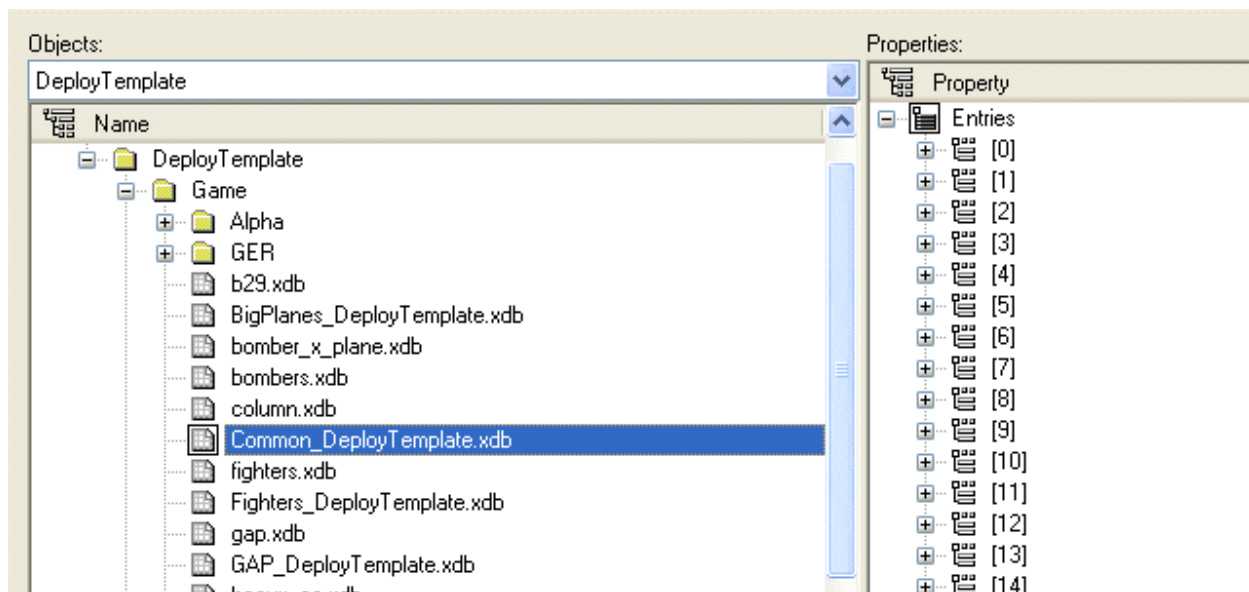
5-05-8 Deployment template

Using deployment template you can set any units formation in the reinforcement called.

For example, when the reinforcement called appears on the road, and it is needed that the units form a column to be adequate for moving along this road. The opposite example, when the reinforcement called must march in deployed formation on the open area.



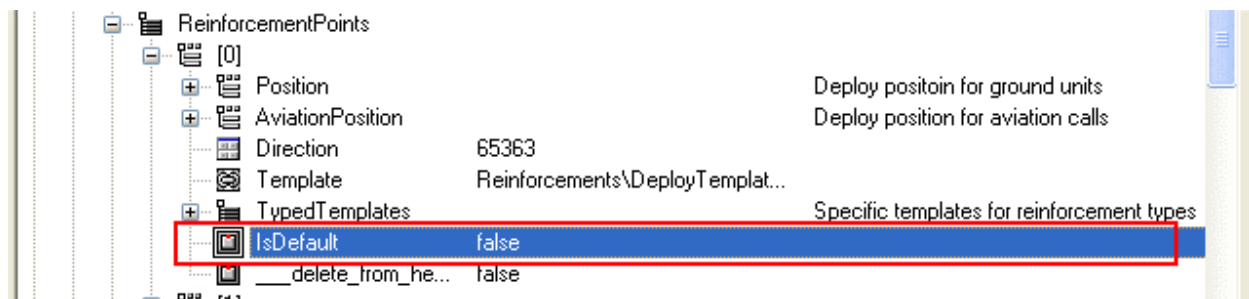
To set the deployment template for the reinforcement point choose the point in the list of the points already deployed on the map and press the button Deploy Template.



In the list displayed choose Common DeployTemplate and press OK. In most cases assigning the other or additional Deploy Templates are not required.

However, if you want to appoint the deploy template separately, use the function Typed Template (see below).

The attribute to the player (The parameter is default)



Every reinforcement point can be assigned by default as belonging to the player from the beginning of the mission. To do it in map properties in the setting reinforcement points for the player in the line isDefault enter true. Then the reinforcement point will belong to the player from the beginning of the mission.

The point with IsDefault = true is available to the player when starting the map, even if the key building does not belong to him. After the first capture the point will work in a usual way.

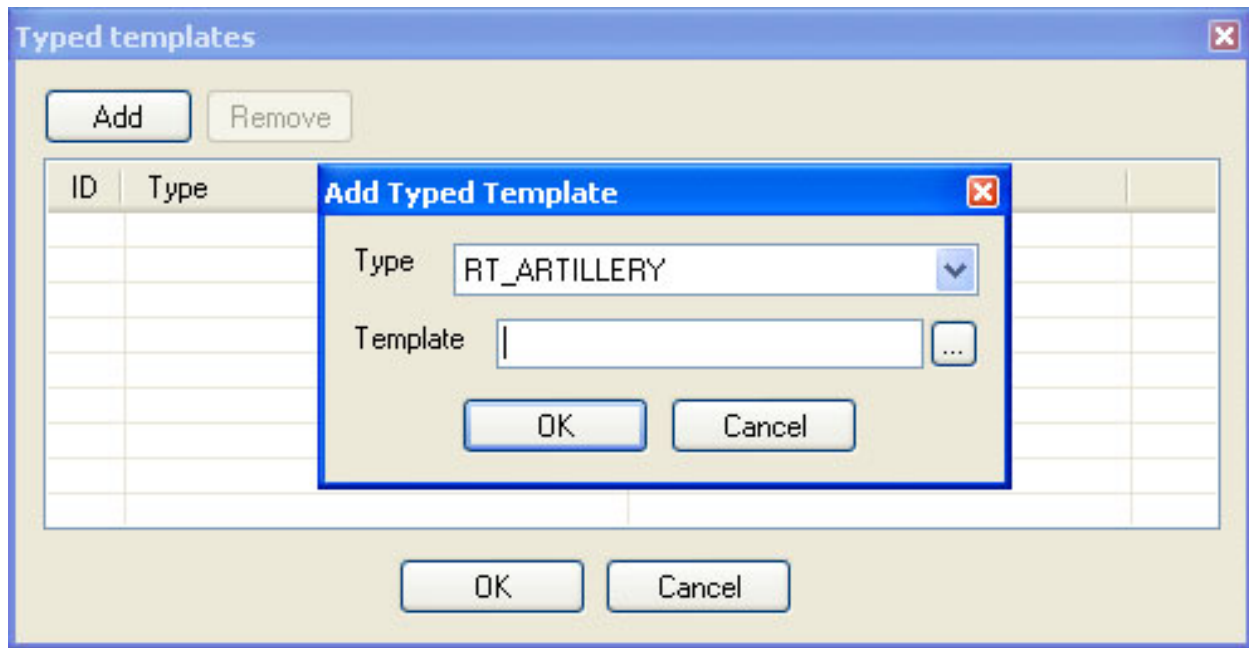
Important note: As a rule, on multiplayer maps only one reinforcement point initially belongs to the player (i.e. the parameter isDefault is true).

5-05-9 Typed Template

Typed Template is used when the map designer is not satisfied with Common_DeployTemplate for some reasons. Assigning Typed Template for the reinforcement point is not necessary.

To assign Typed Template press the button Typed Templates.

The list Typed Template will be displayed for this reinforcement point. Press Add to add a new template.



In the window displayed choose the type and reinforcement respawn template for this reinforcement.

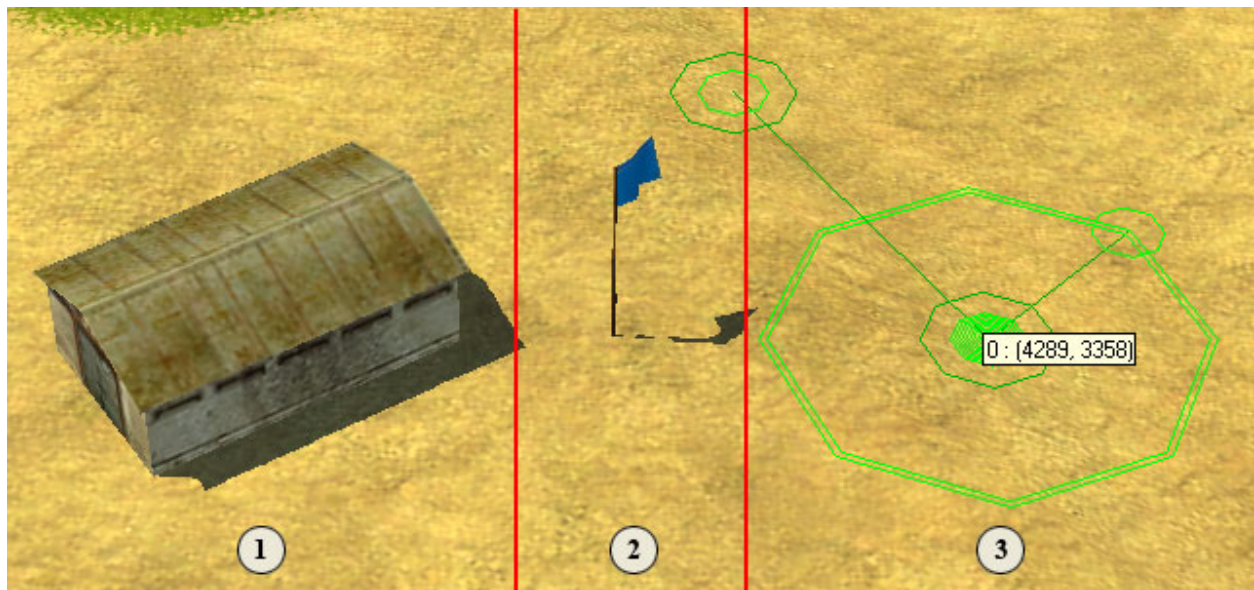
You can choose several typed templates for this reinforcement point, if you need to.

5-06 Key Building

As most reinforcements points on the map do not usually belong to the player from the beginning of the mission, it is necessary to capture them and transfer for the player's control. Therefore, the mechanism of capturing them is needed.

In B2 game capturing new reinforcements happen by capturing key buildings.

To create a link a key building + reinforcement point you will need three elements:



1 Key building

2 Flag

3 Reinforcement point

5-06-1 Deploying a key building

To create a key building you need to deploy one of the buildings available in the tab map objects in the section objects of the tool window on the filter buildings (except the object “Pig”).

Now you need to deploy a special object - flag - which will be captured by different players. To do it in the tab map objects choose the filter flags (objects filter group). Choose the first (blue) flag from the list and put it next to the building, which will be the key one.

(I) Deployment of the flag at the great distance from the key building, it is linked with, may cause problems when setting the map balance.

The map will look like this:



5-06-2 Linking the key building with the flag

To link the key building and the flag, captured which the player will get the control of the key building, you should enter the value of the flag LinkID parameter in the line LinkWith.

I.e. – we see the value of the flag LinkID and enter it in the line LinkWith in the properties of the building linked with it.

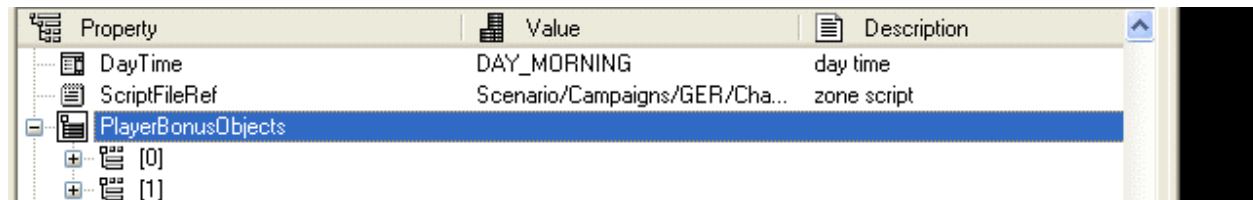


If everything has been done correctly, these two objects will be visually connected with an orange line on the map.

This key building created in that way should be assigned as a bonus object in the map properties.

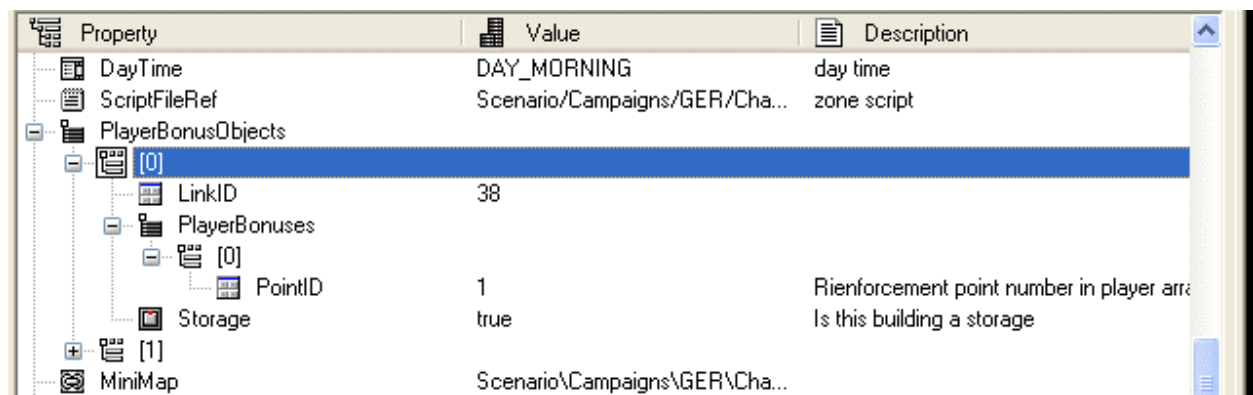
5-06-3 Assigning a bonus object

To complete the creation of the link “key building + reinforcement point”, you should specify the key building in the map properties as a bonus object and add reinforcement points connected with this object.



To do it find the line *PlayerBonusObjects* in the map properties.

Add the bonus object



The information on the bonus object will be as follows:

The values of the parameters of the bonus object are the following:

LinkId – to enter the value of the parameter LinkId of the key building (which was created before).

PlayerBonuses – to enter the reinforcement points, one for each side, reinforcement points, linked with this key building (see below).

Storage – is chosen to indicate if this key building an ammunition depot or not.

Setting Player bonuses

To give the players control of the reinforcement point when they capture this bonus object you need to specify for every player PointID of the reinforcement point, which the player will take over.

In the line PointID you should enter the ordinal number of the reinforcement point of this side. If you do not want to give the player control of the reinforcement point – leave the value of this field -1.

Note, that for every side you can add only one reinforcement point linked with this bonus object.

To complete the creation of the bonus object enter the LinkID and specify if this building an ammunition depot or not.

If everything has been done correctly, you have the bonus object ready, after capturing it the sides will get control of the fixed reinforcement points.

5-07 - Unit Start Commands

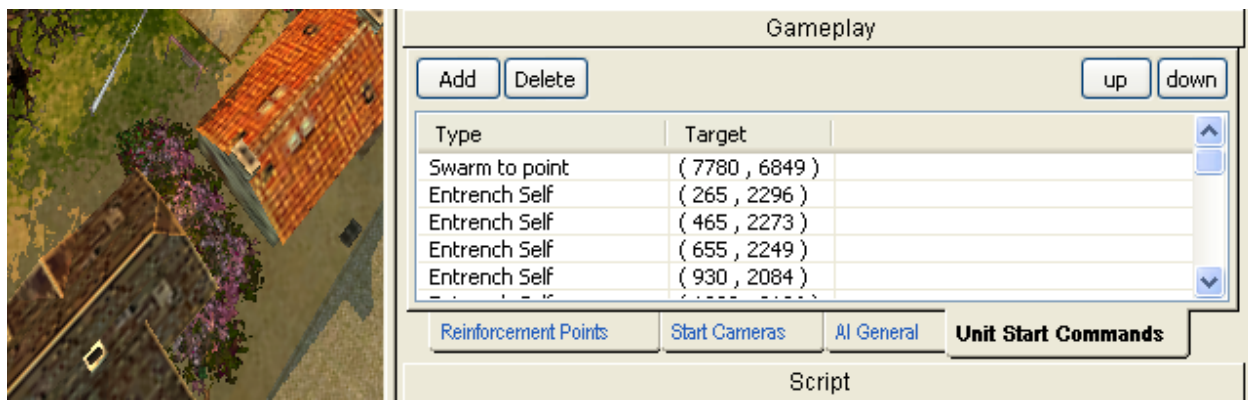
To make the map active at the beginning of the mission (for example, to build entrenchments, attack with the allies forces or the enemy forces, show some events etc.) you can set start commands to the units. For every unit you can appoint several commands, which it will execute according to the queue.

The player can take back the control of the units, which are executing start commands. The same is true for the computer opponent's units, which were transferred to AI General's control.

Important note: If the start commands are assigned to the computer opponent's units, it is recommended not to give these units to AI General's control.

5-07-1 Assigning start commands

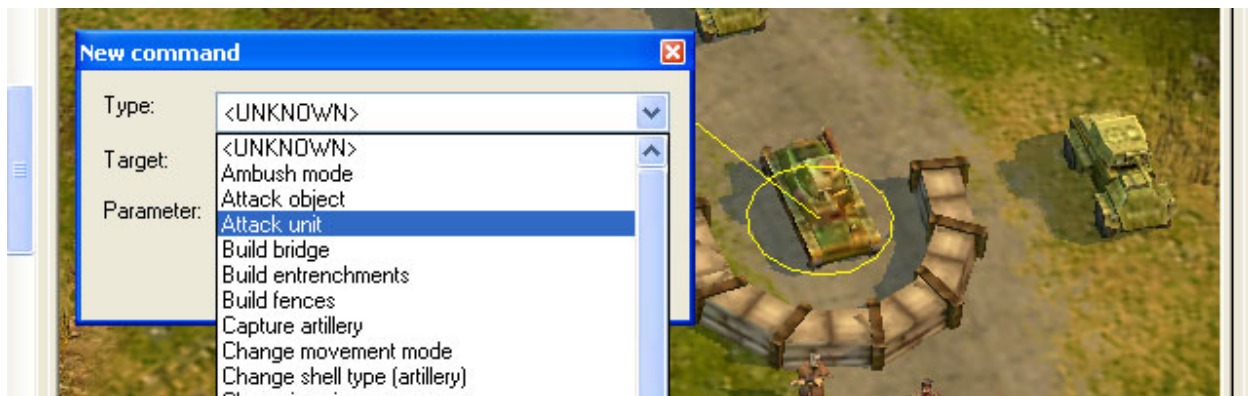
Start commands can be assigned only to the units already deployed on the map.



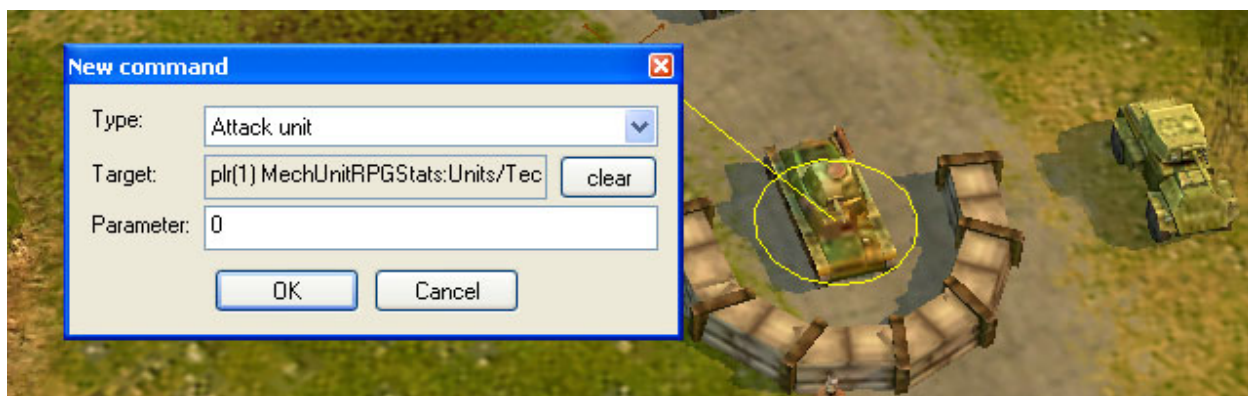
To assign start commands switch to the tab Unit Start Commands in the section Gameplay of the Tool window.

Select the unit, to which a start command will be assigned (you cannot assign the start command to the unit without selecting the unit).

Press the button Add for adding the command.



In the window displayed in the list-box type select the command you want to assign to this unit.



If the command presumes the target or the point on the map (for example – attack unit or move to point) – without closing the window of assigning start command left-click on the map surface and point the target or the destination point on the map. The target or destination coordinates will be displayed in the field Target of the start command window.

After that confirm the assigning the command pressing the button OK.

5-07-2 The list of assigned start commands

All assigned start commands appear in the list in the same tab. You can see both all assigned commands and commands for every unit (you should select the unit, whose commands you would like to see).

The list includes start commands for the units of all sides participating on the map. You cannot see start commands of the units of only one side.

When choosing the command in the start command list you can see the destination point or the target of this command.

You can vary the queue of the start commands both in the general list and in the command list of the unit. To do it use the buttons Up and Down.

For deleting a command from the queue use the button delete.

5-08 – AI General

AI General is the enemy's artificial intelligence, which is capable to fulfill a number of tasks and to work with the definite zones of attention. AI General uses the same means and possibilities, which the map designer assigns it with the help of scripting and map editor functions.

The map editor function "AI General" is the main and the most commonly used tool for forming and setting the basic actions of the computer opponent in the single player game.

(I) Only the computer enemy can possess AI General, i.e. neither the player nor his allies, not to mention the neutrals, can possess AI General.

5-09 AI General's functions

5-09-1 AI General's abilities

AI General can call the reinforcements and manage the units, which are under its command, estimate the situation on the map, check the state of the attention zones, defend itself and attack.

At the same time AI General can manage artillery, air force, mobile combat and auxiliary units, but it cannot use infantry, antitank artillery, ships and recon aircraft.

AI General can repair mobile combat units and resupply their ammunition.

5-09-2 Map estimation

AI General can estimate the situation on the map. For that the entire map is divided into relative squares and for each in real time the level of the potential danger is estimated, based on the total cost of the ground-based troops or enemy's artillery in it. The aircraft are not taken into account when considering the danger for the squares (in case there are enemy bombers/attack aircraft on the map, AI General always tries to call fighters).

(I) AI General can discover enemy troops and artillery as the player – "visually" for all types of the units and also "by ear" for the heavy artillery.

The cost of every unit is estimated on the basis of the default “price” for all units of these combat arms, and also the unit’s quality itself. For example, let us consider a medium tank M4A1 Sherman. The default price for all medium tanks is 70, the multiplier of Sherman’s quality is 1.

Accordingly, the price of the tank Sherman is 70 points. So, if there are 10 tanks Sherman in one square, the danger level for this square will be estimated by AI General as 700 points.

(I) the information on the cost of all units is in the file consts.cfg, in the folder <Blitzkrieg2>\Data\Profiles.

AI General makes the decision what to do with every square taking into consideration the danger level, set to every square. The decisions are made with the definite periodicity, in equal periods of time.

There are two main levels of danger:

The first one is low danger. This category includes those squares, in which the number of the discovered enemy troops was not very big (total cost up to 300 points). Having discovered such squares AI General tries to direct the long-range bombardment at them.

The second one is high danger. The average number of the enemy troops (total cost from 300 points). First the air force is sent, and then the art bombardment starts.

Mainly, the tactical decisions on the ground-based troops are made by AI General on the basis of the specific zones, assigned by the map-designer at the stage of designing a map. For details see below (Chapter Setting Ai General).

In the presence of several danger squares General always chooses the square with top priority and starts to process it. The square is considered to be processed after all the possible actions were performed for it: the air force was sent and the bombardment was accomplished, at that the duration of one bombardment is regulated by a constant (see the file consts.cfg).

The estimation of the map is made by General with the definite recurrence. At the same time at the end of every cycle General “forgets” about the levels of danger for every square. It is done with the purpose of avoiding endless processing of the squares by General on the basis of the stale data.

5-09-3 Reinforcements query

AI General can call any available reinforcements anytime, when it has such an opportunity, also, General checks every second call – if there is a query for the air force call, and, if there is such a query, it calls the corresponding air force instead of the ground-based troops.

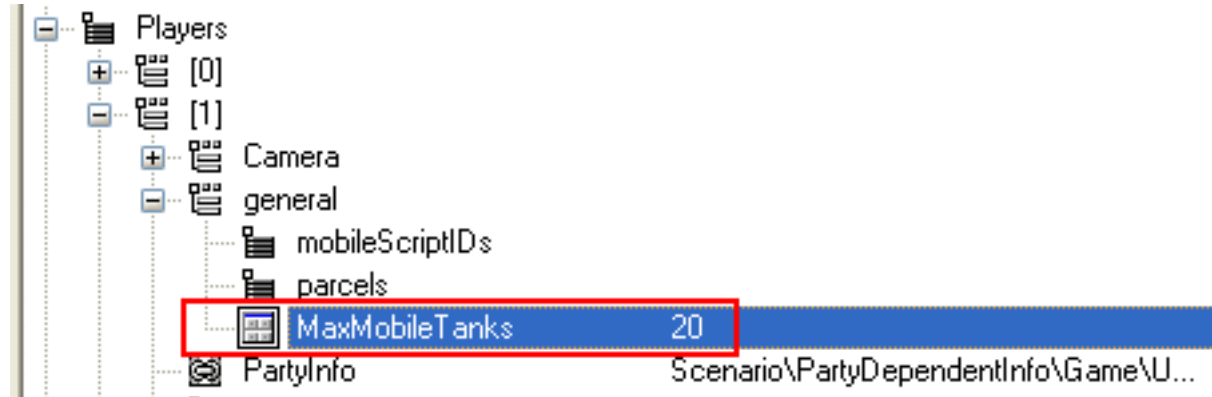
General can call any types of reinforcements, at the same time it can use only tanks, self-propelled guns and aircraft (bombers, attack planes and fighters). Accordingly – General cannot use infantry, artillery and so on, although it can call them.

Therefore, it is recommended to assign for AI General as reinforcements only those he can make use of – tanks, self-propelled guns and aircraft.

On every map the maximum available number of calls is established for the General, after having used up which, General cannot accomplish reinforcements calls (equal to the restricting the number of the calls in the missions for one player or in B2 campaigns).

At the same time it is recommended to restrict also the maximum of the number of AI General's units on the map. To do it put the appropriate value in the field **MaxMobileTanks**.

For example, if the number of General's available calls is 20 and there are no restrictions, General will spend all the available calls one after another. But if the number of the already called reinforcements on the map is restricted by ten (**MaxMobileTanks** = 10), General will call, for example, 5 his reinforcements by 2 tanks and after that it will wait for the change of the number of the units, which are already on the map.



Troops in the called reinforcement get into the reserve, from which they can be called to fulfill some task. All the reserve troops are directed by AI General to the reserve build up zones. (For more details about different zones, assigned by map-designers when setting AI General, see below).

The query for the air force call is made in two cases: if there is a square with the danger level needed (bombers/attack aircraft are called), or, if the enemy bombers/attack aircraft were detected on the map – fighters.

Called aircraft can fly in swarm mode from the respawn point to the target point, therefore, the air force respawn point for the computer is better to be placed close to the ground-based troops respawn point.

(I) In the swarm mode air force attack all the targets on its way.

It is necessary to minimize the duration of the flight above the player's territory; otherwise, on the way there can be some targets unknown to the General before, which will distract the called aircraft from their main task, what will decrease efficiency of General's actions.

For example – if the AI General's air force respawn point is located in the place easy to reach by the enemy – coming air force can be easily engaged in the fight, and, thereby, it will diverted from the fulfillment of its main task.

Important note: When calling air force, General does not process the presence of the player's antiaircraft artillery on the map.

5-09-4 Attention zones

Attention zones are the zones set in the map editor, demanding AI General's attention according to the *coefficient of significance*.

The attention zone is the universal zone either for the attack or defense. Each attention zone has the constant starting significance coefficient by default. This coefficient defines priority of the zone under other equal conditions. The actual coefficient of significance of the zone is assessed on the basis of the starting significance coefficient minus amount of all values of General's units in the zone plus amount of all values of Player's units in the zone multiplied by two (the multiplier "*2" is used by AI General for creating the decisive advantage in the zone).

If the significance coefficient of the zone is higher than the amount of all General units in the zone, General will send additional forces to the zone in the presence of spare forces (reinforcements calls or units as reserve), at that the actual amount of the forces to be sent will be equal: **(The zone's starting significance coefficient – General's amount of forces) + amount of Player's forces*2(the coefficient of the desired advantage)**, where <the coefficient of the desired advantage> signifies the number of the times General's forces must exceed Player's forces to provide the guaranteed victory.

*For example: we have the attention zone with the significance coefficient 1000. In this zone there are General's forces of the amount 200 and Player's forces of the amount 1000. On the basis of calculations $(1000-200)+1000*2$ General will try to send forces of the amount 2800 to this zone.*

In case General actions processing the zone turned out to be ineffective (General troops were destroyed), General launches a new attack. In case General's actions processing the zone turned out to be effective (all enemy's troops were destroyed in the zone), the amount of forces equal to the zone's starting coefficient remains in the zone, and others are called to the reserve zone.

Reserve zone is the zone where General builds up surplus of the called ground-based forces (which are not required at the moment). This zone type does not possess the starting significance coefficient, also, General's or Player's forces presence in this zone is not taken into account, i.e. General will react at the enemy forces presence in the zone as at the usual squares of the map. If General has several reserve zones, spare forces will be distributed among them evenly.

With the certain periodicity General defines if there is a query for the help from some attention zone. If so, General defines the reserve forces nearest to it and sends them to the corresponding zone. At the same time, reserve forces can be as called reinforcement, as well as forces which were initially on the map and assigned as mobile reinforcements.

If there is the query from several attention zones simultaneously, first General processes the query from the attention zone with the higher actual significance coefficient.

If General possesses forces to satisfy queries only from one zone, all reserve forces will be sent to that zone, and the rest zones will be ignored until the next estimation of priorities.

In case all the actions to the attention zones are accomplished and AI General has spare units, it can launch an attack at the nearest bonus object (key building) or, if enemy's units are detected, launch an attack at them.

5-09-5 Units management

Besides units management during attack, defense and reserve, AI General has an ability to repair mobile combat units and resupply them. For that the General must have units with appropriate abilities in the mobile reinforcements. When it is necessary to repair or resupply any of General's units, one of the support units will be selected and sent to fulfill the corresponding task.

The fact that General has no ability to manage absolutely all units of the specific combatant is especially worth mentioning. AI General can manage only those units which are given to it as mobile reinforcements, called as reinforcements or passed to it with the help of the script (for details see mobile reinforcements).

(I) All the units called by AI General as reinforcements automatically get under its control.

5-10 AI General tool assignment

The AI General setting tool in the editor simplifies setting the tasks, the most often used for scripting actions of computer opponent's AI General: **Zone defense**, **Zone attack** and **Units (mobile combat units) management**. In the editor there is a function of setting AI General exactly for facilitation of scripting these actions of the computer opponent.

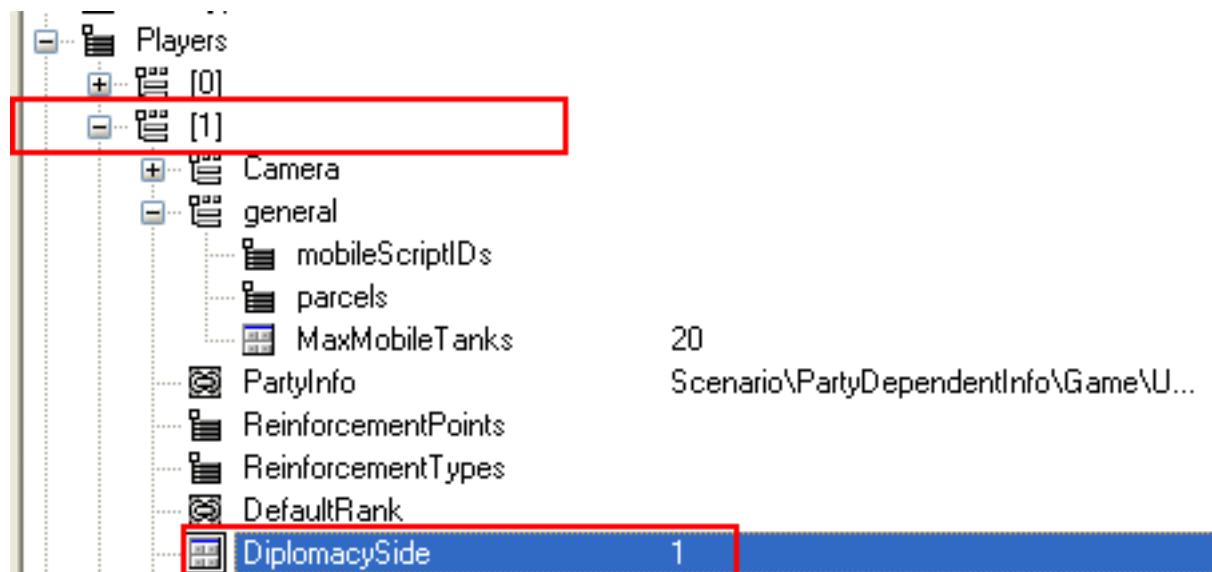
AI General setting consists of the following steps:

- Assigning the units managed by AI General from the very beginning of the game (mobile reinforcement)
- Attention zones settings and defining
- Reserve zones defining

For AI General setting open the tab AI General in the section Gameplay on Tools window.

Before you start setting AI General make sure that you have chosen the appropriate side. AI General cannot belong to Player, his Allies or Neutrals.

(I) In single player missions the player's opponent is the side, which has DiplomacySide = 1. Accordingly, the player with DiplomacySide = 1 can have AI General.



When setting AI General make sure that the player chosen is not the Player's opponent.



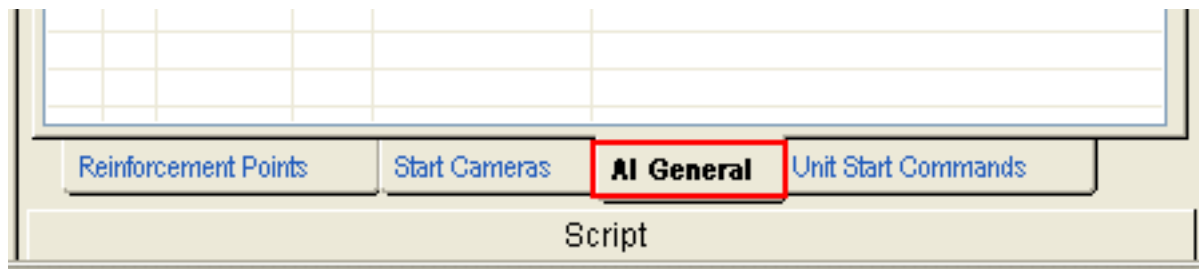
5-10-1 Mobile reinforcement

Mobile reinforcements are the units which are under AI General command or are transferred to its command.

All together there are three ways of transferring units to AI General control: Mobile reinforcements Tool in the map editor, scripting and calling reinforcements by AI General itself during the game.

5-10-2 Mobile reinforcements assigning with the help of the map editor

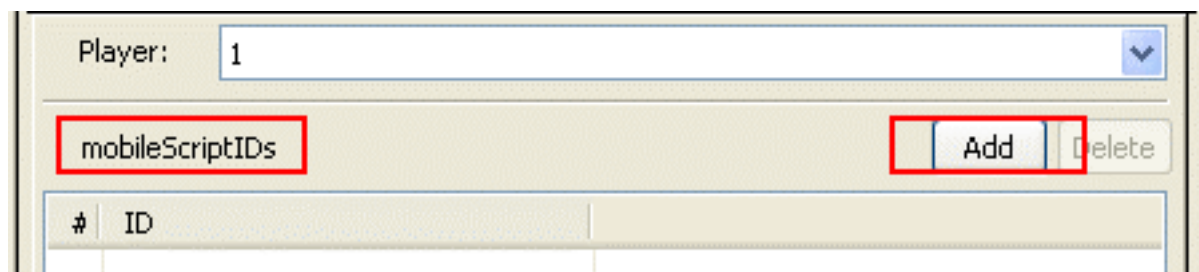
Mobile reinforcements are assigned by putting their ScriptID in the list MobileScriptIDs on the tab *AI General* in the section *Gameplay Tools Window*.



You can put mobile reinforcements in this list both before placing objects on the map and afterwards. But in any case all units planned to be transferred to the General must have ScriptID, different from the value “-1”.

All operations of placing units on the map and assigning ScriptId to them must be performed with the help of the tab Objects, section Objects of the tools window.

To add script group to the list of General's mobile reinforcements press the button Add to the right of mobileScriptIDs in the upper part of the tab AI general.



In the opened window Mobile Reinforcements enter ScriptID of the corresponding unit or the script group.

The line with the sequence number of mobile reinforcements transferred to General appears in the list of mobile reinforcements.

5-10-3 Transferring units for General's control using scripts

Besides assigning mobile reinforcements with the help of map editor, when the units being transferred for General's control are already on the map, there is the possibility to transfer units for General's command using script.

But at the same time ScriptID of all units planned to be transferred for General's control must be registered in the section Mobile reinforcements of the map editor.

For more details about transferring units for General's command see Section Scripts.

5-11 Zones assigned with the map editor

With the help of the map editor it is possible to assign and set attention and reserve zones for AI General.

On every map there must be placed at least one attention and one reserve zones, so that AI General could be in command of the transferred to it or called as reinforcements units.

Important note: Maps without attention zones and reserve zones can operate incorrectly for AI General! For example – when calling reinforcements and in the absence of calls for their usage AI General will not know what to do with them.

5-11-1 Assigning and setting attention zones

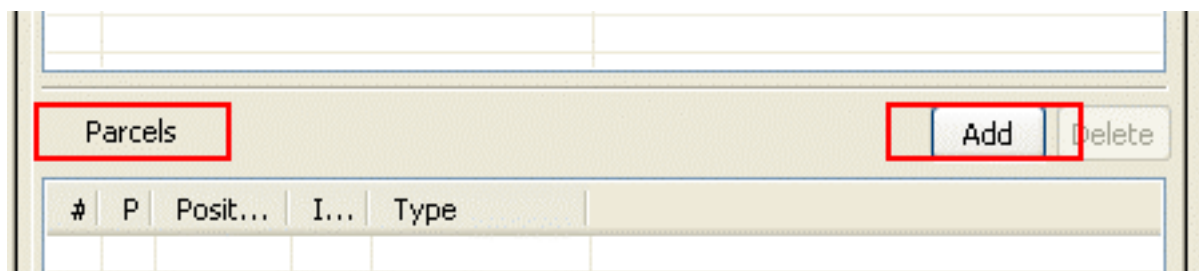
Attention zones are universal zones, used for assigning AI General such tasks as defense and attack. In principle there is no difference between the zones, designed for defense or attack, this division is absolutely relative. AI General performs the same actions for attention zones assigned both for defense and attack, so their difference is only in the degree of availability and initial filling with the General's or enemy's forces.

Accordingly – if you want to assign defense zone for General – provide AI General with the possibility to fill it with the forces before the enemy forces arrive. And the attack zone must be initially placed on the enemy's territory and filled with the forces, hostile to AI General.

The whole process of assigning and setting attention zones is divided into four stages:

1. Placing attention zone on the map
2. Defining zone type
3. Defining zone's significance coefficient (if it is a Defense zone)
4. Assigning preferable positions within the zone for occupying them with the forces

5-11-2 Placing attention zone on the map



To place AI General's attention zone on the map in the bottom part of AI General tab press the button Add to the right of the heading Parcels.



The red contour of the future zone will appear on the map automatically, provided with two guiding points – in the center and on the border. With the help of them it is possible to move and change the size of the attention zone as during placing units or other objects on the map.

5-11-3 Defining zone type and significance coefficient

After placing the zone on the map it is necessary to define its type. Zones without the definite type remain red. Attention and reserve zones are green and yellow correspondingly.

For that double left-click on the corresponding line in the column Type.

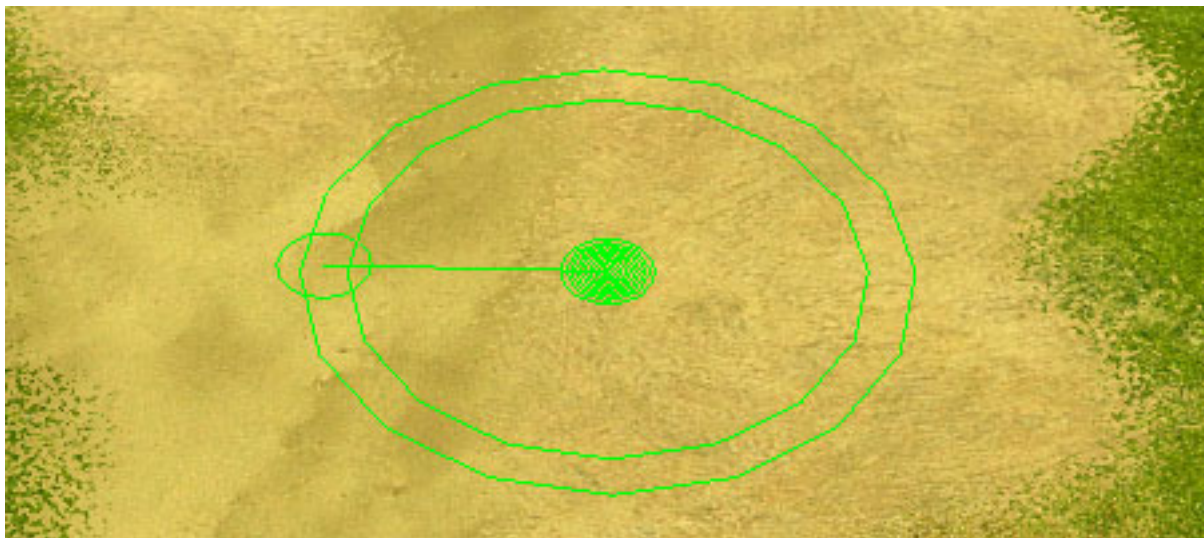
Parcels					Add	Delete
#	Points	Position	Importance	Type		
0	0	709, 3363	1700.00	EPATCH_DEFENCE		
1	0	1327, 1113	0.00	EPATCH_UNKNOWN		

In the opened window it is necessary to choose the zone type. By default the new zones are defined as unknown. All zones of this type are not identified or processed by AI General. For defining AI General's attention zone choose zone type defense.

In the following line set the zone's significance coefficient. This coefficient will be basic for estimation of the total cost of the forces, which General should bring to this zone. If the zone's significance coefficient is not set (i.e. equal to 0), AI General will direct its forces to this zone only in the case, when the enemy's forces are detected.



After pressing OK this zone must become green on the map surface.

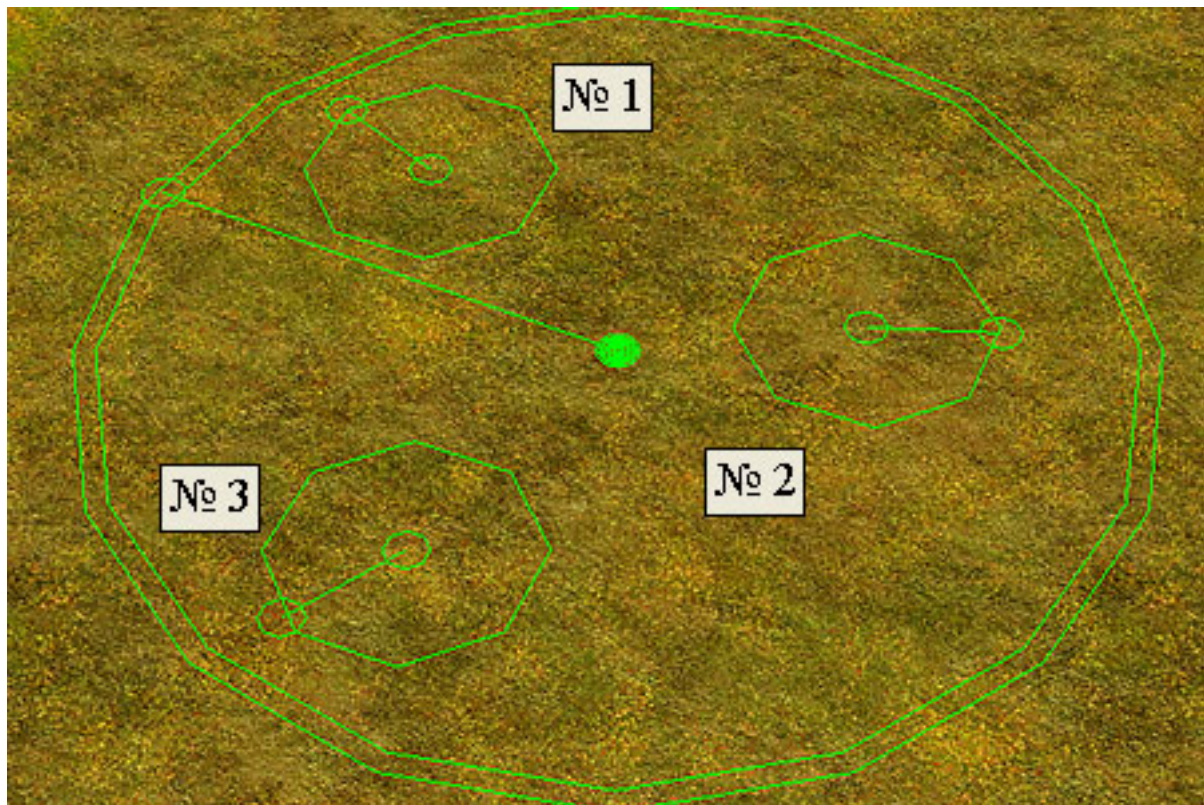


5-11-4 Assigning preferable positions within the zone

Within the zone it is possible to assign several positions, which are the most suitable for placing AI General's forces according to the map designer.

These positions do not restrict the quantity of AI General's units, which can be sent to the current zone, they are of a recommended character. The quantity of units, which AI General will send to the zone, will be estimated on the basis of the zone's significance coefficient.

To assign a position right-click within the existing attention zone. You will also be able to define direction, in which the AI General's unit, occupied this position, will be oriented.



(on picture – Unit Positions)

Reserve zones differ from attention zones by three things: AI General reacts at the presence in the reserve zones enemy's forces in the same way as at the other map squares; for reserve zones significance coefficient is not considered and the color of the zone on the map surface is yellow.

For assigning a reserve zone it is necessary to do the same actions as for assigning an attention zone, but choose reinforcements type.

(1) All AI General parameters set with the help of visual tools are reflected in the map properties in the corresponding field.

Besides units under AI General command or managed with the script, there are units, which the map designer placed as belonging to the same side, but did not transfer them to AI General command and does not use them in the script.

Such units are completely effective and possess enough intelligence, which allows to attack the enemy and pursue them within the borders of a certain zone.

The possibility not to transfer units for the AI General's command is set for map designers.

After completing all operations on setting and assigning attention and reserve zones the AI General's list of the zones will be as follows:

Parcels					Add	Delete
#	Points	Position	Importance	Type		
0	3	4550, 3027	450.00	EPATCH_DEFENCE		
1	7	2122, 6038	1700.00	EPATCH_DEFENCE		
2	0	6508, 2668	0.00	EPATCH_REINFORCE		
3	2	6844, 5755	0.00	EPATCH_REINFORCE		
4	2	5529, 922	870.00	EPATCH_DEFENCE		
1	2	3	4	5		

The columns are:

- 1 – Zone number
- 2 – The number of units positions in this zone
- 3 – Zone coordinates on the map
- 4 – Zone value (the total cost of the units, which will be counted by AI General – how many units to send here)
- 5 – Zone type (DEFENCE, REINFORCE или UNKNOWN)

5-12 Making script

Script and writing it is the invisible part of an iceberg when working on missions for a single player game. All you want to see in missions as events, sides' actions, objectives, given to the user, or even the victory or defeat is described with the script.

*Important Note: For creating a multiplayer map scripting is **NOT** needed,*

Using script in B2 editor you can do practically everything – place / remove the objects, plan attacks and different events on the map, define the victory and defeat conditions and the so called triggers – events launching the chain of the other events.

As compared to writing script for B1, when all work, in fact, was done in the text file, B2 editor has the special script editor, which makes scripting missions easier – the new editor highlights script syntax, reports on the function having been typed incorrectly and displays the list of functions available after typing several first letters.

Important Note: All script functions are case sensitive.

B2 scripts are based on the modified language LUA (link to the www.lua.org). So, if you already know this language, writing scripts for B2 will be much easier.

Important Note: This manual cannot cover all information on scripting for B2, so only the main information is represented in it. To learn more – visit B2 official site and forum.

5-13 Writing and editing the script

Property	Value	Description
Season	SEASON_SUMMER	season
DayTime	DAY_MORNING	day time
ScriptFileRef	Scenario/Campaigns/GER/Cha...	zone script
PlayerBonusObjects		
MiniMap	Scenario\Campaigns\GER\Cha...	

To run the script editor and start writing a script for your mission, find the line *ScriptFileRef* in map properties (MapInfo).

Create a new script or open one of the ready ones (as a template).

```
Custom\GER1.3\script.lua - Script Editor

159 -----Objective
160
161 function Objective()
162     ObjectiveChanged(0, 1);
163     StartThread( CompleteObjective0 );
164 end;
165
166 function CompleteObjective0()
167     while 1 do
168         Wait( 1 );
169         if IsSomeBodyAlive ( 0 , 6000 ) > 0 then
170             ObjectiveChanged(0, 2);
171             StartThread( Repair );
172             StartThread( Objective1 );
173             break;
174         end;
175     end;
176 end;
```

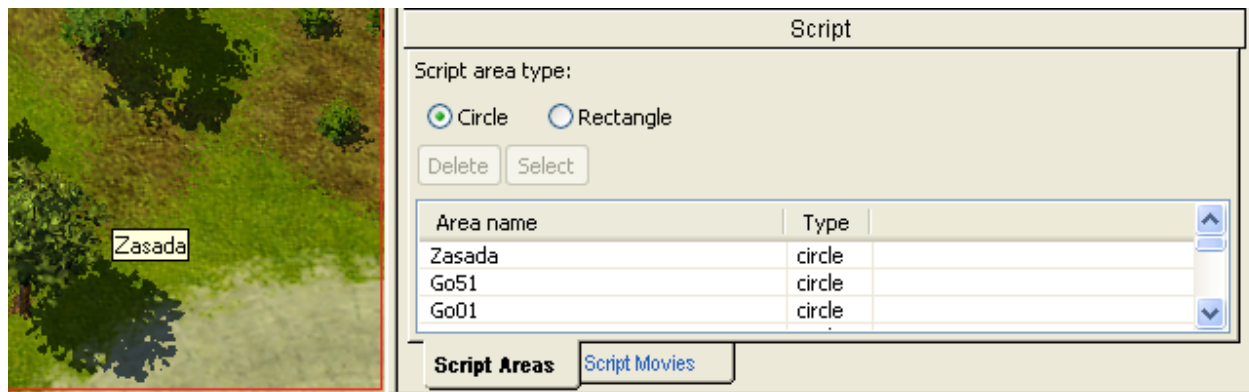
The script editor with the script loaded looks like this

All further information on scripting missions you can find in Appendix - Script Functions or at the official forum of the game.

5-14 Script Areas

When creating single player missions script areas are used almost in all cases when scripting events and objectives of the user.

5-14-1 Creating script areas

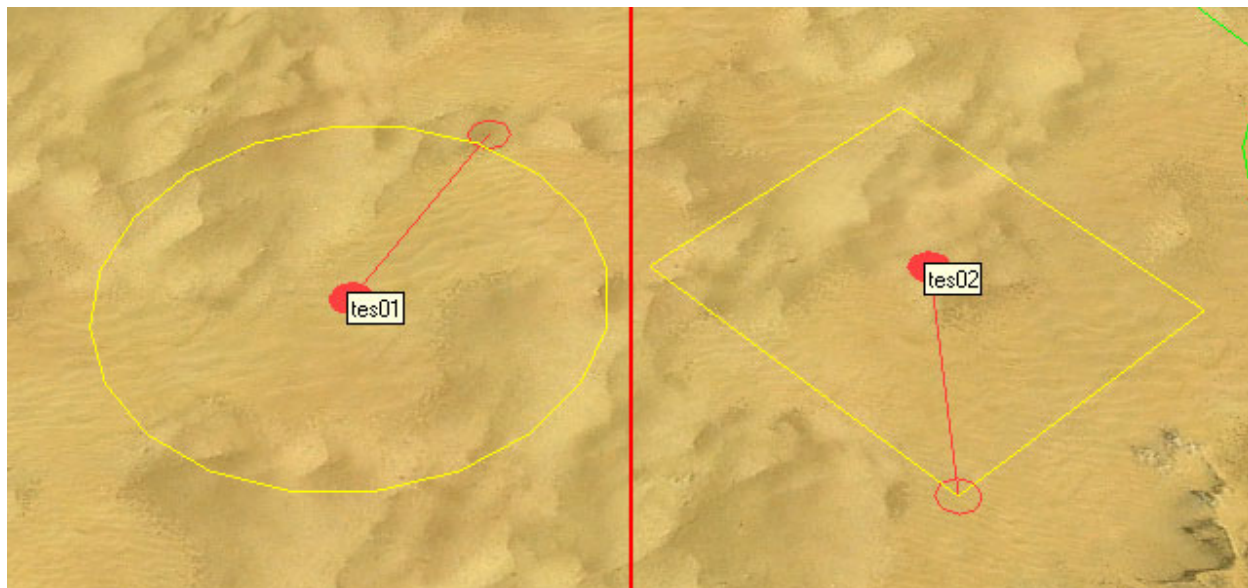


To create a script area, open the tab **Script Areas** in the section **Script** on the Tools toolbar.

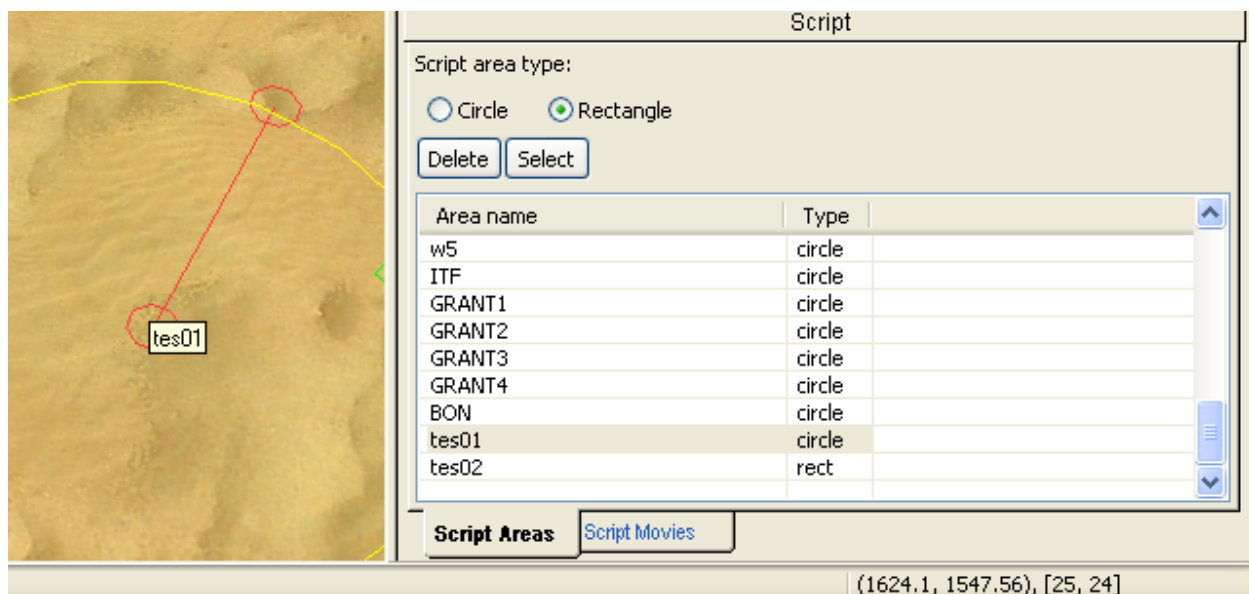
Choose the area type – a **circle** or the **rectangle**.

Left-click on the map to mark the centre of the future script area (a little red circle will be displayed on this place).

After that set the radius (if the type of the marked area is a circle) or the distance from the centre to the **corner** or the area (if it is a rectangle).



Two red circles will be displayed on the map, connected with a line, and you will be offered to give a name to the new area.



You can give a name to this area both in figures and in letters. At that, if you are creating several script areas, you should give them unique names to use them when scripting missions.

After creating a script area its name and type is displayed in the list in the same tab.

There are two buttons above the list *Delete* and *Select*. Using them you can delete a area from the list or find it on the map quickly.

5-14-2 Moving the area and changing its sizes

After placing the area it can be moved as any other object on the map or its sizes can be changed.

You can do it with two control points in the centre and border of the area.

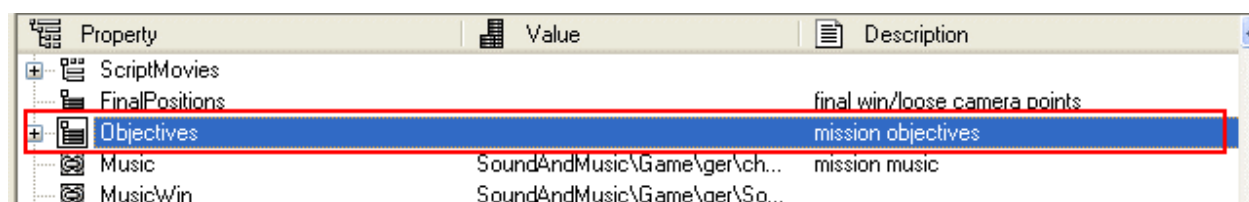
5-15 – Objectives

When creating a single player map one of the key moments is giving current objectives to the user during the mission.

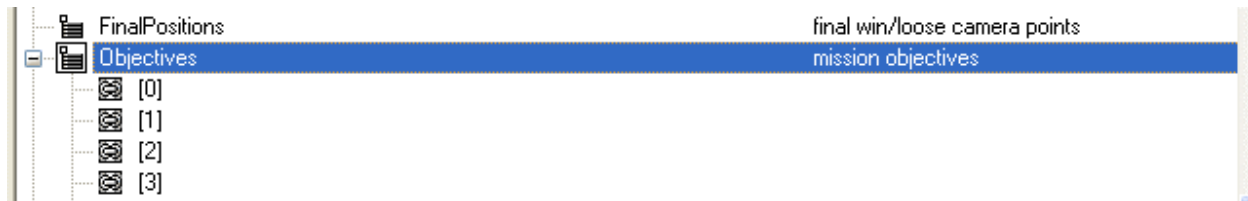
Creating and setting the objectives, given to the user in the game, consists of the two main stages:

1. Creating and setting an objective in map properties (*MapInfo*) – the parameter Objectives.
2. Describing the functions of this objective in the script (*ScriptfileRef* in the map properties).

5-15-1 Creating Objectives in the map properties

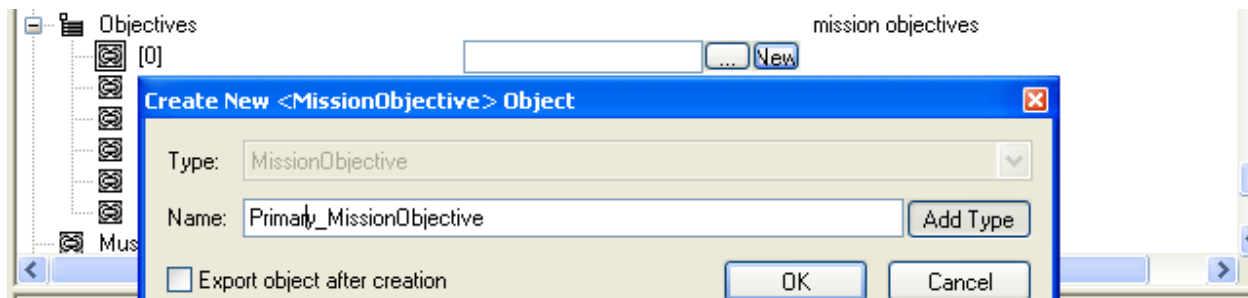


Find the parameter Objectives in the map properties.

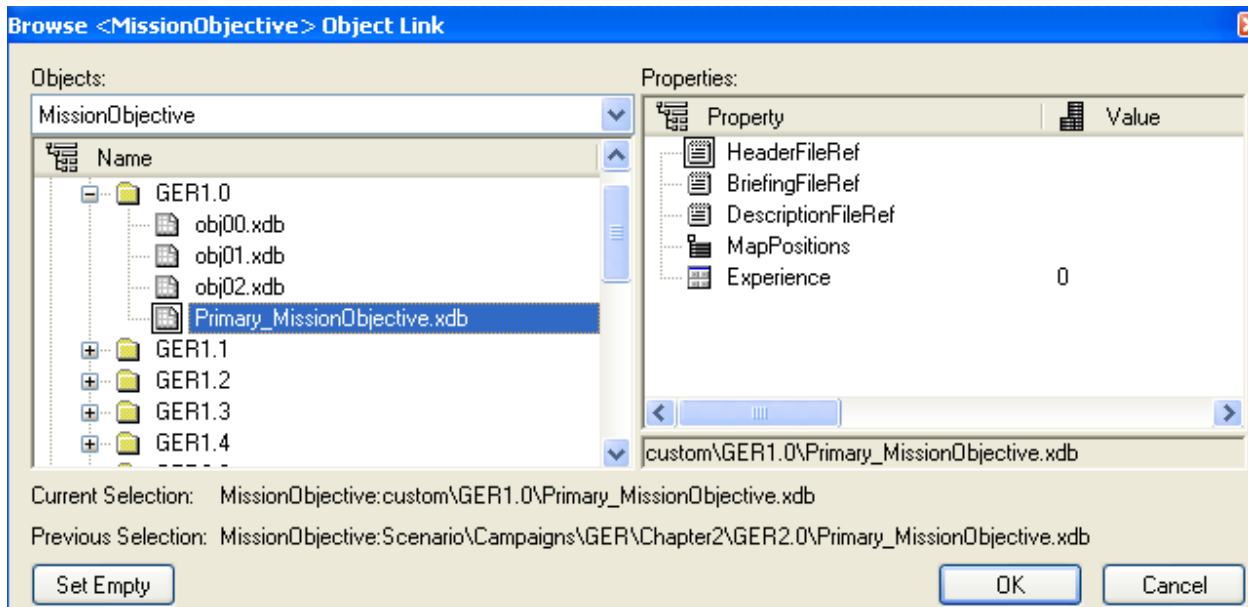


Add one or two objectives

Choose the objective you will fill and left-click in the column Value of the corresponding line.



Create a new objective and enter the file name, where the objective parameters will be saved.



Now you should set objectives parameters. Switch to object properties. The list of the parameters to set will be displayed.

HeaderFileRef and DescriptionFileRef

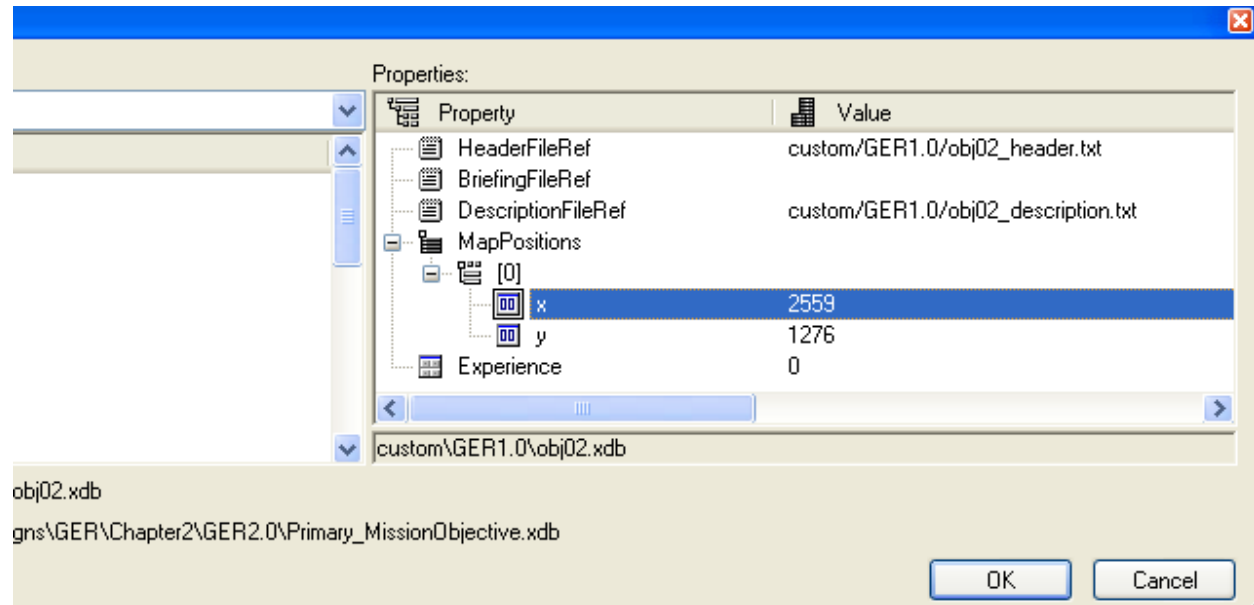
These parameters usually specify the objective name and its description, they are filled as usual. ***BriefingFileRef*** – is not used.

IsPrimary

This parameter defines if this objective is of top-priority. At present this parameter must always be true, as the value false is not used.

MapPosition

To display markers, indicating the place of buildings, on the map you should add these markers to the parameters group MapPosition. Add as many markers as you need. After that you should assign coordinates to every marker, which will define its position on the map and minimap. Coordinates are typed according to the place of the object on the map or approximate coordinates of the region. To get to know the coordinates point the cursor on the place you need in the editor and the mouse cursor coordinates will be displayed in the right bottom corner of the editor – in the status bar.



Experience

Using this parameter you can define how much experience the player will get after fulfilling this objective within the campaign. When creating maps for the single player game or multiplayer – it does not matter.

5-15-2 Describing objective functionality in the script

To make the objective function it must be fully described in the script with the other available commands (For details see Appendix - Script Functions)

The main functions needed for making this objective work are ***GiveObjective*** and ***CompleteObjective***.

To describe the objective functionality you often need to use either objects ScriptID, which are mentioned in the objective description or script zones TextID, set with the editor.

For studying script commands and the rules of describing script events see Chapters 5-12 Making Script and Appendix - Script Function of this manual and visit the official forum of Blitzkrieg 2.

Chapter 6

6-01 Hyper screenshot



Every mission always starts with loading a hyper screenshot, which displays the entire map without mechunits and squads. It allows to use the idle time while the map data are being loaded.

6-01-1 Creating a hyper screenshot

To create a hyper screenshot you should fulfill the following actions in order (preferably on the ready map):

1. Run Blitzkrieg 2 game.
2. In the main menu open the console with the key tilde (~).
3. In the console displayed type the command "map" (in lower-case without quotes) in the command line and the path to your map, beginning with the folder, which is the first after the folder Data. You will get something like "map CustomMissions\MyTestMap-003\mapinfo.xdb". The full way to this map is as follows: "C:\b2\data\CustomMissions\MyTestMap-003\mapinfo.xdb".
4. Press Enter and loading your map will begin. If you have not made your own hyper screenshot for your game, the map will be loaded with the standard hyper screenshot.
5. After loading the map (it is loaded as any other mission in the game), call up the console again.

6. In the command line type “**pwl_prepare 90**” – this command will automatically display the map and set the camera in the coordinates needed to start creating a hyper screenshot. Note: You can set any angle, but 0, 90, 180, 270 are recommended. After that you should not move the mouse, rotate the map or move the camera over the map – it will break the camera setting for creating a hyper screenshot.

(I) Hypershot is created with taking a screenshots of the entire map. Usually it takes from several seconds to several minutes (depending on the size of the map and you computer's processing speed)

7. Hide the console, pressing the key tilde (~).
8. Press the keys Left Shift + Left Control + Print Screen to start the process of creating a hyper screenshot.
9. The result will be saved in the folder <Brlitzkrieg2>\Data\ScreenShots as “mapshot-2005.05.24-13.48.42.tga” – i.e. the name of the screenshot, the time and date of its creation.

6-01-2 Processing and adjusting the hyper screenshot

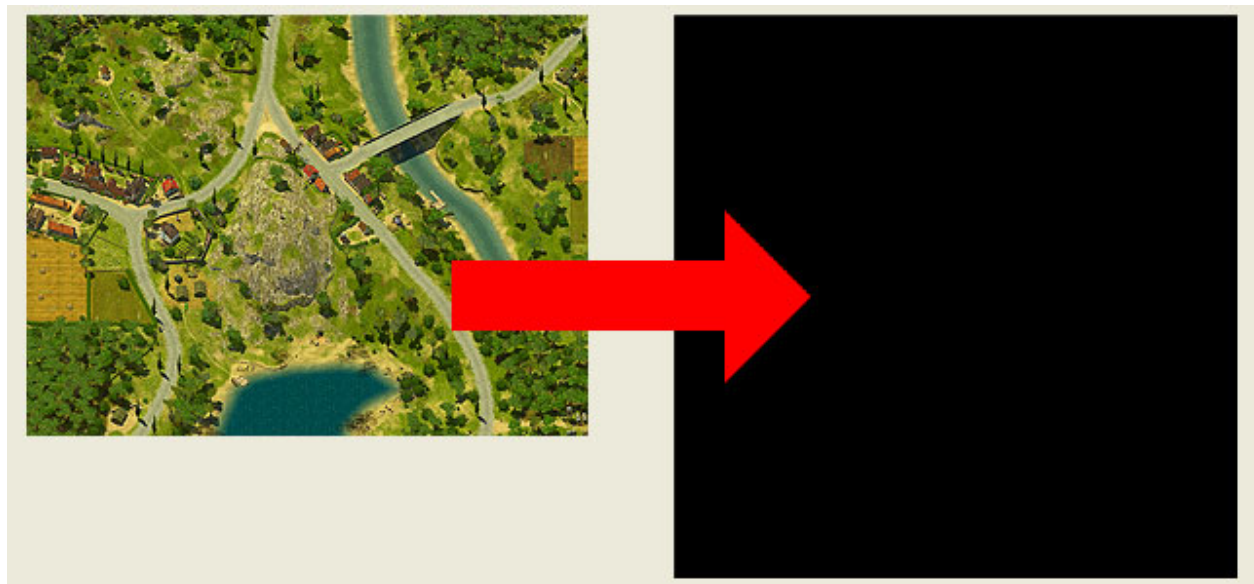
To integrate you hyper screenshot in your map successfully you should accomplish several operations on the image in the raster editor (for example, Adobe Photoshop®).

1. Run the raster editor and open the file of the hyper screenshot you created.

(I) Note – the hyper screenshot created has very large measurements and takes much space. For normal integration in the map it must be made smaller and adjusted to the certain parameters.

2. Create two templates (new files) in the raster editor: one with the measurements 1024 by 768 pixels and the other 1024 by 1024 pixels.

(I) The texture of the hyperscreenshot must be 1024 by 1024 and Blitzkrieg 2 game interface is 1024 by 768 pixels. I.e. the part of the screenshot to be seen is 1024 by 768 pixels.



3. To display your screenshot correctly in the game you should adjust the hyper screenshot to the measurements 1024 by 768, having placed it on the texture of 1024 by 1024 pixels.



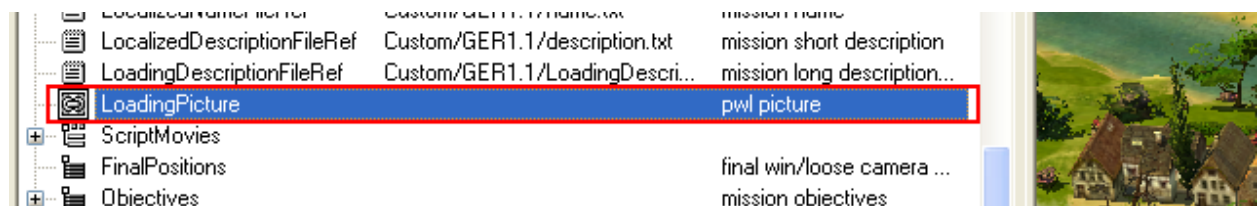
4. Having decreased the measurements and adjusted the screenshot to the template, save it in tga format as, for example, Gipershot-MyTestMap-003.tga in the folder with your map or the folder data\UI>LoadingPictures\.

6-01-3 Integration of the hyper screenshot in the map

Thus, the hyper screenshot for your map has been created. Now you should integrate it in the map.

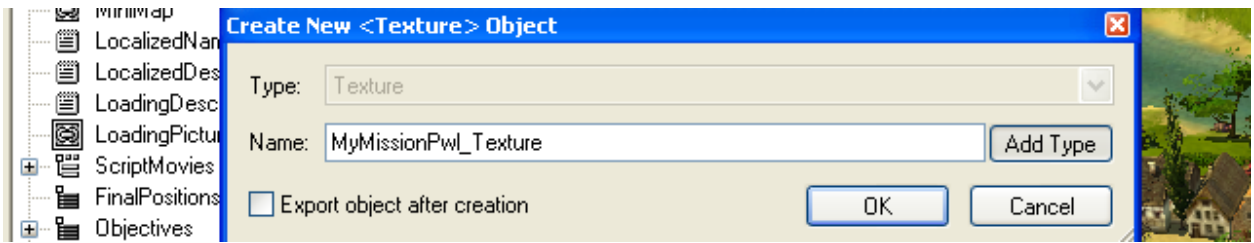
Take the following steps to do it:

1. Run Blitzkrieg 2 map editor, switch to the map.



2. Find the line LoadingPicture in the map properties.

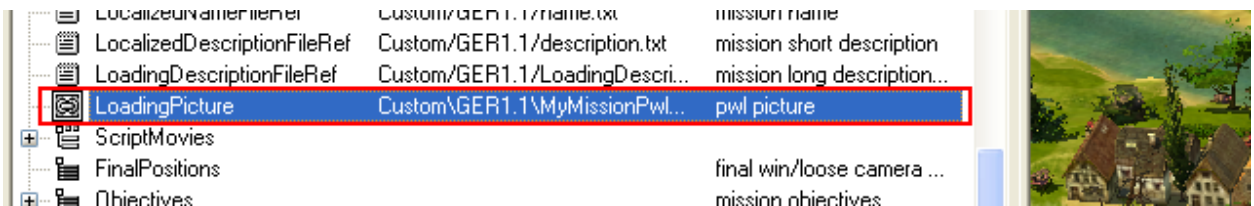
- Click in the column Value to display the field for choosing the file.



As we are creating a new map – you should create an XDB file, in which the texture with the hyper screenshot for your map will be saved.

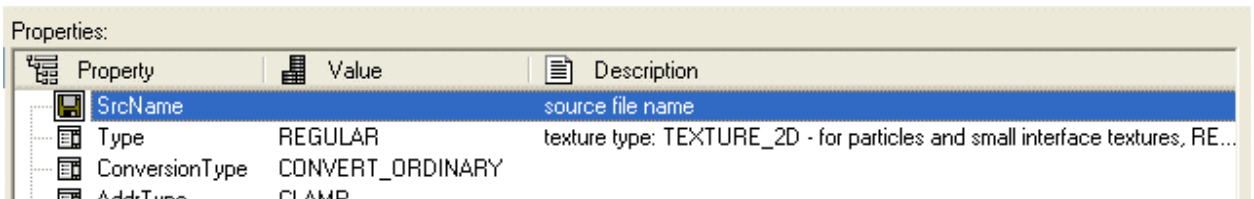
- Create a new file for the hyper screenshot.
- In the window displayed enter the file name (for example, “MyMissionPwl”) and press OK. If you press the button “Add type”, the file type will be added automatically to your file name (in this case it is “Texture”).

(I) pwl stands for Please Wait Loading.



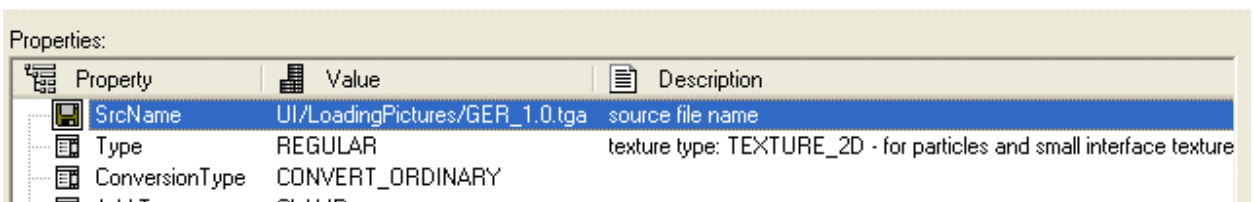
Now the path to the file in your map folder is displayed in the window of choosing the file with hyper screenshot texture. We need to export the texture (hyper screenshot), created before, to this file.

- Press the button with the ellipsis located after the path to the file with the hyper screenshot to do it.

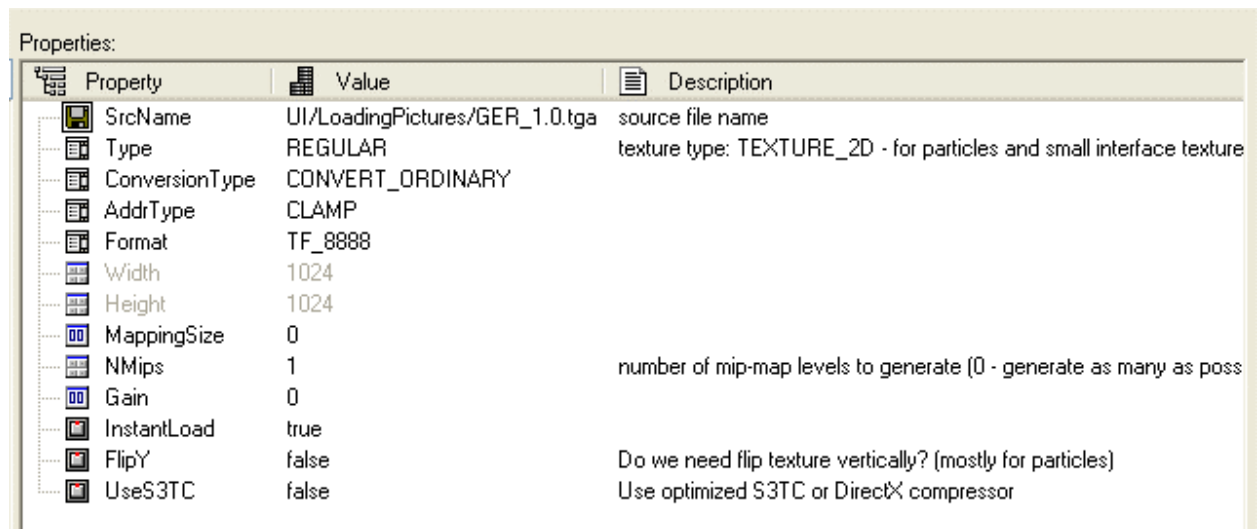


In the window displayed you will see the path to the file with the texture (the field **SrcName**) and the list of parameters (their setting will be described below).

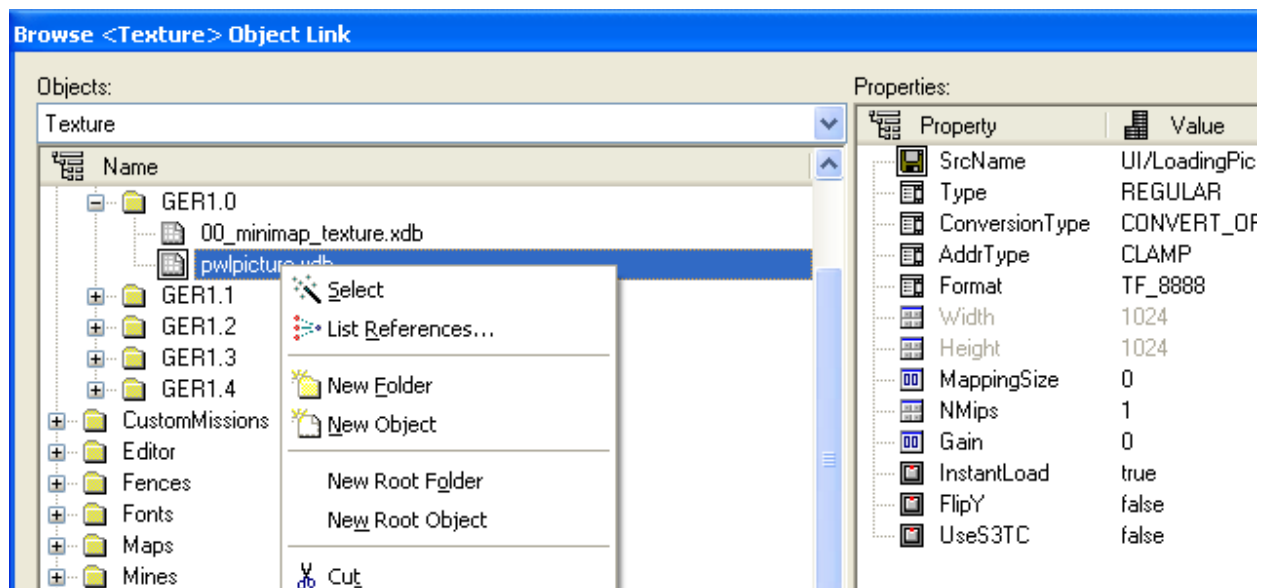
(I) The hyper screenshot is the certain type of textures, which requires the number of parameters, so do not forget to set them correctly.



7. Choose the path to the file with the texture.



8. Set the parameters according to the pointed template (these parameters are needed to display this textures type correctly).



9. Now, WITHOUT CLOSING the window with parameters of hyper screenshot textures, choose the file name, where the hyper screenshot is saved and call up the commands list with right-click.



10. Choose the item Export

«(Texture exported successfully

Object name: Test\TestMaps\APostnikov\Test-001\pwlpicture1.xdb

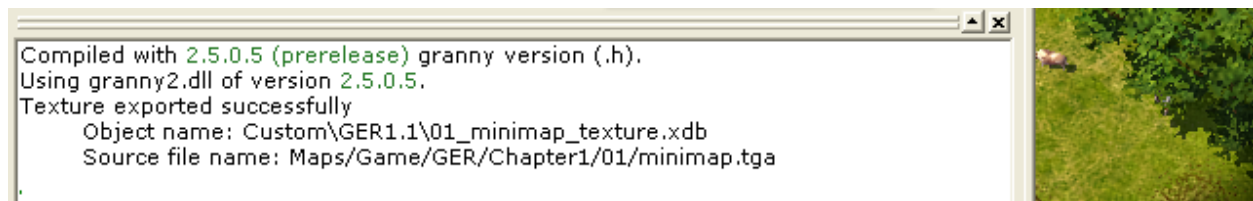
Source file name: UI>LoadingPictures\test-001-pwl.tga/)»

11. If everything has been done correctly, you will see the notice in the Log window that the texture has been successfully exported, otherwise you will have to make sure that everything is correct and repeat the hyper screenshot integration.

6-01-4 Testing hyper screenshot

If everything has been done correctly, you will see the hyper screenshot when loading your map.

6-02 MINIMAP



The minimap texture is created automatically when saving the current map, which is noted in the Log Window.

6-03 Music

Music accompaniment is one of the most important parts of the atmosphere or the so called “spirits” of the map or the mission.

In B2 map editor you can use the opportunity to create playlists for this map.

For every mission there must be two playlists - #0 - Adventure Playlist, which can be heard, when the player does not take part in the battle, and #1 – Combat Playlist, which sounds during the operations with the participation of the player.

When creating new maps it is better to use playlists already made up by the developers. However, if you want to create a map with your own music accompaniment – read the following instructions:

The basic sequence of actions when creating the list MapMusic is the following:

1. Create and edit the list MapMusic

a. Add playlists to the list

2. Create and edit the playlist

Create and edit the composition in the list StillOrder

a. Choose the music track

i. Choose the music file in wav, ogg, mp3 format

b. Choose FadeIn parameters

i. . Choose the file with FadeIn or create your own one

c. Choose FadeOut parameters

- i. . Choose the file with FadeOut or create your own one
- d. Choose the play mode
 - i. Choose the file with play parameters or create your own one
- e. Set the pauses before and after playing the composition.

Create and choose the composition in the list RandomOrder (the same for the list StillOrder)

- f. Indicate the weight of the composition, which affects the frequency this composition is played with in the list RandomOrder

Choose FadeIn parameters

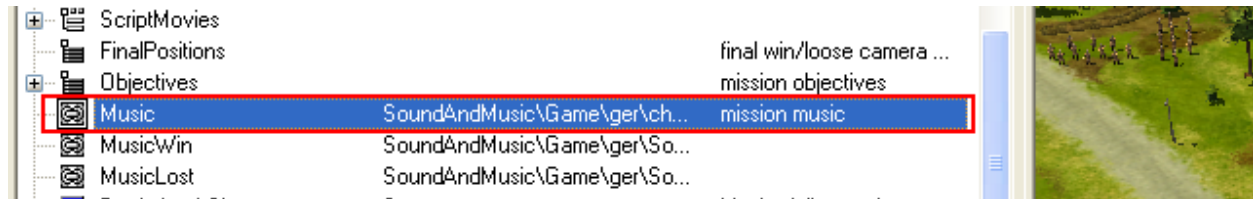
- g. Choose the file with FadeIn parameters or create your own one

Choose FadeIn parameters

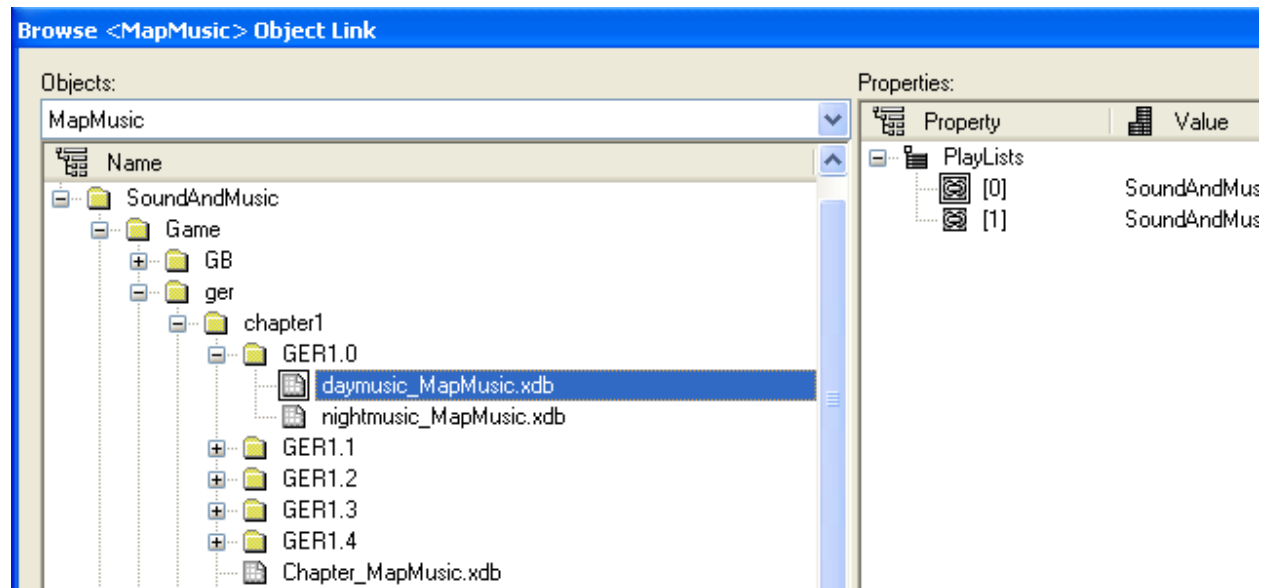
- h. Choose the file with FadeOut parameters or create your own one

6-04 Creating the playlist for the map

Find the field Music in the table MapInfo.



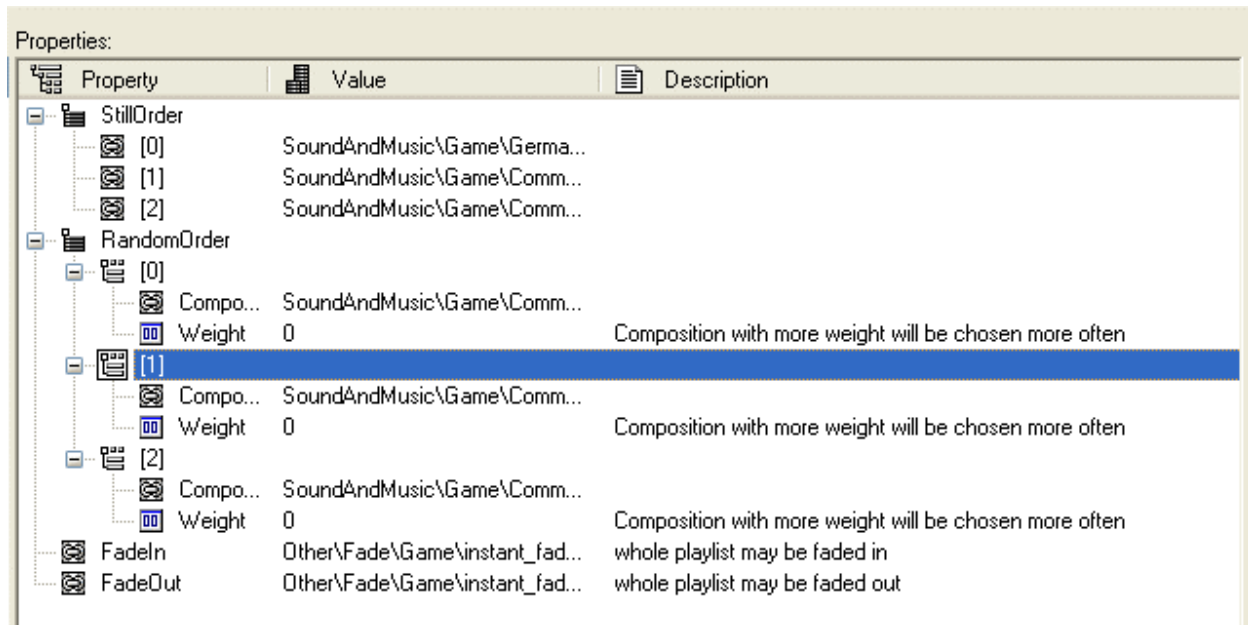
Create a new playlist and open it for editing



Now create two playlists. The playlist #0 will be played in Adventure Mode and #1 – in Combat Mode.

(I) If you create more than two playlists all the rest, except #0 & #1, will be ignored.

After creating playlists open one of them for editing.



In any playlist you can create the files list, which will be played in the order given, and also the files list, which will be played randomly, taking into account their significance. Such lists are named **StillOrder** and **RandomOrder**.

These lists are played as follows – first the list **StillOrder** is always played (compositions are played in the sequence they are set in the editor), and then, if there is a composition in the list **RandomOrder**, the list **RandomOrder** is always played (compositions will be chosen randomly). Accordingly – if there is no composition in the list **RandomOrder**, the list **StillOrder** will be played again.

StillOrder

Choose and set music compositions

RandomOrder

Choose and set music compositions. Remember to set the weight of every composition.

*(I) The field **Weight** is responsible for the choice of the compositions (The more the value Weight is, the more often this composition will be chosen).*

FadeIn

Indicate FadeIn parameters, to make the volume increase smoothly at the beginning of the composition.

FadeOut

Indicate FadeOut parameters, to make the volume decrease smoothly at the end of the composition.

(I) The parameters FadeIn and FadeOut ought to be set for every playlist and composition. It allows to achieve a smooth crossover between compositions and playlists.

6-05 Setting a composition with the music

(картинка с экраном настройки композиции)

Having opened the screen of setting a composition, you will see the following parameters:

Track

Choosing the music file on the disc. The format of the files supported – wav, ogg, mp3.

FadeIn и FadeOut

Choosing the parameters of changing music during the fixed time at the beginning and at the end of the composition.

(I) Fade – changing the music volume during the fixed period of time. Fade depends on the two main parameters – the final set volume of the composition and the time interval, when the fixed change of the volume happens. FadeVolume and FadeTime, accordingly.

PlayTime

This parameter sets the time and parameters of playing the composition. You can play the composition the fixed number of times or repeat the composition during the period of time.

PlayPauseAfter

Choosing the duration of the pause after playing every composition.

6-06 Script Movie

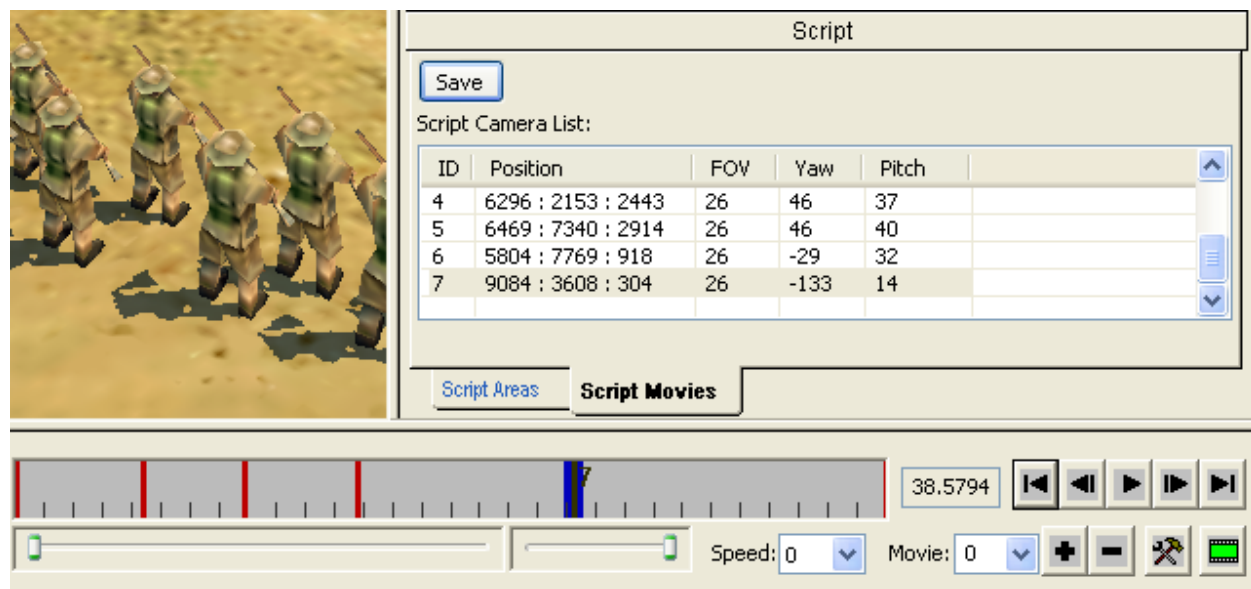
The special mini editor of script movies is integrated in B2 map editor. Using it you can set the sequence of keyframes and set the corresponding position of the camera.

(I) All data on the camera position are displayed and may be edited in the field ScriptMovies in map properties.

Running script movies is possible only with script functions and commands.

6-06-1 Creating a script movie

To create a script movie for playing during the mission open the tab Script Movies of the section Script in Tools Window.



The panel of the keyframes editor and their list will be displayed.

6-06-2 The keyframe editor

The keyframe editor allows to:

- ***add or remove movies for this mission / map***

To add or remove the movie for the current map / mission use the buttons plus or minus. All movies for the current mission are displayed in the list next to these buttons.

- ***switch between movies being edited***

To switch between movies use the list-box.

- ***set the movie's time-keeping in seconds***

To set the time-keeping of the current movie in seconds press the button of settings and enter the number of seconds.

- ***add keyframes on the movie's timeline***

To add a keyframe on the timeline of the movie choose the right point with left-click (the blue label appears on the right place), then right-click on the blue label and choose the item Insert Key in the menu displayed.

- ***edit keyframes properties***

To edit keyframe properties first left-click on it to select it, so that the frame number will be displayed, then right-click on it and choose the item needed in the menu displayed.

- ***assign the position and orientation of the camera for keyframes***

To assign the new position and the orientation of the camera for the keyframe choose the keyframe on the timeline, after that set and orient the camera over the map as you need it. Right-click on the keyframe and choose the item ***Save Key***. The keyframe parameters must change.

Before saving the camera parameters for the keyframe make sure that the user will see it on the screen as you planned.

- ***edit the speed of playing the movie in the editor;***

You can change the speed of playing the movie in the editor with the list-box ***Speed***.

- ***check the zone visible to the user;***

To watch the movie as it will be seen by the user in the game – switch the game screen proportions mode.

(I) the game screen proportions mode works regardless of the tool you are using – Script Movie, Terrain, Objects etc.

- *scroll the movies timeline;*

Use the slider to scroll the Movies timeline (on the left under the timeline) to see the part of the movie needed.

- *editing zoom of the movie timeline*

To edit the zooming of the timeline use the slider (on the right under the timeline)

6-06-3 Keyframes list

This list contains the keyframes and their parameters. Editing this list is recommended only to the experience users.

APPENDIX

Chapter 04-5 - Script Functions

To create a single player mission you should use the script and, therefore script a lot of events and conditions in the game.

It is impossible to use the script functions without the knowledge and skills.

In this chapter the main script functions used in B2 are described, what are they used for and, if it is necessary, an example.

After studying the example of using functions it is easy to create your own script for a single player mission.

All script functions can be divided into three groups:

Get, Set and Miscellaneous.

Functions **Get** allow to get the objects' parameters, quantitative and qualitative values of different game models.

Functions **Set** allow to set the objects' parameters, quantitative and qualitative values of different game models.

Functions **Miscellaneous** are auxiliary, realized in the general script (automatically attached to any map).

Some functions use constants, you can find the list after the functions [\(ссылка\)](#).

Get

GetAmmo

GetAmmo (UniqueID)

Returns the quantity of units' ammo with UniqueID via the list. The number of elements in the list corresponds to the quantity of the weapons. It is not the fact that the first parameter will be primary_ammo ;)

The order of the ammo returned corresponds to the order of the weapons in platforms.

```
primary_ammo, secondary_ammo = GetAmmo ( 191 );
```

GetDifficultyLevel

GetDifficultyLevel()

Returns the current level of difficulty. Returns 0, 1, 2 – easy (very easy), medium, difficult

GetFGlobalVar

GetFGlobalVar ('strGlobalVarName', 0)

Returns the value of the global variable with the name 'strGlobalVarName'. If the variable does not exist, it is created with the value 0.0000. GetFGlobalVar uses the parameter with the floating point.

```
GetFGlobalVar ( 'floatvariable', 0 ) == 0.1
```

GetFrontDir

GetFrontDir (UniqueID)

Get the unit's direction with UniqueID. The result will vary from [0, 65535].

```
dir = GetFrontDir ( 181 );
```

GetGameTime

GetGameTime ()

Returns the current time in N seconds from the beginning of the mission.

```
time = GetGameTime ( );
```

GetIGlobalVar

GetIGlobalVar ('strGlobalVarName', 0)

Returns the value of the global variable with the name 'strGlobalVarName'. If the variable does not exist, it is created with the value 0. GetIGlobalVar uses the integer parameter.

```
GetIGlobalVar ( 'temp.objective.0', 0 ) == 2
```


GetNAmmo

GetNAmmo (ScriptID)

Returns the quantity of units' ammo with ScriptID via the list. Returns the generalized primary ammo and secondary ammo.

primary_ammo, secondary_ammo = **GetNAmmo** (101);

GetNMinesInScriptArea

GetNMinesInScriptArea ('ScriptAreaName')

Returns the quantity of mines in the script area with the name 'ScriptAreaName'.

GetNMinesInScriptArea ('MineField') > 2

GetNScriptUnitsInArea

GetNScriptUnitsInArea (ScriptID, 'ScriptAreaName', countPlanesAsUnits)

Returns the quantity of units of the ScriptID group in the area 'ScriptAreaName' taking aircraft into account (countPlanesAsUnits: 0 – to count aircraft, 1 – not to count aircraft)

num_defenders = **GetNScriptUnitsInArea** (100, 'Defence', 1)

GetNScriptUnitsInArea

GetNScriptUnitsInArea (ScriptID, X, Y, Radius , countPlanesAsUnits)

Returns the quantity of units of the ScriptID group in the circle with the centre in X, Radius Y taking aircraft into account (countPlanesAsUnits: 0 – to count aircraft, 1 – not to count aircraft)

a = **GetNScriptUnitsInArea** (102, 4020, 3445, 500 , 0);

GetNUnitsInArea

GetNUnitsInArea (nPlayer, 'ScriptAreaName', countPlanesAsUnits)

Returns the quantity of units of the nPlayer in the 'ScriptAreaName' taking aircraft into account (countPlanesAsUnits: 0 – to count aircraft, 1 – not to count aircraft)

retreat.n = **GetNUnitsInArea** (1, 'RetreatArea', 0);

GetNUnitsInArea (nPlayer, X, Y, Radius , countPlanesAsUnits)

Returns the quantity of units of nPlayer in the area with parameters X, Y, Radius taking aircraft into account (countPlanesAsUnits: 0 – to count aircraft, 1 – not to count aircraft)

num_with_air = **GetNUnitsInArea** (0, 4000, 6500, 700 , 1);

GetNUnitsInCircle

GetNUnitsInCircle (nPlayer, X, Y, Radius)

Returns the quantity of units of nPlayer in the circle with the center (X, Y,) of the fixed Radius.

```
n = GetNUnitsInCircle ( 2, 200, 11000, 1100 );
```

GetNUnitsInParty

GetNUnitsInParty (nPlayer)

Returns the quantity of units of the nPlayer. Infantry are counted individually (one squad = the number of units in the squad).

```
our_units = GetNUnitsInParty ( 0 );
```

GetNUnitsInPlayerUF

GetNUnitsInPlayerUF (nPlayer)

Multiplayer:

Returns the quantity of units of the nPlayer. Infantry are counted in squads (one squad = one unit).

```
unit_first_players = GetNUnitsInPlayerUF ( 1 );
```

GetNUnitsInScriptGroup

GetNUnitsInScriptGroup (ScriptID [, iPlayer])

Returns the number of the units in the script group ScriptID. Using the optional parameter nPlayer you can get the number of the units in the script group ScriptID of nPlayer. The second parameter is used when guns are included in the script group (if all the gun crew is killed, the gun becomes neutral). Units are deleted from the script group after death, but pillboxes are not. I.e. you cannot check with this function if the pillbox is in operation or not.

```
a = GetNUnitsInScriptGroup ( 102, 1 );
```

GetObjectHPs

GetObjectHPs (UniqueID)

Get HP of the object or the unit with UniqueID. If there is not such object (unit) on the map, returns 0.

```
unit_HP = GetObjectHPs ( 278 );
```

GetObjectList

GetObjectList (ScriptID)

Returns the list of UniqueID objects and units of the script group ScriptID.

```
array = GetArray ( GetObjectList ( 101 ) );
```

GetPassangers

GetPassangers (UniqueID, nPlayer)

Returns the list of UniqueID passangers of nPlayer in the unit or building with the preset UniqueID.

```
array = GetArray ( GetPassangers ( 181, 1 ) );
```

GetReinforcementCallsLeft

GetReinforcementCallsLeft (nPlayer)

Get the number of the available reinforcements calls of nPlayer.

```
GetReinforcementCallsLeft ( 0 ) == 0
```

GetScriptAreaParams

GetScriptAreaParams ('ScriptAreaName')

Returns the parameters of the script area with the name 'ScriptAreaName'. For the rectangular area returns the center coordinates (x, y) and halves of the length and width (halflength, halfwidth). For the round area returns the center coordinates (x, y) and the radius (Radius).

```
x, y, halflength, halfwidth = GetScriptAreaParams ( 'Zone1' );  
x, y, radius = GetScriptAreaParams ( 'Zone2' );
```

GetSGlobalVar

GetSGlobalVar ('strGlobalVarName', 0)

Returns the value of the global variable with the name 'strGlobalVarName'. If this variable does not exist, it is created with the value 0. GetSGlobalVar uses the string parameter.

```
GetSGlobalVar ( 'ExplosionArea', 0 ) == '1'
```

GetUnitListInArea

GetUnitListInArea (nPlayer, 'ScriptAreaName', countPlanesAsUnits)

Returns the UniqueID units of nPlayer list in the area with the name 'ScriptAreaName'. To get the array use the function GetUnitListInAreaArray () or call the function via GetArray ().

```
a = GetUnitListInArea ( 0, 'Defence' );
```

GetUnitListInArea

GetUnitListInArea (nPlayer, X, Y, Radius, countPlanesAsUnits)

Returns the UniqueID units of nPlayer list in the area with the center in (X,Y) and the Radius. To get the array use the function GetUnitListInAreaArray () or call the function via GetArray ().

```
a = GetUnitListInArea ( 0, 1000, 2000, 350 );
```

GetUnitListOfPlayer

GetUnitListOfPlayer (nPlayer)

Get the list of all nPlayer's units.

```
all_units = GetUnitListOfPlayer ( 0 );
```

GetUnitRPGStats

GetUnitRPGStats (UniqueID)

Get the unit states' list:

unittype – if the mechunit - 1, if the squad - 0 ,

id from the base in the resource tab MechUnitRPGStats,

unitclass – the unit's type (if it is Light_Tank - 22 , if HEAVY_AA_GUN - 1 etc.),

see also the sections mech types and squad types in the tab Definitions of this document,

price – the price of the unit, for the squad it is the price of all soldiers,

maxhp – maximum number of HP,

weight – the weight

towing force – the towing force of the unit, if it cannot tow – 0.

```
array = GetArray ( GetUnitRPGStats ( 171 ) );
```

GetUnitState

GetUnitState (UniqueID)

Get UniqueID unit's state.

STATE_REST = 1,

STATE_REST_BUILDING = 8,

STATE_REST_ENTRENCHMENT = 9

STATE_IN_TRANSPORT = 3;

STATE_SWARM = 11;

STATE_MOVE = 32;

STATE_SUPPRESS_FIRE = 34;

STATE_TOWED = 24;

STATE_UNIT_ATTACK = 21;

```
GetUnitState ( 171 ) ~= 1
```

IsAlive

IsAlive (UniqueID)

Returns 1 if the unit is alive and if it is dead or absent – 0

```
IsAlive ( 171 ) == 1
```

IsImmobilized

IsImmobilized (UniqueID)

Returns 1 if the unit is immobilized, otherwise – 0.

IsPlayerPresent

IsPlayerPresent(nPlayer)

If the player is present in the current session.
For multiplayer.

IsReinforcementAvailable

IsReinforcementAvailable (nPlayer)

Returns 1 if nPlayer has available reinforcements types and reinforcements points even though the call is impossible for the reason of rechargetime.

IsReinforcementAvailable (0) == 1

IsSomeBodyAlive

IsSomeBodyAlive (nPlayer, ScriptID)

Returns 1 if nPlayer has at least one alive unit with the preset ScriptID or in the building with the preset ScriptID there is someone alive or at least one object with the preset ScriptID is not destroyed.

IsSomeBodyAlive (1, 1111) == 1

IsSomeUnitInArea

IsSomeUnitInArea (nPlayer, 'ScriptAreaName', countPlanesAsUnits)

Returns 1 if nPlayer has at least one unit including aircraft in the script area 'ScriptAreaName' if countPlanesAsUnits – 1 .

IsSomeUnitInArea (0, 'Survive', 1) ~= 1

IsSomeUnitInParty

IsSomeUnitInParty (nParty)

Returns 1 if the side nParty has at least one unit.

IsSomeUnitInParty (2) == 1

IsSomePlayerUnit

IsSomePlayerUnit(nPlayer)

Returns true if the player has at least one unit.

IsUnitInArea (nPlayer, 'ScriptAreaName', UniqueID)

If nPlayer's UniqueID unit is in the area 'ScriptAreaName'.

IsUnitInArea (0, 'Survive', 171) ~= 1

IsUnitInArea

IsUnitInArea (nPlayer, X, Y, Radius, UniqueID)

If nPlayer's UniqueID unit is in the circle with parameters X, Y, Radius.

IsUnitInArea (1, 1700, 3600, 700, 171) == 1

IsUnitNearScriptObject

IsUnitNearScriptObject (nPlayer, ScriptID, Radius)

If nPlayer's UniqueID unit is in the Radius from the object with ScriptID.

IsUnitNearScriptObject (0, 100, 500)

ObjectGetCoord

ObjectGetCoord (UniqueID)

Get the object's or UniqueID unit's coordinates (former GetObjCoord). Для пассажиров техники координаты не текущие, помоему это координаты точки посадки.

x, y = ObjectGetCoord (171)

RandomInt

RandomInt (n)

Returns the random integer from the interval [0; n).

RandomInt (2) == 1

Trace

Trace ('strText' [, params, ...])

Derives the formatted string 'strText'. As optional parameters variables with floating points can be used. For debugging.

Trace ('I have %g apples of total %g', 2, 3);

Set

AddIronMan

AddIronMan (iScriptID)

Disables AI General to supply units with the script group iScriptID.

ChangeFormation

ChangeFormation (ScriptID, nFormation)

Switches the squad with the script group ScriptID to nFormation.

0 - Default

1 - March

2 - Defensive

3 - Offensive

ChangePlayer

ChangePlayer (UniqueID, nPlayer)

Give the UniqueID unit to nPlayer.

Cmd

Cmd (nAction, ScriptID [, dispersion, params, ...])

Gives the command to nAction unit with the script group ScriptID. The parameters must be listed with commas. The commands, using coordinates, must contain the parameter dispersion. Cmd stands for GiveCommand. The command is given to the unit immediately.

Cmd (3, 1001, 50, 2756, 9678); Cmd (ACT_ENTER, 200, 350);

Cmd (nAction, ScriptID, dispersion, scriptarea)

The commands Cmd, QCmd, UnitCmd, UnitQCmd can be given the name of the script zone instead of the coordinates.

Cmd (ACT_SWARM, 1001, 50, "defence1")

DamageObject

DamageObject (UniqueID, Damage)

Damage the object or the UniqueID unit. If Damage = 0, destroy the object. If negative, heal the object.

LandReinforcementFromMap

LandReinforcementFromMap (nPlayer, 'ReinfName', nPositionID, ScriptID)

Land the reinforcement with 'ReinfName' in the point nPositionID for nPlayer.

nPositionID - ID ReinforcementPoint in the map's properties.

'ReinfName' – the name of the reinforcement in the map's properties in the array

ScriptReinforcementsTextID

ObjectiveChanged

ObjectiveChanged (ObjNum, nState);

Changes the state of the building (objective) with the number ObjNum in nState. nState can be:

- 0 – hide the building (delete from the list)
- 1 – surrender the building
- 2 – the objective is executed
- 3 – the objective is failed

QCmd, GiveQCommand

QCmd, GiveQCommand

(nAction, ScriptID [, dispersion, params, ...])

Adds the command nAction to the command list of the unit with the script group ScriptID. The necessary parameters must be listed with commas. QCmd stands for GiveQCommand. The function GiveQCommand can be queued, for example, for putting intermediate points of the way the unit will move. At the beginning of the queue there must be the function GiveCommand to give the command to the unit immediately.

```
QCmd ( 3, 200, 50, 1700, 2530 );
```

```
QCmd ( 3, 200, 50, 1700, 2530 );
```

```
QCmd ( ACT_ENTER, 200, 350 );
```

RemoveScriptGroup

RemoveScriptGroup (ScriptID);

Remove the group from the map with the prescribed ScriptID

SCStartMovie

SCStartMovie (nMovieID, ['CallbackName'])

Start playing the movie with the number nMovieID (begins with 0). As the second parameter – the name of the callback function, which is called when transmitting to the next movie key. The parameter of the callback function – Int, specifies the current key number. The function is called with the parameter value 1 at the moment when the movie ends.

SCStopMovie

SCStopMovie ()

Reset the camera to the position before executing the command SCRunTime, SCRunSpeed or SCStartMovie.

SCReset

SCReset ()

Slide the camera (by default in 1 second) from the current position to the nearest position possible in the game.

SetAmmo

SetAmmo (UniqueID, Ammo1, Ammo2)

Set ammo for the UniqueID unit.

SetFGlobalVar

SetFGlobalVar ('strGlobalVarName', fVar)

Sets the value of the global variable with the name 'strGlobalVarName'. SetFGlobalVar uses the parameter with the floating point.

SetGlobalVar

SetGlobalVar ('strGlobalVarName', iVar)

Sets the value of the global variable with the name 'strGlobalVarName'. SetGlobalVar uses the integer parameter.

SetGlobalVar ('temp.objective.' .. objnum, 3);

SetSGlobalVar

SetSGlobalVar ('strGlobalVarName', 'strVar')

Sets the value of the global variable with the name 'strGlobalVarName'. SetSGlobalVar uses the string parameter.

Sleep

Sleep (N)

Pause N segments of game time. 20 segments = 1 second.

StartThread

StartThread (funcname, [params, ...])

Runs the function funcname in the separate thread.

Params are the input parameters for the function funcname.

SwitchSquadLightFX

SwitchSquadLightFX (ScriptID, nState)

Switch on the light for the group ScriptID (nState = 1) or off (nState = 0).

SwitchUnitLightFX

SwitchUnitLightFX (UniqueID, nState)

Switch on the light for the object UniqueID (nState = 1) or off (nState = 0).

SwitchWeather

SwitchWeather (iState)

Switch on the weather, when iState = 1, off – when iState = 0.

SwitchWeatherAutomatic

SwitchWeatherAutomatic (iState)

Enables random automatic switching the weather, when iState = 1, disables – when iState = 0.

UnitCmd

UnitCmd (nAction, UniqueID, [, dispersion, params ...])

Give the command for immediate execution. UnitCmd and Cmd differ in the fact that in the first function objects and units' UniqueID are used. In the second one - ScriptID.

UnitQCmd

UnitQCmd (nAction, UniqueID, [, dispersion, params ...])

Put on a waiting list.

UnitRemove

UnitRemove (UniqueID)

Remove the unit from the map (former DeleteReinforcement).

ViewZone

ViewZone ('ScriptAreaName', nParam)

When nParam = 1, opens the fog in the script zone area 'strScriptAreaName'. When nParam = 0, closes the fog.

Win

Win (nParty)

Single:

The victory for the player with the number nParty.

Miscellaneous

ChangePlayerForScriptGroup

ChangePlayerForScriptGroup (ScriptID, nPlayer)

Changes the player for all ScriptID units to the value appointed in the nPlayer.

CmdArray

CmdArray (nAction, array [, params ...])

Individual Cmd for array of units.

The functions CmdArray, QCmdArray use the array of the units instead of scriptID (uniqueID).

CmdArrayDisp

CmdArrayDisp (nAction, array [, dispersion, params ...])

Individual Cmd for units array with some coordinates dispersion.

DamageScriptObject

DamageScriptObject (ScriptID, nDam)

Damage all objects in script group.

GetArray

GetArray (...)

Returns the arguments array. The array contains the property .n – the number of the elements in the list. It is used, for example, in GetUnitListInAreaArray () and GetObjectListArray ().

```
num_units = GetArray( GetObjectList( 100 ) ).n
```

GetNUnitsInArray

GetNUnitsInArray (array)

Returns the number of the alive units in the array.

GetObjectListArray

GetObjectListArray (ScriptID)

Returns the ScriptID objects array.

GetPassangersArray

GetPassangersArray (UniqueID, Player)

Returns the UniqueID unit passengers array

GetUnitsByParam

GetUnitsByParam (array, paramtype, param)

Returns the units array from the array with the parameter paramtype where param is its value.

See the tab definitions.

```
light_tanks = GetUnitsByParam( units, PT_CLASS, CLASS_LIGHT_TANK )
```

QCmdArray

QCmdArray (nAction, array [, params ...])

Individual QCmd for the array of units.

QCmdArrayDisp

QCmdArrayDisp (nAction, array [, dispersion, params ...])

Individual QCmd for the units array with some coordinates dispersion.

RemoveScriptGroup

RemoveScriptGroup (ScriptID)

Removes all units in script group from the map.

Wait

Wait (N)

Delay in N seconds. Runs the function Sleep (N * 20).

Trigger

Trigger (chechkfunction, execfunction, [cicled, latency])

Checkfunction – the checking function, execfunction – the function executed on the condition, cicled – if the check is cycled, latency – how often to check; returns the unique trigger number; if the checkfunction returns the value STOPHISTRIGGER, the trigger stops.

Every second the checkfunction is run, if it returns the nonzero value, the execfunction is run.

KillTrigger

KillTrigger (nTrigger)

Stop the trigger nTrigger.

Constants

Constants are used in the functions **Cmd**, **QCmd**, **UnitCmd**, **UnitQCmd**, **GetUnitsByParam**:

move to point

ACT_MOVE = 0;

Cmd (**ACT_MOVE**, ScriptID , Disp, X, Y) – the script group is moving to the point

attack unit

ACT_ATTACKUNIT = 1;

Cmd (**ACT_ATTACKUNIT**, ScriptID1 , ScriptID2) – the script group ScriptID1 attacks one unit from the script group ScriptID2

attack non-unit object

ACT_ATTACKOBJECT = 2;

Cmd (**ACT_ATTACKOBJECT**, ScriptID1 , ScriptID2) - the script group ScriptID1 attacks one script object from the script group ScriptID2

swarm to point

ACT_SWARM = 3;

Cmd (**ACT_SWARM**, ScriptID , Disp, X, Y) – the script group is swarming at the point.

load units / attach for towing

ACT_LOAD = 4;

Cmd (**ACT_LOAD**, ScriptID1 , ScriptID2) – the script group ScriptID1 is loaded in one unit of the script group ScriptID2 or starts to tow it, if the unit from the group ScriptID1 is a track.

unload units / detach from towing to point

ACT_UNLOAD = 5;

Cmd (**ACT_UNLOAD**, ScriptID , Disp, X, Y) – the script group unload/detach in the point.

enter to building/trench

ACT_ENTER = 6;

Cmd (**ACT_ENTER**, ScriptID1 , ScriptID2) – the script group ScriptID1 enters one building from the script group ScriptID2.

leave building/trench to point

ACT_LEAVE = 7;

Cmd (ACT_LEAVE, ScriptID , Disp, X, Y) – the units with the appointed ScriptID leave the building and move to the point.

rotate to point

ACT_ROTATE = 8;

Cmd (ACT_ROTATE, ScriptID , Disp, X, Y) – rotate the script group ScriptID to the direction of the point.

stop all actions

ACT_STOP = 9;

Cmd (ACT_STOP, ScriptID) – cancel all the actions of the units of the script group ScriptID.

change formation 0,1,2,3

ACT_PARADE = 10;

Cmd (ACT_PARADE, ScriptID , nFormation)
Out of order. Try via ChangeFormation ().

place mine to point

ACT_PLACE_MINE = 11;

Cmd (ACT_PLACE_MINE, ScriptID , Disp, X, Y) – place two mines in the point.

clear mines around point

ACT_CLEAR_MINE = 12;

hide, wait for enemies and attack

ACT_AMBUSH = 14;

Cmd (ACT_AMBUSH, ScriptID) – the units of the script group ScriptID are camouflaged/decamouflaged. Only switching on works, i.e. when called up again Ambush will switch on unlike the action via the interface.

zeroing in on

ACT_ZEROING = 15;

Cmd (ACT_ZEROING, ScriptID , Disp, X, Y) – zeroing in on the point, which allows to shoot at the enemies in the small range from it but more accurate.

bombardment in on

`ACT_SUPPRESS = 16;`

`Cmd (ACT_SUPPRESS, ScriptID , Disp, X, Y)` – the script group ScriptID fires the point at random.

resupply to point

`ACT_RESUPPLY = 23;`

`Cmd (ACT_RESUPPLY, ScriptID , Disp, X, Y)` – the script group ScriptID supplies the other units in the certain range from the point.

repair to point

`ACT_REPAIR = 24;`

`Cmd (ACT_REPAIR, ScriptID , Disp, X, Y)` – the script group ScriptID repairs the other units in the certain range from the point.

to look in a direction of a point by spyglass

`ACT_SPYGLASS = 29;`

`Cmd (ACT_SPYGLASS, ScriptID , Disp, X, Y)` – the script group ScriptID uses the spyglass in the direction of the point.

Works only for the unit/units with the spyglass, not for the squads.

take artillery

`ACT_ATTACH = 31;`

`Cmd (ACT_ATTACH, ScriptID1 , ScriptID2)` – one of the units of the script group ScriptID1 attaches the artillery from the group ScriptID2.

deploy artillery to point

`ACT_DEPLOY = 32;`

`Cmd (ACT_DEPLOY, ScriptID , Disp, X, Y)` – the script group ScriptID deploys all the passengers in the point.

follow for unit

`ACT_FOLLOW = 39;`

`Cmd (ACT_FOLLOW, ScriptID1 , ScriptID2)` – the units of the script group ScriptID1 follow one of the units of the script group ScriptID2.

entrench self

ACT_ENTRENCH = 45;

Cmd (ACT_ENTRENCH, ScriptID , nState) – the units with ScriptID entrench themselves (nState: - not entrenched, 1- entrenched).

0 does not work, any nState entrench.

Скоро параметр откроют.

hold position

ACT_STAND = 50;

Cmd (ACT_STAND, ScriptID) – ScriptID units hold the position.

take gun with infantry

ACT_TAKE_ARTILLERY = 56;

Cmd (ACT_TAKE_ARTILLERY, ScriptID1 , ScriptID2) – the infantry of the script group ScriptID1 take the gun of the script group ScriptID2.

patrol

ACT_PATROL = 75;

Cmd (ACT_PATROL, ScriptID, Disp, X, Y); – the units of the script group ScriptID patrol the points. There must be several commands. The first one Cmd, the others QCmd.

teleport to transport

ACT_LOAD_NOW = 1001;

Cmd (ACT_LOAD_NOW, ScriptID1 , ScriptID2) –the script group ScriptID1 teleport into one of the units of the script group ScriptID2.

remove

ACT_DISAPPEAR = 1007;

Cmd (ACT_DISAPPEAR, ScriptID) –the script group is removed from the map.

It is comfortable to use as QCmd(), i.e. the unit will disappear after executing the previous commands.

rotate to vector

ACT_ROTATE_VEC = 1055;

Cmd (ACT_ROTATE_VEC, ScriptID , Disp, X, Y) – rotate the group of ScriptID units to the point, where the unit's coordinates are taken as the origin (0,0).

The same as rotate, but the point's coordinates are counted relatively unit's coordinates.

Constants for function GetUnitsByParam

PT_TYPE = 1;

Indicates that the next parameter is the unit type TYPE_INF/TYPE_MECH

PT_ID = 2;

Indicates that the next parameter is the unit ID in the base

PT_CLASS = 3;

Indicates that the next parameter is the unit class: squad types/mech types

PT_PRICE = 4;

Indicates that the next parameter is AI Price (the unit's value for AI)

PT_MAXHP = 5;

Indicates that the next parameter is the maximum unit's hitpoints

PT_WEIGHT = 6;

Indicates that the next parameter is the unit's weight

PT_TOWFORCE = 7;

Indicates that the next parameter is the towforce equal to the maximum weight of the unit towed, when towing is possible.

PT_TYPE types

TYPE_INF = 0;

TYPE_MECH = 1;

squad types (squadtype) – infantry classes

CLASS_MAIN_SQUAD = 101;

CLASS_MG_SQUAD = 102;

CLASS_AT_SQUAD = 103;

CLASS_ASSAULT_SQUAD = 104;

CLASS_SPECIAL_SQUAD = 105;

CLASS_SINGLE_SQUAD = 106;

mech types (unitttype) – vehicles classes

CLASS_HEAVY_AA_GUN = 1;

CLASS_LIGHT_AA_GUN = 2;

CLASS_AA_SPG = 3;

CLASS_ANTITANK_GUN = 4;

CLASS_ASSAULT_SPG = 5;

CLASS_FIELD_ARTILLERY = 6;

CLASS_HEAVY_MG = 7;

CLASS_MLRS = 8;

CLASS_ENGINEERING_TRUCK = 9;

CLASS_RESUPPLY_TRUCK = 10;

CLASS_TRACTOR = 11;

CLASS_APC = 12;

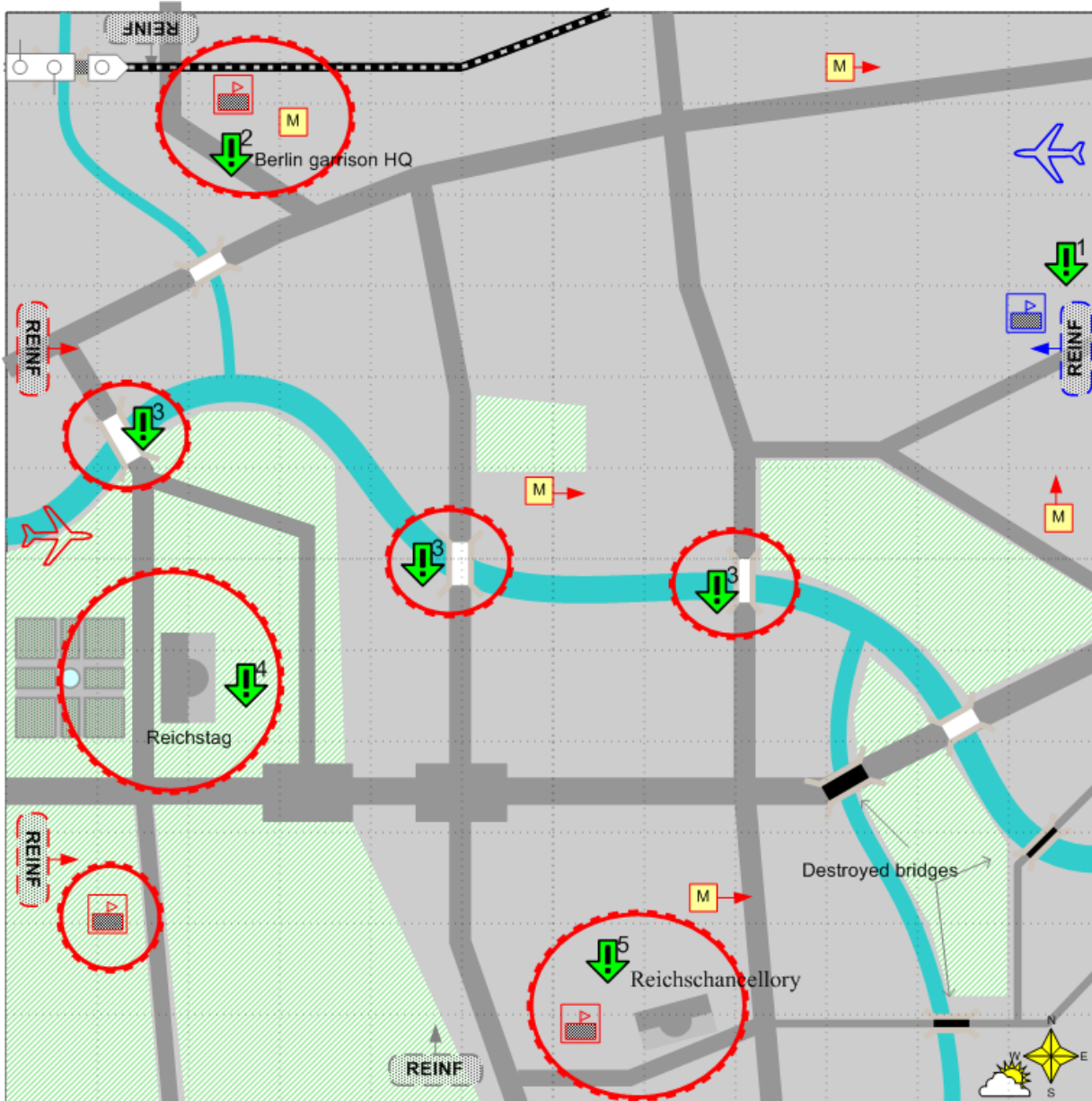
CLASS_AFV = 13;


```
CLASS_FIGHTER = 14;  
CLASS_BOMBER = 15;  
CLASS_GROUND_ATTACK = 16;  
CLASS_PARADROPPER = 17;  
CLASS_RECON = 18;  
CLASS_COAST_GUN = 19;  
CLASS_LANDING_BOAT = 20;  
CLASS_MORTAR = 21;  
CLASS_LIGHT_TANK = 22;  
CLASS_MEDIUM_TANK = 23;  
CLASS_HEAVY_TANK = 24;  
CLASS_TANK_DESTROYER = 25;  
CLASS_TORPEDO_BOAT = 26;  
CLASS_TRAIN = 27;  
CLASS_SUPER = 28;
```

For EnablePlayerReinforcement(reinfType, bEnable)

```
RT_MAIN_INFANTRY,0  
    RT_ASSAULT_INFANTRY,1  
    RT_ELITE_INFANTRY,2  
    RT_ARTILLERY_ANTITANK,  
    RT_ARTILLERY,  
    RT_ASSAULT_GUNS,  
    RT_TANK_DESTROYERS,  
    RT_ARTILLERY_ROCKET,  
    RT_LIGHT_TANKS,  
    RT_TANKS,  
    RT_HEAVY_TANKS,  
    RT_LIGHT_AAA,  
    RT_HEAVY_AAA,  
    RT_FIGHTERS,  
    RT_BOMBERS,  
    RT_GROUND_ATTACK_PLANES, 15  
    RT_RECON,  
    RT_PARATROOPS,  
    RT_ENGINEERING,  
    RT_HEAVY_ARTILLERY,19
```

Russian Campaign, Chapter 4, Mission 0: «Capturing Berlin»



Mapsize 12 x 12. Europe. German. Spring. Clear. Hard.

Landscape

This is the map of the center of Berlin. The main streets must correspond to their position on the sketch (of dark grey) and be wide enough to allow the mechunits groups move along them. The other streets and blocks are to discretion of the designer. The light green zones are mainly parks. The yellow squares with the letter M are metro stations.

Only the main and the biggest defense centers of the enemy are shown on the map. Generally, there must be many fortified points over the entire map. In many places there are destroyed buildings and bombardment traces.

Description

The Soviet troops are entering Berlin. Their goal is to capture the Reichstag and the Reichschancellory.

All Berlin is one big defense zone.

At the rear of the player the German elite forces appear from time to time (rise to the surface from the metro stations scattered over the city).

The enemy shows fierce resistance, using elite forces and heavy mechnits.

Details

When starting the player gets the objective not to allow the enemy to capture their depot and start location 1.

There are metro stations in the different districts of the city. According to the script, in a time period, the enemy's elite infantry appears in different places (goes out) near metro stations and swarms on the map to the direction of the player's start location.

After giving objective [1], objective [2] is given – to capture the command post of Berlin garrison. When this objective is fulfilled, the enemy's attacks from the metro stop. Then the player gets objective [3], if he has not captured any of the bridges earlier. The player is informed in the briefing that the enemy is going to explode three main bridges over the Spree. In 10-15 minutes after giving the objective all the bridges on the map, which have not been captured by the player are destroyed.

Objective [4] is given after fulfilling or failing objective [3] or, in case at least one player's ground unit is in the Reichstag zone.

You should set the attention zone in the Reichstag district in such a way, that, if the player has not fulfilled objective [2], the extra reinforcements start to enter the zone. In this case it is much more difficult to fulfill objective [4].

Objective [5] is given after fulfilling objective [4] or if at least one player's ground unit is in the Reichschancellory zone.

According to the script, you there must be several bombing raids (5-6) of the enemy.

Defeat conditions

The player has no forces and reinforcements.

Winning conditions

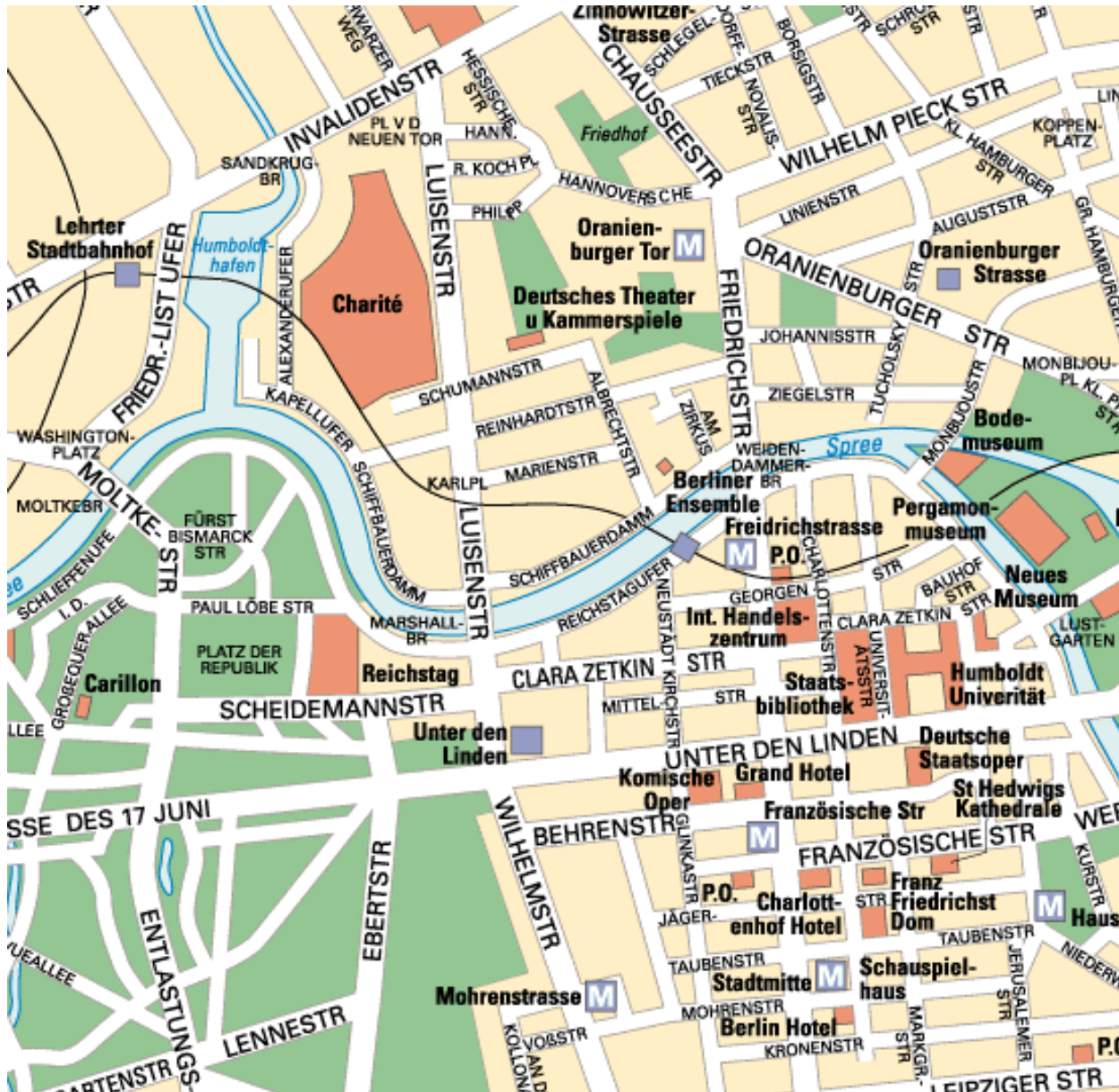
Objectives 2, 4 and 5 have been fulfilled.

Objectives

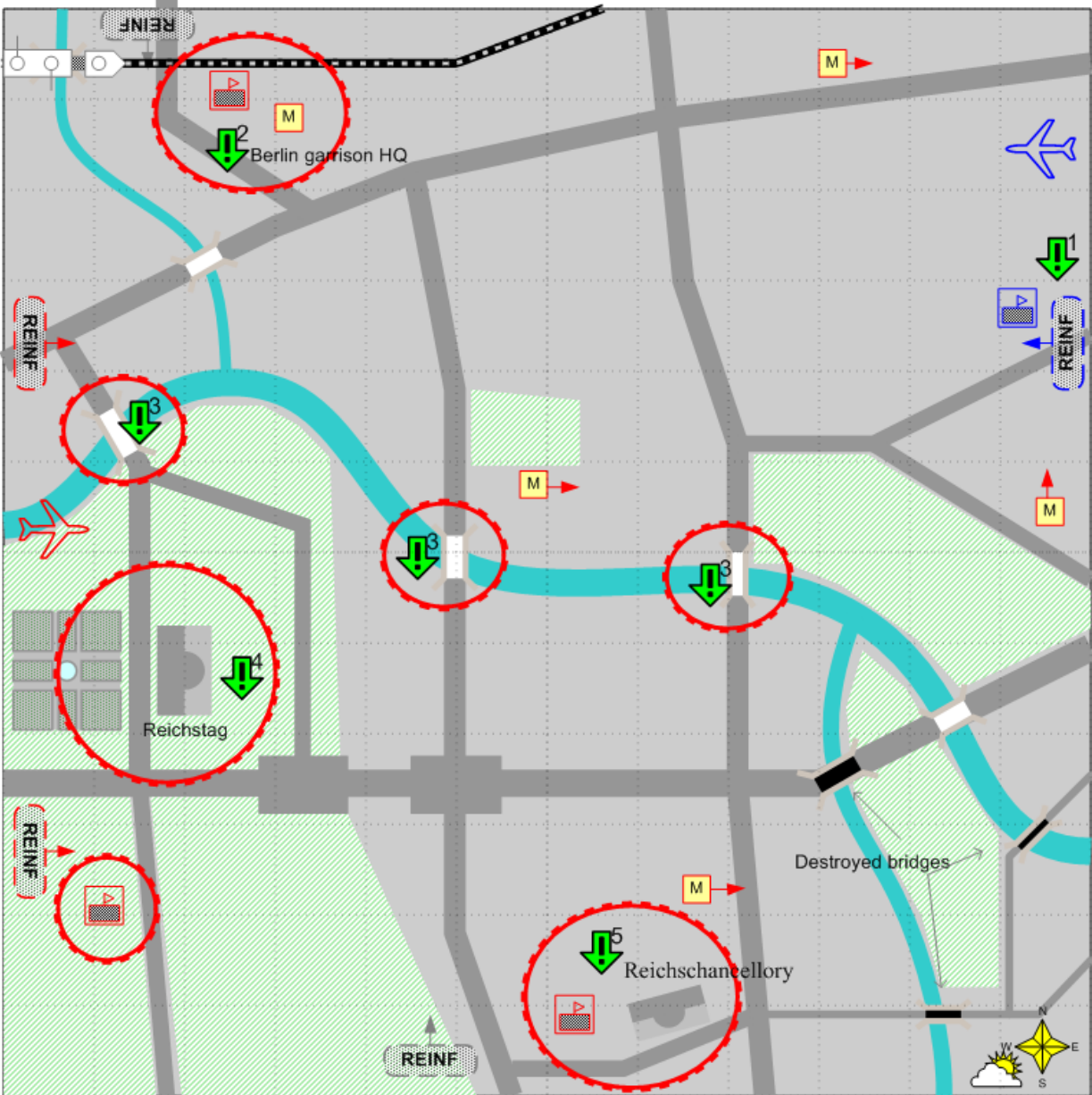
1. Hold the start location and the depot during the mission.
2. Capture the command post of the German Harrison. (The briefing informs that after capturing the command post, the German infantry, using communications and metro stations, will stop attacks).
3. Capture one of the three bridges over the Spree before they are destroyed by the enemy. (The objective is given only if objective 2 is fulfilled and none of the bridges has not been captured by the player before that). May be failed by the player.

4. Capture the Reichstag.
5. Capture the Reichschancellory.

Authentic map



Sketch



Ingame view

