Instructions manual

Macromanagement in RTS games

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Prologue

In order to make the following instructions easier to read, the following guidelines should be taken in account.

The present booklet is not a manual to an existing game. It is the product of the thesis "Macromanagement in RTS games: Emphasizing the strategy over tactics" written by Georgios Riskas in 2017.

The thesis was comissioned by Playraven Oy and Xamk, South-Eastern Finland University of Applied Sciences. The purpose of the manual is to illustrate the author's suggestions on basic concepts of the RTS genre, such as User Interface (UI), game controls, base building, military tactics, technology trees and diplomacy.

The suggestions that follow have been based on the author's qualitative research on RTS games. The results of the research and so the instructions of this manual are based on the authors's undertanding and analytical skills. Thus, the objective nature of the instructions should be taken in account. The thesis report should be studied before the manual for the reader's better understanding.

Important notice*: The suggestions revolve around specific aspects and usually suggest small alterations of conventional RTS features and they should be approached as such. Not every suggestion aims to redefine the genre.*

How to use this manual

The present manual can be used in the following ways:

- For prototypes that can test the functionality of the suggested fields.

- By game designers who want to design RTS games that do not rely heavily on micromanagement.

- By UI designers that work on RTS games.

- It should be read a continuation of the author's research.

How to not use this manual

The manual does not serve the following purposes or at least it has not been made with that state of mind:

- It does not explain how the mentioned concepts work. This work has already been done in the thesis.

- It does not claim to offer tested ideas that have been proven to work.

- It does not explain how to make an RTS game from start to finish.

- It cannot guarantee that none of its suggestions have ever been tried in commercial titles, successfully or unsuccessfully.

Before getting started

Few things should be taken under consideration:
- The sidebar system that is introduced in chapter 1, in some of its aspects, is like the one of Grey Goo (Appendix 1) developed by Petroglyph Studios in 2015. It is also like the sidebar feature in Command and Conquer (Westwood Studios, 1995).

- The power points system that is introduced in chapter 4 is like the one of Lord of the Rings: The battle for middle earth (Appendix 2), developed by Electronic Arts in 2004.

- In both cases though the suggestions do not try to replicate the systems as they are used in these games, but to expand their functionality.

- Similarities with other RTS games can be found in the suggestions.

- Regarding the controls of the game, whenever clicking is mentioned, it should be considered as clicking the left mouse button. If otherwise it will be mentioned in the text.

Chapter 1: User Interface

The sidebar

The current chapter offers guidelines on how the User Interface (UI) should be laid out. More specifically, the main element that is introduced is the sidebar.

The sidebar serves as a control panel that give access to production and unit selection. The use of controls is explained in chapter 2. The present chapter concentrates on the sidebar's functions.
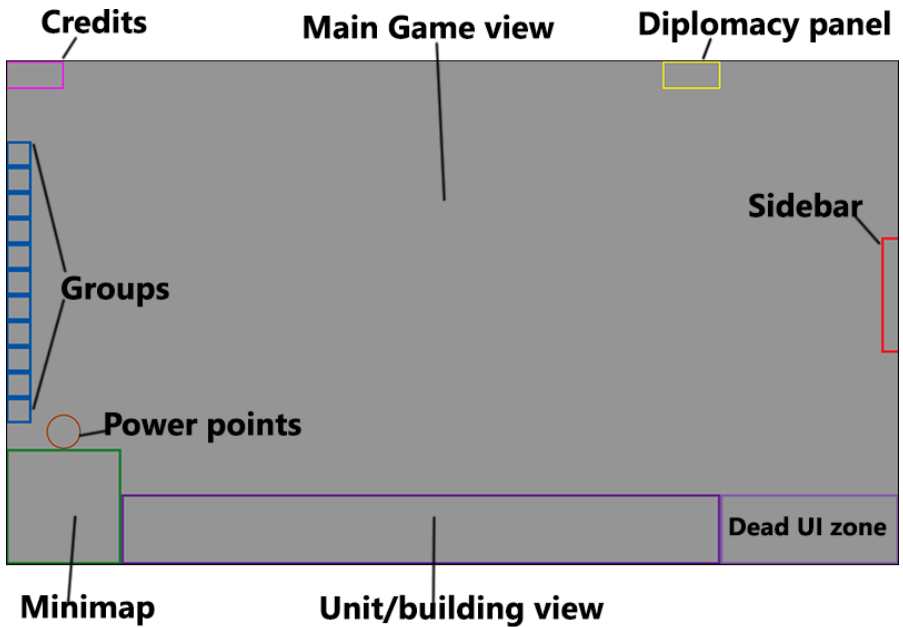

Figure 1. UI layout before the sidebar is activated.

In figure 1 above, the sidebar is not activated yet. The players have to click on the side edge of the screen on the sidebar ribbon to activate it. It is represented with the color red in figure 1 above.

Other UI elements that need further explanation are the Groups which are explained in chapter 2 and the Power points system, which is explained in chapter 4.

Figure 2 The main game view when the sidebar is activated

Once opened, the sidebar can be locked to remain open. Otherwise, it will close in a few seconds if not used. If the sidebar is closed, it will be on the same mode as it was the last time it was closed.

The sidebar is separated in 3 columns representing, structures, units and upgrades. The elements are color coded to show the relations between the units and the structures. Units require the structures of the same color in order to be available for production.
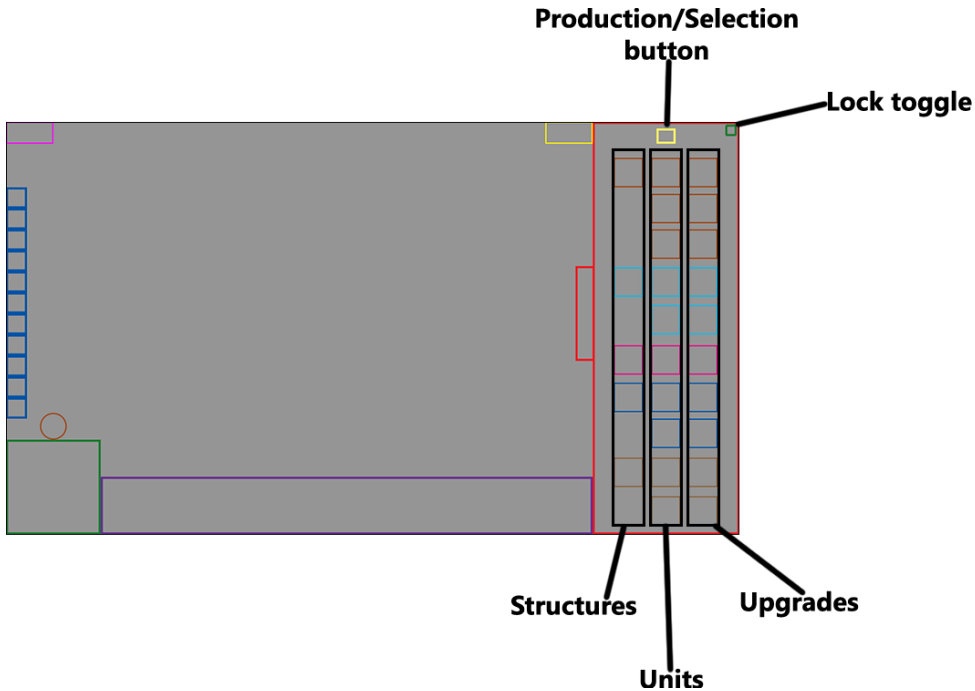

Figure 3. The sidebar row stand for structures, units and upgrades

Upgrades are also related to both the structures and the units. After some of these upgrades are purchased they are replaced by others, usually better versions of the one that was purchased.

The mode can switch from production to selection and vise-versa.

Production mode

When in production mode the players can left click to on an available structure icon to build it. If the structure requirements are met, a ghost version of the structure is attached on the mouse pointer that can be placed on the terrain.

If an available unit is clicked then it starts getting produced from the appropriate building that has already been placed somewhere on the terrain. If more than one structures exist in the terrain, then the main structure can be selected from the structure's settings (look at Chapter 3).

If more than one units are produced then they are queued up. More about units' production queues is explained on Chapter 4.

Selection mode

While in selection mode the third row of upgrades is grayed out, since the upgrades cannot be selected.

Units and structures that have not been created yet are also greyed out. There should be at least one instance of a unit or structure so that it is not greyed out.
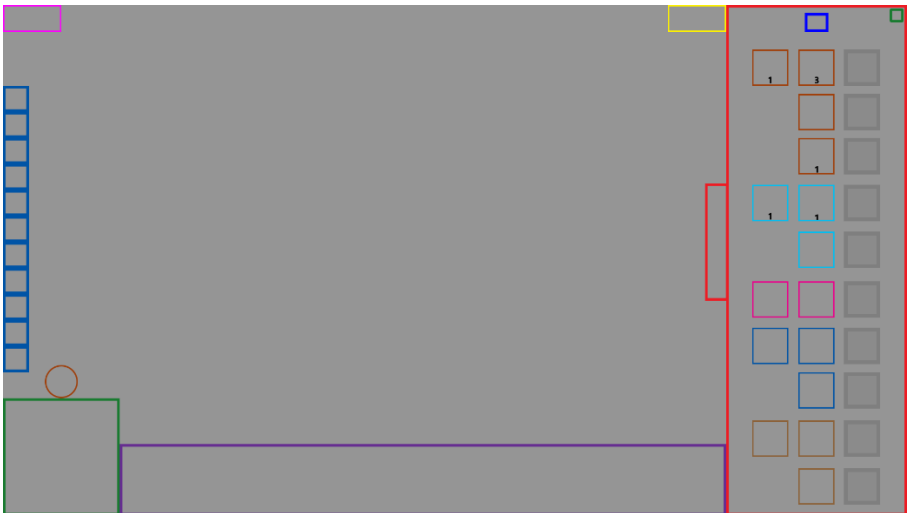

Figure 4. All the elements in the production column are greyed out in selection mode. The small numbers indicated how many units or structure of the same type exist.

In this view, the players can be informed about how many units of each type they have. The number is displayed on the bottom of each icon.

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If a structure icon is clicked then the main structure of that type is selected. If the building's settings are set to recycle mode, then all of them are selected. For more information on recycle mode look at chapter 3.

They can also do different unit selections by pressing different hotkeys. Overall players can select:

- all the units of one type,

- all the units that are currently on the viewport,

- all the units that are not in the viewport.

- They can also add any of the mentioned selections to an already custom selection that has been created.

More details on the controls are given in chapter 2.

Chapter 2: Controls

The present chapter explains how the controls work. The chapter's focus is on the selection mode (chapter 1), since most hotkeys are used then. There is also mention of the production mode when it becomes relevant.

If the space button is pressed the sidebar will open. If the space button is pressed again, while the sidebar is open, the mode will switch from production to selection and vise-versa.

Selection mode

Conventional controls

Most of the conventional ways that have been established in RTS games should still be available. This is stated to show that the use of the sidebar is not against them. It only works complementary.

- The player can click on a unit on the terrain and select it.

- By holding left click and dragging the player can select multiple units.

- Units of the same type in the viewport can also be selected by double clicking on any of those units.

- Players can group units by pressing Control + (1-0).

- Current selections can be ordered to attack an area by pressing A and left click on the area.

Using the sidebar

The following happen if the player interacts with a unit's icon:

- Double click selects all the units of the same type on the viewport.

- Shift + Left Click selects all the units of the same type, outside the viewport.

- Control + Left Click selects all the units of the same type regardless where they are located.

If any of the previous commands has already taken place, the player can:

- hold the Control button and click on any of the custom selections to add the selected units to that selection.

Hotkeys	Requirements	Result
Double Click	-	Selects units of the same type in the viewport.
Shift + Left Click	-	Selects all the units of the same type, outside the viewport.
Control + Left Click	-	selects all the units of the same type regardless where they are located.
Control + Left Click on group	Existing selection	Adds current selection to the clicked group.

Table 1. The hotkeys and their functions when used in the selection mode of the sidebar.

Production mode

In terms of production, the player can press Shift + Left Click on the unit's icon to queue 5 units at the same time. If the credits are not enough the order still works for any number up to 5.

Player are also able to produce units, structures or buy upgrades faster by issuing links of shortcuts with the numeric keys. Alt button should be held down while pressing the

numeric keys. The maximum number of keys that should be pressed are 3 and ideally, they should be memorized. The players should let Alt button go, so that the order will comply.

An indicator with 3 horizontal boxes on screen informs the player about what has been pressed. If the sidebar is activated they should be able to see highlighted the current fast production as it happens. If they change their minds they can press the Escape button before letting Alt.

According to the following example of figure 5, the player would have to press Alt + 1 to produce structure (left column) marked as 1. The first unit (central column) marked as 1 would be produced if the player pressed Alt + 1 + 1.
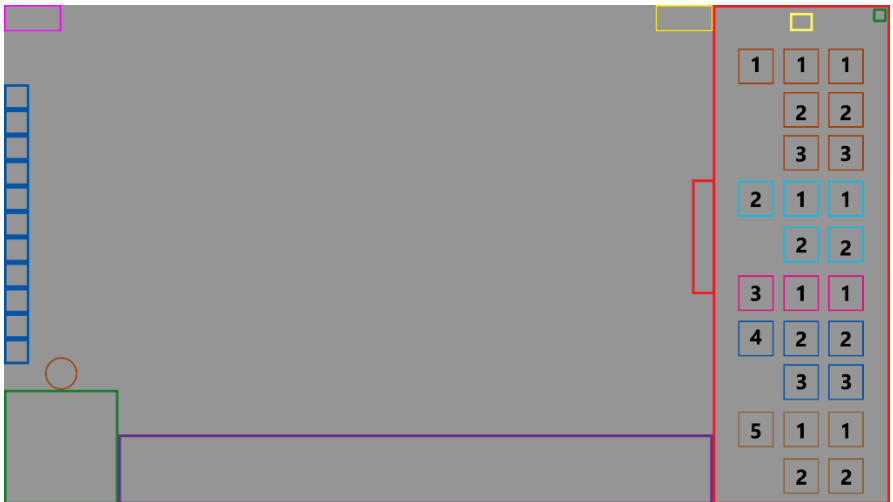

Figure 5. The numbers might change, depending on the number of units and structures. In order or this to be applied, the structures should not be more than 10. Same for the units and upgrades.

Chapter 3: Building a base

The present chapter examines a few basic functions of the buildings, so they can work along with the sidebar. Once again, the sidebar is not mandatory for completing the building functions. It is meant to co-exist with the conventional RTS logic on the subject.

The only structure that exists in the beginning of the game is the central structure of the faction. If that structure is destroyed all production pauses until it is built again. If more than one centers exist, all of them should be destroyed for the production to pause.
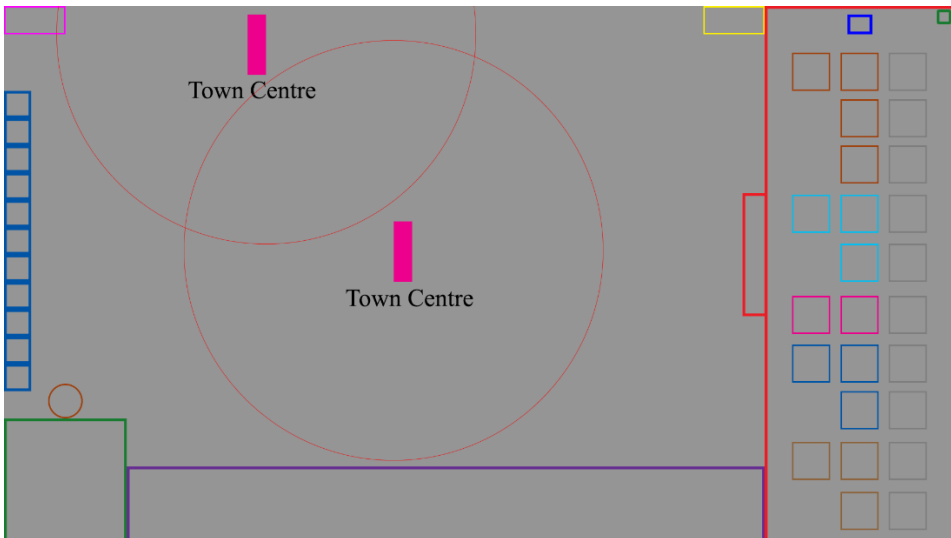

Figure 6. Two town centers with heir perimeters

All structures can be built in a certain diameter around the center. If multiple centers are built, each one of them have their own diameters which are all combined to define where the player can build.

Building without using the sidebar

All available structures can be found on the center. They can be built from the center's view once it is selected.

Building happens as in most RTS games. Once purchased a host version of the structure appears on the mouse pointer. The player can then click on an eligible place on the terrain to build it.

The unit production and upgrades can also be handled in an equivalent way. This time the player should select the appropriate structure and spawn the unit or purchase an upgrade from its view.

Main or recycle

The produced units spawn from the related structures. If more than one structures of the same kind exist, the player can select how the units will spawn.

All buildings are created by default on recycle mode. That mode enables the unit production queues to be handled equally by all the available structures.

If the players prefer that all their units should spawn from the same structure, they can change to "Main" mode by pressing the "!" icon.
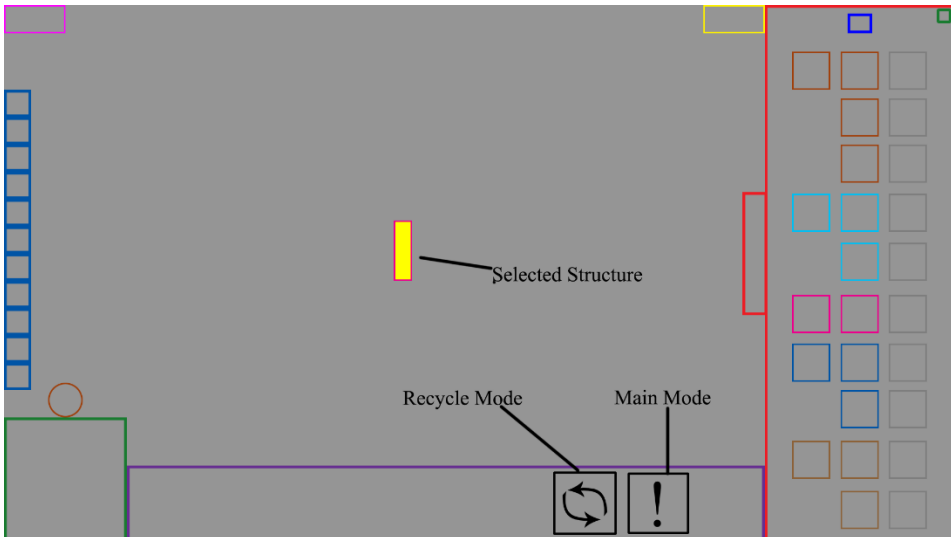

Figure 7. All the production related structures have the two modes. Recycle is the default option.

For structures that do not offer units but solely upgrades, the recycle mode is also set as the default option. The tasks of upgrading are split in the same way as the production tasks.

Using the sidebar

While on production mode, structures can be built by clicking on the desired structure and then placing it on an eligible place on the field.

Units can be produced in an equivalent way, by clicking on the desired unit. If the same unit is clicked more than one times, the queue number increases and can be seen on the top of the icon.

The players can queue up to 20 units to produce them.

Chapter 4: Military balance

The present chapter suggests how enemy counters should work but concentrates more on an alternative system for balancing the armies without applying a population limit.

Unit relations

The units are produced as individuals and not as squads. Units can later be grouped by use of the Control + (1-0). The grouped units appear in the left edge of the screen. The groups can be selected either by clicking on them or by pressing the keyboard keys 1-0.

Specific units affect others but without applying hard counters. The distinction between light armor, heavy armor and vehicles can give satisfactory results in a context of soft counters.

Power points system

The system of power points aims to prevent having population limit. It also gives an opportunity to players to play defensively.

According to that system, the game keeps track of all players' armies and reward them accordingly in specified periods of time.

Hint: The player that produces the biggest army should be careful, otherwise the size of their army, could turn against them.

Powers System

Tier 1
Select 2 out of 3 to access tier 2.

Tier 2
Select 2 out of 3 to access tier 3.

Tier 3
Mandatory option that unlocks tier 4.
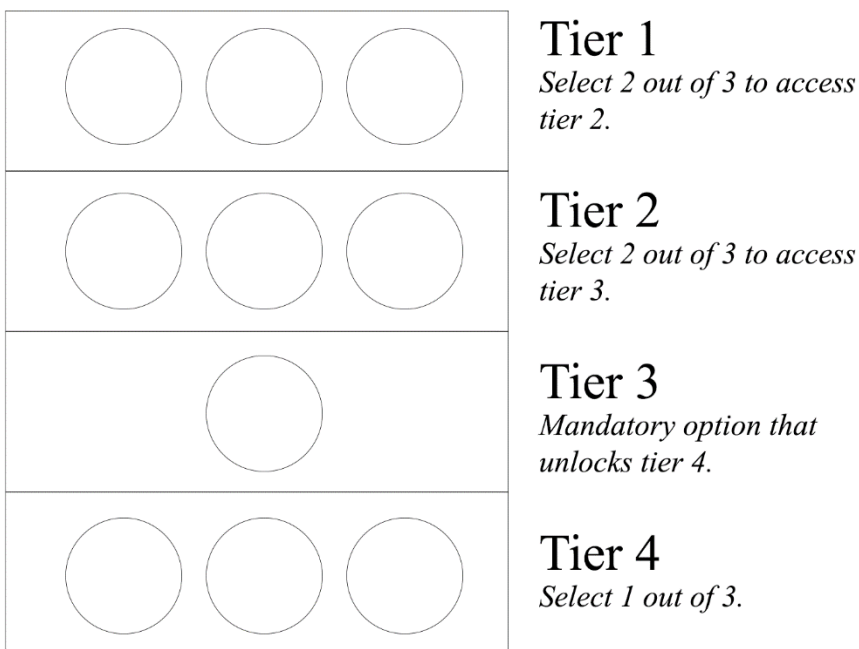
Tier 4
Select 1 out of 3.

Figure 8. Example of the power system and how the tiers would be unlocked. Powers are represented with circles. Each one of them costs between 5-50 points.

When the period passes (5-7 minutes), the game rewards the players. The rewards are inversely proportional to the army. So, the more army one has, the less power points they will earn.

The players can get access to the Power Points menu by clicking on the power points indicator/icon at any time.

- The number is calculated comparing what percentage of the overall armies each player or AI possesses.

- The power points give access to army reinforcements, armor or attack bonuses and passive bonuses.

- More advanced tiers give more advanced benefitsbut also cost more power points.

Chapter 5: Economy & Diplomacy

The present chapter aims to suggest an easy to follow economic system that requires a minimum amount of micromanagement. An alternative for diplomacy is also examined in a way that would fit the 15 – 30 minutes' lifespan of a competitive RTS session.

Economy

There should be one main resource that can be harvested from the map. A second resource can be introduced as a faction specific that can be used for advanced units.

The structure that is used to harvest the resource should be available to build even if it is outside the center's diameter.

 After the appropriate structure is built, a worker unit is created and start working automatically. The player has no control over that unit. The second resource, if applicable can be collected in an equivalent way or simply by building a structure.

The player can produce more of those units. If all the worker units are destroyed, a new one will be produced automatically.

Timed agreement

Players that start the game as allies cannot fight each other at any point of the game. They are not affected by the diplomacy functions.

The diplomacy panel allows the player to pay a tribute to have a treaty.

- If more than one opponents are in play, the tributes should be paid separately.

- The player can offer as much as they think that would make the opponent to agree. The offer is made on the game's currency (credits).

- The offer cannot be changed. It can either be accepted or denied.

If denied, the game continues normally. If accepted, the two players that agreed cannot attack each other until the next power points update. More about the power update period is explained in chapter 4.

When the treaty period is over, the player get a countdown of the last half minute as a warning.

Players can agree as many times as they want but there cannot be an allied victory in that way.

	Status	**Actions**
Opponent 1	Treaty	-
Opponent 2	Normal	Offer tribute 100 ↕
Opponent 3	Normal	Offer tribute 100 ↕

Table 2. An example of the diplomacy system. The player has already achieved a treaty with Opponent 1.

Grey Goo UI image.
The UI panel is currently opened on the bottom of the screen.

Lord of the Rings: The Battle for Middle Earth, power points system.