

Metrosystem.16
Release date: 8th May 2025
Current version available for free download here:
https://archive.org/download/Metrosystem/Metrosystem.zip

It is possible to unzip the current downloaded version directly into a directory where one of the older versions is already located and replace the existing files with the new ones.

Notes
This game runs in windowed mode only (1200x950 – which is the minimal required desktop resolution), no network connection is required, no sound systém is required (no sfx nor music during gameplay), both keyboard and mouse are required, graphics card must be OpenGL 1.0 compatible.
After launch, it is possible to either directly start a new game (with the "***Start***" button) or load a saved game (the "***Load***" button), during the game it is possible to save the game at any time (saved game files are always saved in the same directory as the executable game file).
After selecting a saved game to load, problems may occur, which are reported under the main menu buttons ("***Start***" etc.).
Apart from a hardware or system failure, it is possible that the file in which the game is saved is damaged, or was saved or loaded incorrectly due to an as yet undetected error.
In these cases, it is possible that there are inconsistencies within the recorded data (data that violates some game rules).
It is possible to load such a file, but there is a possibility that the game will behave non-standardly in some aspects.
In these cases, it can be useful to make a copy of this file - the game itself automatically creates such a copy: the file has the same name, but a different extension: .map.backup - if there are problems, this backup copy can be renamed back (by deleting the file with the .map extension and changing the extension .map.backup to .map).
Some bugs will be fixed by re-saving, some bugs detected in the future will be fixed by the next version of the game.
The game is available in Czech and English (can be switched with the "***Czech***" checkbox).

Contact (comments, ideas, tips, bug report, collaboration):
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Settings
Before starting the game, it is possible to set the rules of the game to a certain extent and thus its style, which suits the player more, and respectively the difficulty.
Settings can also be saved to a file and at any time this saved file can be loaded and applied when selecting the settings (the files, like the files containing the saved games, are stored in the same directory as the executable game file).
The settings can no longer be changed in any way during the game.
The current settings can be viewed during the game by pressing the Tab key.
The game can be started skipping the settings by right-clicking on the "***Start***" button - in this case, the last used setting used.
The default setting is used before the first start after the start, and the last used setting is always used after the start.
The following can be enabled or disabled in the current version:
City development - during the game, the city builds new buildings according to

its needs and, on the other hand, demolishes unnecessary or unsatisfactory ones.
Economy – the player has a certain amount of borrowed money at his disposal, which he uses to design, build and operate the metro lines, from which the player should profit (see below).
Historic preservation – some older buildings are marked as a heritage and it may be more difficult to project a metro section near them and their demolition is also not allowed (only the city itself can possibly remove such buildings), on the other hand, they can to some extent increase the attractiveness of the given place and therefore the transport potential.
Geology – when designing underground sections, it is necessary to know the geological situation in the given place and therefore carry out geological investigation (see below).
Minimal tunnel depth given by surface - the minimum required depth of the track in a given location is determined by the type of construction that is located in the given location.
Everything demolishable - any type of building can be demolished (except for buildings marked as a heritage if they are allowed, see above).
Station utilization estimate – an estimate of the average number of passengers is made for each operating station (which can serve as a base to estimate financial income), if it is not enabled, **Economy** is not enabled automatically.
Public satisfaction - almost all of the player's actions have an impact on public opinion, if it is low the game may end (see below), public opinion can also have an impact on the satisfaction of the city government (see below).
Archaeological sites - in some parts of the city, archaeological finds can be assumed, and therefore it is necessary to first subject the site to a survey before the actual construction (see below).
Maximum permitted slope of the track - the slope of any section must not exceed 4%.
Track in any place - design and construction of a track is generally allowed in any place with any building (unless further restricted by other settings such as **Historic preservation**, **Maximum permitted slope of the track**, etc.) and with a few exceptions (airport, river course, lake).
Stations at any location - the same as the previous option, only limited to stations.
Height differences of the terrain – the city has different heights above sea level in different places, which must be taken into account when designing the tracks.
Influence of surrounding buildings – surrounding building can lead to the impossibility of designing a section, station or depot in a given location.
Ventilation shafts – every underground interstation section longer than 600m must include at least one ventilation shaft (see below).
Depots - individual metro lines require depots for their optimal operation (see below).
Project approved by the city – projects are approved by the city according to its criteria (see below) and also financed, so there is no need to take them into account (and they are automatically disabled in the settings).
Geological investigation in the vicinity of the ongoing - there is no limit on the distance of concurrently ongoing investigations.
Archaeological excavation terminable at any time - the excavation can be stopped at any time and the construction itself can be started with a certain impact on public opinion or the satisfaction of the city government.
No waterways – no river will flow through the city and the city will not stand on the shore of a lake.
Hydrology – if a watercourse passes through the city or the city is near the shore of a lake, their influence on the complexity of the underground situation is additionally considered (see below).
Unexpected difficulties - an element of randomness that can lead to delays in the construction of metro sections or surveys.
Resignation due to dissatisfaction in district - if the popularity in any part of the city drops to 0%, it is game over.
The city determines the maximum fare - the amount of the fare is limited by the decision of the city (see below), if **Public and city government satisfaction** is not allowed, then this option is automatically disabled.
Czech names of city districts - if "***Czech***" is checked, then this option is the

default, if not selected, city districts have English names.
Requiremenets of the city districts - city districts come up with demands for metro stations in their area.
Subsidies of the city districts - city districts are offering to subsidize metro operations in their area.
Paid project managment - scheduled metro sections are counted as a cost in each turn (depending on the length of the section).
City government satisfaction - almost all of the player's actions affect the city government satisfaction, and if it is low, the game may end.
Interest bearing debt - the debt is charged interest at a small rate each turn.
Unlimited debt - there is no limit on the amount of debt.
Functioning crossover - the absence of crossovers in a given section leads to a restriction of traffic in a given section to shuttle transport and thus a significant reduction in the number of passengers handled and other related negative effects.
Geological investigation with no impact on surface - investigation of any extent has no effect on any type of building at the site.
Every project modification represents a cost - for each modification of each project, an adequate fee is deducted from the account, which may lead to a gameover to lack of funds.
Trial operation - each constructed section must undergo trial operation before it is opened to the public.
Inactivity penalty - if the city is in a state where no sections are in operation or planned for a long time, the satisfaction of the city government decreases.
Co-financing of construction – the construction of a section connecting the districts required by the city may be co-financed by the city.

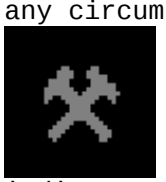
Start
A city is randomly generated using the settings.
After the city has been generated, it is possible to explore it by clicking on any part of the displayed map or its preview and (depending on the settings) you can carry out geological investigations, project and construct metro lines including depots according to the current requirements of the city or according to your own discretion (and depending on the settings).

Map
The map can be zoomed in and out with the mouse wheel if its cursor is on the map area, and if the map is zoomed in, the position of the displayed section can be moved by dragging the mouse while pressing the left button.
You can also zoom in and out using the plus and minus keys.
Maximum zoom in or zoom out can be done using the * and / keys, respectively.
A field can be selected by clicking inside the map, the selection can be canceled by pressing the right button anywhere.
If a field is selected, the selection can also be changed using the cursor arrows.
The type of displayed data can be changed by selecting under ***"Displayed type of data"***.
Alternatively, function keys (F1-F8) can be used.
The selected field can be specially marked by ticking the ***"Mark place"*** checkbox (under the ***"Displayed type of data"*** selection) - it can be useful, for example, when selecting potentially interesting places for projecting lines or, in general, for better orientation.
To the right (of the map) information related to the currently selected field is displayed (among other things).
The **"Landscape and buildings"** data can be displayed (except for metro sections) in monochrome for greater clarity by pressing F12.

Lines
There are 8 color-coded lines, the currently selected one displayed in the selection under ***"Selected line"*** can be changed by this selection, also by clicking on the map field in which the line appears.
If you click on a field with a transfer station, clicking on this again selects

the second of the lines in a transfer.
When the field is unchecked, the last selected line remains selected.
The displayed properties of the selected line (length, number of stations, including planned and under construction sections) correspond to the currently selected line.
If the given line has a planned or operated section, it can be found more quickly on the map using the "***Show line***" button which alternately focus on the beginning and end of the selected line.

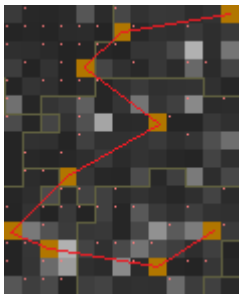
Geological investigation
If the field has not been investigated, only the surface section can be projected here (with the standard setting), but only if the selected field or its surroundings allow the construction of a surface section.
Where investigation can be carried out (possibly with the demolition of an existing building at a given location) can be found from the "***Geological data***", which can be selected as one of the displayed type of data.


indicates that an investigation cannot be conducted directly on this field under any circumstances.

indicates that the field can be investigated.
If only investigation with a limited scope is allowed on the field, this indicator is colored orange or yellow (in this case, the existing buildings will not be removed and the scope of the investigation or possible results is given by color – orange represents the smallest possible scope).
In other cases, the indicator is gray or bluish, and possible investigation can lead to the demolition of the object located on the given field.

indicates that a geological investigation is already underway in the area and it will be possible to start an investigation on the selected field only after the investigation in the area is completed, if this investigation does not reveal the geological situation on the selected field by itself (this behavior can be influenced by the game settings).
If popularity is low in the district where the field falls, then geological investigation may not be allowed.
In other cases, the investigation can be conducted unconditionally.
Options are also indicated in this way when the "***Transport potential***" type of data viewed (but in this case the indicators are downsized and only visible when the map is zoomed in).
The time and thus also the financial burden of the investigation depends mostly on the geological situation in the place and the surrounding area.
The investigation can be suspended at any time and resumed later, but the field and with ongoing and suspended investigation and certain surroundings are blocked by this and no lines can be projected on it until the investigation is properly completed and, in addition, the field is limited to traffic and therefore the number of potential passengers and further even suspended investigation requires some minor overhead.
In the case of an operating surface station, on the field of which a geological investigation has not been carried out, it is possible to additionally conduct it to a limited extent in such a way that it is possible to design a transfer in this place.

As a result, the investigation may also reveal the geological situation in the surrounding areas, but the result cannot be predicted.
The fields with the currently exposed situation are marked with a flashing symbol for some time, which is used to indicate the feasibility of investigation.
The geological situation is expressed in the preview with a shade of gray, which represents the relative minimum required tunnel depth, and also (at maximum zoom) numerically (minimum tunnel depth in meters).
If there is an object on the field, which by its nature requires greater depth than is given by the purely geological situation, this is indicated both by coloring the field (half and half) in two shades of gray and also numerically. One of the values then represents the minimum depth without the necessary demolition of the building and the other depth with the simultaneous demolition of the building.
Both values are additionally indicated when selecting the field to the right of the map.
All geological investigations functionality can also be affected by the setting.

Projecting lines
Before designing, it is advisable to check the "***Transport potential***" data and guide the line through places that promise higher traffic (the relative potential of passengers is expressed by brightness of grey shades, places with significantly above-average potential are additionally highlighted in orange shade, the estimation of average number of passengers is indicated in the information panel on the right) – if potential estimates are enabled by the settings.



In any type of displayed data, you can quickly switch to the "***Transport potential***" by pressing and holding the Shift key while the cursor is on the map.



Districts that have an above-average transportation potential are specially marked in "***City districts***" type of data by this symbol (above).
Furthermore, it is advisable to take the geological situation into consideration ("***Geological situation***" type of data, there are relative demands for tunnel depth) - if there is no plan to build an surface section, or if the generation of geology has been enabled by the settings.
When designing on the selected field, you can change the depth of the track (if it is an underground section) and the type of construction in the given section. Applicable types of construction are determined by the depth of the designed section.
The minimum possible depth is limited either by the possibility of demolishing the object (adjustable) on the surface (which significantly reduces the minimum possible depth) or by the possibility of building directly on the surface (with possible demolition of the object located on the field in question).
The minimum and maximum depth is also limited by the maximum possible slope of the following section (this can be influenced by setting).



This marks the fields around the selected designed section where the possible slope is higher than the maximum allowed.



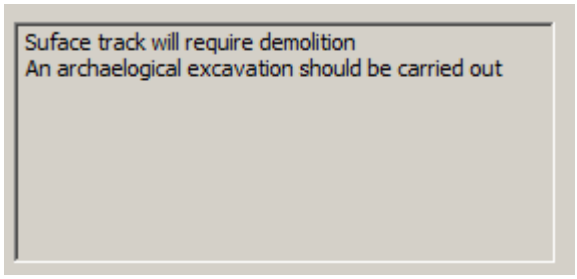
Or where there is such a slope only if there is no demolition above the surface.
When considering tunnel depth, along with the maximum possible slope of the track, the depth above sea level of the individual fields must also be taken into account (*"**Heigh above sea level**"* type of data and absolute altitude meters in the information panel on the right) - this also applies to surface sections.
In the settings, it is possible to determine whether the altitude is different in different places.
Elevation can be changed to some extent in some places in the city by modifying the terrain. In the case of underground interstation sections, ventilation shaft must also be designed, but it is not possible to place them arbitrarily (their placement may in some cases require the demolition of the existing building).



This is how the ventilation shafts are displayed (when the *"**Landscape and buildings**"* or *"**Track technology**"* type of data selected).
Shafts must be projected on every continuous underground section longer than 3 fields (that is, if one of the field is not an underground section or a station).



This marks the fields of the section that is not sufficiently covered by ventilation.
In the settings, you can determine whether ventilation will appear in the game.
In general, the requirements in the selected field are listed in the box to the right of the map (and only if they are all met is it possible to design the track on the spot).



In addition, it is possible to plan the construction of crossover or stabling tracks or a service station on the projected section, but then it is not possible to project a station on the same field.
Crossover or stabling tracks as well as service stations increase the financial burden of the project.
Crossovers and stabling tracks allow non-shuttle operation in the section

between two turns – shuttle traffic is very restrictive in terms of extremely low occupancy.



This marks the end of the section with a missing crossover.
The stabling tracks and service stations reduce the cost of running the line to some extent.
The type of structure, crossovers or stabling tracks or service stations are indicated on the when *"**Track technology**"* type of data selected.
The depth of the track and the hydrological situation (indicated by a wave in the *"**Geological situation**"* type of data - a more pronounced wave means more demanding conditions) in the subsoil determine the financial burden of the construction of the given section.



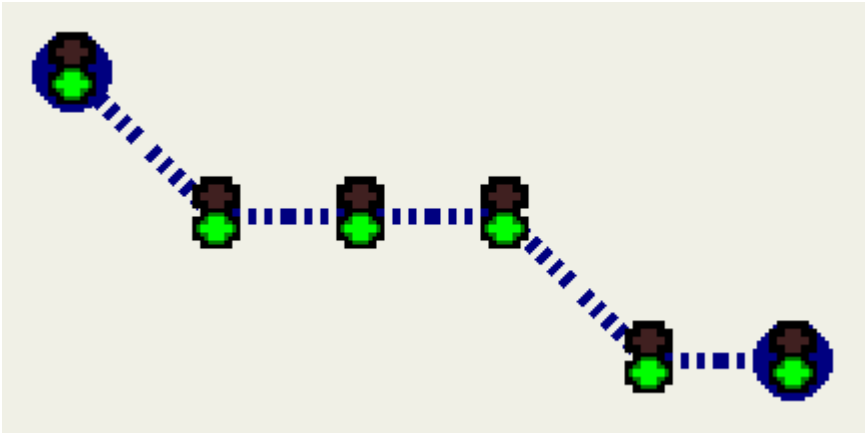
This marks the place where demolition will occur during construction.
Each designed project, in whole or in part, can be canceled before the start of construction.
It is not possible to project a line section that crosses each other, creates a circuit or branches.

Projecting stations
If a station can be designed on the given field (with possible demolition of the existing building on the surface), a (checkbox) *"**Station**"* will appear - if it is checked, a station will be established at this location during the construction of the project.
In the settings, you can influence the conditions under which it is possible to project stations.
If it is not possible to design a station at a given location, the reasons are listed similarly to the case when there are reasons for disallowing the design of a line section at a given location.
Among other things, the station can be designed in a place that is connected on at least one side to another (designed, built or already in operation) section of the same line.
Between the stations there must be at least one field with a section without a station (minimum inter-station distance).
The station can be removed from the project by ticking it, or, if it is an end section, directly with the given section (button *"**Cancel including station**"*).
Stations can be named as desired (the default name is derived from the name of the city district in which it is located - if a station with this name already exists, a number is added to the name to ensure the uniqueness of the station names - the names are not necessarily unique, but it is more advantageous for clarity).
In some cases where there is a significant building on the spot, the default proposed name is composed of the type of building and the name of the city district (typically a railway station).
The financial burden of building a station is determined by the type of construction, the depth of the track at the location of the station under consideration, and the hydrological situation in the subsoil (and therefore also the setting).

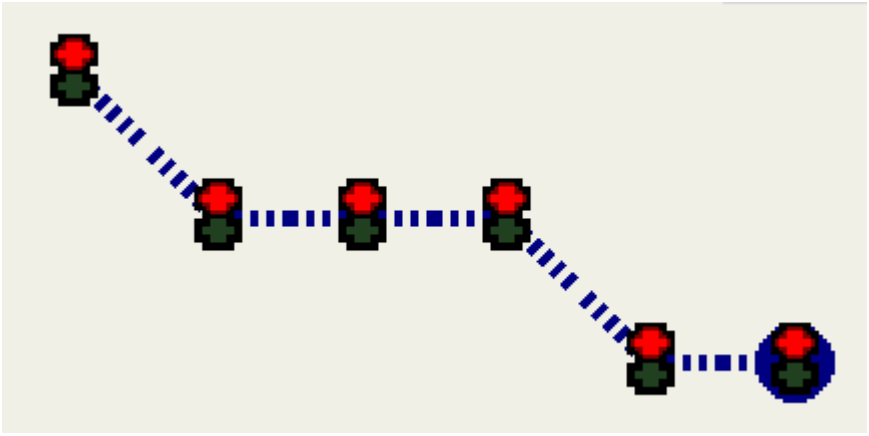
Transfer stations
A transfer can only be designed between two lines in a station that is already in operation for one of the lines.
An existing station can be of any construction, but a newly designed interchange

is always a bored station.
The geological situation in the subsoil must be known on the given field.
Other transfer requirements are the same as those for a non-transfer station (and therefore also given by the setting).
Transfers increase the availability of different places in the city and thus the load of individual connected lines (to a certain extent this also applies to stations of different lines that are established close to each other).
In general, you can set each project modification to be considered a financial expense.

Constructing
If the projected section, the first one of the selected line or the extension of an existing line, meets all the requirements for construction (it is marked with green traffic lights along its entire length), construction can be started by pressing the "***Start***" button.
This button also displays a rough estimate of the time required (in months therefore in turns).



In the opposite case, the unfulfilled conditions are listed in the same way as in the case of designing sections or stations (and the section is marked with red traffic lights along its entire length).



Each projected section must include at least one field that allows intervention from the surface (various areas with no buildings or structures that are allowed to be demolished, or according to the settings).
The first section of the line must include at least two stations.
The connecting section does not need to include a station (it can serve purely as a technological extension for the purpose of introducing crossovers or stabling tracks, a service station or a section leading to a depot).
In addition, funds must be available to cover the entire project (the financial burden of the project is estimated in advance, but the total final construction costs may change during construction).
If there is low public opinion in any city district in which the project is

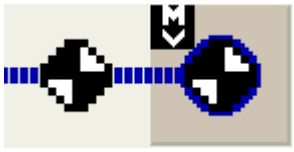
planned, it is possible that the construction of the project will not be allowed.
If it is also set that the projects are approved by the city, then only projects with a sufficient length (minimum 4km), number of stations (minimum 5) and inter-station distances (minimum 400m, maximum 4km) are allowed for construction.



In the case of the construction of an cut and cover section or an underground station, an archaeological excavation must be carried out in the places marked in this way.
It is possible (if allowed in settings) to end the excavation at any stage, but this may have a certain negative impact on popularity.



This is how the place where an archaeological excavation is currently underway is marked.
If a significant discovery is made during the excavation, it is indicated between the information on the selected field and the field is framed in yellow on the map.
Such a discovery has a positive impact on satisfaction in the district and at the city government level as well as in the other districts.
In general, ongoing construction can be suspended at any time, but even a suspended project requires certain minor overhead costs.
During the construction of the transfer, traffic in the original station is restricted for a certain period.
After all construction on the section is completed (if set in game settings), the section is in trial operation (without passengers) for a period of time that is proportional to the length of the section - during this time the section is still considered to be unopened (any city requirement is therefore not considered to be met until the trial operation is successfully completed).



This is how the section in trial operation is marked.
Each opening of a new section can bring about a certain improvement in public opinion or the satisfaction of the city government.
The construction history of individual sections is recorded and can be viewed by clicking the ***"History"*** button.
Clicking on an item in this list will limit the display of sections to those that were open at the time the section was opened on that list item.
Deselecting can be done either by right-clicking on the list or by pressing the escape key.

Depots
Each line can have a depot, which increases the overall efficiency of transport on that line and its capacity, and reduces the overall cost of operation.
In the case of longer operating lines, the absence of a depot can lead to extreme loss - in this case, the necessity of building a depot is pointed out in the information about the given line.
The depot can be built as a separate building that is not part of any (section) project.

There must be exactly one operating line in the vicinity of the depot in question.
The track leading from the depot to this section must meet the conditions for the maximum slope (can be turned off in the settings before starting the game).
On the other hand, there must not be any operated, built or projected section on the site.
Furthermore, it is necessary that there is either no construction going on in the field or building that is possible to demolish (respectively according to the settings).
In addition, funds must be available to cover the construction (the financial burden is estimated in advance, but the total final costs of the construction may change during construction).
If there is low public opinion in the district where the field falls, it is possible that the construction will not be allowed.
Ongoing construction can be suspended at any time, but even a suspended project requires certain minor overhead costs.
It is also possible to cancel the construction at any time - with a certain negative impact on public opinion in the given city district.
If the capacity of the depot is insufficient due to the length of the line, it is possible to further expand the existing depot - but it is necessary that there is a place in the vicinity of the existing depot that meets the conditions for the construction of the depot.

Economy
During each turn, an estimate of costs is made, given to a certain extent by the extent of existing lines and the work carried out as part of their expansion, ongoing geological investigations, and income, given to a certain extent by the number of people transported during the period given by one turn (equals one month).
If there are not enough funds for the planned task (geological investigation or construction of a section or station), this task is not carried out and the project is suspended until the necessary funds are available.

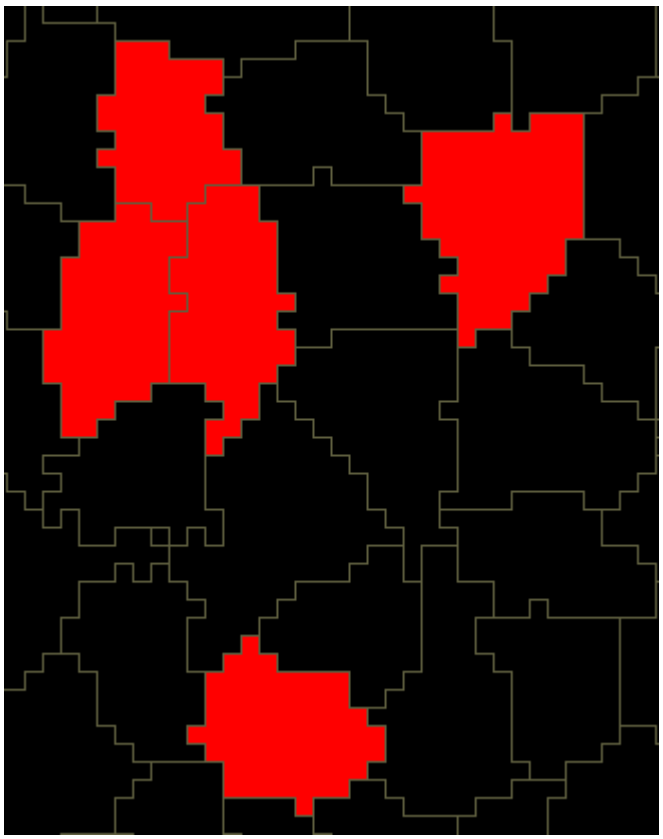


This is how each field is marked where there is a lack of resources for the task performed in the given field.
Funds can be borrowed and returned by clicking on the appropriate buttons (*"**Loan**"* and *"**Pay**"* respectively).
Borrowing, however, creates debt, which is to a certain extent and partly randomly charged.
If the value of the owed amount is close to the maximum allowed value, it is displayed using a bold font.
In addition, the operated lines have special overhead costs that must be paid each turn and which correspond, among other things, to the length of the operated lines and the number of stations - if the funds are not available, the game ends.
Income from traffic is also affected by the fare, which, of course, also determines the rate of occurrence of fare dodgers and public opinion.
The city can, if set, determine the maximum possible fare, which is also determined by the satisfaction of the city government with the services.
If the amount of the account is close to zero, the value is displayed using a bold font, reaching the value of zero means gameover.

Turns
By default, the game runs at approximately one turn per second, where a turn corresponds to an average of one simulated month. During the turn, the development of the city for the given period (if enabled in the settings) is simulated, there are also changes in the number of potential passengers, including the construction of the projected metro line sections, the occupancy of the operating sections is estimated (if enabled in the settings), public opinion (if enabled in the settings) and the results are used in the application

economic model (if enabled in settings).
Fields where the city has started construction are framed in turquoise, where construction is finished in blue.
It can be specially marked (with a blue tint in the ***"Landscape and buildings"*** type of data) by checking ***"Newly built"*** (under the selection of type of displayed data).
This turn-based mode is mainly used to carry out assigned tasks, not for own planning.
For these cases, it is possible to stop the game at any time either with the button ***"Pause game"*** or by pressing "Pause" or "p" key.
Some important events are recorded in the form of reports, which can be viewed in a special window that opens after clicking the ***"Messages"*** button, which is only allowed if there are reports available (in which case, the number of messages is added to the title of the button).
Messages are removed from the list after some time.
Each report is linked to a district of the city, which can be highlighted (district border) on the map by selecting (clicking on) the report (right-clicking anywhere in the message list will make the highlight disappear).
Deselecting can be done either by right-clicking on the list or by pressing the escape key.

City requirements, subsidies and co-financing
Immediately at the start and during the turns, special requirements or subsidies from the city or possibilities for co-financing construction (if allowed in the settings) may appear.
They mean that the city requires the construction of a connection between the given city districts.
A time limit is set for this task.
In the case of requests, disctrict where the time limit is about to expire are specially marked.
Failure to fulfill the request within the time limit results in a significant decrease in public opinion of the city as a whole - which can lead to the termination of the contract due to dissatisfaction with the services and thus gameover.
However, failure to meet the requirement before the limit can also have a certain negative effect on satisfaction with the services.
Contributions to city construction can be partially compensated (in some cases, you can contribute to the field where city-led construction takes place by pressing the ***"Contribute to the construction"*** button - where the amount that can be contributed is also followed).
Another option is to support the development of the city directly and build a publicly beneficial building in suitable locations (free areas that meet other conditions that the player is notified of in the information panel).
Low satisfaction with services, less than 20%, is indicated by a gradually increasing red-colored edge of the map.
Completing the subsidy within the given time limit results in increased profits as a result of subsidies from the city.
Failure to comply has no impact.
Similarly, co-financing of construction leads to a one-time payment of the city's contribution to construction (in a certain percentage amount) upon the start of construction of the section that will connect city districts as required.
The level of co-financing is partly influenced by the size of the affected districts of the city.
City districts that are affected by any requirement are marked in red on the relevant data type view, subsidies in green and yellow if the city district is affected by both.
City districts offering co-financing are marked in blue (if the requirement also applies to a district, then in purple, if the subsidy applies, then in turquoise, and if everything applies, then in white).



It is therefore advisable (if the economic model or public opinion system is enabled in the settings) after starting to switch the type of displayed data to "***Requirements and subsidies***" and focus on projecting in the affected areas.
A clearer division of the city into individual parts is available in the "***City districts***" type of data.
Public opinion in individual parts is shown in the "***Popularity in city districts***" type of data, where it is indicated by coloring the given district in such a way that the redder the shade, the lower the opinion (less than 50%) and, on the contrary, above average if the shade is greener - default situation (average opinion) is expressed in a shade of yellow.
In addition, if a field that falls under a city district is selected, then the public opinion expressed as a percentage of average satisfaction in the given district is also displayed next to the name of the district.

Conclusion
So far, the game represents a constantly evolving concept that gradually develops the idea of simulating the design, construction and operation of a metro in a (metropolitan) city (largely inspired by the history, present and perhaps the future of the metro in Prague).
In its current form, it is more like a (randomly generated) playground where it is possible (with a limitation that the player creates for himself when setting the game rules) to play as a metro line designer.
This is a private amateur game project.
Here it is worth noting that this is a game and not a simulator - the rules are inspired by reality (a lot of research time was devoted to many aspects), but in the end, fun always takes precedence over realism (so, perhaps, even in the eyes of experts there are no complete nonsense in the game).
The entire development and the game itself is characterized by minimalism.
The goal (of this project) is an application that is undemanding (for hardware and system; it does not require installation, it is portable) and minimalist in terms of graphic presentation.
Thank you for discovering, downloading, reading, playing, giving feedback!

