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PURGES MINIMAL MANUAL
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Minimal Manual for P.U.R.G.E.S. (Public Underground Railway General Evacuation Simulator)

by

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About This Document

This document constitutes a minimal manual for Purges (the Public Underground Railroad General Evacuation Simulator). Purges is an evacuation simulator program aimed at the Subway stations in the Glasgow Underground. This document is concerned solely with using the program. It will not explain how to set up a computer system to run Purges. Therefore, it is assumed that you already have a system in which you can get Purges running. As a general rule, all you should need to run Purges is a working Java Runtime Environment and a correctly installed Java3D plug-in. Full details on how to install these and set up your system for Purges can be found in the 'Setup' folder on the Purges CD.

Contents

Chapter 1

Introduction

Purges is a three dimensions visualised evacuation simulator program. It is aimed at the Subway Stations in the Glasgow Underground. What this means is that you can open an environment in the program (such as an Underground Station) and Purges will populate it with people and then show them evacuating in a 3D display. There are several options and displays when running the program and this manual will try to explain all of them so that a new user can get going with Purges as quickly as possible.

The minimal manual will cover how to start Purges; how to open different environments in Purges; how to run and control simulations; how to change the speed of running simulations; how to block areas of a simulated environment during a simulation and any other options the program supplies.

There is also an appendix covering keyboard shortcuts in Purges.

Chapter 2

Starting Purges

Purges is a Java application contained in a Java JAR file called 'Purges.jar'. On a correctly setup Microsoft Windows system, the program can be started by simply double clicking this JAR file. However, the general method is to open a command prompt and run it from there. This can be done by clicking 'Start' then 'Run...'. In the new window that opens, type "cmd" then click the 'Okay' button. You will now need to navigate the command prompt to the directory containing the 'Purges.jar' file. If for example, the full path to the 'Purges.jar' file was:

```
C:\Purges\Purges.jar
```

then you would type:

```
cd C:\Purges
```

And you would be in the right folder.

Once in the right folder, you can then start Purges with the following command:

```
java -jar Purges.jar
```

This will start the default version of Purges and this will be suitable for most users. However, you can also start Purges with command line arguments as well. Purges allows you to run the program with wireframe versions of the environments instead of the solid 3D models. This will allow Purges to run faster on some older systems. To start the wireframe version of Purges, you would use the following command instead:

```
java -jar Purges.jar -wireFrame
```

Purges also supports a second way of manipulating the 3D models in the program. The default way is to use a rotation slider to rotate the model on one axis. However, there is an option to move the model on all 3 axes by clicking on the 3D model with the left mouse button and, while holding down the left mouse button, dragging the mouse around. This is

turned off by default as it can confuse new users who may 'get lost' in the model. However, it can be turned on very easily from the command line using the following command:

```
java -jar Purges.jar -mouseRotate
```

Should you want to run the program with the wireframe and mouse rotate options turned on, you can do so by using this command:

```
java -jar Purges.jar -mouseRotate -wireFrame
```

We have now covered all the methods of starting Purges and will continue by showing how to open Purges environments.

Chapter 3

Opening a Purges Environment

Purges is capable of being run on a variety of environments. This is so that it can be used with any Subway station in the Glasgow Underground. However, Purges will not start with an environment loaded, so it is up to the user to open an environment for Purges to run an evacuation simulation on. The Purges CD comes with 3 sample environments. In the folder with the executable of the program, there is another folder called 'Environments'. This folder contains three files with a '.pur' extension. These are Purges files and represent environments that Purges can be run with.

With Purges running, click the 'File' menu and then choose the 'Open...' option. This will create a standard 'open file' dialogue box which you can use to select one of the three Purges Environment files. Once you select the file and click 'Okay', Purges will load the environment. This could take a little while, so you may need to be patient.

You can load a new environment (or reload the existing environment) at any time by repeating the steps above. Once the environment is loaded, we will want to run a simulation on it. Details for how to do this are shown in the next chapter.

Chapter 4

Running a Simulation

Once an environment has been loaded into Purges, a 3D display of the environment will be shown and all the interface elements will become active. Starting a simulation is fairly straightforward. The maximum population size for the environment will already be selected in the 'Population Size' box. However, this can be reduced to a lower number if required. This should always be a whole number (as you can't make a fraction of a person).

To start the simulation, just click the 'Start Simulation' button. The environment will be randomly populated with the number of people you specified and they will start to evacuate the scene. The people in the Purges simulator are represented by rectangular boxes. The 'Population Size' box will then show the current number of people in the scene until everyone is out. The 'Start Simulation' button will be replaced by a 'Pause Simulation' button. This will allow you to pause the simulation. While the simulation is paused, the button will once again be replaced by a 'Resume Simulation' button which you can use to continue the simulation.

There is a slider on the interface labelled 'Rotate Environment'. By clicking and dragging this slider, you can rotate the scene to get a better view of a particular part or the environment.

A timer at the bottom gives an indication of how long the simulation has been running for. At the end of a simulation (when everyone has escaped) the length of time for the last simulation will be displayed. It should be noted that this timer is not a true reflection of the time taken in the real world. If the computer you are running the simulation on is slow (this is usually spotted by the people moving slower than you would expect them to in real life) the timer will probably show a greater time than would actually have been taken.

Chapter 5

Changing Simulator Speed

The speed of the simulation can be increased so that you don't have to wait in real time for the evacuation to finish. This is simply a matter of selecting which simulation speed you want from the 'Simulation Speed' box. Each label refers to how much faster the simulation will run compared to 'normal' speed. So '1x' would be normal speed and '8x' would be 8 times normal speed. You can change simulation speed at any time.

Chapter 6

Blocking Areas of the Environment

Some Purges files allow the user to block areas of the environment. This is intended to simulate events such as cave-ins, fires, or other impassable changes to the environment. As such, any person in such an area when it becomes blocked is assumed to be unable to move any more and is removed from the scene.

If an environment has blockable regions, then the 'Block Area' option in the 'Options' menu will not be blanked out. Selecting this option will open a new window showing all the areas that can be blocked in the current environment.

You can click the check box next to any of the area labels on the new window to block that area in the environment. Unchecking the box will then unblock that area again. Closing the 'Block Areas' window has no effect on the areas you have blocked/unblocked.

Chapter 7

Other Options

This section will quickly summarise the other options in the Purges program. The first thing to note is that the program can be closed by going to the 'File' menu and choosing 'Exit'.

There is also a 'Help' menu with two options in it. The first option, 'Quick Help' gives a quick synopsis of how to use the program. The second option, 'About Purges' show a simple credits screen about the program author. The windows produced by selecting these options can be closed by clicking the 'OK' button. You should note that you will not be able to operate anything else in the Purges interface until you close these windows.

You can also resize the window by clicking and dragging on the edges of the Purges window with the left mouse button.

This concludes the other options in the Purges interface. However, you should note that most of the interface features in Purges are accessible via keyboard shortcuts. A list of these shortcuts is given in Appendix A.

Chapter 8

Conclusion

This manual covers the basics of how to operate the Purges simulator, but does not talk about any of the technical details. In particular, it does not cover how to make the Purges Environment files. This is considered too technical for this minimal manual, but it is covered in the Project Report that is also on the Purges CD. That report also covers details of the implementation of Purges and other detailed information.

Appendices

Appendix A: Keyboard Shortcuts

Keyboard Combination	**Action**
$CTRL + O$	Open a new Purges Environment File
$ALT + F4$	Exit Purges
$ALT + F$	File Menu
$ALT + O$	Options Menu
$ALT + H$	Help Menu
$ALT + B$	New Block Areas Window
$ALT + Q$	Display Quick Help
$ALT + A$	Display About Purges Info
$ALT + 1$	Change simulation speed to normal
$ALT + 2$	Change simulation speed to twice normal
$ALT + 4$	Change simulation speed to four times normal
$ALT + 8$	Change simulation speed to eight times normal