

User Manual: Configuration File

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Overview

This document outlines how to modify the simulation configuration file in order to achieve the desired experiment format. The application expects such a file to be named *sim_config.txt*, and for it to be located in the *Ball_Sim_x.x/simulation_one_Data/InputData* directory. Failing to follow this naming convention or moving the file out of this location will result in the application being unable to start up properly. The configuration file supports a number of keyword-value pairs that can be easily combined to define the temporal structure of the simulation as well as auxiliary parameters.

Keywords

Simulation

This section includes information pertaining to high-level details of the simulation. This keyword is not tabbed; each of the following four keywords are tabbed once.

Name

For user convenience - offers a simple way of differentiating multiple configuration file setups. No restrictions on value.

Description

Similar to the above: offers a way to describe a given simulation configuration for documentation purposes. No restrictions on value.

Instructions

Toggles whether or not instructions will appear throughout the experiment. These include both the *Day Zero* tutorial and pre-treatment instruction sets.

Possible values:

enabled
disabled

Sound

Disables or enables all sound effects within the scene, including pipe flow and countdowns, among others.

Possible values:

enabled
disabled

Instruction Customization

All *Day Zero* and treatment-related instructions can be overridden, if desired. The instruction override syntax is *InstructionName:message,displayDuration*

Instruction Names & Default Snippets:

LocateBucketInstruction: Objective: locate and walk to the bucket
HoldBucketInstruction: To pick up, place one hand on the bucket...
FillBucketInstruction: Fill up the bucket with balls by placing...
LocateSinkInstruction: Carefully turn around and carry the bucket...
PourBucketInstruction: Pour the contents of the bucket into...
FogImpInstruction: When the simulation resumes, you will notice...
ShakeImpInstruction: You will notice your controllers are now...
GenericImpInstruction: When the simulation resumes, you will be...
ExplainShakeImpInstruction: While you are impaired, carrying...
ExplainGenericImpInstruction: While ... impaired, earning money...
HybridTreatmentLocateInstruction: Locate the medical station...
HybridTreatmentMethodInstruction: You can choose to either...
HybridTreatmentPayInstruction: Option 1: pay a fee to remove...
HybridTreatmentWaitInstruction: Option 2: grab the blue pill...
HybridTreatmentEndInstruction: You can make this decision any...
PayTreatmentLocateInstruction: Locate the medical station...
PayTreatmentMethodInstruction: You can... or, pay a fee...
PayTreatmentEndInstruction: If you wish to pay to receive...
WaitTreatmentLocateInstruction: Locate the medical station...
WaitTreatmentMethodInstruction: ... or, wait a duration of time...
WaitTreatmentEndInstruction: If you wish to wait to receive...
WaitTreatmentChosenInstruction: You've decided to wait...
WaitTreatmentResumeInstruction: Once the timer reaches 0...

Possible values:

Message: Character string (\n can be used to signify newlines)

Duration: Any positive decimal number

Sample Simulation Configuration:

Simulation

Name: April 2019 configuration.

Description: Stronger impairments.

Instructions: enabled

Sound: enabled

LocateSinkInstruction: Turn and walk\ntowards tub,3.5

Tutorial

This keyword refers to the *Day Zero* tutorial. During this period, the user is required to earn a certain amount of money before moving on to the first paid day. Optionally, *Day Zero* can be split into two portions: one unimpaired portion, and one impaired portion, which will only take place if the *Impairment* keyword is used when configuring the tutorial. Usage of the *Impairment* keyword is described later in this document. The *Tutorial* keyword is not tabbed, while the *Score*, *ImpairedScore*, and *Impairment* keywords are tabbed once. Sub-keywords for the optional second portion impairment, *Strength* and *Type*, should be tabbed three times.

Score

Sets the amount that the participant will need to earn to pass the tutorial day. If not specified, the default is **\$150.00**.

Possible values:

Any decimal number

ImpairedScore

Sets the amount that the participant will need to earn to pass the optional second portion of the tutorial day. If not specified, the default is also **\$150.00**.

Possible values:

Any decimal number

Sample tutorial configuration:

Tutorial

Score:175

ImpairedScore:125

Impairment

Type: Physical/Shake

Strength:50%

Day

Signifies a new day to be included in the experiment. Each day may include the following sub-keywords: *Duration*, *Impairment*, and *Treatment*. The *Day* keyword is not tabbed, and each associated sub-keyword is tabbed once.

Duration

This keyword refers to how long each day will last. This field is **mandatory**.

Possible Values:

minutes:seconds, where both components must be positive integers

BallValue

This keyword allows for the payout per ball to be adjusted. This is not a required field, and by default it is set to 1.

Possible Values:

Any decimal number

Impairment

This keyword will determine which impairments will be in effect during the day. There can be one or more impairments imposed on a single day, and each one requires its own *Impairment* keyword. *Impairment* is tabbed once. Associated sub-keywords, *Type* and *Strength*, are tabbed twice.

Type

Possible values:

Physical/Shake

Visual/Fog

Strength

Possible values:

Any integer between 0-100 followed by a % sign

Treatment

This keyword is used to specify which treatment options will be available to the participant on the given day. The cost of obtaining a treatment follows the functional form of $C(c - bT + aT^2)$, where by default, the values of a, b, and c are 1/day length in minutes, 2, and day length in minutes, respectively. The functional form is consistent across both pay-style treatments (where cost is in dollars), and wait-style treatments (where cost is in seconds). When the *Wait* or *Cost* keywords are included, their respective **C** values are **mandatory**; and, if all three of their respective a, b, and c values are excluded entirely, they will be set to default.

Typically, a treatment alleviates 100% of all active impairments, with 100% certainty. If desired, these two values can be modified using the *Effectiveness* keyword, with sub-keywords *Effect*, and *Probability*, respectively. These two fields are not mandatory and will default to 100% each if excluded.

Treatment is tabbed once while sub-keywords *Effectiveness*, *Wait*, and *Cost* are tabbed twice. *C*, *a*, *b*, *c*, *Effect*, and *Probability* are tabbed three times.

C

Possible values:

Any decimal number

a, b, c

Possible values:

Any decimal number

default

Effect

Possible values:

Any decimal number, followed by a % sign

Probability

Possible values:

Any decimal number, followed by a % sign

Sample Configuration File

Simulation

Name: Full sample configuration file
Description: Sample 3-day (plus intro) configuration file
Instructions: enabled
Sound: enabled
ShakeImpInstruction: You now have a\nshake impairment,3.0
WaitTreatmentResumeInstruction: Wait until timer = 0,2.5

Tutorial

Score: 180
ImpairedScore: 125
Impairment
Type: Physical/Shake
Strength: 50%

Day

Duration: 1:30

Day

BallValue: 1.50
Duration: 1:30
Impairment
Type: Physical/Shake
Strength: 70%

Day

Duration: 2:00
Impairment
Type: Visual/Fog
Strength: 75%
Impairment
Type: Physical/Shake
Strength: 50%

Treatment

Effectiveness
Probability: 50%
Effect: 90%

Wait

C: 0.5
a: 0.1111
b: 3
c: 1.5

Cost

C: 80
a: default
b: default
c: default