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 *Water_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 water flow and countdowns, among others.

    Possible values:
        enabled
        disabled

Sample Simulation Configuration:

```
Simulation
    Name: April 2019 configuration.
    Description: Stronger impairments.
    Instructions: enabled
    Sound: enabled
```

Tutorial

This keyword refers to the *Day Zero* tutorial preceding the main experiment. During this stage of the simulation, the user is required to earn a certain amount of money before being allowed to move on to the first paid day. Optionally, *Day Zero* can be split into two portions: one unimpaired portion, and one impaired portion. The impaired portion is preceded by an instruction set. The second portion 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

WaterValue

This keyword allows for the payout per droplet 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
Tutorial
    Score: 180
    ImpairedScore: 125
    Impairment
        Type: Physical/Shake
        Strength: 50%
Day
    Duration: 1:30
Day
    WaterValue: 1.50
    Duration: 1:30
    Impairment
        Type: Physical/Shake
        Strength: 70%
Day
    WaterValue: 1.25
    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
```