Realm Factory 1.2

# Properties Feature

The purpose of the properties feature is to make it so that the level creator can give certain properties to objects that make them different from the object type. Properties will also exist for levels as a whole.

There are basically two parts to properties. First, you need to define what properties an object type has. In doing so, you’ll also define the default value for objects, as they’re created. Second, you’ll modify individual objects to have the values that you want.

## Property Types

There are four types of properties that will be defined.

* **Time**: A time-based property, measured in hours, minutes, seconds, and milliseconds. Time properties can be given an upper and lower bound. In C#, this will be manifest as a TimeSpan?
* **Toggle:** A toggle property is one that has one of two states. By default, these states are called “Yes” and “No”, but you can change the label to be other things, like perhaps “On” and “Off”, or “True” or “False”. In fact, these three choices should be provided in the UI, with other choices being allowed by free-texting it in. In C#, this will be manifest as a bool.
* **Integer:** A whole number type. 1.2 isn’t allowed, but 1 and 2 are. You can specify an upper and lower bound here, as well. In C#, this will be manifest as an int.
* **Number:** Any valid number. Even floating point types are allowed here. You can also specify an upper and lower bound here. In C#, this will be manifest as a double.
* **List:** You can define a set (text-based) of options that can be chosen. This may be the equivalent to an enumeration type.
* **Text:** Any text at all.

Each property will additionally have a name and a description.

## Property UI Design

* When you double-click on the object in the object palette, you have the ability to add/remove/change the object type’s properties.
* You will have the ability to select an object and view its properties.
* In the properties, you will be able to see and change the values for the specific object.
* When you change the default values for a property, if an object has not been changed yet, it will change the value of those objects as well, so that they stay at the default.
* You will also specify the properties for all levels in the project configuration. We aren’t dealing with level templates yet, so that’s really the only place to do it.
* When you delete a property from the object type, it removes it from all object instances that have been created.
* Once determined, you cannot change a property’s type. You can, however, promote it to a different type:
  + Time can be promoted to Text.
  + Toggle can be promoted to List or Text.
  + Integer can be promoted to Number or Text.
  + Number can be promoted to Text.
  + List can be promoted to Text.
  + Text cannot be promoted.
* This will also involve showing selected objects in the level editor, which will tie in to rotating objects, another feature of 1.2.