How to use replace package

Structure of info_replace.xml

This is simple replace in itemdescriptor.ndb file. This example adds support for A-99 weapon for NPC.

```
<InfoReplace>
  <DefaultInclude>true</DefaultInclude>
  <Description>NPC Weapons Support
  Adds NPC support for weapons. NPC now can use some weapons that weren't created for using by NPC.</Description>
  <Category>7</Category>
  <Dependencies>Item Descriptor</Dependencies>

  <Replaces>
    <Replace RequiredFile="databases/generic/itemdescriptor.ndb">
      <object hash="59F2984F">
        <primaryKey hash="8EDB0295">7366C26342072000</primaryKey> <!-- Weapons/Handguns/A-99 -->
        <object hash="452629B8">
          <field hash="CBF95ACC" addNode="1" type="String">weaponproperties:fcx.autopistols.a-99</field>
          <field hash="6993CC7C">2B568CE1</field>
        </object>
      </object>
    </Replace>
  </Replaces>
</InfoReplace>
```

There are some standard tags as **DefaultInclude**, **Description**, etc…

Now the new tags:

- **Replaces** – there are defined replace actions, you can add as many as you want, see more below
- **Replace** – this is replace for one or only in one file. It needs attribute **RequiredFile** which is complete file name of file in which will be the replace created.

Also, take care of new root tag name – **InfoReplace**

Now inside Replace tag there are all fields which will be changed. So, now how to make them?

Replacing a value in FCB

As an example I took adding NPC support to A-99 weapon. We need to change:

- text_ tmplWeaponNpcPropertiesName – hash CBF95ACC
- tmplWeaponNpcPropertiesName – hash 6993CC7C

So, now open converted FCB file. You need to use Gibbed's converter, because Mod Installer using it's core for converting files. You can also my FCBConverter which leaves in converted XML also hash.

Converted item descriptor for A-99 looks like this:

```
<object hash="59F2984F" name="Generic">
  <field hash="CF68E402" name="text_hid_DTCTH_ClassName" type="String">CItemDescriptor</field>
  <field hash="25368426" name="hid_DTCTH_ClassName" type="ComputeHash32">CItemDescriptor</field>
  <field hash="8EDB0295" name="disLibItemId" type="BinHex">7366C26342072000</field>
  <field hash="D91FFFD3" name="disDbObjectName" type="String">Weapons/Handguns/A-99</field>
  <field hash="61FC6B02" name="hidSingleObject" type="BinHex">00</field>
  <field hash="1BC69C64" name="selCategory" type="BinHex">01000000</field>
  <object hash="452629B8" name="InventoryItemData">
    <field hash="CF68E402" name="text_hid_DTCTH_ClassName" type="BinHex">CWeaponDescriptorData</field>
    <field hash="25368426" name="hid_DTCTH_ClassName" type="BinHex">CWeaponDescriptorData</field>
    <field hash="AB0AAEB9" name="selItemAddedStatisticEnum" type="BinHex">FFFFFFFF</field>
    <field hash="1BF7FB9D" name="bSharedItem" type="BinHex">00</field>
    <field hash="A788401A" name="bCanEquipOnReload" type="BinHex">01</field>
    <field hash="298E6C00" name="text_tmplWeaponPropertiesName" type="String">weaponproperties:fcx.autopistols.a-99</field>
    <field hash="E45A0A1B" name="tmplWeaponPropertiesName" type="ComputeHash32">weaponproperties:fcx.autopistols.a-99</field>
    <field hash="6993CC7C" name="tmplWeaponNpcPropertiesName" type="BinHex">FFFFFFFF</field>
    <object hash="F9A7F4CA" name="itemdescriptorUpgradedItem">
      <field hash="BD865AD7" name="hid_DbRefId" type="BinHex">0000000000000000</field>
      <field hash="CB3EDEF1" name="text_hid_DbRefT" type="String">IItemDescriptor</field>
      <field hash="57C4D76B" name="hid_DbRefT" type="ComputeHash32">IItemDescriptor</field>
    </object>
    <object hash="94E7819E" name="UIData">
      <field hash="E95B2A50" name="IconName" type="String">A99</field>
```

```
      <field hash="BCD4E3F4" name="locidDisplayName" type="Int32">195230</field>
      <field hash="C10B3D5B" name="selLootFeedbackType" type="BinHex">00000000</field>
    </object>
    <object hash="43AB715D" name="itembagBagItem">
      <field hash="BD865AD7" name="hid_DbRefId" type="BinHex">0000000000000000</field>
      <field hash="CB3EDEF1" name="text_hid_DbRefT" type="String">IItemDescriptor</field>
      <field hash="57C4D76B" name="hid_DbRefT" type="ComputeHash32">IItemDescriptor</field>
    </object>
    <object hash="3EFA8AE3" name="arkEquipmentArchetype">
      <field hash="561D06B4" name="hid_ArchRefId" type="BinHex">11BB78EC53072000</field>
    </object>
  </object>
  <object hash="AC5D9819" name="LootProperties">
    <object hash="D7C11237" name="ltdrpcontainerLootDropContainer">
      <field hash="BD865AD7" name="hid_DbRefId" type="BinHex">0000000000000000</field>
      <field hash="CB3EDEF1" name="text_hid_DbRefT" type="String">CFCXLootDroppedContainer</field>
      <field hash="57C4D76B" name="hid_DbRefT" type="ComputeHash32">CFCXLootDroppedContainer</field>
    </object>
  </object>
</object>
```

The program needs to know which field with hash **6993CC7C** you want to replace, because if you search the hash, you will see there are many fields with this hash, so you must define it's parent. In this case the best is to select whole weapon descriptor entry, so you do this:

```
<object hash="59F2984F" name="Generic">
  <primaryKey hash="8EDB0295">7366C26342072000</primaryKey>
</object>
```

Tag **primaryKey** means that the program will search only objects with hash **59F2984F** which has in child fields field with hash **8EDB0295** and its value is **7366C26342072000**

You can also add more **primaryKey** tags if you want to replace more config entries with same values.

Now the other, you define full path to a field which you want to replace, so like this:

```
<object hash="59F2984F" name="Generic">
  <primaryKey hash="8EDB0295">7366C26342072000</primaryKey>
```

```
  <object hash="452629B8" name="InventoryItemData">
    <field hash="CBF95ACC" addNode="1" type="String">weaponproperties:fcx.autopistols.a-99</field>
    <field hash="6993CC7C">2B568CE1</field>
  </object>
</object>
```

Attribute **addNode** with value 1 means that the program add new field with defined hash, type and value.

Field with hash **6993CC7C** doesn't have defined type. Why? Because the field exists in config entry, so you don't have to add it to replace. Only if you add new fields, you must define it.

For now the program can read only hash values in **primaryKey**, so you must add hash and hash value, name is optional.

Removing whole config entry

Sometimes you want to remove a config entry. You can do it like this:

```
<object hash="59F2984F" name="Generic">
  <primaryKey hash="8EDB0295" removeParent="1">7366C26342072000</primaryKey>
</object>
```

This will delete whole object with hash **59F2984F** which has child field with hash **8EDB0295** and value **7366C26342072000**

You define **primaryKey** and add attribute **removeParent="1"**. If you add **removeParent="2"** then two upper parents (objects) will be deleted.

Replacing fields where cannot be primaryKey set

Sometimes there are config entries which have same names, but they are like array. Like this:

```
<object hash="90E76EC8" name="HealthRegenerationDelays">
  <object hash="599C3960" name="DifficultyLevel">
```

```
    <field hash="CCB806A0" name="RegenDelay" type="Float32">3</field>
  </object>
  <object hash="599C3960" name="DifficultyLevel">
    <field hash="CCB806A0" name="RegenDelay" type="Float32">5</field>
  </object>
  <object hash="599C3960" name="DifficultyLevel">
    <field hash="CCB806A0" name="RegenDelay" type="Float32">10</field>
  </object>
  <object hash="599C3960" name="DifficultyLevel">
    <field hash="CCB806A0" name="RegenDelay" type="Float32">13</field>
  </object>
  <object hash="599C3960" name="DifficultyLevel">
    <field hash="CCB806A0" name="RegenDelay" value-Int32="0" type="BinHex">00000000</field>
  </object>
</object>
```

And we want to replace field which has value 13. So we make this:

```
<object hash="90E76EC8" name="HealthRegenerationDelays">
  <object hash="599C3960" name="DifficultyLevel" count="3">
    <field hash="CCB806A0" name="RegenDelay" type="Float32">13</field>
  </object>
</object>
```

I added attribute **count="3"**. It means that fourth (because it counts from zero) object will be selected. And now we have selected what we wanted.

This example also shows that I didn't use **primaryKey** even in object with hash **90E76EC8**. And why? Because if you search for hash **90E76EC8** in nomadobjecttemplates_rt.fcb you will see that it is there sixth times and I want to replace all sixth objects.

And now a little more. What if you want to replace only one of the six objects? Do you know how to do it? If not, look below.

1. We must find parent object of object with hash **90E76EC8.**
2. It is an object with hash **C9762625** named as **Health**. But this is also sixth times there. So we must go upper.
3. Next parent is an object with hash **B96328AF** named as **StatsAndCounters.** But still same. Go upper.

4. Finally we found object with hash **6E167DD5** named **Template**. It has child with hash **C821B0C6** named **FullName**. Value of this field is unique – this is what we need.

So, here is complete replace for only one specific object of six.

```
<object hash="6E167DD5" name="Template">
  <!-- CountersService:Counters.CountersService -->
  <primaryKey hash="C821B0C6" name="FullName">436F756E74657273536572766963653A436F756E746572732E436F756E7465727353657276696365500</primaryKey>
  <object hash="B96328AF" name="StatsAndCounters">
    <object hash="C9762625" name="Health">
      <object hash="90E76EC8" name="HealthRegenerationDelays">
        <object hash="599C3960" name="DifficultyLevel">
          <field hash="CCB806A0" name="RegenDelay" type="Float32">3</field>
        </object>
        <object hash="599C3960" name="DifficultyLevel">
          <field hash="CCB806A0" name="RegenDelay" type="Float32">5</field>
        </object>
        <object hash="599C3960" name="DifficultyLevel">
          <field hash="CCB806A0" name="RegenDelay" type="Float32">10</field>
        </object>
        <object hash="599C3960" name="DifficultyLevel">
          <field hash="CCB806A0" name="RegenDelay" type="Float32">13</field>
        </object>
        <object hash="599C3960" name="DifficultyLevel">
          <field hash="CCB806A0" name="RegenDelay" value-Int32="0" type="BinHex">00000000</field>
        </object>
      </object>
    </object>
  </object>
</object>
```

Also, all strings in **primaryKey** must be in hex.

What if primaryKey will not exist?

Nothing will happen. **primaryKey** is like search, if nothing is found, then whole parent **object** of **primaryKey** is ignored.