

AGE OF FEAR MODDING GUIDE

VERSION: V1.0.4

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1. SAMPLE WORKSHOP ITEM

Sample Workshop Item is available here:

<http://steamcommunity.com/sharedfiles/filedetails/?id=898344196>

2. SETTING UP ENVIRONMENT

For a start, always back up files! ALWAYS!

This guide will refer to modding Age of Fear: The Undead King. If you want to mod other games, please adjust folder names, for example:

- Age-of-Fear → Age-of-Fear-2
- AOF → AOF2

2.1. GAME FOLDERS

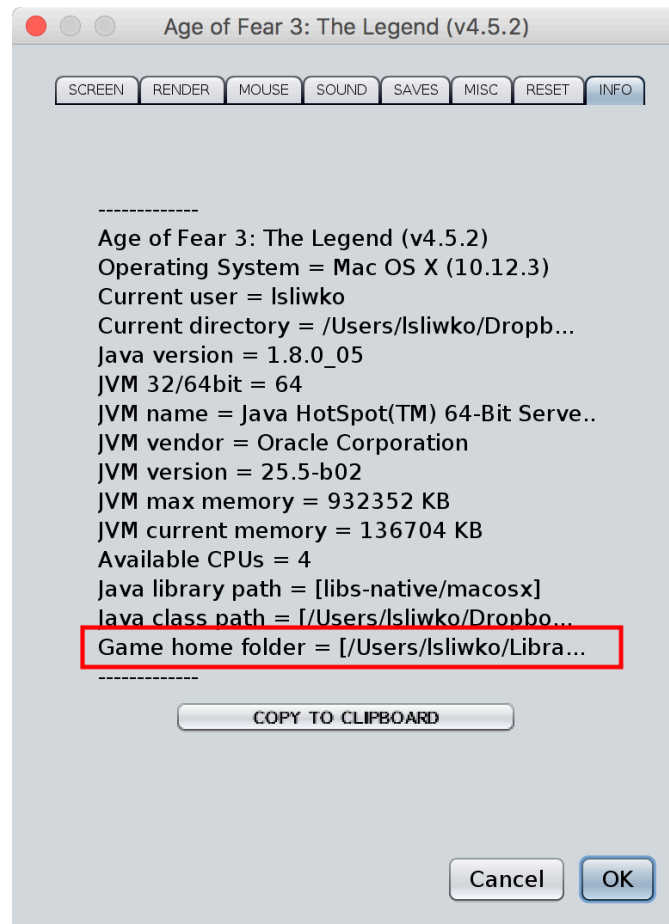
Age of Fear games use two folders:

2.1.1. GAME HOME FOLDER

That's where save games, logs and config files are.

- For Windows: check your Document and Settings/Roaming/Age-of-Fear
- For Mac OS X: check /Users/[user]/Library/Application Support/Age-of-Fear
- For Linux: check ~/.config/Age-of-Fear

You can also check location via Configuration->Info:



(use COPY TO CLIPBOARD if text is too long)

Important files:

- **config.properties** – contains all game switches and properties. We will refer to that file later.
- **aof.log** – stores lots of information about game execution, etc. It will also store an error with detailed information. Please check it if you receive any error and you are stuck.

2.1.2. GAME DATA FOLDER

That's where all static game data is located: compiled binaries, initial game data etc. You don't need to modify anything there. This folder will be refreshed upon every Steam patch. Engine has better ways of overriding all data.

- For Windows check: C:\Steam\SteamApps\common\AOF\
- For Mac OS X check: /Users/[user]/Library/Application Support/Steam/steamapps/common/AOF
- For Linux check: ~/.local/share/Steam/steamapps/common/AOF

You can also check location via Configuration->Info:



(use COPY TO CLIPBOARD if text is too long)

Important files:

- **aof.jar** – contains compiled game's binaries
- **aof-data.zip** – contains base game data (units' stats data, units' sprites and icons, attributes' icons, factions' data, etc.)
- **data** – this folder contains all campaigns data in zip files (currently two campaigns per game). For example: aof-undead.zip contains all data for Undead campaign.

While we don't want to modify anything there, we will need to extract some data from those zip files.

When unzipping data files, make are you unzip whole folder structure:

Name	^	Date Modified	Size
▶ multiplayer		Today, 10:40	--
▶ network		Today, 10:40	--
▶ online		Today, 10:40	--
▼ resource		Today, 10:56	--
▼ board		Today, 10:40	--
▶ multiplayer		Today, 10:40	--
▼ config		Today, 10:40	--
log4j.xml		Today, 10:40	1 KB
▼ conversation		Today, 10:40	--
AOF1_Long_time_no_see.xml		Today, 10:40	1 KB
▶ gameobject		Today, 10:40	--
▼ image		Today, 10:40	--
▶ attribute		Today, 10:40	--
▶ background		Today, 10:40	--
▶ conversation		Today, 10:40	--
▶ cursor		Today, 10:40	--
▶ effect		Today, 10:40	--
▶ factionicon		Today, 10:40	--
▶ gameobject		Today, 10:40	--
▶ helpicon		Today, 10:40	--
▶ menuicon		Today, 10:40	--
▶ ninepatch		Today, 10:40	--
▶ terrain		Today, 10:40	--
▶ watermark		Today, 10:40	--
▼ sound		Today, 10:40	--
▶ effect		Today, 10:40	--
▶ gameobject		Today, 10:40	--
▶ music		Today, 10:40	--
▼ text		Today, 10:40	--
▶ font		Today, 10:40	--
▶ gameobject		Today, 10:40	--
▶ license		Today, 10:40	--
▶ sound		Today, 10:40	--
▶ steam		Today, 10:40	--
▶ system		Today, 10:40	--
▶ test		Today, 10:40	--

We are only interested in com/aof/resources folders. Game mainly uses four file formats:

- xml files – this is the where you will do the most of modding. I would suggest good text editor like Sublime 2 or Editpad++ to edit those files.
- png files – graphic files with alpha. Please use RGB format (no indexed color palette) with alpha.
- ogg files – for all sounds and music. Please use single channel (for optimization).
- brd files – those are battle board files. To edit them you need embedded editor.

2.2. DEBUG PROPERTIES

All debug properties have to be switched on/off in **config.properties** by adding a line (anywhere in file):

- debug.enabled=true ← this will enable lots of hidden functionalities and menus
- debug.campaign.skip.battle.enabled=true ← this will enable a hidden selection before every battle (useful for debugging).
- resource.lookup.folder=C://MyAOFMod// ← this is where you will edit your mod (please note double // instead of / in path).
- resource.lookup.order=folder,workshop,jar ← this will set an order in which resources will be looked for a particular file.

Resource lookup order and lookup folder are the important bits of modding. If configured as above, game will look for assets in that order.

For example, if game requires footman.xml file (stats file for unit Footman), it will do the following:

1. Check C:/MyAOFMod/com/aof/resource/gameobject/footman.xml, if file could not be found, then
2. Check every installed Workshop Item for com/aof/resource/gameobject/footman.xml, if file could not be found, then
3. Check aof-data.zip file for com/aof/resource/gameobject/footman.xml, if file could not be found, then report error

Note: Workshop Items are checked from newly created ones. Unfortunately, if several Workshop Items are modifying the same files, there will be collisions.

2.3. LOOKUP FOLDER

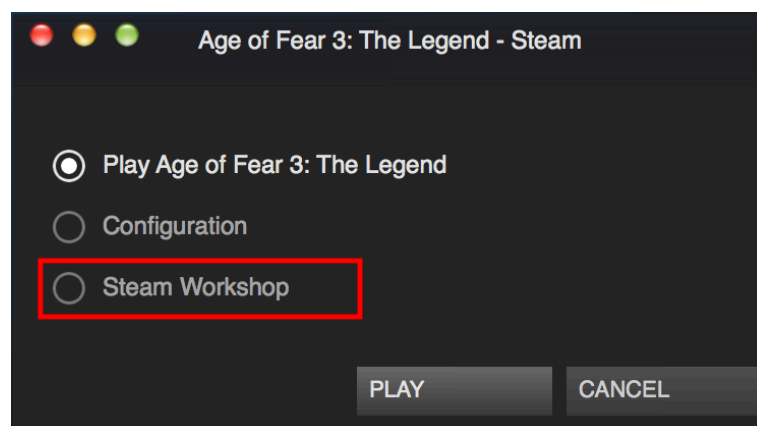
Lookup folder is useful when developing and testing your mod.

Please make sure the folder structure is preserved. If your mod changes Footman unit, the modified file has to be in: C:/MyAOFMod/com/aof/resource/gameobject/footman.xml

After mod is ready, you will need to use Workshop Manager to upload it to Steam Workshop.

3. WORKSHOP MANAGER

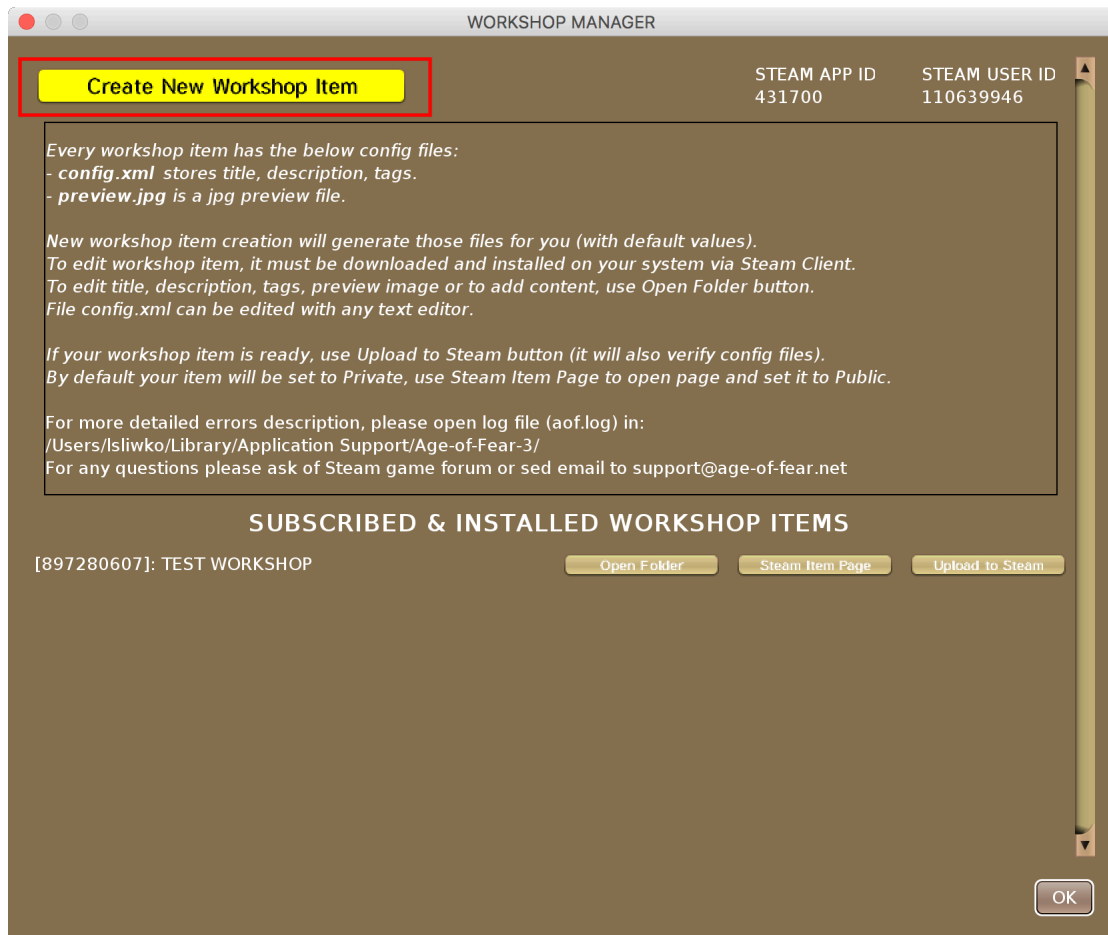
In order to launch Workshop Manager, Steam Client has to be running. Please use the Launcher option:




3.1. CREATE NEW WORKSHOP ITEM

After starting Workshop Manager, click Create New Workshop Item and wait for about one minute (you can track progress via **aof.log** file).

Note: The newly created Workshop Item won't be immediately visible in Steam Workshop (you have to subscribe to it and restart Workshop Manager).





When Workshop Manager finishes creating an item, it will show a message and your browser should automatically open Steam Item page:


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Isliwko ▾


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Current visibility: Hidden
This item will only be visible to you, admins, and anyone marked as a creator.

TEST WORKSHOP

★ ★ ★ ★ ★
 Not enough ratings

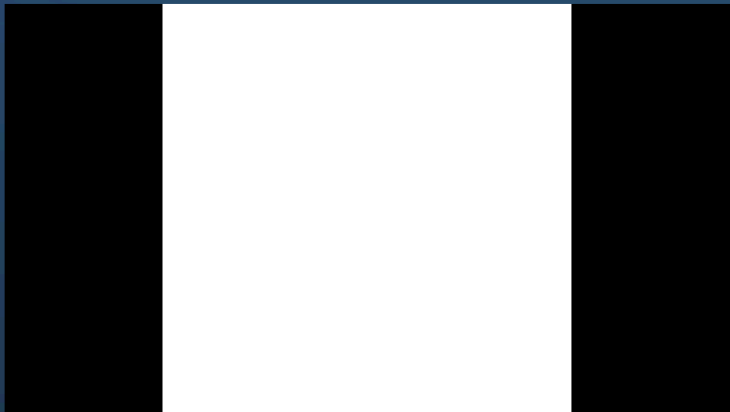
Description

Discussions 0





Comments 0


Change Notes

Item Stats




File Size 0.046 MB
 Posted 2 Apr @ 10:50pm
 Updated 3 Apr @ 1:16am
[3 Change Notes \(view \)](#)

 Rate
  Favorite
  Share
  Add to Collection



Subscribe to download
TEST WORKSHOP








DESCRIPTION
 Test Description

Public User Comments (0)

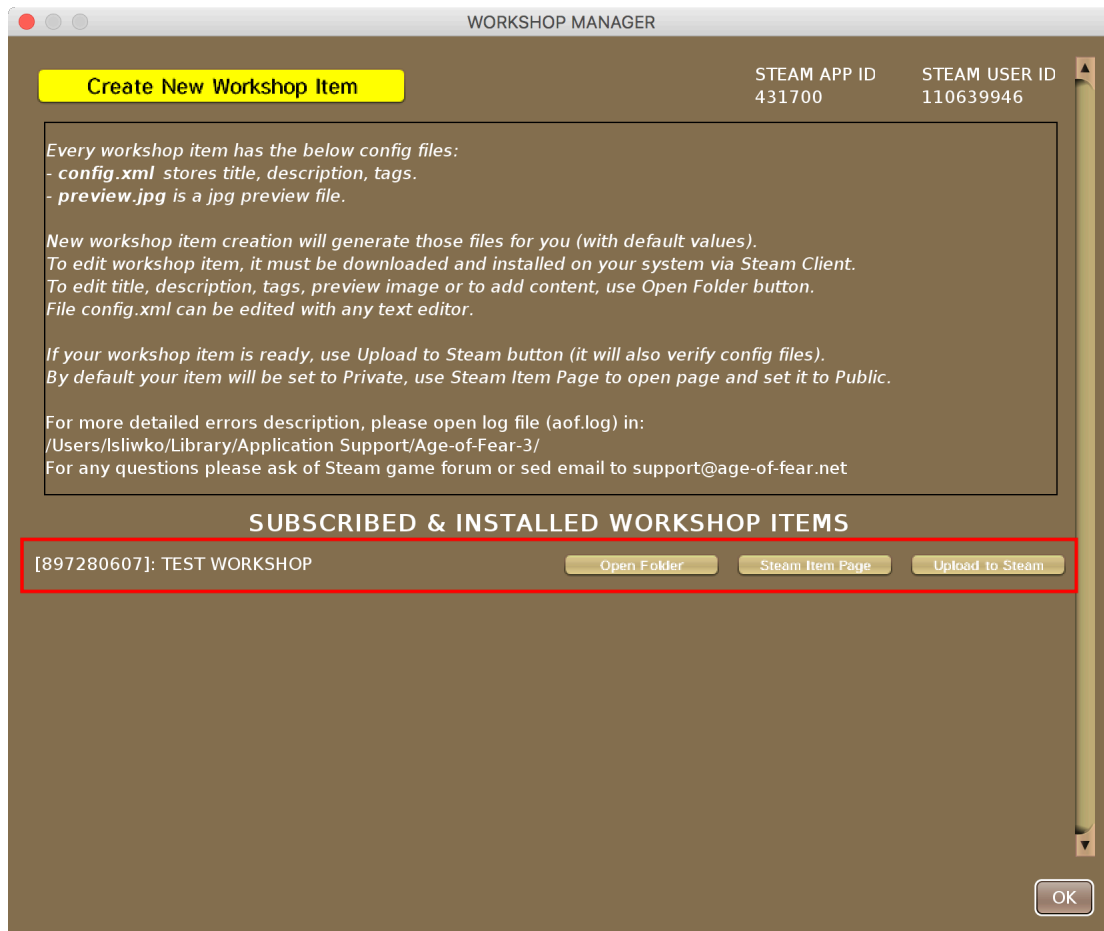
Private Developer Comments (0)

OWNER CONTROLS

-  Edit title & description
-  Add/edit images & videos
-  Add/remove Contributors
-  Edit Links
-  Delete

3.2. EDIT/UPLOAD WORKSHOP ITEM

To be able to edit your Workshop Item, you have to Subscribe to your item first (on Steam Item page). Then you need to restart Workshop Manager and your item will be visible:



Every installed Workshop Item provides few options:

- **Open Folder** – this is where all mod files are located.
- **Steam Item Page** – opens Steam Item Page
- **Upload to Steam** – attempts to upload edited content to Steam Workshop. Please note the config.xml and preview.jpg files will be verified before upload.

Note: All newly created Workshop Items will be hidden by default. To enable public to see it, you need to set it to Public (via Steam Item page->Change Visibility). You can upload only your own Workshop Items.

3.3. WORKSHOP ITEM'S CONFIG AND PREVIEW FILES

Don't delete or move those files as they are used when uploading Workshop Item and then when mod is downloaded. Game will disable any Workshop Items with invalid configuration.

- **preview.jpg** – this is your preview image. Please use good quality graphics showing what your mod is about. Minimum size is 100x100 pixels.
- **config.xml** – this file contains data like title, description, owner-user-id and tags information.

All newly created mods will have the above files created and filled with default values. To edit **config.xml** open it with text editor.

Default title and description needs to be changed. There are no constraints on specified tags, however please use one of the example ones. Please don't modify owner user id.

4. GAME RESOURCES

The easiest approach is to first extract **aof-data.zip** file and any campaign files (aof-undead.zip or aof-human.zip) from **data** folder.

4.1. FOLDERS STRUCTURE AND TOOLS

Folder structure must be preserved as it's in zip files. Every data (units' stats, faction data, campaign data, etc.) is in xml folder.

4.2. GAME OBJECTS

All game objects data reside in com/aof/resource/gameobject folder.

Note: Game Object can mean playable units, and also static objects (e.g. Toxic Spores). There exists many partially-developed assets and those might change. Please stick to the units that are available in released campaigns.

Here we present an example of a mage with colored sections:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<game-object>
  <name>Mage</name>
  <name-locale>human-mage</name-locale>
  <startpoint-backpack>castle</startpoint-backpack>
  <race>Mages</race>
  <attack>0</attack>
  <defence>0</defence>
  <speed>8.0</speed>
  <max-hit-points>2</max-hit-points>
  <max-magic-points>5</max-magic-points>
  <unit-armor>2</unit-armor>
  <size>1.6</size>
  <attack-range>1.55</attack-range>
  <material>flesh</material>
  <move-speed>0.07</move-speed>
  <weapon>stick</weapon>
  <voice-mage>voice</voice-mage>
  <description>These magicians use their arcane powers to aid their forces with an array of magical effects
and to dispel enemy magic. Unfortunately their magic comes with the price of a weak body.
  <default-price>1200</default-price>
  <experience-per-hit>15</experience-per-hit>
  <attributes>
    <attributes>MagicMissleRangedAttack</attributes>
    <attributes>DispelMagicSpell</attributes>
    <attributes>StoneskinSpell</attributes>
    <attributes>FireballSpell</attributes>
    <attributes>MindSpellsImmunity</attributes>
    <attributes>MagicResistance</attributes>
    <attributes>Evolve,archmage:500</attributes>
    <attributes experience-price="200">Regular</attributes>
    <attributes experience-price="300">Veteran</attributes>
    <attributes experience-price="500">Elite</attributes>
    <attributes experience-price="100">Intelligent</attributes>
    <attributes experience-price="200" requires="Regular">MeditateSpell</attributes>
    <attributes experience-price="200" requires="Regular">MasterMagician</attributes>
    <attributes experience-price="250" requires="Regular">MagicShield</attributes>
    <attributes experience-price="150" requires="Veteran">MultiMagicMissleRangedAttack</attributes>
    <attributes experience-price="150" requires="Veteran">ChillTouchSpell</attributes>
    <attributes experience-price="200" requires="Veteran">Alchemy</attributes>
    <attributes experience-price="200" requires="Veteran">ChainLightingSpell</attributes>
    <attributes experience-price="250" requires="Veteran">ImprovedMagicResistance</attributes>
    <attributes experience-price="250" requires="Elite">MassStoneskinSpell</attributes>
    <!-- Hero attributes (hidden for non-hero units) -->
    <attributes experience-price="250" requires="Hero">Tutor</attributes>
    <attributes experience-price="200" requires="Hero,Veteran">Merchant</attributes>
    <attributes experience-price="250" requires="Hero,Veteran">HypnotizeSpell</attributes>
  </attributes>
</game-object>
```

4.2.1. GAME OBJECT PARAMETERS

This section is **colored green** – those are game object parameters, like attack, defence, speed, etc.

<name-bundle> points to text file that contains names for this game object.

4.2.2. GAME OBJECT INITIAL ATTRIBUTES

This section is **colored pink** – those are initial game object attributes (spells, skills, features, etc.) that game object initially starts with.

Attributes can be very complex, therefore it is advised to check already existing game objects for allowed combination. There are several rules:

- Game Object should have no more than one ranged attack (e.g.: Magic Missile and Capture Net cannot exist together on the same game object)
- Game Objects with self-destructible skills (e.g.: Detonate or Acid Splash) should not have any area attacks (e.g.: Fireball)
- Game Objects should have no more than one aura (e.g.: Freeze Aura or Fire Aura)
- Evolve attribute describes possible evolutions for Game Object (e.g.: Knight → Paladin or Black Knight).

4.2.3. GAME OBJECT OBJECT EVOLVEABLE ATTRIBUTES

This section is **colored light-grey** – those are attributes that can be evolved (for experience, gold). Please note that some of attributes require other attributes before they can be purchased – this is configured as 'requires' attribute.

There are also special Hero attributes, normally hidden for normal units.

4.3. FACTIONS

Factions reside in com/aof/resource/gameobject/faction.

Factions are list of Game Objects that be recruited in multi-player battles.

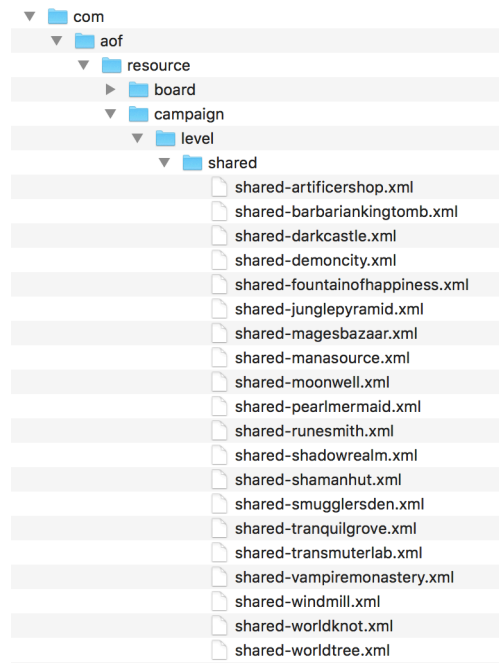
4.4. CAMPAIGN LEVELS

Campaigns reside in com/aof/resource/campaign. As usual – the best examples are existing assets.

- Background illustrations reside in com/aof/resource/image/background
- Background music reside in com/aof/resource/sound/music

Modding campaign is a bit different to other assets. While modifying the whole campaign xml file is possible, there is better way to add or replace existing levels in campaign by creating files in com/aof/resource/campaign/level/[campaign-name].

Note: Since AOF v5.0.6 there is special folder name 'shared'. Placing levels there will load them up to all campaigns. As for examples look for shared locations (example: shared-windmill.xml):



4.4.1. REPLACING LEVEL (EXAMPLE)

For example, let's modify Human campaign (from aof-human.zip):

- First, let's extract humancampaign.xml from aof-human.zip:

Name	^	Date Modified
▼ aof-human		Today, 17:50
▼ com		Today, 17:50
▼ aof		Today, 17:50
▼ resource		Today, 17:50
▶ board		31 Mar 2017,
▼ campaign		31 Mar 2017,
humancampaign.xml		31 Mar 2017,
▶ conversation		31 Mar 2017,
▶ image		31 Mar 2017,
▶ sound		31 Mar 2017,
▶ META-INF		31 Mar 2017,

- Let's open humancampaign.xml and search for level 'Level02':

```
<levels name="Level02" type="shop">
  <image-file>humancampaign-hunting-party.png</image-file>
  <music-file>humancampaign-ariaf.ogg</music-file>
  <team-size>4</team-size>
  <unit-upgrade-level>0</unit-upgrade-level>
  <units type="footman" price="*" number="3" />
  <units type="bowman" price="*" number="1" />
  <items type="QualitySwordItem"/>
  <items type="QualityArmorItem"/>
  <items type="KnightsMaceItem"/>
  <triggers type="on-exit">
    <commands>goto Level03b</commands>
  </triggers>
</levels>
```

In this level, after player clicks CONTINUE button (in game), player will be send to Level03b.

Please note level type as “shop”. There are few level types in campaign:

- **intro** – those levels are used for text/story display
- **select** – those levels are used for text/story display and to present a choice
- **shop** – those levels are used for recruitment and evolving units and as a items shops
- **battle** – those levels are used for battles

Note: Generally, the shop levels should be the easiest to modify and any campaign alternative flows should be added there.

- Let’s create alternative game flow for Level02:

Firstly, we create a copy of this level to new file in com/aof/resource/campaign/level/humancampaign/MyMod-Level02.xml and modify trigger commands:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<levels name="Level02" type="shop">
  <image-file>humancampaign-hunting-party.png</image-file>
  <music-file>humancampaign-ariaf.ogg</music-file>
  <team-size>4</team-size>
  <unit-upgrade-level>0</unit-upgrade-level>
  <units type="footman" price="*" number="3" />
  <units type="bowman" price="*" number="1" />
  <items type="QualitySwordItem"/>
  <items type="QualityArmorItem"/>
  <items type="KnightsMaceItem"/>
  <triggers type="on-exit">
    <commands>give-gold 1000</commands>
    <commands>goto Level03d</commands>
  </triggers>
</levels>
```

In our mod, player will first receive 1000 Gold and then he will be redirected to Level03d. If we place this file in our Workshop Item, the old Level02 will be replaced with new one.

However, Level03d does not exist yet.

Note: File name of extra level does not matter. However, please use the names with your Workshop Item name and level name itself, for example: darkcastle-level02.xml (for mod called Dark Castle). This will help to avoid collisions where two modders name level the same.

- Let’s create new Level03d

If player plays our campaign now, he will get an error message ‘Level03d not found’ after Level02. Therefore we need to add new file com/aof/resource/campaign/humancampaign/level/MyMod-Level03d.xml:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<levels name="Level03d" type="battle">
  <text></text>
  <board-file>H20_Goblins_Attack.brd</board-file>
  <board-team>Edward</board-team>
  <ai-experience-points>0</ai-experience-points>
  <deploy-turn>false</deploy-turn>
  <triggers type="on-win">
```

```

        <commands>win-game</commands>
    </triggers>
    <triggers type="on-lose">
        <commands>goto LevelDefeat</commands>
    </triggers>
</levels>

```

Note: From version AOF v5.0.6 all levels can be combined in one file:

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<levels>
    <levels name="Level02" type="shop">
        <image-file>humancampaign-hunting-party.png</image-file>
        <music-file>humancampaign-ariaf.ogg</music-file>
        <team-size>4</team-size>
        <unit-upgrade-level>0</unit-upgrade-level>
        <units type="footman" price="*" number="3" />
        <units type="bowman" price="*" number="1" />
        <items type="QualitySwordItem"/>
        <items type="QualityArmorItem"/>
        <items type="KnightsMaceItem"/>
        <triggers type="on-exit">
            <commands>give-gold 1000</commands>
            <commands>goto Level03d</commands>
        </triggers>
    </levels>
    <levels name="Level03d" type="battle">
        <text></text>
        <board-file>H20_Goblins_Attack.brd</board-file>
        <board-team>Edward</board-team>
        <ai-experience-points>0</ai-experience-points>
        <deploy-turn>false</deploy-turn>
        <triggers type="on-win">
            <commands>win-game</commands>
        </triggers>
        <triggers type="on-lose">
            <commands>goto LevelDefeat</commands>
        </triggers>
    </levels>
</levels>

```

This level will start battle from battle board file H20_Goblins_Attack.brd (we will create it in the next chapter). If player wins battle, the game will be won.

- Prepare Workshop Item

Now we should have the following in our Lookup Folder:

Name	Date Modified	Size
▼ com	Today, 01:20	--
▼ aof	Today, 01:20	--
▼ resource	Today, 01:20	--
▼ campaign	Today, 01:20	--
▼ level	Today, 18:27	--
▼ humancampaign	Today, 18:29	--
MyMod-Level02.xml	Today, 18:28	589 bytes
MyMod-Level03d.xml	Today, 18:29	435 bytes
config.xml	Today, 15:47	441 bytes
preview.jpg	Yesterday, 23:04	4 KB

However, to upload it as workshop item, we need to modify **config.xml**:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<workshop-item>
  <!-- Title: 5-100 characters, required -->
  <title>TEST WORKSHOP</title>
  <!-- Description: 5-8000 characters, required -->
  <description>Test Description</description>
  <!-- Don't modify user-id value! -->
  <owner-user-id>110639946</owner-user-id>
  <!-- List all tags there (you can add/remove tags lines) -->
  <!-- Tag: 3-20 characters, optional -->
</workshop-item>
```

(we have deleted tags section)

Also, put some graphics to **preview.jpg**. Now we can upload Workshop Item and then set it to Public (via Steam Item page).

4.4.2. LEVEL TRIGGERS

Level triggers are executed at various stages of games. Each trigger contains a set of commands (described below).

4.4.2.1. INTRO/SHOP LEVELS

“on-exit” trigger will be executed after clicking continue

“on-init” trigger will be executed before level load

“on-day” trigger will be executed once per day (real time), see shared-windmill.xml for example

4.4.2.2. SELECT LEVEL

“on-select-1”, “on-select-2”, ..., “on-select-20” executed based on option player selected

“on-init” trigger will be executed before level load

“on-day” trigger will be executed once per day (real time), see shared-windmill.xml for example

4.4.2.3. BATTLE LEVEL

“on-init” trigger will be executed before level load

“on-win” trigger will be executed after won battle

“on-lose” trigger will be executed after lost battle

4.4.3. LEVELS COMMANDS

The best source of campaign level commands is the campaign files themselves. Here we give few main commands:

4.4.3.1. "WIN-GAME" (NO ARGUMENTS)

Wins Game (marks campaign as complete, exists to Credits)

4.4.3.2. "END-GAME" (NO ARGUMENTS)

Ends Game (exists to Main Menu)

4.4.3.3. "UNLOCK-ACHIEVEMENT"

Unlocks pre-defined achievement.

`<commands>unlock-achievement GreenpeaceAchievement</commands>`

4.4.3.4. "GIVE-GOLD"

Gives or removes gold to team. Note: team gold will never be less than zero.

`<commands>give-gold 250</commands>`

`<commands>give-gold 500 true</commands>` (doesn't display message, silent=true)

`<commands>give-gold -999999</commands>` (zeroes team gold)

4.4.2.5, "GIVE-UNIT-EXPERIENCE", "GIVE-UNIT-EXPERIENCE-DIRECT"

Gives experience to all matching unit or units. Note: exact number of points varies per normal team, campaign settings, extra team and unit's attributes (e.g. Stupidity or Intelligent)

`<commands>give-unit-experience Lexa 332</commands>` Gives experience to Lexa

`<commands>give-unit-experience * 100</commands>` Gives experience to all units in team

`<commands>give-unit-experience knight 100</commands>` Gives experience to all knights in team

Note: experience is multiplied by difficulty factor; units in current team will get more than units in extra team.

`<commands>give-unit-experience-direct * 100</commands>` Gives experience to all units in team (unweighted, every unit will get exact specified amount)

4.4.3.5. "GIVE-UNIT-KNOWN-TYPE"

Adds unit type to known types and units can be upgraded to that type. Note: unit is also added to known-unit-types as soon as it's available in team or in shop.

```
<commands>give-unit-known-type magmagolem</commands>
```

4.4.3.6. "GIVE-UNIT"

Adds unit to team. Note: if name is specified, it has to be unique and not used in game. If named unit won't be enabled to rename.

```
<commands>give-unit succubus</commands> gives succubus to team (no message)
```

```
<commands>give-unit succubus Mazi</commands> gives succubus named "Mazi" (message will be shown)
```

```
<commands>give-unit direbear Iron_Claw true</commands> gives Dire Bear named "Iron Claw" and displays no message (silent=true)
```

Note: give-unit together with give-unit-attribute shall be used for creating heroes:

```
<commands>give-unit orc Katzok</commands> gives orc Katzok
```

```
<commands>give-unit-attribute Katzok Hero,1</commands> marks Katzok as hero unit on position 1
```

```
<commands>give-unit-attribute Katzok Hero,1,true</commands> marks Katzok as minor hero unit on position 1 (minorHero=true). Minor heroes don't increase team size, but still can use items.
```

4.4.3.7. "GIVE-HERO"

Note: Give-hero command is obsolete. Please see give-unit command for details.

Adds hero to team. Note: Heroes have set order in which they were added. This is important as in levels Heroes are placed first in order of replaced units' ids – see duel levels.

```
<commands>give-hero succubus Bel'Kara true</commands> adds succubus-hero named Bel'Kara (no message, silent=true)
```

```
<commands>give-hero knight Sir_Percival</commands> adds knight-hero Sir Percival (message is shown)
```

4.4.3.8. "GIVE-ELITE", "GIVE-VETERAN", "GIVE-REGULAR"

Same as give-unit command, but unit will have all upgrades till desired level (e.g. give-regular will have all upgrades added till Regular level)

4.4.3.9. "GOTO"

Goes to target level. Note: that should be the last command and there should be no more goto commands in a trigger.

```
<commands>goto LevelFortWolfholt01</commands>
```

<commands>goto *</commands> to reload current level (command reloading current level MUST use *)

4.4.3.10. "GOTO-WORLD-MAP"

Goes to World Map. Note: that should be the last command and there should be no more goto commands in a trigger. Going to World-Map makes a check for all locations to unlock and on-day triggers.

4.4.3.11. "UNLOCK-LEVEL", "LOCK-LEVEL"

Unlocks/locks specified level on World-Map. Note: level has to have location specified. Usually immediately followed by goto-world-map command.

<commands>unlock-level LevelForest02</commands>

<commands>goto-world-map</commands>

4.4.3.12. "PLAY-CONVERSATION"

Plays target conversation. Note: By default conversations are played only once per campaign. Conversation might be carried over to the next level or world-map.

<commands>play-conversation F02_Azil_control</commands>

<commands>play-conversation F02_Azil_control true</commands> plays conversation, but doesn't mark it as played (next play conversation will play it again, dontMarkAsPlayed=true)

4.4.3.13. "REMOVE-UNITS"

Removes units. Items are always moved to cache. By default all equipped items are unequipped and moved to cache.

<commands>remove-units *</commands> removes all unit from team (items are moved to Items Cache)

<commands>remove-units * false</commands> completely removes all units from team together with items

<commands>remove-units witch</commands> removes every witch from team (items are moved to Items Cache)

<commands>remove-units Nairi false</commands> removes Nairi with equipped items (moveItemsToCache=false)

4.4.3.14. "REMOVE-UNITS-BUT-HEROES"

Removes all non-hero units.

<commands>remove-units-but-heroes *</commands>

<commands>remove-units-but-heroes * true</commands> removes every non-hero unit from team (items are moved to Items Cache). Use when unit is permanently removed from game.

Usually used with cache commands:

```
<commands>remove-units-but-heroes</commands>
```

```
<commands>retrieve-units-cache A</commands>
```

4.4.3.15. "CHANGE-UNIT-NAME"

Changes unit name.

```
<commands>change-unit-name Edward Sir_Edward</commands>
```

4.4.3.16. "ENABLE-UNIT-RENAME"

Enables/Disables renaming of units (Hero always excluded)

```
<commands>enable-unit-rename Gimli true</commands>
```

```
<commands>enable-unit-rename monk true</commands> enable rename of all monks
```

```
<commands>enable-unit-rename * true</commands> enable rename of all non-hero units
```

4.4.3.17. "GIVE-UNIT-ATTRIBUTE"

Add variety of attributes to specified units. Non-evolveable attributes or items will be held by unit only for duration of a battle.

Giving Upgrade (but not other attributes, see give-veteran for details):

```
<commands>give-unit-attribute Karli Veteran</commands>
```

Giving conversations:

```
<commands>give-unit-attribute berserker
```

```
ConversationOnDamage,C03_Berserker_damage</commands> in the next battle, damaging  
berserker will play conversation
```

(usually used in on-init trigger of battle level, also note a given conversation won't be repeated in campaign)

Giving items:

```
<commands>give-unit-attribute Bel'Kara NestingDollItem</commands> give Bel'Kara Nesting  
Doll (with message)
```

```
<commands>give-unit-attribute Bel'Kara NestingDollItem true</commands> give Bel'Kara  
Nesting Doll, no message (silent=true)
```

```
<commands>give-unit-attribute Karli MagicPotionItem true</commands>
```

Giving Duel attribute (for duel battles):

```
<commands>give-unit-attribute Balvar Berserker,Dire_Bear</commands>
```

4.4.3.18. "REMOVE-UNIT-ATTRIBUTE"

Removing attribute/items from units.

```
<commands>remove-unit-attribute Bel'Kara SuppressingChainItem</commands>
```

Completely remove item:

```
<commands>remove-unit-attribute * RadiatingStoneItem</commands>
```

```
<commands>clear-items-cache RadiatingStoneItem</commands>
```

4.4.3.19. "REMOVE-UNIT-PERMANENT-WOUNDS"

Clean permanent wounds from all units (before final battle, not to frustrate player).

```
<commands>remove-unit-permanent-wounds *</commands>
```

```
<commands>remove-unit-permanent-wounds knight</commands>
```

4.4.3.20. "UPGRADE-UNIT"

Upgrade unit to a given type. Note: heroes can be upgraded only by this command.

```
<commands>upgrade-unit Sir_Percival blackknight</commands>
```

4.4.3.21. "RETRIEVE-UNITS-CACHE", "ADD-UNITS-CACHE", "CLEAR-UNITS-CACHE"

Cache commands. Note: those commands don't move units between cache and team, other commands are required to remove units from team and it error there may result in duplicated units/items. There are caches A, B, C, D, E, F, G.

Clone all team units and add to cache (units will be still in team):

```
<commands>add-units-cache A * true</commands> clone all non-hero units to cache  
(dontAddHeroes=true)
```

```
<commands>add-units-cache A knight true</commands> (adds all knight to cache A)
```

```
<commands>add-units-cache A Sir_Edward false</commands> add hero to cache
```

Clone units from cache and add them to team:

```
<commands>retrieve-units-cache A</commands>
```

```
<commands>clear-units-cache A</commands> clean cache afterwards
```

4.4.3.22. "CLEAR-ITEMS-CACHE"

Clears items in items cache.

```
<commands>clear-items-cache *</commands> completely cleans Items Cache
```

Completely remove an item:

```
<commands>remove-unit-attribute * RadiatingStoneItem</commands>
```

<commands>clear-items-cache RadiatingStoneItem</commands>

1.1.1.1. "UNEQUIP-ITEMS", "UNEQUIP-ITEMS-CURSED"

Strips items from unit and place them in Items Cache.

<commands>unequip-items *</commands> all items are unequipped from all units

<commands>unequip-items Nairi</commands>

Remove any cursed item from unit:

<commands>unequip-items-cursed Balvar</commands>

1.1.1.2. "EXCHANGE-ITEMS"

Exchanges a number of items. Note: command goes first through units, then Items Cache till it exchanges desired number of items

Upgrade first sword:

<commands>exchange-items QualityGreatSwordItem DoombringerItem 1</commands> (ONE sword is upgraded to Doombringer)

Upgrade all items:

<commands>exchange-items RubyItem DiamondItem 9999</commands> upgrades all Rubies into Diamonds

1.1.1.3. "REMOVE-ITEMS"

Removes a number of items. Note: command goes first through units, then Items Cache till it removes desired number of items

Remove first sword:

<commands>remove-items QualityGreatSwordItem 1</commands> (ONE sword is removed)

Remove all items:

<commands>remove-items RubyItem 9999</commands> removes all Rubies

1.1.1.4. "SET-VAL"

Sets variable in campaign data.

Sets \${mana-source-A-available} to 'yes'

<commands>set-val mana-source-A-available yes</commands>

Note: un-initialized values have empty (") value.

Note2: set-val supports a scripting language (based on JavaScript) when calculating variable value. The below command will initialize counter (if uninitialized) and increase it by 1 every time command is invoked

```
<commands>set-val my-counter (parseInt({my-counter})||0)+1</commands>
```

1.1.2. CONDITIONS

Conditions are used in command, trigger conditions or in unlock-condition in location. Conditions follow Java-Script notation.

This conversation is played only if player has a unit dwarflord:

```
<commands condition="{has-unit-dwarflord}=='true'">play-conversation  
F02_Azil_control</commands>
```

Enable trigger if player has Quality Great Sword and enough gold:

```
<triggers type="on-select-6" text="Upgrade Quality Great Sword (1000 GP)"  
description="Upgrade Quality Great Sword to Doombringer (-1000 GP)." condition="{has-item-  
QualityGreatSwordItem}=='true')AND({gold}>=1000)">
```

Note: xml format doesn't allow to escape special characters in attributes. Therefore, the following are used if you want to compare values:

- **GREATER_THAN_** is changed to '>'
- **GREATER_EQUALS_** is changed to '>='
- **LESS_THAN_** is changed to '<'
- **LESS_EQUALS_** is changed to '<='
- **AND** is changed to '&&'
- **OR** is changed to '||'

1.1.3. LOCATIONS

During campaign, additional levels can be unrevealed on World Map. To setup a level with location, add the following to level definition:

```
<location>  
  <position>682,856</position>  
  <name>Harvest Festival</name>  
  <optional>true</optional>  
  <icon-file>greenskinscampaign-levelvillage01.png</icon-file>  
</location>
```

Non-optional (story) locations will be marked with 'blue gem' icons. Optional locations will have different icon depending on level type: gold coins for shop levels, book for intro/select levels and swords for battle levels.

Locations icons are in com/aof/resource/image/location/icon.

Note: Only levels with location can be locked/unlocked

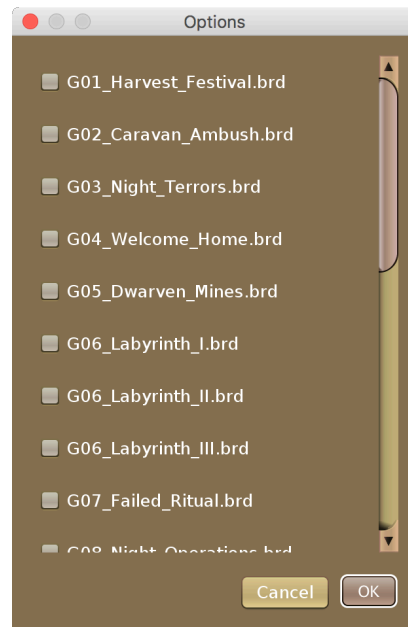
1.2. BATTLE LEVELS

Battle board levels reside in com/aof/resource/board. Terrain images reside in com/aof/resource/image/terrain.

Editing battle levels requires the battle board editor. To start battle board editor, use button from Workshop Manager (after you subscribe to item).

Starting battle editor will require at least one brd file in com/aof/resource/board. The easiest way to start is to copy existing brd files and respective terrain from existing campaign.

This will display a menu, where you can select battle board to edit:



1.2.1. BASICS

- Every battle board consists of brd file and terrain image. The battle board file and terrain image share the same file name (but not extension!).
- Press F1-F6 to see various key shortcuts options.
- During campaign game replaces all player's game objects. Heroes are placed on battle board first replacing exiting game objects in order of game object id. It's the best to place placeholder game objects first. Note: Press 'i' to show game object ids.
- During campaign game recreates all game objects stats and attributes (therefore modifying stats is generally useless).
- Terrains are setup via black-and-white images. Press 't' to show terrains. Yellow shapes are deploy areas.
- Team id and team color can be copied by 'v' and 'c' keys.
- By default, game objects are snapped to grid. Press 'g' to switch snapping on/off.
- Game will always add Neutral team. All Game Objects in neutral team must be passive (Passive attribute).
- AI will take care of creating battle plan, formations and patterns. However, don't place spellcasters in front of melee units.

1.2.2. BATTLE AI EXPERIENCE

The AI Experience points are defined in level. Those are for adjusting AI experience points dynamically. This is done as some battles are optional and player might play them at the end of campaign and then those battles will still be challenging.

Each star is 500 maximum, adjusted by game progress. The number before is minimum exp that AI will get.

Example:

200*** - AI experience for this battle will scale from 200-1500.

In early game (0-0.25 progress) it will be 200-325.

In mid-game (0.3-0.6 progress) it will be 450-900

In end-game (0.8-1.0) it will be 1200-1500.

1000***** - this will be 1000-2500

Five or six stars is enough, as unit will rarely have enough skills to buy above 2500 Experience Points

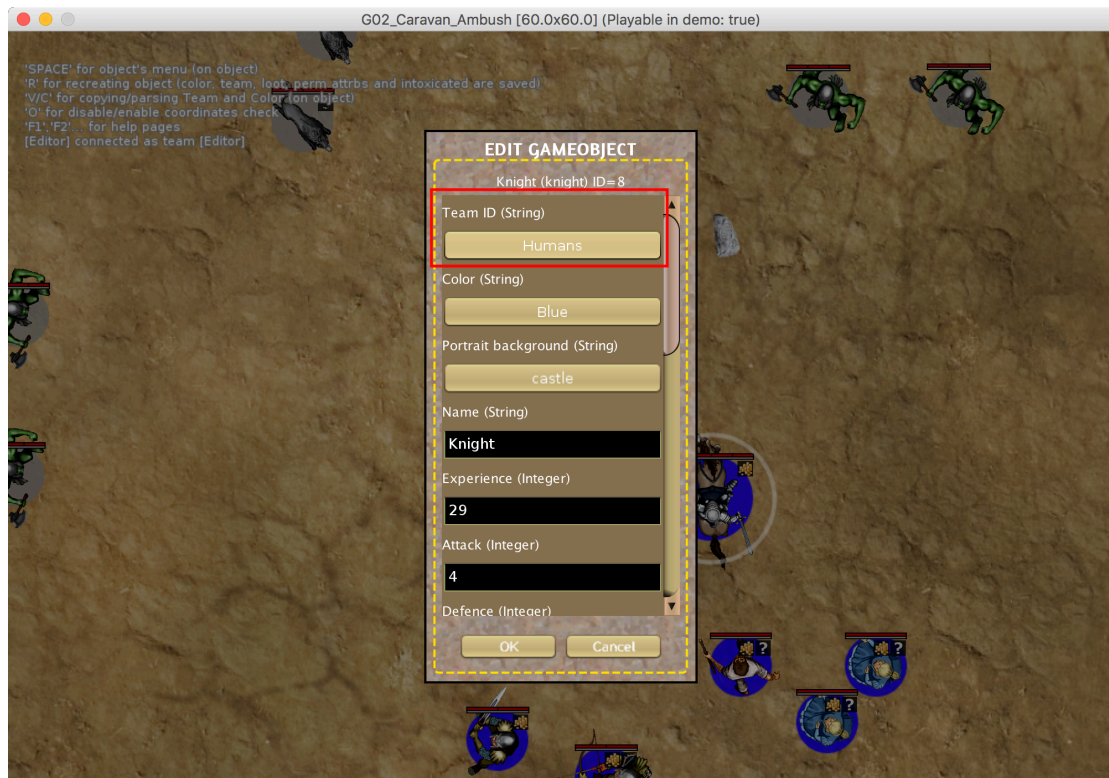
Game progress is calculated by heroes experience and adjusted by campaign (so it's 1.0 for end-battle). If you enabled debug it can be checked from battle, option 'Debug: Info' from menu.

1.2.3. EDITING EXISTING BATTLE LEVEL

Editing existing battle board is easier route to setup battles.

- Right click on empty place will bring up menu to place game objects. The most important functions are: create game object, setup turn order, select background music (choose only ambient ones),
- Right click on game object will bring up menu to edit game objects. The most important functions are: edit parameters (like team id), edit attributes (or add items), parameterize attributes

From game object menu some Parameters can be setup (like team id):



1.2.4. CREATING NEW BATTLE LEVEL

To create new battle board, copy existing battle board and select New Battle Board from menu.

Preparing a new battle board should be started with board area seed file.

- Prepare terrain seed file

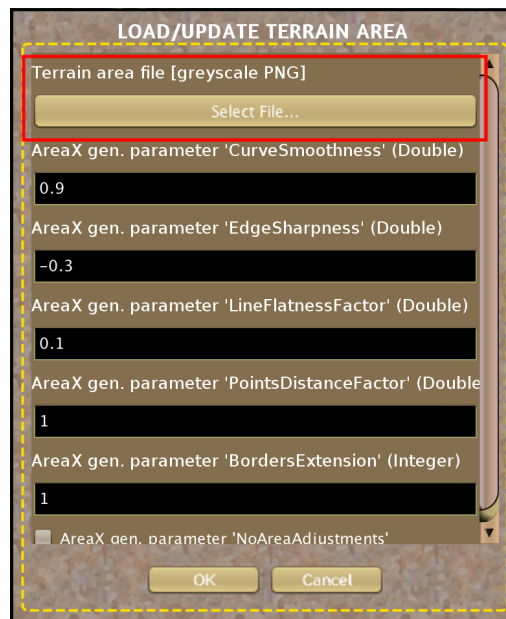
First thing is to setup a terrain area – this can be done from New/Update Terrain Area option.
Prepare black and white image:



The image size should be roughly 1 pixel per battle board meter in size, for example: battle board 40.0x40.0 [meters] should be seeded with terrain image 40x40 pixels.

- Load up terrain area

Open Load/Update terrain area



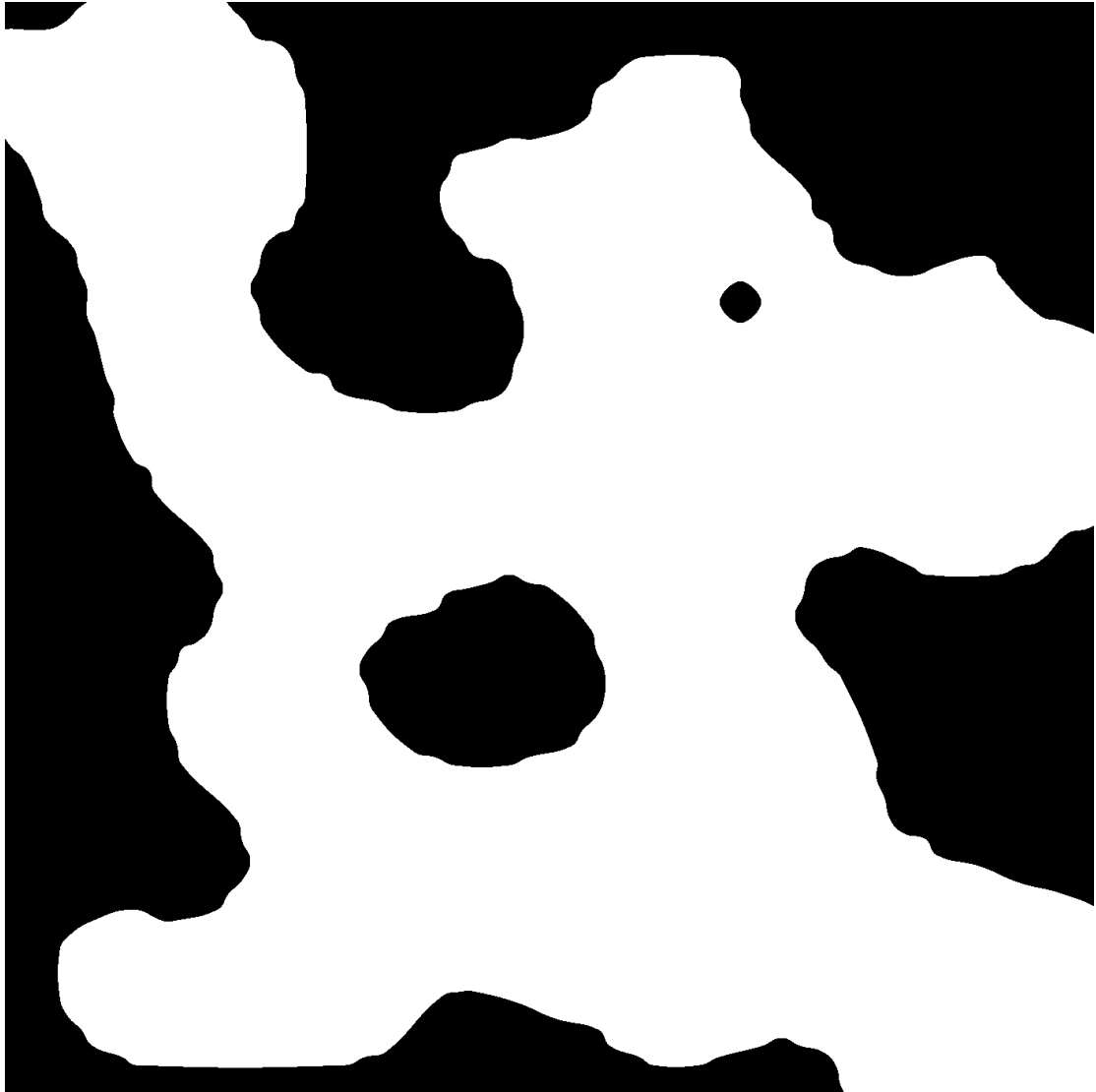
Game engine will smooth edges by itself based on parameters. Generally there are few types on smoothening:

- hard edges – dungeon levels, inside buildings, etc.
- forest – to have round trees
- swamps – to have round edges

The easiest way is just to open level with same type and just start from it (area smoothening parameters are stored inside file). Just copy existing level and keep modding it.

- Generate terrain area

Next step is to generate a terrain area itself (from Save Terrain Image, Zooming has impact on generated image size). Saved file will be a base for graphics designer to prepare terrain image. We suggest 30-40 pixels per 1.0 [meter] of battle board:



- Then your designer can draw map



Resulted map shall be put into `com/aof/resource/image/terrain` and have the same file name as battle board file.

1.2.5. TERRAIN EFFECTS

Note: Terrain Effects are currently disabled as they were causing performance issues.

Game supports a number of animated terrain effects. However, those require continuous rendering and might slow down game engine. To place a terrain effect, use Create Terrain Effect option:

CREATE TERRAIN EFFECT

Firefly,1.0

Firefly,1.9

Firefly,2.5

Firefly,3.7

Flies,2.7

Fog,8.0

Lava1,7.0

Lava2,7.0

Lava3,7.0

LightSource,3.2

LightSource,6.0

LightSource,9.0

RedFog,9.0

Cancel