

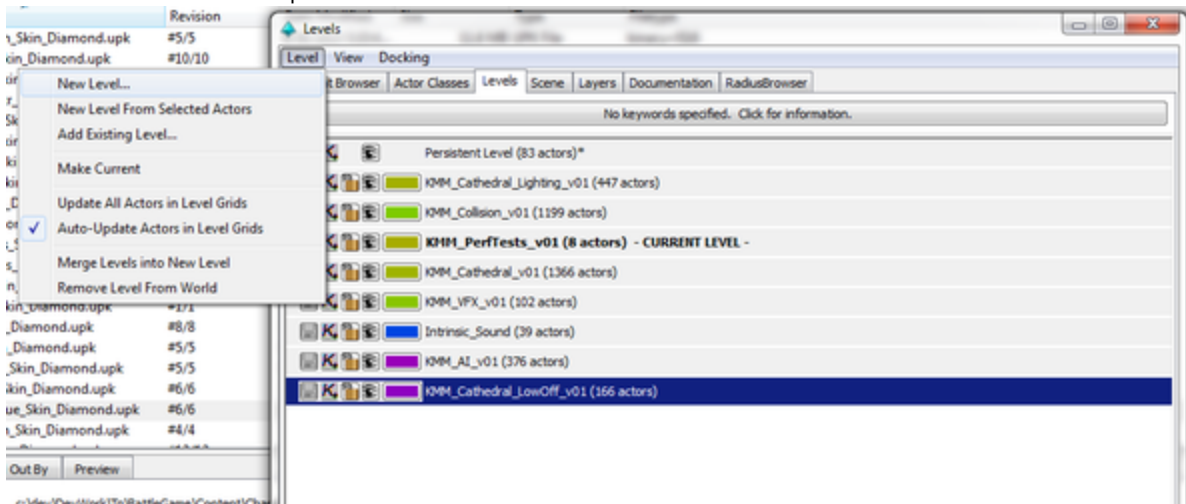
# "Low Off" Streaming Level Guidelines

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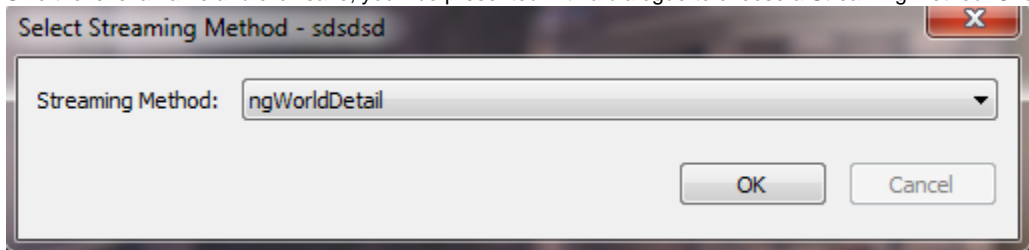
Creating a "Low Off" Sub Level inside of a map is a great way to easily turn off assets that aren't necessary on low settings (or any graphic setting really). We have a system in place to create sub-levels in a map that are either On or Off depending on their settings.

## Setting Up a "Low Off" Sub Level

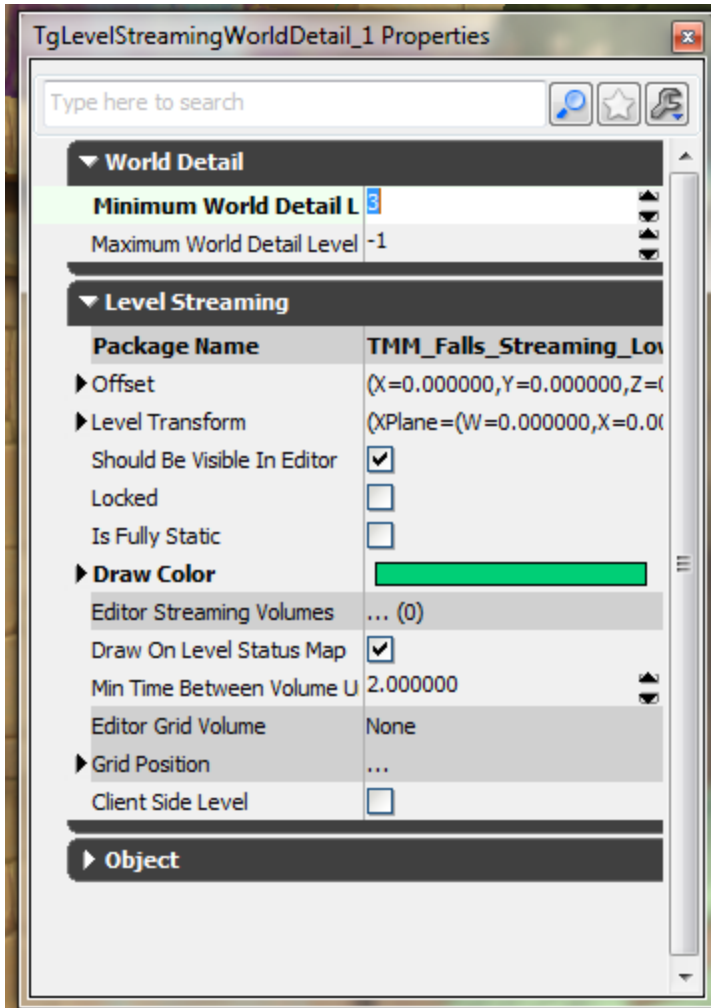
1. In Content Browser go to the Levels tab
2. Go to the Level menu at the top and click "New Level..."



3. Give the level a name and click save, you'll be presented with a dialogue to choose a Streaming Method. Choose 'ngWorldDetail'



4. You should see the new level in your Levels tab (sometimes you have to switch tabs and go back to Levels to refresh). Right click on it and click *Edit Properties...*



For 'Low Off' you want to set the Minimum World Detail Level to 3. Tech Art recommends that the "Low Off" sub level be off on Lowest and Low by using the above setting.

This means that from Bucket 1 & 2 the level will be OFF, and Bucket 3 and upwards the level will be ON. You could set this to different numbers if you wanted to do a "Medium Off" as well.

5. Double click your new LowOff sublevel to make it the current level. You will see the level name bold with - **CURRENT LEVEL** - added to the end of the name in the Level Tab.
6. Start moving assets into the level using the guidelines below. You can quickly select and move assets to the current level with Ctrl+M (or right click on the level and Move Selected Actors Into Level).

## Guidelines for "Low Off" Sub Level

In general, any mesh that is not completely necessary, casts an obvious solo shadow or otherwise serves no purpose other than visual density should be moved into the "Low Off" sub level. Non-essential environment FX should also be moved into here: things like wind whisps, butterflies/birds, ground ants, etc. If something was added specifically for non-gameplay/non-messaging polish it is likely safe for "Low Off."

## Gameplay is King!

For Lower settings, Gameplay is the primary focus and concern. The priority on low settings shifts from pure artistic beauty to **smooth gameplay experience and performance**. For this reason, if clarity is needed on object removal please seek out your team's designer/level designer for guidance or tech art. Do **NOT** move objects that impact gameplay or line-of-sights. The below examples are generally safe.

## "What Do I Move Into Low Off?"

- **Thinking Principle:** The goal of Low settings is to allow the worst of computers a chance to play our games. Player's playing on these

- specs are just happy to be able to play, and are not concerned with heavily visually dense maps.
- The mental attitude towards Low settings should be "How can we best represent the art direction of the game with the absolute lowest number of objects?" Low isn't about polish and small level of detail, it's about getting the theme, message, navigation points across with the bare minimum of resources.
  - Do not hesitate to be aggressive with low settings, especially if maps have been called out on their budget status.
  - Ask yourself questions like "If there are 10 ferns here, can a similar effect be achieved with 3 on low settings?" If yes, hide the 7 other ferns.

### General Object Types to Move:

- All small ground grass should be moved into "Low Off". Really no exceptions to this rule.



- All small plants, props and unessential meshes should be moved into "Low Off"

Example 1:



The above image is very dense, even for High settings in terms of number of plants and small objects. After taking some time to select enough foliage to maintain the effect but trim draw calls, we're left with:



The visual effect of "tropical" and "organic" set dressing is still maintained but is less cluttered while improving performance by significantly reducing draw calls. (Waterfall particle FX were turned off in this example as well).

Zooming into a section of the above images, the highlighted meshes were ones selected to be moved into "Low Off"



Move around the map to different spots like above and approach other "low off" selections similarly until you've scrubbed the entire map.

**Example 2:**



Now this shot is less dense than **Example 1** but still has a lot of unnecessary foliage for Low spec. This is where you have to pick and choose based on how objects cast shadows. **Important Note: Shadows often mipmap to such small sizes on low that they often cease to exist on**

**low graphics settings so this provides more flexibility for moving objects to "Low Off."**

These types of areas require more discretion and thought but generally, if a larger object (like a canopy of trees) will stay on always and casts a large shadow - it can compensate/cover for the smaller objects under it.

Below are all of the highlighted objects that were turned off on Low:



- **Move as many background/out of play space assets to "Low Off" as possible.**

**Example 1:** Observe the below image and see what assets can be safely hidden (hide and unhide objects to see their visual impact).



After taking some time grabbing chunks of background, very far away trees and other smaller meshes completely out in distance - see what was chosen below:



All of the highlighted meshes were moved to the "Low Off" sub level.

- **Move all polish particle FX into "Low Off"**. (Generally only torch fire/other FX to show light source are excluded) This includes but isn't limited to:
  - Whisps of wind
  - Ants
  - Birds/Butterflies

- Small magic specs
- Waterfall/splashes
- Other FX ambiance

- Minimize dense placement of props to save the high-level "effect" of a space but reduce draws.

**Example 1**



Areas like above have a lot of small props that create an effect but not ALL of them are necessary on Low. Because we do not take advantage of cull distance in Paladin's, it is helpful to hit areas like this during Low Off passes to reduce overall set dressing density. See below objects chosen to be turned OFF on low:

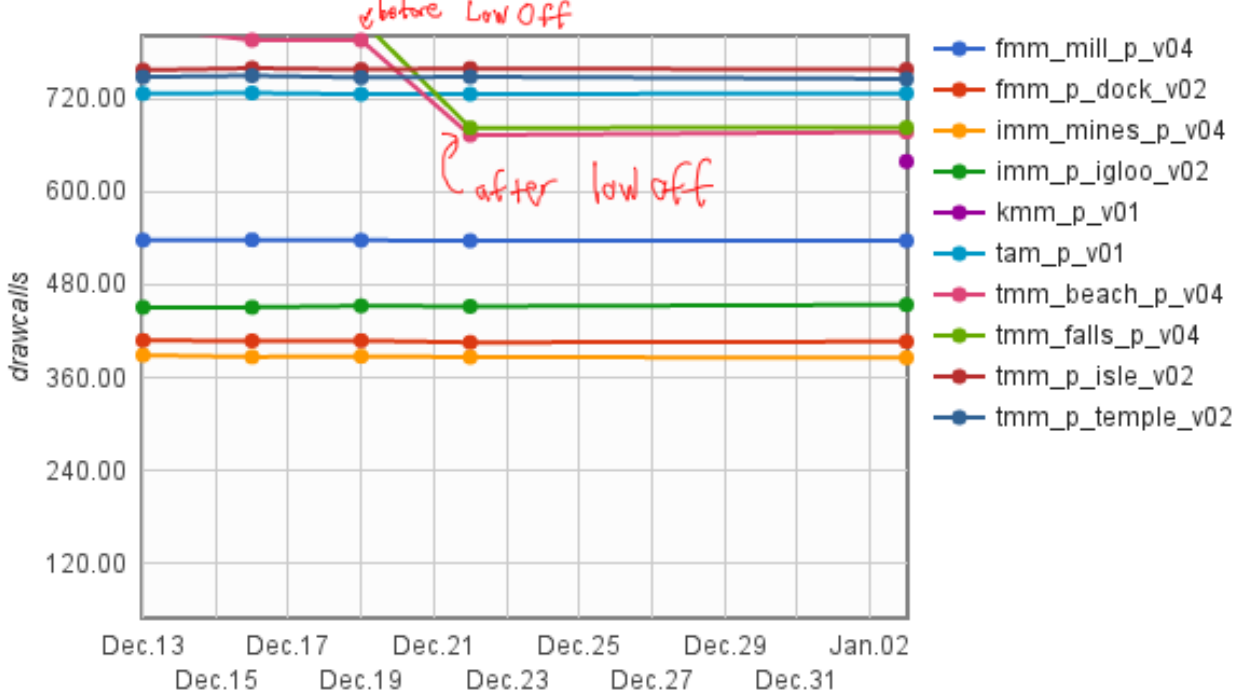


Since it'd be odd to have completely empty shelves (though ideal for performance) this splits the difference by hiding a number of these while still allowing the space to feel "lived in" or "used" by having daily life items. All of the shelf props should be turned off if the map is approaching or over budget.

## The End Results

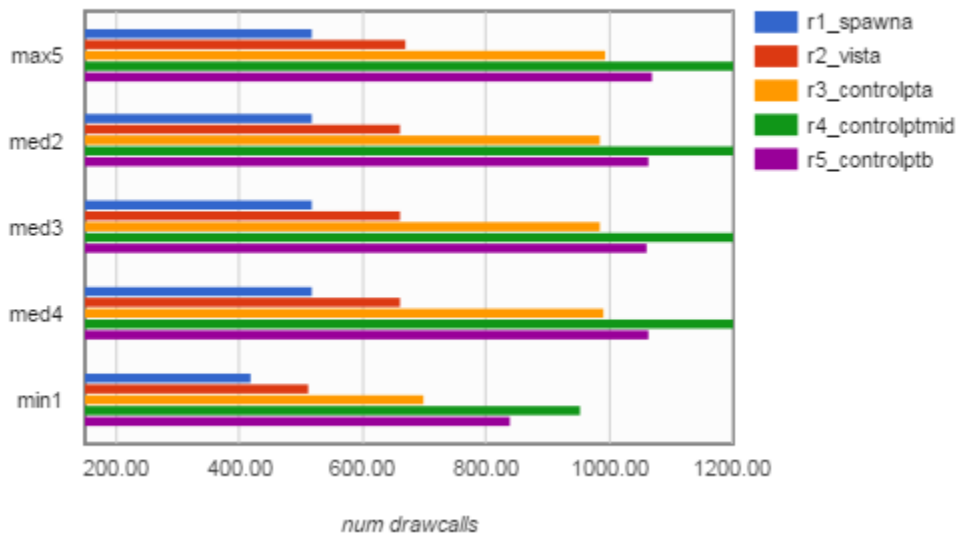
After performing passes on Jaguar Falls and Serpent Beach see the graph below for the performance impact. We used the exact guidelines above to perform that pass.

### DrawCall Trends, Setting: Min1



If performance graphs don't move similarly to this on future maps, more than likely the approach was too conservative. Let go of the high setting density to see better performance.

### tmm\_falls\_p\_v04 DrawCalls



Some points improved by over 300 draw calls after this pass!