



SONY ONLINE ENTERTAINMENT
Quality Assurance Department

EverQuest: New NPC/PC Model and Animation Testing

EVERQUEST QA TRAINING DOCUMENT

EverQuest: New NPC/PC Model and Animation Testing

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Version **1.9**

04/13/07

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Chapter 1

EverQuest Model Testing Synopsis

The following describes the process for spot-checking new character models introduced to EverQuest, both PC and NPC. Both of these will require:

- Texture checking – make sure all textures are placed upon the character smoothly and without seams
- Animation checking – make sure basic animations are implemented and do not cause unusual collision or movement. Includes skin weight checking, which makes sure that when body moves, vertices do not stretch away from body unusually. Confirm sounds are associated with animations
- Particle placement and weapon holding – make sure that spells cast from normal places on body and weapons (if any) are held where they should

PCs will require more detail checking since they will be much more visible and will also have more animations and armor pieces, as well as a wider variety of weapons they can equip. Keep in mind that some NPC bodies will still be usable by PCs (such as elemental forms for illusionists).

Character models in EQ1 are built, textured and animated using the program 3DS Max, or the program Maya and then *exporting* the model into 3DS Max.

Remember, if you have a question or are not sure about something, send the artist an email: they will often be happy to explain if an NPC is designed to hold weapons, if they are intended to be extremely large models and thus have odd-speed animations, or cover any other details that might be on your mind.

REMEMBER, under *no circumstances* are you to share screenshots you take of new models with the public.

Also, note that players will often find bugs that you may overlook, so before finalizing the first pass **make sure to give DevTrack/Beta Bugs a run-through** to make sure no one has spotted something you haven't covered yet.

What to expect:

An NPC animation check doesn't take particularly long; a person can do about five NPCs or more in a day without any complications. Player races will take much longer due to the numerous body types, details, animations, and other checks: a thorough first-pass can take over 3 days and cover well over 70 bugs. Often, these bugs are related (same piece of armor sinks into the skin for almost every animation, for instance), which accounts for the large number.

Adding new models to the database for viewing

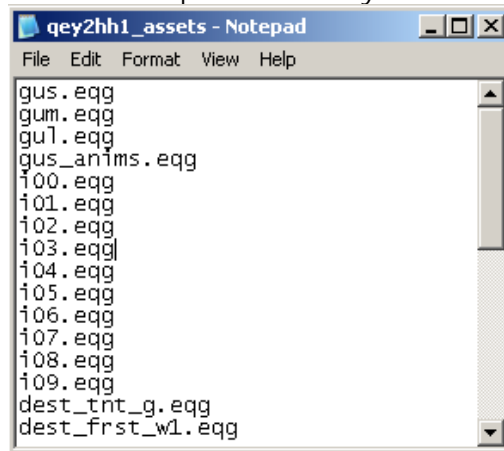
File types:

- *.EQG – this extension is associated with character models used in the game
- *_ASSETS.TXT – this extension tells the individual zone files which character models are available to be seen (old version was *_CHR.TXT, which is no longer used)

Technical process for adding new test models to database:

1. Copy model files (*i.e.* ABC.egg) to main EQ directory.
2. Choose zone to test models in (West Karana is good).
3. Open zonename_assets.txt file (West Karana would be qey2hh1_assets.txt) in Notepad, or create one from scratch if it does not exist for that zone yet.

Example of file layout



4. Add model file name(s) to bottom of the list in this format: modelname.egg (*i.e.* abc.egg). If the model has a separate animation file it references then add that as well.
5. Save file – (*note that repatching server may revert this file back to original state, so back it up if you plan on going back for more testing in the future*).
6. If you are already in game, rezoning will load up this new assets file automatically.
7. The character model can now be accessed in the avatar window (default key is Z) via "ChangeForm" button.

Note: The process for testing online and in solo mode is the same.

Example of file layout



Technical terms

Mat: A mat is the texture skin that is applied to a model. EverQuest models can have multiple mats, allowing models to have differing visual properties.

Skin weight: This refers to how much influence a joint has on the vertices in the body. All the vertices around an arm, for instance, should move when the arm joint moves, whereas none of the vertices in the foot should move or stretch away when the arm moves.

Texture mapping: how a texture is applied to polygons. For instance, the texture mapped to an NPC face should be aligned with the eyes and mouth.

Bump mapping: same as texture mapping, except this represents indentations and creases that catch in-game lighting to give a model depth. In 3DS Max this is applied as part of the original texture map, but can be toggled on and off in-game. In EQ any bump maps a character will have are visible with Advanced Lighting toggled on.

Alpha mapping: the transparent parts of textures.

Standard settings for a good test

- Use a wide open zone without too many hills or obstacles (qey2hh1 is large and easy to use)
- Set "/hour 12" twice to get maximum sunlight. "/Stoptime" also helps by locking the currently set time.
- Set "/torch 200" for maximum personal lighting (resets to 0 whenever you change form)
- Accustom yourself with the F9 camera controls so you can check the model out from various angles and get tight screenshots (hit F9 a few times to get 3rd person view, then practice ALT and NumPad combinations)

Bug Format

The format for filing a model-related bug report is as follows:

Model: [NPC or PC]: filename.egg: Model Name: Mat # (leave out if bug applies to all mats): animation cycle (if applicable): describe the issue (C)

Example: Model: NPC: BLV.egg: Bolvirk: Mat 1: Dance animation: Tunic is very visibly one-sided (C)

Chapter 2

General Testing

Geometry seams:

Same principle as checking terrain geometry: look around the body and make sure there are no misplaced polygons, unconnected vertices, or anything else unusual with the model's actual geometry

Weapon grip:

Make sure models hold weapons at the proper point (not too low or too high in hand/tentacle/etc.).

Note: In the case of models designed to NOT be weapon-wielding (such as horses or wild animals), you'll need to bug it if they can hold weaponry. However, many seemingly non-wielders (such as shambling mounds with vines for hands) can still hold weapons. If an NPC comes with a built-in weapon, make sure that it is still placed and animated properly.

Also check to make sure the weapon being held is facing the correct direction in-hand. Best checked with bows or Short Sword of the Ykesha (#5500); which should be facing forward.

Targeting:

Make sure you can target a model from all points on its body, instead of only an arm or from its belly region. Make sure you can target easily with both the mouse and the target key (default is F8), and that it isn't difficult to loot the NPC when it's a corpse.

Collision testing:

Test the model by running against walls, up hills, against trees, and through tight spaces (Befallen, Feerrott and Freeport make good test grounds). Make sure the model can maneuver comfortably through normal areas that other players of comparative size can move through. Include ducking and jumping along with walking and running. Also make sure that the model adjusts pitch correctly on slopes.

Textures

Check various angles on the body, especially the face. Make sure mapping is applied properly, and that there are no portions missing textures such as inside

some NPC mouths (like bear models – bea.egg) or underneath gowns (like the banshee models – bse.egg).

Confirm on parts with alpha-mapping that there aren't little bits of extra texture floating in space un-attached to something.

Keep an eye out for *accidental* alpha-mapping, meaning parts that appear as transparent but shouldn't be.



Look for noticeably one-sided textures on costume or body parts.

In graphics advanced options, check with different vertex shaders checked on and off, as well as with and without bump maps and advanced lighting.

Check bump maps (turn on Advanced Lighting to toggle it) to make sure:

- They indent in the correct direction (bumps poking out, creases creeping in, etc...)
- There are no distinctive seams (especially down the center of the face)
- The bump mirrors properly on both sides of the body (one side isn't bumping in a distinctly different manner from the other)
- The bump intensity is not so extreme as to take away from the natural textures of the model

NPCs only

Check all materials available, using “/mat 0” (target model to use) for the primary body type and going up in number until no changes in material take place. Most models only have one mat, while some (like orcs) can have 12. Note that mats are not just textures, but often have alternate geometry as well

PCs only

Make sure all faces are textured and hair applied properly for all possible combinations and both genders. This is best done in the character creation screen, especially since it uses a close-up camera for facial details. Cycle through the following:

- Faces
- Hair and hair colors
- Eye colors
- Facial details (tattoos, beard and beard colors, and other components such as Drakkin tattoos)

Check all other armor types with the following /mat settings:

- 0 – cloth
- 1 – leather (includes helm)
- 2 – chain (includes helm)
- 3 – plate (includes helm)
- 4 – monk (not always available, includes helm)
- 10 – caster robe #1 (Robe of the Elements)
- 11 – caster robe #2 (FBR)
- 12 – caster robe #3 (GM robe)
- 13 – caster robe #4 (Oracle robe)
- 14 – caster robe #5 (Kedge robe)
- 15 – caster robe #6 (SMR)
- 16 – base robe

Following armors are only visible on pre-Luclin PC models

- 17 – Velious leather #1
- 18 – Velious chain #1
- 19 – Velious plate #1
- 20 – Velious leather #2
- 21 – Velious chain #2
- 22 – Velious plate #2

For races with the Monk class available, mat 4 will not always be a useable choice. If this is the case, you will need to create and equip monk armor to test the materials (*items #31929-31934*)

Note: make sure extraneous pieces (like Drakkin horns) don't poke through geometry if they have multiple options. Check every combination of these extraneous parts with each of the above mats they could interact with (i.e. each of the Drakkin horns with the four helm types).

Animations

All new models are tested by using the “New Anim Test” tab on the Avatar Window. Old models will use the “Animation Test” tab in the Avatar Window.

All Models

Use “/speed #” to slow animations for testing purposes. The # can be between 0 (0% speed) to 1 (100 % speed, what all players naturally see). Good increments are 1, .75, .5, and even .25 if you need to get technical.

Confirm that sounds are associated with these animations (an often-overlooked issue). Many animations such as swinging a weapon or swimming will have sound effects added in with them.

- “*” denotes vocal noise associated with it on the following lists

Test the following animations with the following weapon combos: Base (barehanded), Dual Wield (holding a pair of 1H swords), Two Handed (wielding one 2H sword, good for testing long blades), and Staff/2H Spear (holds weapon in different grip) (*note that not all NPCs will use weapons, such as four-legged animals. Also, some NPCs come with built-in weapons and as such won't wield regular game weapons, so use common sense or ask the artist*):

- Primary slash (try a few times to make sure there aren't multiple variations on attack animation (as an example, chimeras in Wallofslaughter have three that are randomly executed).
 - Kick (not all NPCs will have a kick animation)
 - Swim
 - *Jump (not all NPCs will have a jump animation)
 - Stand (this is its own animation, do not confuse is with idle)
 - Idle (might have multiple variations)
 - Walk (backwards, forwards, and strafe side-to-side)
 - Run (/run will toggle this on and off)
 - Sit (not all NPCs sit)
 - Stun
 - General Cast (might have multiple variations)
 - *Flinch (being hit) – only makes sound when character takes damage
 - *Crumple (death animation) – make sure the body does not sink into the ground on death
 - Turn left/right
 - Dance (very rare that an NPC will have this)

Look for the following issues:

- Body parts passing through other body parts.
- Body parts passing through clothing (especially noticeable on draped cloth like dresses or clunky close-to-the-body armor pieces)
- Weapons passing through body parts.
- Weapons through each other (especially on the Idle animation)
- Vertices not moving with the rest of the body during an animation (skin weights not applied to this vertex)
- Movement of one part influencing stretching from other parts (i.e. when the arm moves, vertices on the eyes are pulled along with the arm – incorrectly placed skin weights)
- Animation speed seems too fast or slow for specific sequence (note that some NPCs meant to be large models might appear to move too fast or too slow when at their intended height they will seem normal).

- Take a hit from an NPC if possible and take damage to confirm a vocal noise is made upon your character being struck.
- Stun self with Force of Jeron (spell 5299), make sure once stun is over that the character no longer gets stuck in stun-cycle animation

PCs Only

Test all animations with a 1H weapon and a shield (item #9023), and with a Bow (item #8326)

Include the following animations in your checklist:

- | | |
|--------------------------|----------------------------------|
| • Primary/Secondary/2H | • General Cast |
| • Slash/Blunt/Stab | • Defensive Cast |
| • Backstab | • Missile Cast |
| • Throw Weapon | • Gather Power |
| • Bash | • Stun |
| • Secondary | • Hands on hips |
| • Bash | • Cough |
| • Punch | • Blush |
| • Fire Bow (archery) | • Yawn |
| • Swim | • Impatient |
| • Tread Water | • Cringe |
| • Swim attack | • Rude |
| • Kick | • Kneel |
| • Roundhouse kick | • Climbing |
| • Idle | • Freefall |
| • Idle-Aggressive | • Bard drum |
| • Mid-hit | • Bard lute |
| • Flinch | • Bard horn |
| • *Spastic (drowning) | • Dance |
| • Triumphant (cheer) | • Laugh |
| • Agony of Defeat (fail) | • Hard Laugh |
| • Wave | • Shrug |
| • Crouch / Crouch-walk | • Cough |
| • Negative | * denotes vocal noise associated |
| • Smile | with it |
| • Monk Special Kick | |
| • Monk Hand Attack 1, 2 | |

Test all animations with regular armor and with a robe

Test all animations while mounted on a horse (summon one with spell #8900).

- Continue to make sure body parts or weapons are not passing through horse geometry.
- Confirm that shields are held properly by player mounted on horse (not upside down or anything odd)

Confirm that while the melee timer counts down, player is in Idle-Aggressive animation stance and not regular idle stance.

Perform some general ad-hoc to make sure these animations function properly in a realistic setting. Examples would be:

- Idle-swim in water or fall for a long distance, make sure animation cycles and doesn't stop after the first cycle.
- Loot a corpse, make sure the kneeling animation doesn't cycle but stays in place until you're done looting, then you should stand normally.
- Confirm spell-animations are taking place when you actually cast spells.

Particle Emission

Note: there are issues with testing particles in solo mode, so make sure these are tested online.

All models

Cast a couple of spells to verify proper emitter locations:

- Complete Healing (spell #13) – blue casting glow should come from hands.
- Ultravision (spell #46) – after the initial casting takes place there should be a yellow particle stream from the eyes.
- Barrier of Force (spell #1931) – make sure resulting particles come streaming in towards center of body
- Phantom Fire (spell #5139) – make sure fire ring forms along the ground in a circle around your body
- Shield of Thistles (spell #256) – make sure the particles follow the model.

Confirm spell effects follow player movement and don't stay floating in mid-air at origin point when you move.

Character Select

If the model is a Player race or a Shroud, confirm there are no odd issues for the model in the Character Select.

- Check if it can be seen on the screen (i.e. at the moment Fairy shrouds are bugged as floating almost completely off-screen)
- Make sure the player's name and class are completely visible
- Confirm model cycles through various demonstration animations when left alone for a while
- Character Creation: for new players, make sure you can cycle through all the available options for character customization and that there are no oddities or problems in the choices.

DAGs

DAGs (Display Actor Graphic) are the actor tags you see on character models in-game – these actor tags include the modeled weapons, armor, held items, and occasional armor that are placed upon an already-existing model (not to be confused with the small Drag Icons seen in your inventory). You can make any model (including yourself) wield any item that has a visual actor tag, and it is only seen client-side. This is especially useful in Solo where you cannot actually equip gear on the Solo character. The format to use this feature is:

- `/dag <L, R, SHIELD, HEAD, etc...> <dag number>`
- Example: `/dag l 10750` – this shows the wizard epic 2.0 in your model's left hand
- If you don't target another character, it defaults to your character
- Dag #0 is no-item for that slot

Destructible Objects

Destructible objects (such as the walls or catapults in Devastation) have their own rules of animation. Some you can shape change into (such as I01.eqq – armor rack), some you cannot, and some you have to spawn in Solo to check.

For the ones you can shape change into, you simply change-form into this model like you would for the above NPC checks. If they have a destructible state, it can be achieved by feigning death (spell 366). However, this is primarily only good for checking the model and animation, not its actual in-game destruction capability.

Destructible objects in Solo are checked in an entirely different manner: you will actually spawn the item in Solo to check it there:

- To spawn the item = `/cgroup <eqg name of destructible>`
- To cycle it through its destruction states = `/groupstate n` (where n is a number from 0-4)

In the end, the best and most accurate means of checking them will be to find examples of them on-server and attack them to animate them through their destruction cycles. Unfortunately, for this you will have to wait until they are actually placed in-game before you can test them.

Destructible objects have either two or five cycles of animation:

- Five-cycle:
 1. 100% health = normal, undamaged state
 2. 80% health = first break animation point
 3. 50-55% health = second break animation point
 4. 30% health = third break animation point
 5. 0% health = complete object destruction
- Two-cycle:
 1. 100% health = normal, undamaged state

2. 0% = goes straight from healthy to destroyed state with nothing in-between

Animation: check each of these animation points to confirm the object animates properly into its damaged form (and does not instantly pop into these states). The /speed command works on destructible objects, so you can use this to slow down the animation itself.

Object collapse collision: destroy the object with melee at close range (or even within it if it can be entered normally) and confirm that if it collapses that it does not trap your character within its geometry.

Regular NPC testing: other than the above issues, destructible objects are tested for textures and modeling issues like normal NPC models. Confirm object cannot be walked through and has collision.

Most Common Issues

Here are some examples of the most common issues found when model testing:

- Particle effects not originating from correct places on body or following model when moving.
- Point of view from first- or third-person camera not matching actual eye-position of models (particularly important for Monster Missions or Shrouds).
- Bump-maps are not mirrored properly, i.e. muscles on one side of body are bulging out while the ones on the other side are sunken into the body.
- Weapons are being held in the wrong direction.
- NPCs that should not be able to hold weapons can wield them.
- Back part of humanoid heads (especially those with hair) can be seen through where the head meets the neck.
- Eyelids that can close either sinking through the eyeball or being influenced by the movement of other body parts.
- Various extra-parts (beards, wings, clothing parts) sinking into body.
- Models either not making correct sounds, make no sounds at all, or the sounds are not matching actual movements properly.
- Parts with transparent texture are z-sorting improperly with the environment, i.e. something behind the model is showing through the transparent part as though it's in *front* of the model.
- Certain animations that are meant to cycle do not (i.e. treading water and freefall).
- PCs: armor mats (even default cloth) sinking into body on various animations; especially noticeable on flowing items like loincloths or robes.
- PCs: when on a mount, animations take player into standing non-seated animation state.