



# **ZION ANIMATION SETUP & DIAGNOSTICS**

## **FULL TUTORIAL**

Find, validate and organise character animations across multiple asset packs.

**UNITY 6 | EDITOR TOOL | ZION GAMES**



Zion Animation Setup & Diagnostics helps Unity users find the animations they need across several asset packs, test those animations on a real character and create a smaller organised library containing only the chosen source assets.

The tool is designed for Unity 6 and does not require ZionTPS. Its primary workflow is editor-only. Generated Clip Browser scenes include a small runtime preview helper, but the finished game does not need to use that helper.

## 1. What Zion does

The Guided Setup combines five jobs that are normally performed separately:

1. Check that the target character can receive Humanoid animation safely.
2. Search several animation packs as one combined library.
3. Rank likely clips for movement, interaction and combat roles.
4. Test the selected clips for common setup and compatibility problems.
5. Copy the chosen source assets into a versioned curated library.

Zion diagnoses and organises animations. It does not edit animation curves, convert motion styles, rewrite poses or automatically correct foot sliding.

## 2. Safety principles

The workflow is deliberately conservative:

- Purchased source assets are never deleted automatically.
- Search and diagnostics do not alter source FBXs.
- Generic-to-Humanoid conversion is attempted only on curated copies.
- Failed copied conversions are reported and the copied importer is restored where possible.
- Warnings remain visible instead of being silently treated as Passed.
- Missing Required roles affect completion; missing Recommended or Optional roles do not.
- A technical pass never replaces visual testing on the final character.

Create a project backup or source-control checkpoint before building any production library.

## 3. Installation

Import the Zion package into a Unity 6 project and allow Unity to finish compiling.

Open the editor from:

**Tools > Zion Games > Animation Setup & Diagnostics**

The window opens in Guided Setup. Use Advanced Tools only when you need direct access to Library Builder, Compatibility Lab, Diagnostics or Import Presets.

The documentation is also available from:

**Help > Zion Animation Setup > Quick Start**

**Help > Zion Animation Setup > Full Tutorial**



## 4. Important concepts

### 4.1 Target character

The target character is the model or prefab that will use the selected animations. Zion needs its mesh, Animator and Humanoid Avatar to perform meaningful tests.

Always select an asset from the Project window. A Scene instance can contain temporary controller state, runtime scripts or overrides that make the result unreliable.

### 4.2 Animation source folders

Source folders are project folders containing FBXs or Animation Clips. You can add folders from unrelated publishers and search them together.

Choose the narrowest useful folders. Selecting an entire vendor root may include hundreds of demo, model and unrelated clips, which increases search time and produces less focused alternatives.

### 4.3 Humanoid and Generic animation

A Humanoid clip has a Unity Human Avatar mapping and can be retargeted to compatible Humanoid characters.

A Generic clip uses its own transform hierarchy. It cannot be meaningfully sampled on an unrelated Humanoid character until a compatible copied conversion exists.

Zion can attempt Generic-to-Humanoid import on copied FBXs. A generated Avatar and Humanoid motion prove only that Unity accepted the mapping. They do not prove that shoulders, hips, limbs or body orientation are anatomically correct. Visual approval is therefore mandatory.

### 4.4 Required, Recommended and Optional roles

- Required - the selected template genuinely needs the animation. It must be approved or acknowledged before continuing.
- Recommended - improves the standard experience but is not essential.
- Optional - recognised and organised when supplied.

The distinction prevents incomplete asset packs from trapping the user while still keeping genuine gaps visible.

### 4.5 Controller-driven and root-motion movement

Only one system should own character translation.

- A controller-driven character is moved by code, a character motor or navigation system. It normally uses in-place locomotion and Apply Root Motion off.
- A root-motion character receives translation from the animation. It requires appropriate moving clips and Apply Root Motion on.

ZionTPS is controller-driven by default. Choose Controller Moves Character for the standard ZionTPS workflow.



## 5. Guided Setup - complete walkthrough

### Step 1 of 7 - Choose Your Character

Drag the playable character prefab or Humanoid model from the Project window into Character prefab or model.

Zion checks:

- A usable mesh exists.
- An Animator can be found or created for previewing.
- The assigned Avatar is valid and Human.
- Required Humanoid limbs are mapped.
- Left and right limbs do not appear crossed.
- Shoulder and hip structure is plausible.
- The source pose is close enough to a useful calibration pose.

#### Reading Avatar Readiness

Avatar Readiness Passed means the automated structural checks found no blocking fault.

Avatar Ready - Visual Check Advised means the mapping is usable, but the source bind pose or measurement deserves visual confirmation. An A-pose can remain visible in the source model even after Unity's Avatar calibration is valid.

Character Needs Attention means the current Avatar cannot be trusted for retargeting.

#### Calibrating the Avatar

Use this workflow when limbs twist, the torso folds, or several unrelated packs fail in the same way:

1. Click Locate Character FBX.
2. Select the FBX and open Rig in the Inspector.
3. Set Animation Type to Humanoid.
4. Set the Avatar Definition appropriate to the model and click Apply if required.
5. Click Configure.
6. In Avatar Configuration, verify the body mapping. Red or clearly incorrect assignments must be corrected.
7. Open Pose and choose Enforce T-Pose.
8. Click Apply and Done.
9. Return to Zion and click Retest Character.

Do not change twenty animations when one target-Avatar correction solves the same twist across all of them.

### Step 2 of 7 - Choose Animation Packs

Add one or more folders containing the animations to search.

Methods:

- Click Add an Empty Folder Slot, then drag a folder into it.



- Select one or more folders in the Project window and click Add Selected Project Folders.

Every folder must be beneath **Assets**. Scene objects and individual files are not accepted as source folders.

The source list is a search scope, not a move operation. Zion does not change or delete these folders.

## Step 3 of 7 - Choose Animation Requirements

Select a starting checklist.

| Profile                    | Intended use                                                                          |
|----------------------------|---------------------------------------------------------------------------------------|
| Basic Movement             | Idle, walking, running, sprinting, strafing, jumping, falling and landing             |
| Third-Person - Recommended | Basic movement plus crouching and rolling; suitable for most third-person controllers |
| Combat Character           | Third-person movement plus a light attack, hit reaction and death                     |
| ZionTPS - Full Character   | ZionTPS movement, all interaction categories and optional combat placeholders         |

### Interaction animations

Interaction roles are selected separately:

- No Interactions - movement-only library.
- Interaction Essentials - Interact/Reach, Button Press, Pickup Mid, Door Open, Lever Use, Terminal Use and Chest Open.
- Full Interaction Set - adds low/high pickup, door push/pull, sit/stand, talk/gesture and inspect roles.

Missing interaction clips are Recommended or Optional and do not block a base character library.

### Movement ownership

Choose:

- Not Sure - Detect It when you want Zion to report evidence without selecting an owner.
- Controller Moves Character for ZionTPS, CharacterController-based systems and most code-driven controllers.
- Animations Move Character for a deliberate root-motion implementation.

This choice changes candidate ranking, compatibility advice, reports and the Clip Browser's initial Root Motion state.

## Step 4 of 7 - Review Zion's Choices

Zion searches every selected source folder and ranks candidate clips for each requested role.

Each role card contains:

- Role name and importance.
- Plain-language purpose.
- Suggested clip.
- Source pack.
- Confidence score.



- Rig readiness.
- Likely movement mode.
- Alternative dropdown.
- Preview and Locate actions.

### Confidence is not visual proof

Confidence measures naming, role intent, loop settings, rig readiness and movement evidence. A clip named **Walk\_Forward** can rank highly, but the final pose can still be wrong for the target Avatar.

Review the actual filename and source path. Use Preview when names are ambiguous.

### Approving and omitting roles

Approve a suitable animation. If none is appropriate, choose the action that leaves the animation missing.

Every Required role must be approved or acknowledged. Recommended and Optional roles may be skipped. The final report keeps all omissions visible.

### Improving poor suggestions

If a crouch, seated or diagonal clip appears for a standing locomotion role:

1. Open the candidate dropdown.
2. Look for a correctly named alternative.
3. Confirm the source folder actually contains the expected clip.
4. If necessary, return to Step 2 and add a more relevant animation folder.
5. Run the search again.

## Step 5 of 7 - Test Selected Animations

Zion samples the approved clips on an isolated clone of the target character. The clone is not saved and the source assets are not modified.

### Result meanings

| Result  | Meaning                                                     | Normal action                                        |
|---------|-------------------------------------------------------------|------------------------------------------------------|
| Passed  | No measured issue was detected                              | Confirm visually and continue                        |
| Advice  | Informational or conservative evidence                      | Check the stated intent                              |
| Review  | A visual check is needed                                    | Preview and keep it when it looks correct            |
| Blocked | Definite Avatar, rig or playback evidence prevents approval | Follow the named correction or choose an alternative |

Expensive Asset Store packs can legitimately produce Review or Advice results. These statuses do not mean the vendor asset is broken. Root positions, dynamic contacts and imported motion curves can be intentional.

### Character-wide fault versus clip fault

When several unrelated clips from different source folders produce the same severe torso twist, Zion reports a character-wide Avatar fault and returns you to Step 1.



When only one clip fails, Zion treats it as a clip or source issue and offers ranked alternatives when available.

## Grounding and floor results

Ground measurements use the target character's own unanimated foot baseline, not world Y=0. Rolls, landings, attacks, death and interaction clips can deliberately approach or cross the baseline. Review the complete motion before changing import settings.

## Foot sliding

Possible planted-foot sliding is conservative advice based on sampled poses. Zion reports it but does not edit curves or claim automatic correction.

## Continuing with Review results

When no hard Error exists, click Keep These Clips - Continue to Test Build. The clips retain Review Required status, and Zion continues to protect the original packs.

# Step 6 of 7 - Build the Curated Library

Choose a clear library name and output root, then click Create My Animation Library.

The default root is:

**Assets/ZionGenerated/AnimationLibraries**

Every build creates a new versioned folder. Previous builds are not overwritten.

## What is copied

Zion copies each selected source asset once. If several selected clips are sub-clips of one FBX, the FBX is copied once and remains intact.

The output uses two simple buckets:

```
YourLibrary_Curated/  
Sources/  
Animations/  
Dependencies/  
YourLibrary_CuratedProfile.asset  
YourLibrary_BuildManifest.asset  
CuratedLibraryReport.md
```

**Sources/Animations** contains all selected animation source assets together.

**Sources/Dependencies** contains copied Avatar-source FBXs required by Copy From Other Avatar imports.

If two files share a name, Zion keeps both by adding the source-pack name to the later copy.

## Generic copied conversion

When a selected FBX is Generic, Zion can attempt Humanoid import on the copy. The original remains unchanged.

After conversion, Zion looks for a valid Human Avatar and Humanoid motion, remaps copied Avatar dependencies and samples the curated result again. The entry remains unverified until its full body pose is visually approved.



## Step 7 of 7 - Test and Finish

The completion screen explains whether the library is verified or whether the original packs must remain.

Use Locate Animations and Locate Dependencies to open the two output buckets.

Open the generated report for exact role, conversion and dependency evidence.

### Create the final Clip Browser

Click Create Final Curated Clip Browser. This browser uses the copied library, including converted Generic FBXs.

Open the generated scene and enter Play Mode.

Controls:

- Previous - play the previous selected clip.
- Next - play the next selected clip.
- Right mouse drag - orbit around the character.
- Mouse wheel - zoom in or out.
- Root Motion: On/Off - restart the current clip with the chosen movement mode.

The browser displays the clip name, measured result and main diagnostic evidence. It uses one character so pose differences are easy to compare.

### Visual approval of converted clips

Inspect every converted clip from the front, side and rear. Look for:

- Twisted torso or reversed shoulders.
- Bent or crossed limbs.
- Incorrect hand orientation.
- Feet far below or above the expected baseline.
- Unexpected rotation or translation.
- A pose that is technically animated but anatomically wrong.

Record converted-clip visual approval only after the complete set looks correct.

## 6. Understanding the output

### Curated profile

The profile records:

- Target character.
- Chosen template.
- Movement ownership.
- Source search folders.
- Requested roles.
- Approved clip assignments.

It can be reused in Advanced Tools.





## Build manifest

The manifest stores the machine-readable build state, including missing roles, conversion outcomes, review requirements, unresolved dependencies and whether the original folders are currently safe to remove.

## Curated report

`CuratedLibraryReport.md` is the human-readable evidence file. It includes:

- Output locations.
- Movement mode.
- Selected roles and importance.
- Original and curated asset paths.
- Confidence and verification status.
- Generic conversion results.
- Missing roles.
- Unresolved original-folder dependencies.
- Source-removal decision.

Include this report when requesting support. It is usually more useful than a screenshot of one warning.

## 7. When is it safe to remove source packs?

Zion never removes them automatically.

Only consider manual removal after:

1. All Required roles are present.
2. Every selected curated asset exists.
3. Required copied Avatar dependencies are remapped.
4. No original-folder dependency remains.
5. Converted clips have been visually approved.
6. The final Clip Browser looks correct.
7. The real gameplay controller has been tested.
8. Unity has been restarted and the test repeated.
9. A backup or source-control checkpoint exists.

If the completion screen says Keep Original Packs for Now, follow the report rather than deleting anything.

## 8. Advanced Tools

Guided Setup is recommended for normal use. Advanced Tools expose the same systems directly.



## Library Builder

Use Library Builder to customise individual roles, load profiles, inspect every match at once or repeat an established workflow without the beginner wizard.

## Compatibility Lab

Use Compatibility Lab when you want detailed sampled evidence for a chosen character and clips. It is useful for isolating grounding, motion ownership, pose-change and playback questions.

## Diagnostics

Use Diagnostics to scan selected assets or the project for:

- Rig and Avatar import problems.
- Missing or invalid Animator Avatars.
- Missing Animator Controllers.
- Disabled Animators or zero speed.
- Empty controller states and missing parameters.
- Loop and root-transform recommendations.
- Controller-driven versus root-motion conflicts.

Diagnostics remains valuable before matching and when integrating the curated clips into a real Animator Controller.

## Import Presets

Import Presets provide safe starting points for General Humanoid, Mixamo and Meshy/AccuRig workflows. Review the guided changes before applying them. A preset cannot prove that a custom skeleton is anatomically mapped correctly.



## 9. Common workflows

### ZionTPS character

1. Choose the ZionTPS player model or playable prefab.
2. Select ZionTPS - Full Character or Third-Person - Recommended.
3. Choose the desired interaction set.
4. Select Controller Moves Character.
5. Prefer likely in-place clips.
6. Keep Root Motion off in the Clip Browser and ZionTPS Animator unless using a custom integration.

### Plain Unity Animator with root motion

1. Choose a valid Humanoid target.
2. Select the required movement profile.
3. Choose Animations Move Character.
4. Prefer explicitly moving or root-motion-labelled variants.
5. Use the Clip Browser Root Motion toggle to compare behaviour.
6. Confirm the real Animator has Apply Root Motion enabled and no controller script also translates the character.

### Several incomplete animation packs

1. Add the animation folder from each pack.
2. Choose only the roles actually needed.
3. Review alternatives across all sources.
4. Leave unavailable Optional roles missing.
5. Build one combined curated library.
6. Test before manually removing any source pack.

### Meshy or AccuRig target character

The target preset does not make Generic animation sources automatically safe.

First configure the target character as a valid Humanoid and enforce a correct T-pose. Then prefer Humanoid source clips. Treat copied Generic conversion as a separate operation that always requires visual approval.



## 10. Troubleshooting

| Symptom                                          | Likely cause                                                                       | Action                                                                                                            |
|--------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| The complete body twists on many unrelated clips | Target Avatar mapping or calibration                                               | Return to Step 1, Configure Avatar, Enforce T-Pose and Retest Character                                           |
| One clip twists while others work                | Clip/source hierarchy or unsuitable retargeting                                    | Choose a ranked alternative or use another pack                                                                   |
| Character begins below the preview floor         | Model-child offset, Avatar root or Root Transform Position Y                       | Inspect the target prefab and FBX import settings; confirm visually before changing intentional dynamic clips     |
| Character floats                                 | Root transform or source baseline mismatch                                         | Compare another clip, inspect Root Transform Position Y and check the target model offset                         |
| Feet slide                                       | In-place/root-motion mismatch, controller speed mismatch or source motion          | Verify movement ownership and playback speed; Zion reports but does not edit foot curves                          |
| Character moves twice                            | Controller and root motion both own translation                                    | Turn Apply Root Motion off for controller-driven movement or disable the competing motor for a root-motion design |
| Character does not travel                        | In-place clip used with no controller, or root motion disabled                     | Enable the intended controller or use a moving clip with Apply Root Motion on                                     |
| Clip does not play                               | Invalid Avatar, Generic/Legacy clip, Animator issue or missing state               | Read the Blocked reason, test another clip and run Diagnostics on the real Animator                               |
| Idle suggestion is seated or crouched            | Source naming is ambiguous or scope is too broad                                   | Select a neutral alternative and add a more focused animation folder                                              |
| Expected animation is not in the dropdown        | Name evidence is weak, wrong source folder selected or role contradiction detected | Locate the actual FBX, add its folder and search again                                                            |
| Most clips show Review                           | Conservative pose/ground evidence or unverified Generic conversion                 | Use the final Clip Browser; expensive packs are not automatically broken                                          |
| Continue button is disabled                      | Required decision, test or acknowledgement missing                                 | Read the exact Before continuing message above the footer                                                         |
| Generic preview is unavailable before build      | The clip cannot be safely retargeted yet                                           | Continue to copied conversion, then use the final curated Clip Browser                                            |
| Original packs are not marked safe to remove     | Missing Required role, review state, conversion failure or dependency              | Open the curated report and resolve the listed reason                                                             |

## 11. What Zion deliberately does not do

Zion does not:

- Edit animation keyframes or curves.
- Convert in-place motion into root motion or the reverse.
- Automatically repair foot sliding.
- Replace a dedicated animation editor.
- Guarantee that an imported Avatar is visually correct without testing.



- Delete purchased source content.

These boundaries keep the workflow non-destructive and make diagnostic results easier to trust.

## 12. Final production checklist

Before using the library in a shipped game:

- Test every Required animation in the final Clip Browser.
- Test interactions against their real doors, buttons, pickups or terminals.
- Test controller speed against walk, run and sprint cycles.
- Test transitions and blend trees in the real Animator Controller.
- Confirm Apply Root Motion matches the chosen movement owner.
- Check the character from multiple angles.
- Test in a development build, not only in the Unity Editor.
- Keep the report and original source packs until the integration is stable.

The sellable outcome is not merely a folder of copied files. It is a traceable animation library whose choices, compatibility evidence and remaining risks are understandable to a first-time Unity user.