7.2.3 How 3D layout updates in real time as you enter measurements

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> 7.2.3 layout 3D

One of the most practical aspects of the 3D Layout view in Spectre Cloud is that it does not require a save or refresh to reflect changes — as layout values, span measurements, and PAP coordinates are entered or updated on the spec sheet, the rendering updates **in real time**. This live feedback loop turns the 3D view from a static confirmation tool into an active part of the fitting process, letting the fitter see the effect of each value change on the ball's core orientation as the spec sheet is being built.

□□ What "Real Time" Means in Practice

As each field on the spec sheet is filled in or modified, the 3D ball model updates to reflect the new values without any manual action required. The update happens field by field — you do not need to

complete the entire spec sheet before the rendering becomes useful.

- Change the **Pin to PAP distance** and the pin marker moves on the ball surface immediately.
- Adjust the **VAL Angle** and the pin rotates around the PAP to its new angular position.
- Update the **Drilling Angle** and the MB marker shifts to reflect the new core orientation.
- Enter or update **span values** and the finger and thumb hole positions replot on the ball surface.
- Update the **PAP coordinates** and the entire layout geometry re-anchors to the new reference point — pin, MB, VAL line, and holes all shift simultaneously.

⚠ **Verify with Spectre team:** Confirm that real-time rendering updates are triggered on field blur (when the user moves to the next field) rather than on every keystroke — or clarify the exact trigger if it differs. The page is written assuming blur-triggered updates; keystroke-triggered updates on numeric fields can cause the model to pass through intermediate nonsensical states while a value is being typed.

How Each Input Type Affects the Rendering

Different fields on the spec sheet drive different elements of the 3D rendering. Understanding which input moves which element helps you work efficiently — entering layout values in a deliberate order and watching the rendering build up progressively rather than jumping between fields and losing track of what changed.

Spec sheet field	Element updated in the rendering	What to watch for
Pin to PAP distance	Pin marker distance from PAP	Pin moves closer to or further from the PAP crosshair — confirm it lands in the intended zone
VAL Angle	Pin marker angle around the PAP	Pin rotates around the PAP — confirm it ends up on the correct side of the VAL line at the intended angle
Drilling Angle	MB marker position	MB shifts around the ball surface — most visible on asymmetric balls; confirm it lands in the intended position relative to the VAL
PAP coordinates	PAP crosshair position, VAL line orientation, all layout geometry	Entire rendering reanchors — if anything looks significantly different after a PAP update, verify the coordinates are correct

Spec sheet field	Element updated in the rendering	What to watch for
Span (middle and ring finger)	Finger hole positions	Holes move outward or inward from the thumb — confirm they do not encroach on the pin or MB marker
Thumb span	Thumb hole position	Thumb hole shifts up or down relative to the finger holes — confirm the grip geometry looks proportionate
Pitch values	Hole angles (subtle — visible on close inspection)	Hole axis orientation shifts slightly — most visible when zoomed in directly on a hole

□□ A Recommended Entry Order for Real-Time Verification

Because the rendering builds up element by element as fields are completed, entering values in a deliberate order makes the verification process more legible. The following sequence lets you confirm each element before adding the next layer of complexity:

1. **Enter PAP coordinates first.** The PAP anchors everything else — with it in place, every subsequent element plots relative to a fixed reference point. An incorrect PAP discovered after layout values are entered requires re-checking the entire rendering.
2. **Enter Pin to PAP distance.** The pin appears on the ball surface. Confirm it is in the right general zone before adding the angular component.
3. **Enter VAL Angle.** The pin rotates to its final angular position relative to the VAL line. This is the step where the layout's breakpoint character becomes visible — arcing vs. angular, early vs. late.
4. **Enter Drilling Angle.** The MB marker appears at its calculated position. For asymmetric balls, confirm the MB is on the intended side of the VAL. For symmetric balls, note the position for reference.
5. **Enter span and pitch values.** The grip holes plot on the ball surface. Confirm no hole overlaps with the pin or MB, and that the grip geometry looks correct relative to the layout.

□□ **Note:** This order is a recommendation for new users or for complex fits where visual verification at each step adds confidence. Experienced fitters who know their layout values well may enter fields in any order and read the final rendering as a complete check rather than a step-by-step build.

Using Real-Time Updates to Explore Layout Options

The real-time nature of the rendering makes it possible to use the 3D view interactively — adjusting a layout value and immediately seeing its effect — rather than only as a confirmation of a pre-determined plan. This is particularly useful in two situations:

Comparing layout options with the bowler present

When a bowler is at the counter and the layout decision has not been finalised, the live rendering lets you show them the effect of different options without committing to any of them. Increase the Pin to PAP distance and show them where the pin lands — then decrease it and show them the alternative. Change the VAL Angle and let them see the pin rotate to a new position. The visual is immediate and requires no technical translation.

- Frame the demonstration in motion terms, not layout terms: "this position produces a smoother, more arcing motion — this position is sharper at the breakpoint."
- Once the bowler has chosen a direction, enter the finalised values and save the spec sheet.
- The exploratory values entered during the conversation are overwritten when you enter the final values — no cleanup needed.

Refining a Suggested Layout

When Arsenal Plus has generated a layout suggestion and you want to adjust one variable — keeping the VAL Angle and Drilling Angle but trying a slightly longer Pin to PAP, for example — apply the suggestion to the spec sheet, then modify the single value you want to adjust. The rendering updates immediately to show the effect of the refinement, letting you evaluate the adjusted layout visually before committing to it.

⚠ When the Rendering Does Not Update

If the 3D model does not update after a field value is changed, the most common causes are:

- **The field has not been committed** — the cursor may still be inside the field. Click or tap outside the field to trigger the update.
- **The entered value is outside the valid range** — Spectre Cloud may hold the rendering at the last valid state if an out-of-range value is entered. Check the field for a validation error indicator.
- **The ball is not identified in the bowlingdatabase.com integration** — without core specification data, the full rendering cannot generate. The panel will show a prompt to identify the ball if this is the case.
- **A connectivity issue** — the rendering requires an active internet connection to fetch core geometry data. If the connection drops, the rendering pauses at its last loaded state. Reconnect and reload the spec sheet.

Real-Time Updates vs. Saved State

The real-time rendering reflects the **current state of the fields on screen** — including any unsaved changes. It is important to understand the difference between what is shown in the rendering and what is permanently stored:

- The rendering updates live as fields are changed, whether or not those changes have been saved.
- If you navigate away from the spec sheet without saving, unsaved field changes are lost — the rendering reverts to the last saved state on next load.
- Save the spec sheet once the layout values are finalised. The rendering at the point of save becomes the permanent visual state for that spec sheet, visible in the Arsenal detail view.
- Do not use the rendering as a substitute for saving — the visual update is immediate, but the data update requires an explicit save action.

Related Sections

- 7.2.1 — What is the 3D Layout view
- 7.2.2 — Navigating and reading the 3D ball view
- 7.2.4 — Arsenal Plus: layout conversion between systems
- 7.1.6 — Manually entering Drilling Angle, Pin to PAP, and VAL Angle
- 7.1.5 — Suggested Layouts feature — using bowler data to suggest a layout

Tip: The real-time rendering is most powerful when the device running Spectre Cloud is visible to both the fitter and the bowler simultaneously — a tablet propped on the counter between them, or a desktop monitor angled toward the customer side. When the bowler can see the ball rotating in response to your adjustments, the layout conversation becomes collaborative rather than one-sided — and the bowler leaves with a clear mental picture of what their ball is going to do before it

has even been drilled.

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