Zone Trigger Tap-To-Draw Custom Shapes

APPLICATION NOTE

Brian Hensley

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Summary

Teledyne LeCroy innovation inspired the new Zone Trigger "tap-to-draw" functionality, the fastest way to create useful, custom shapes that qualify trigger conditions and create unique ways to trigger on any oscilloscope signal.

Introduction

Zone Trigger solves complex trigger challenges through easy-to-use, graphical "Areas" that enhance the primary trigger, showing where signals must be or not be to trigger an acquisition.

Hard to capture a pulse? Lots of signal quality issues? Rare runt, PAM or PRBS signal you just can't trigger on? Maybe you don't feel comfortable using advanced triggers?

Zone Trigger bridges this gap, allowing you to create simple, on-screen shapes to define your trigger needs. Click-and-drag or tap-to-draw shapes on the screen over one or more source channels, then define whether your electrical signals must cross **In** or **Out** of these Zone Trigger Areas. When all Area (and primary trigger) conditions are met, the acquisition is triggered. It's that simple!

Create and Modify Simple Shapes

Draw Zone Trigger Areas

You can begin by turning on the Zone Trigger Editor and drawing rectangular shapes on the graticule that define where signals must or must not cross. A stripped pattern represents keep **Out** Areas, indicating the electrical signal must **not** cross through it for the oscilloscope to trigger and acquire, while keep **In** Areas, where the signal should cross, are displayed with a solid color.

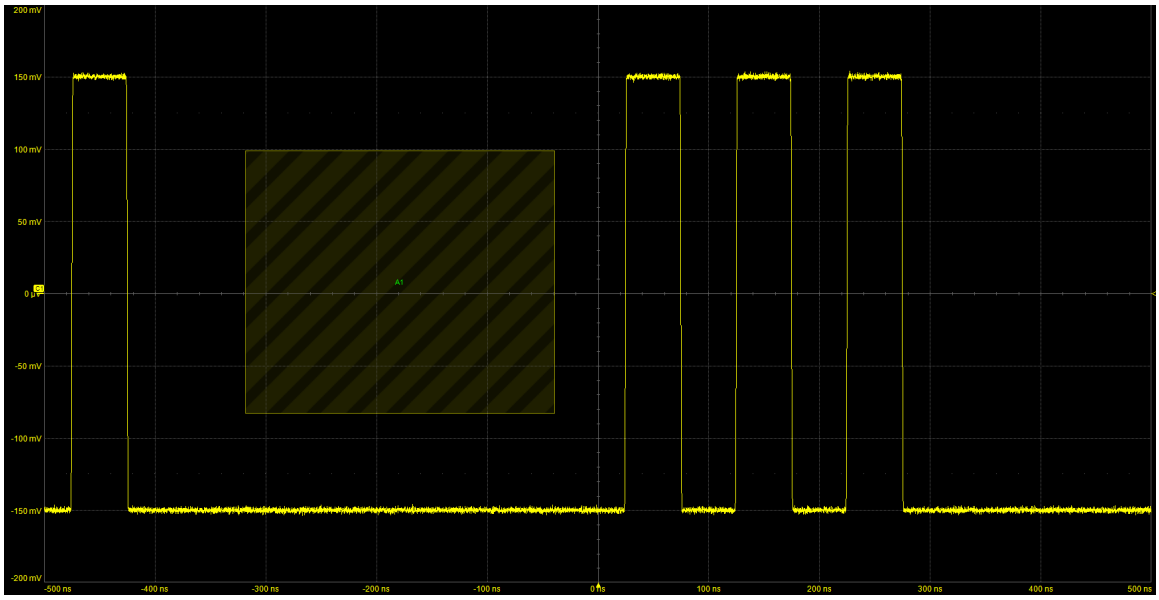


Figure 1 – A simple keep Out conditional Area is drawn between a set of pulses.

Don't Care is an easy way to store Areas in the *Zone Trigger Editor* that are not included in the logic equations condition used for capture but are waiting to be activated when needed. Think of it as a "hide for later, but don't delete" type of functionality.

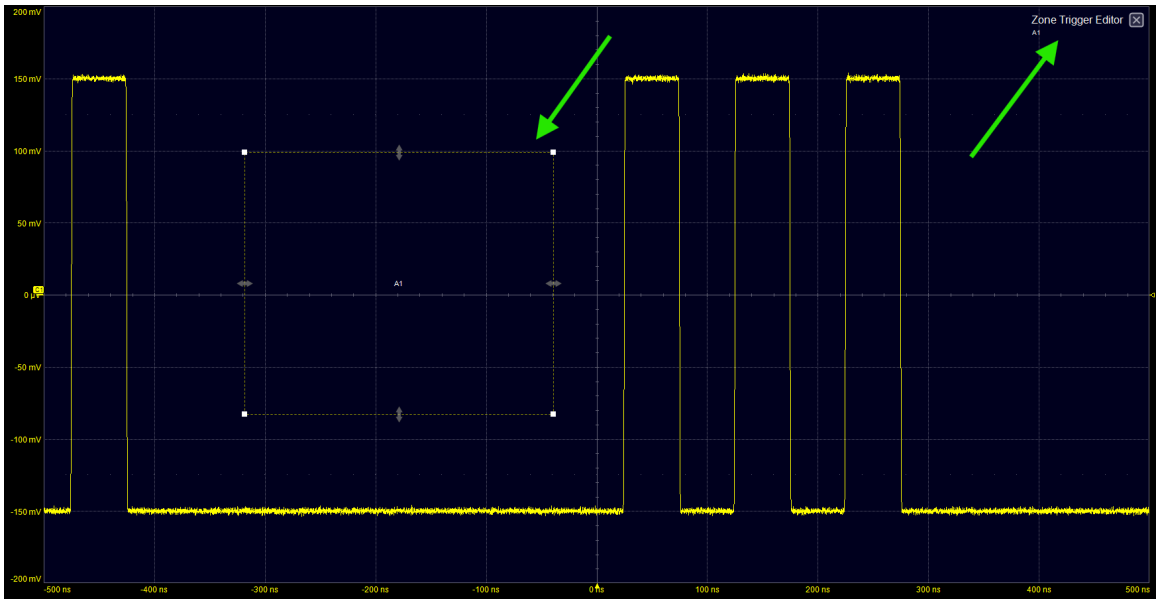


Figure 2 – Shows a Don't Care Area and that the Zone Editor Mode is in use.

Modify Zone Trigger Areas

You can further customize the shape of an Area by clicking between any points, on the drag handle icon, to add points. This can be done either by right-clicking with a mouse or tap-and-holding on the display. This brings up a context menu with the selections **Add Point** or **Remove Point**. Clicking Add Point will add a new vertex to the shape. You may then drag the newly created point anywhere on the display. Doing so modifies the voltage and timing location of that point and the shape of the Area. By repeating this process, you can create any shape desired.

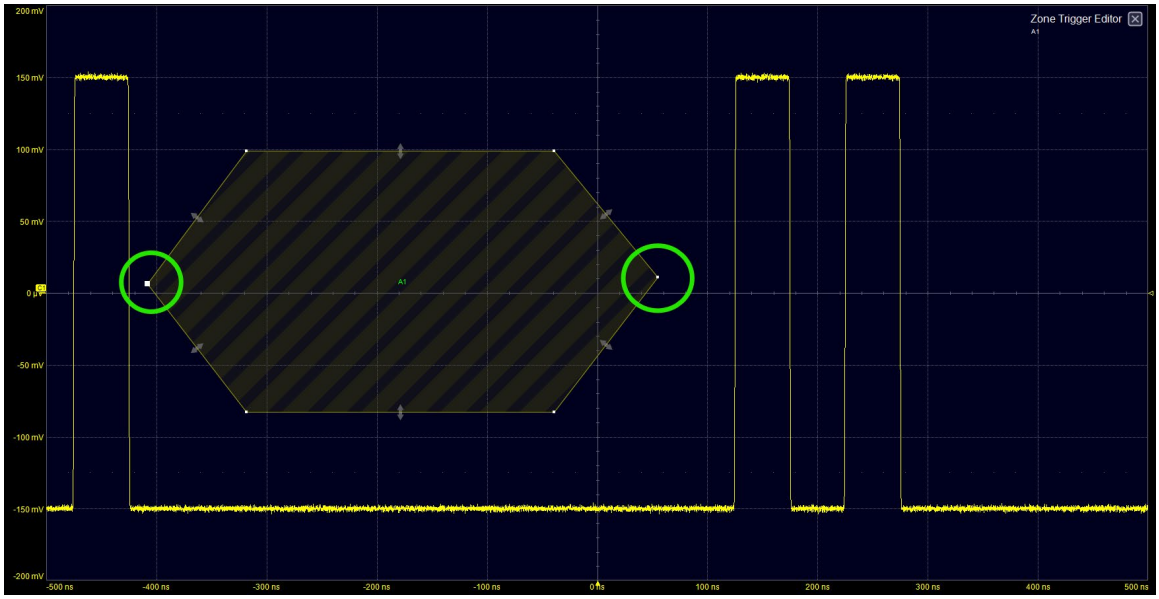


Figure 3 – After adding additional points, you can drag them to new locations.

Tap-to-Draw Custom Areas

An Easy Method to Create More Complex Zone Triggers

If you want to draw advanced shapes but don't want to waste time clicking Add, Add, Add to create multiple points, there is an alternative solution. An *industry first* by Teledyne LeCroy offers the ability to add multiple vertices to an Area simply by consecutively tapping the display. This enables you to define the necessary pattern or shape needed for larger, unique trigger situations in less time. Touch the **Zone** descriptor (1) to open Zone Trigger, then choose to draw a **Custom** (2) Area.

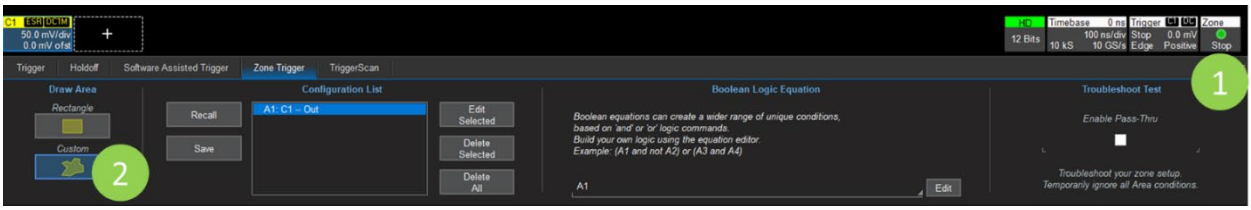


Figure 4 – (1) Open Zone Trigger then (2) click Custom to tap-and-draw custom shapes.

While using the **Custom** drawing selection, simply tap repeatedly and an Area is created in any shape you can imagine. To finish, tap the starting point to complete the shape. This extremely powerful capability is the ultimate in quick definition of unique triggering Areas.

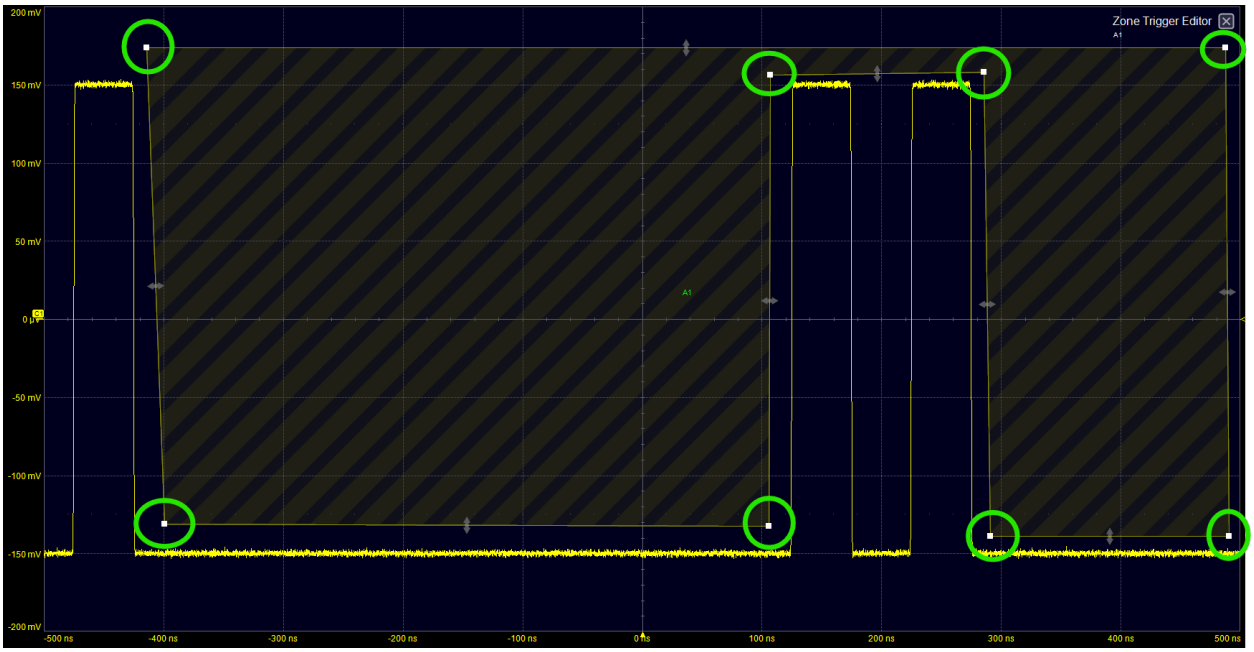


Figure 5 – Tap to draw multiple points on the screen to define any custom shape.

Conclusion

Sometimes, Zone Trigger is as simple as drawing a box and saying, "*I don't want a signal here*", but other times you need more thoughtful triggering capability. That signal is more complex, and you don't know which trigger to use or don't have the time to learn. Well, Teledyne LeCroy didn't want you to worry. This is why we built tap-to-draw custom shapes—to make it easier to capture complex signals while saving your valuable time.

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