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# Free Training Transcript: Set Actions

# Introduction

Welcome to this video on set actions. You can download the exercise workbooks to follow along in your own copy of Tableau Desktop.

## What are Set Actions?

At the most fundamental level, set actions take an existing set and update its values based on a user's actions in the viz. The benefit of set actions comes into play based on how that set is used in the view.

## Comparison with Parameters

Set actions, like parameters, allow the consumer of a visualization or dashboard to control aspects of the analysis. Like changing the value in a parameter control, visually selecting marks in the view updates the values in the set. In both instances, the parameter or set needs to be tied to the visualization somehow, such as by using them in a calculated field in the viz or placing directly on the color shelf.

However, parameters have certain limitations that set actions avoid, such as the fact that sets can be created conditionally or explicitly, they can contain multiple marks, and — perhaps most powerfully — set actions allow sets to be updated visually by selecting in a viz rather than by using a parameter control outside the flow of the visual.

## Create a Set Action

Using set actions is easy and intuitive. And creating a set action is easy as well. But it can be a little tricky to make sure you use it appropriately in the view to get the interactivity you're expecting. Let's go through the anatomy of building a basic set action. We'll create a set action that will update the color palette based on the marks selected in the view.

First, we need to create the set. Right click on the field this is based on, in this case **Country**, and select **Create Set**. We'll name this **Selected Countries**. Note that whatever value we choose for the initial set doesn't really matter, as the set action will change this; it's merely a placeholder. (For more information on creating sets, check out the videos "Creating Sets" and "Working with Sets".)

Next, we need to go to the **Worksheet** menu and select **Actions**. This will bring up the action menu for the sheet. Note that all actions for this data source will be shown here, so if you're creating a lot, be careful with naming to avoid confusion. Click **Add Action**, and choose **Change Set Values**.

Third, we need to configure the set action. We'll give it a name **Set Color**, pick which dataset or sheets it applies to (here: **Try it yourself**). For **Run action on**, I prefer **Select**, which is clicking in the viz. For **Target Set**, we again pick the relevant data source and the specific set.

Finally, for **Clearing the selection will**, we need to choose between three options. This can have a significant impact on how the set behaves. Here, we want to default to all the countries when a specific mark or marks aren't chosen, so we'll pick **Add all values to set** and click **OK**.

## Tie the Set into the Viz

Now we have our set and set action set up, but as yet it's useless. Yes, we can update the members of the set by clicking or selecting in the view, but that doesn't impact anything other than the set itself. We need to tie the set into the viz. This can be done any number of ways. We can use the set directly, such as bringing it to the color shelf, or we can use it indirectly by way of a calculation or analytical object.

Color palettes are often distorted by extreme values. When one country has a higher value than other countries, the nuance of differences between those non-extreme values can be lost. We'll use our **Selected Countries** set in set action to remedy that. By creating a calculation that looks at **Shipping Cost** only for the selected countries, and using that calculation on color, we'll avoid the distortion of the higher-cost countries.

First, right click in the data pane and select **Create Calculated Field**. We'll name it **Country Shipping Cost**. For the Formula, we'll enter "**IF [Selected Countries] THEN [Shipping Cost] END**". This will only return the shipping cost for countries that are in the set.

# Test the Set Action

Next, we'll bring this calculated field to the color shelf. To start, the color palette will seem exactly as it was before. But if we select the lasso tool and select countries in South America, we'll see the color palette updates to reflect just the variation within those countries. Clicking off to deselect those marks returns us to the default. This viz is fairly straightforward but set actions can be used in extremely powerful ways that can get a bit complicated.

## Additional Set Action Examples

The best way to understand how to bring a set action into a viz is through examples. Here, this dashboard is built with many relative date calculations. Based on the target date, the dashboard displays the difference from the previous day, year-to-date sales, etc. As we click in the timeline, the target date is reset.

Here, a set is built on the Date field with a set action that updates the selected date to be the only value in the set. A calculation is created that captures the date value from the set and that calculated field is what is referenced by all the other calculations, which update the rest of the values on the dashboard.

You can download this and several other workbooks underneath the video for more hands-on exploration of set actions. Each workbook contains more information by way of sheet captions and comments in the calculations.

## Closing

Thank you for watching this set actions training video. We invite you to continue with the Free Training Videos to learn more about using Tableau.