

1. Setting Up Job Validation with EZBuilder

This document is a guide to use the In-Sight Vision Suite (ISVS) Job Validation feature with EZBuilder on your camera, included in the 25.2.0 release firmware. This feature aids in obtaining 21 CFR Part 11 compliance and validates a system's performance throughout its service.

With Job Validation, the camera can be set up to run test conditions against a set of validation images that have known conditions. As the test is run, the actual results are compared to the expected results and any discrepancies are revealed and summarized. If all actual results are in compliance with the expected results, the job validates with a passing outcome.

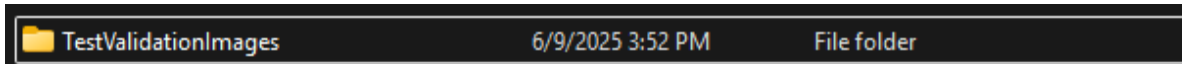
1.1 Image Upload

A good starting point is to upload your image set that will be used to validate against during the job validation process. These images should be labeled appropriately so that you know what a passing and failing image look like.

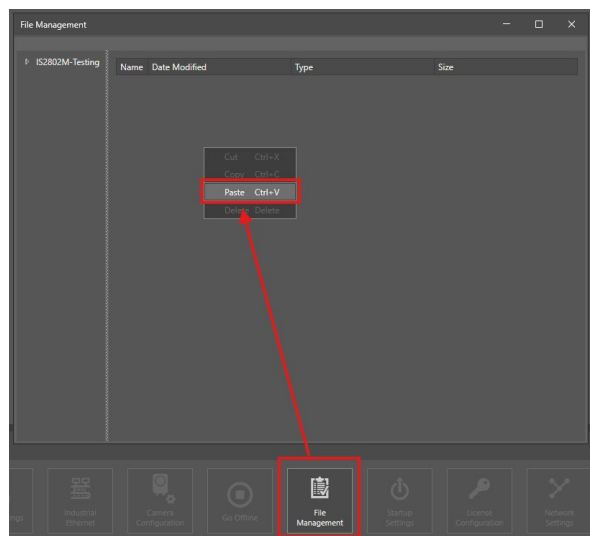


Note: It is also good to have a list of all the reasons it would pass or fail when setting up your validation tests.

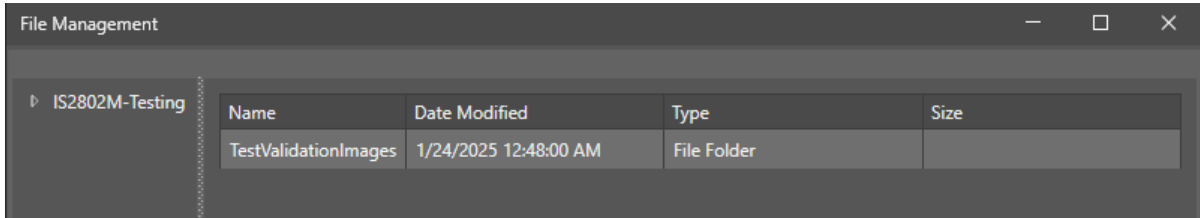
Once you have your images named appropriately, place them in a folder labeled something meaningful.



Now, transfer this folder onto your camera using the file management utility in ISVS. To do this, copy the folder of images you created, open the file management utility, right-click, and paste into the main directory.

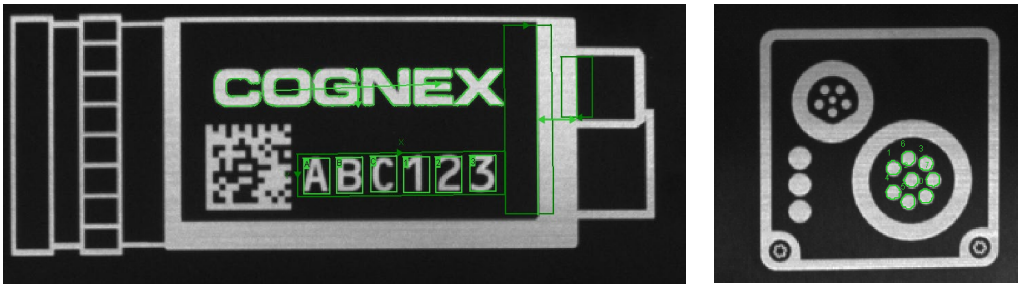


Once complete, you should now see your image folder inside.



1.2 Set Up Job Inspection

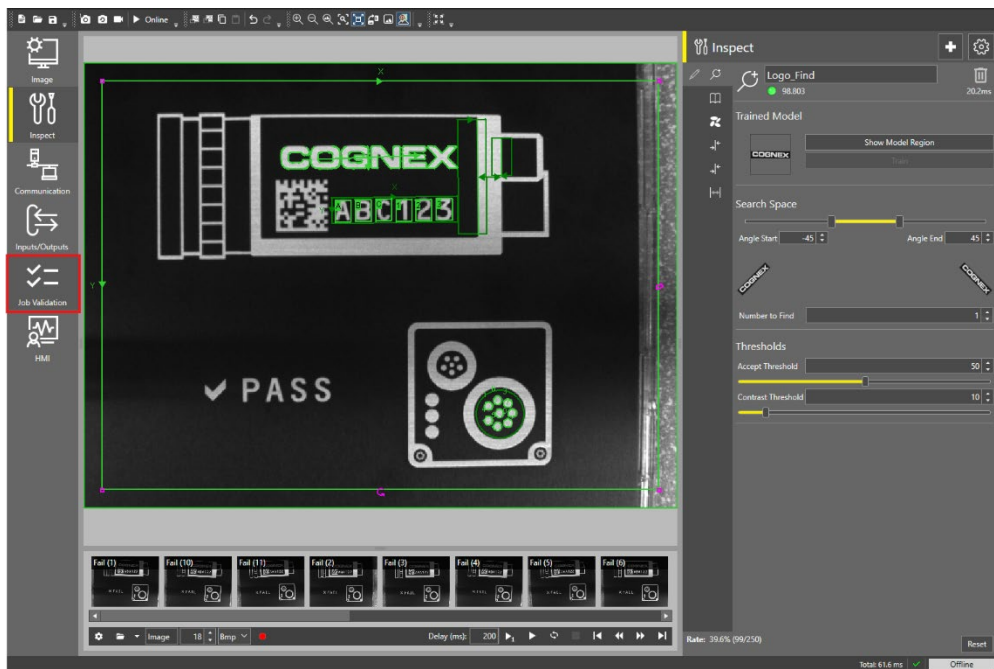
In this example, we will use the demo plate inspection and check the Cognex logo, written text, 8-pin connector, and the width of the back.



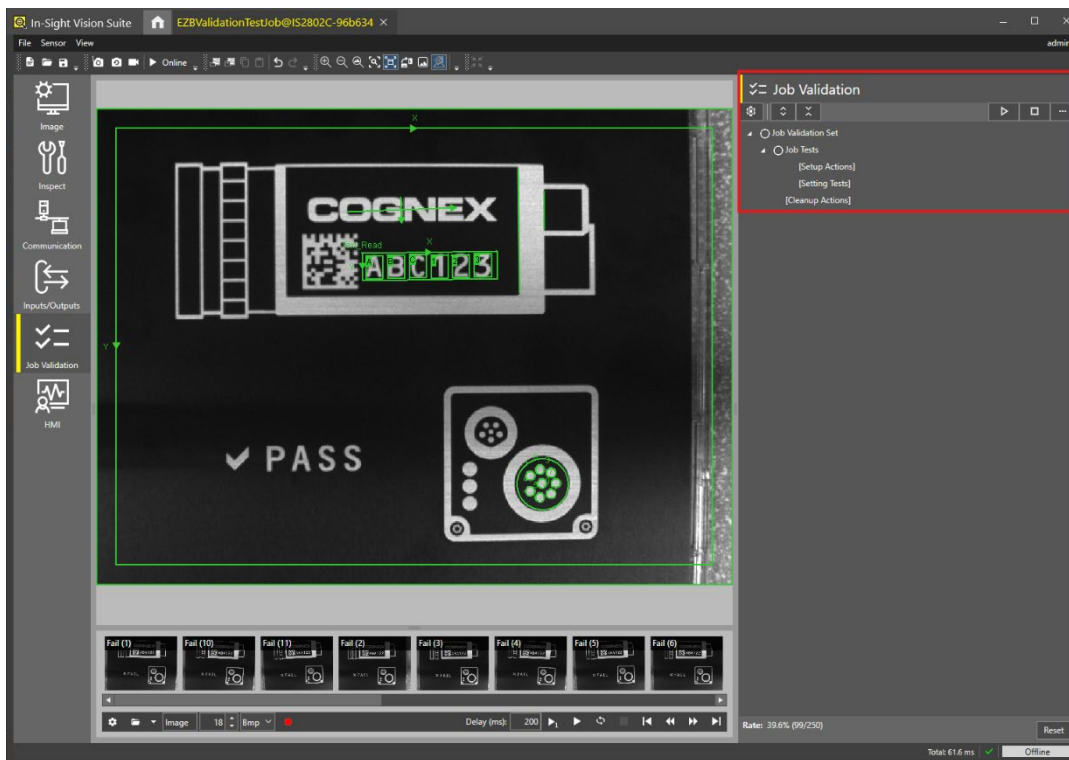
When setting up the tools for this inspection, it is useful to give them meaningful names that will make setting up the job validation easier to set.

1.3 Set Up Job Validation

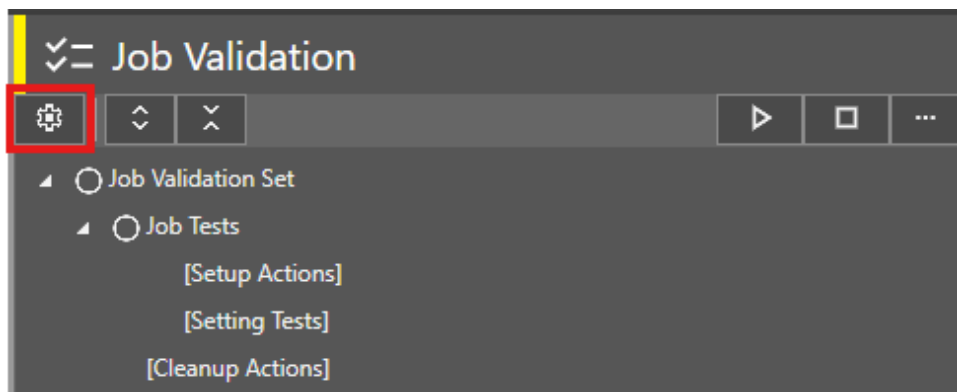
After the inspection tools have been set up, proceed to the new category option listed, **Validation** in the left-hand navigation menu.



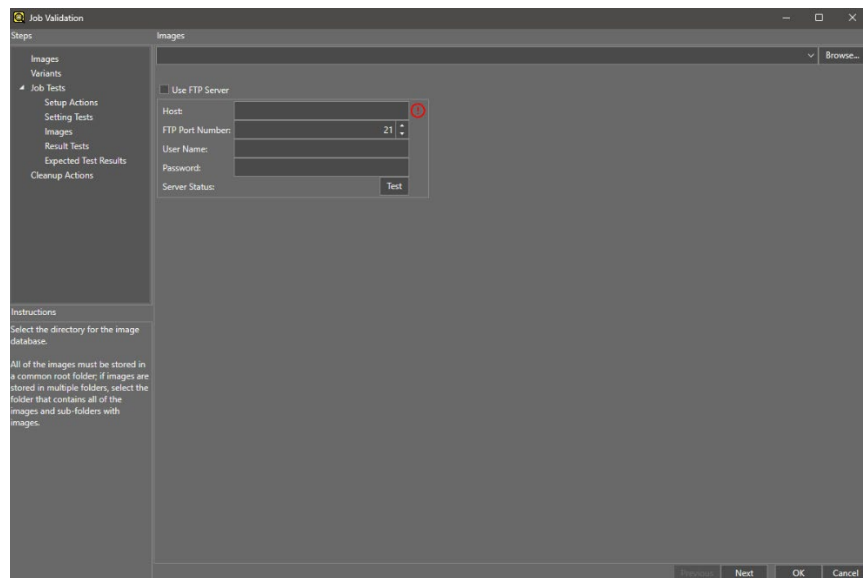
On the right-hand side, you will see a view panel for the job validation.



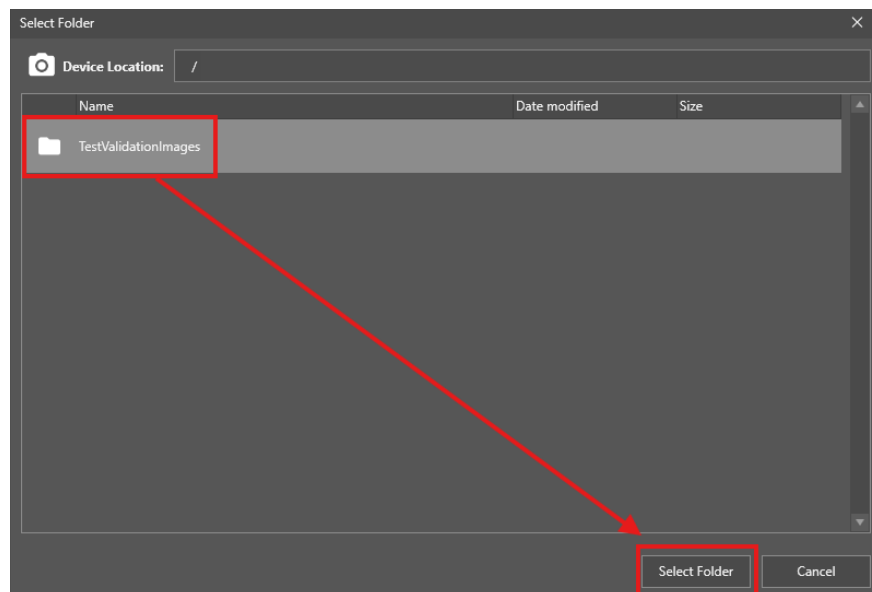
To start creating a validation test, click the Gear icon on the validation view pane.



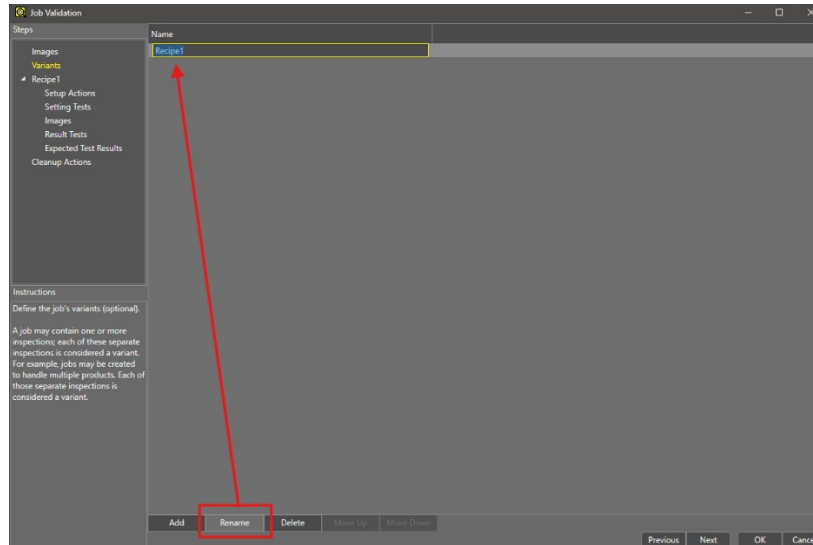
This will open the Job Validation setup window.



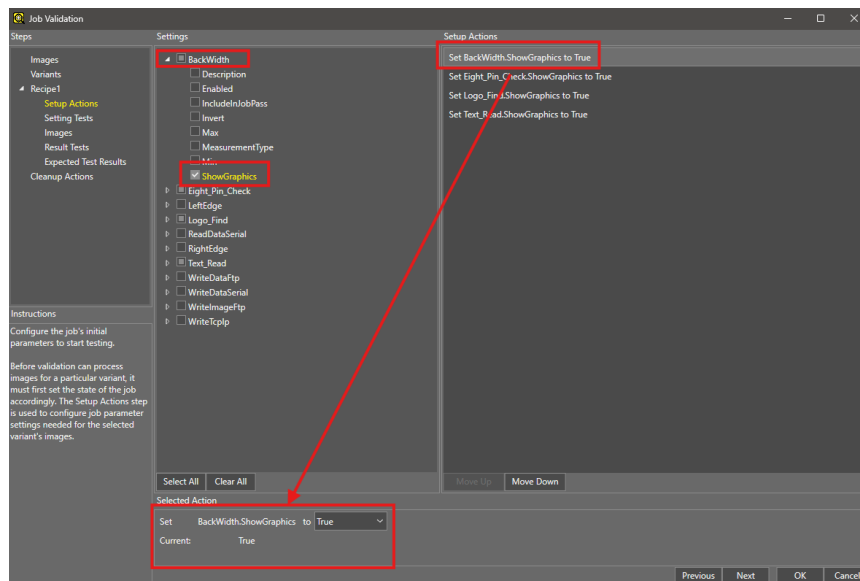
First, choose a directory from where to reference the images. Click Browse and choose the directory of the images that was setup earlier.



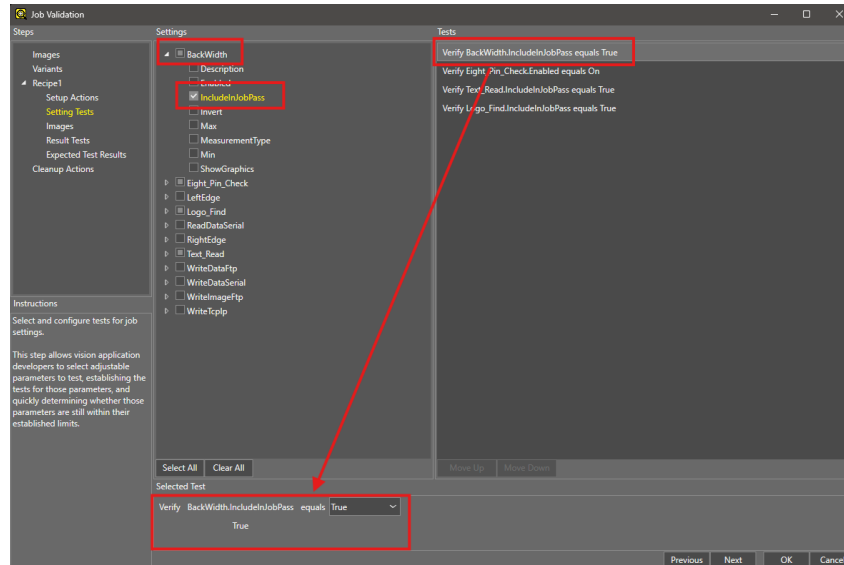
Once set up, Click **Next** to proceed to the Variants section. Variants can be thought of as recipes in a job. For example, if the same job needs to inspect multiple type of parts, certain settings might be different. With variants, you can setup unique tests to account for these. For this example, we will call the variant, “Recipe1,” instead of the default “Job Test” by using **Rename**.



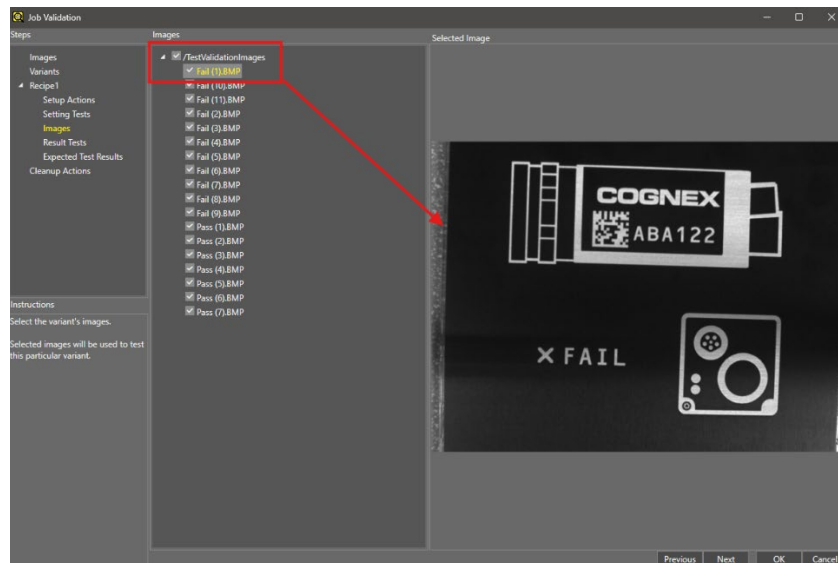
Next, we will set up the “Recipe1” test. The first step is to create “setup actions” if needed. Setup actions allow you to write specific tool properties before the testing takes place. Each of the tools you created in the inspection will automatically appear in this list with dropdown menus for items that you can choose to write to. In this case, we will set up the property “ShowGraphics” to be True for the four base tools by checking the box in the dropdown menu, highlighting the properties on the right, and then setting to the value of True towards the bottom.



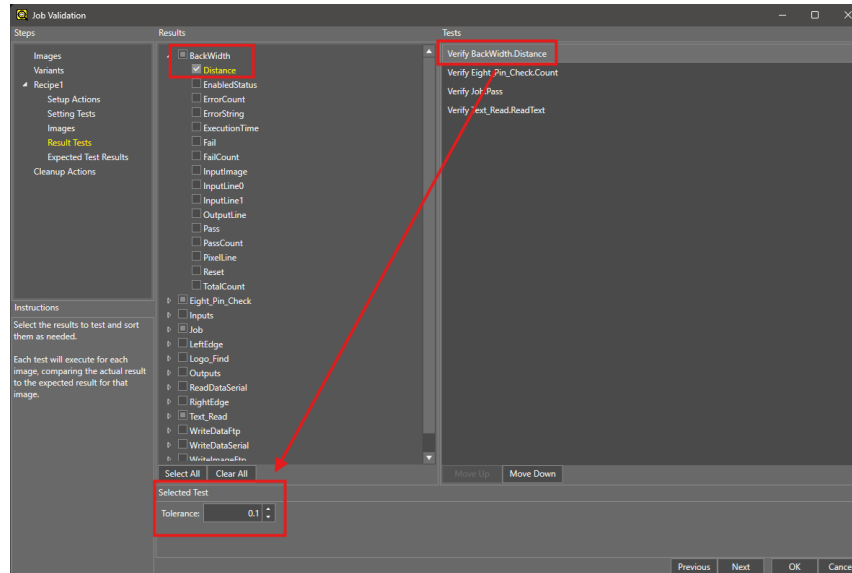
The next stage is the **Settings Tests**. This allows you to check that other settings are correctly set (you are not writing to them). For instance, we want to ensure that all the individual tools are used for the final pass fail and that none of them were removed. Like how we setup the **Setup Actions**, we can configure our setting tests the same way. However, instead of writing a specific value to them, we will verify the current value it is.



Following this, we will select which images are part of this test from the image directory we set up earlier. You can select either the entire directory or individually select the images that are applicable to this test variant.

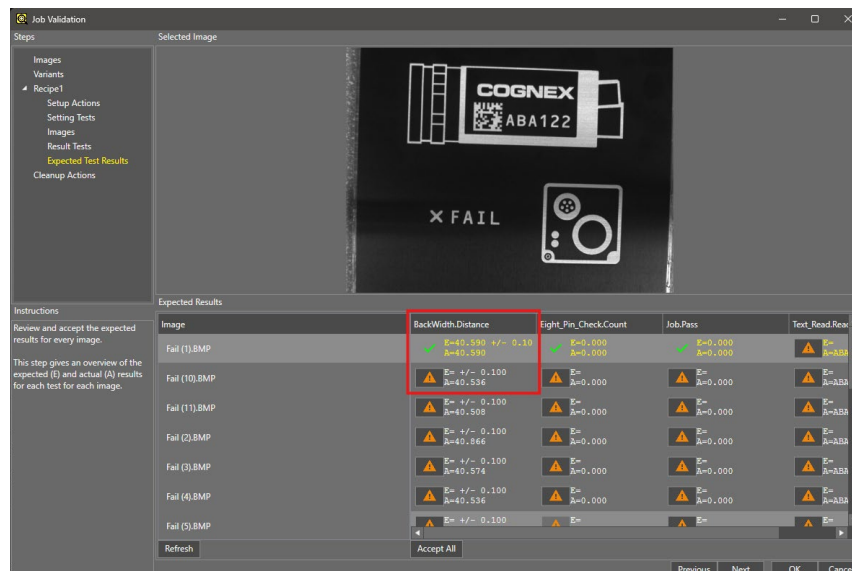


Next, we will select the **Results Tests**. With the results tests, we are now choosing which results we want to analyze and compare the value against an expected value. For particular value types, such as the width measurement distance value, you can set a tolerance factor for how much the expected and actual value are able to deviate, if necessary.

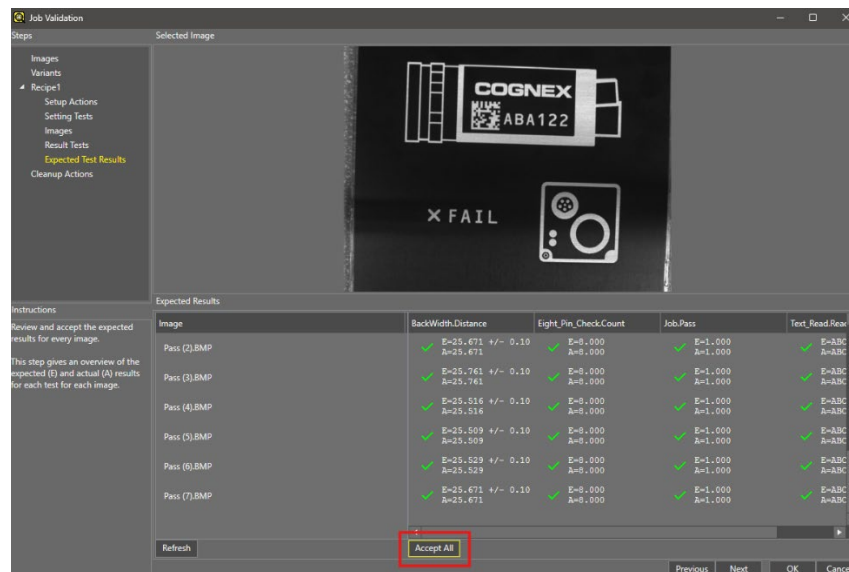


Once these are set up, we can view the images and compare our actual results. The table below will be constructed with each image being its own row and the columns representing the results we set up in the previous step. Initially, all the results will have a warning icon, indicating the result has not been accepted as the expected result.

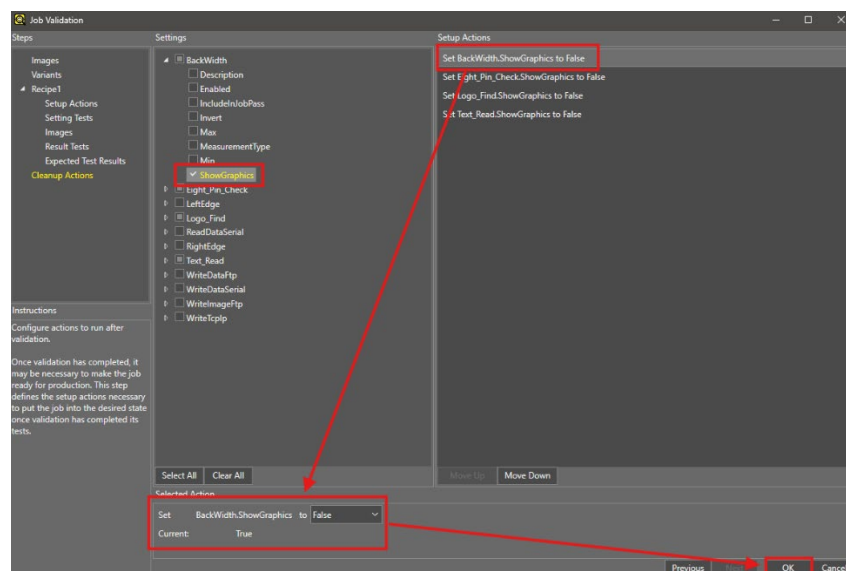
Actual results will be represented by “A = ” with the actual result value after. If the actual result value is correct, you can click on the result warning icon to mark the result as the expected result with a green checkmark.



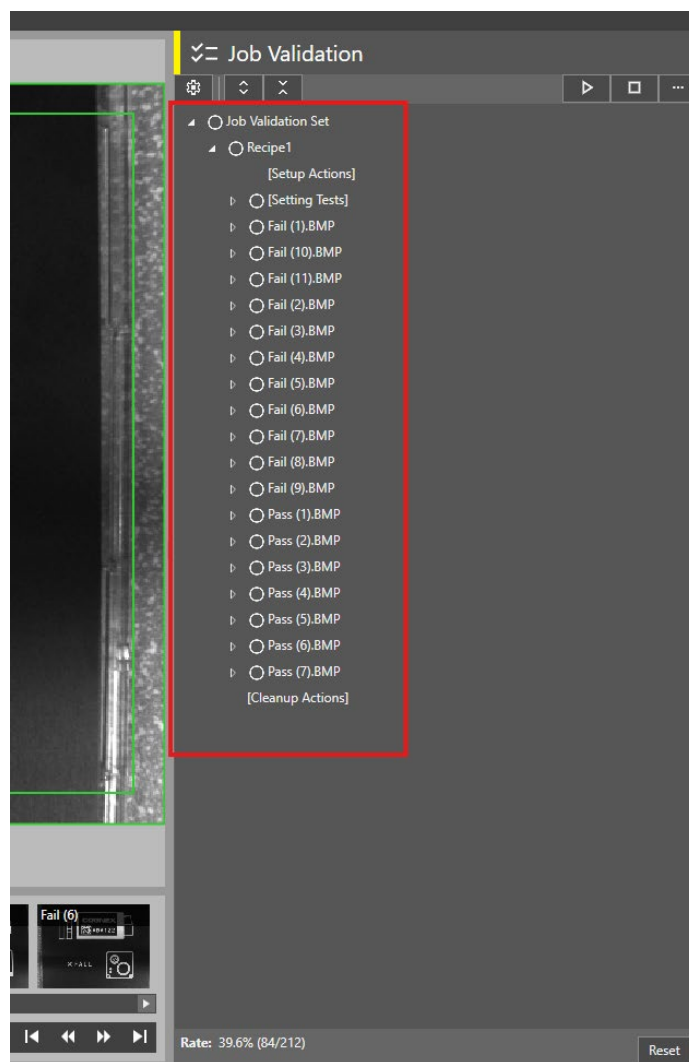
You can do these one by one, or you can accept all the results at once by clicking **Accept All**.



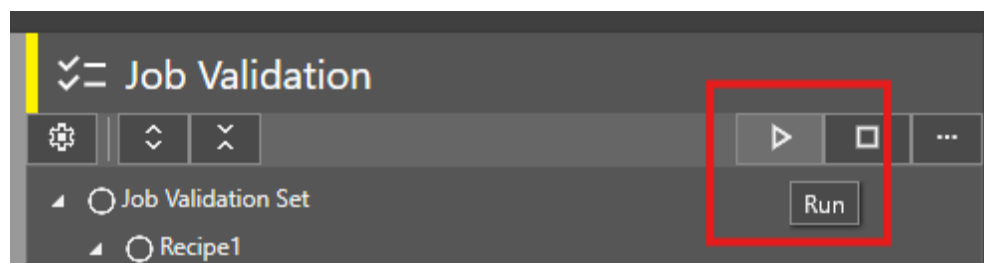
Lastly, we can use the **Cleanup Actions**. This allows us to reset the values of anything we had previously written to in the **Setup Actions** area. For this case, we will reset all the “ShowGraphics” properties to false again. Once complete, click **OK** to close the window.



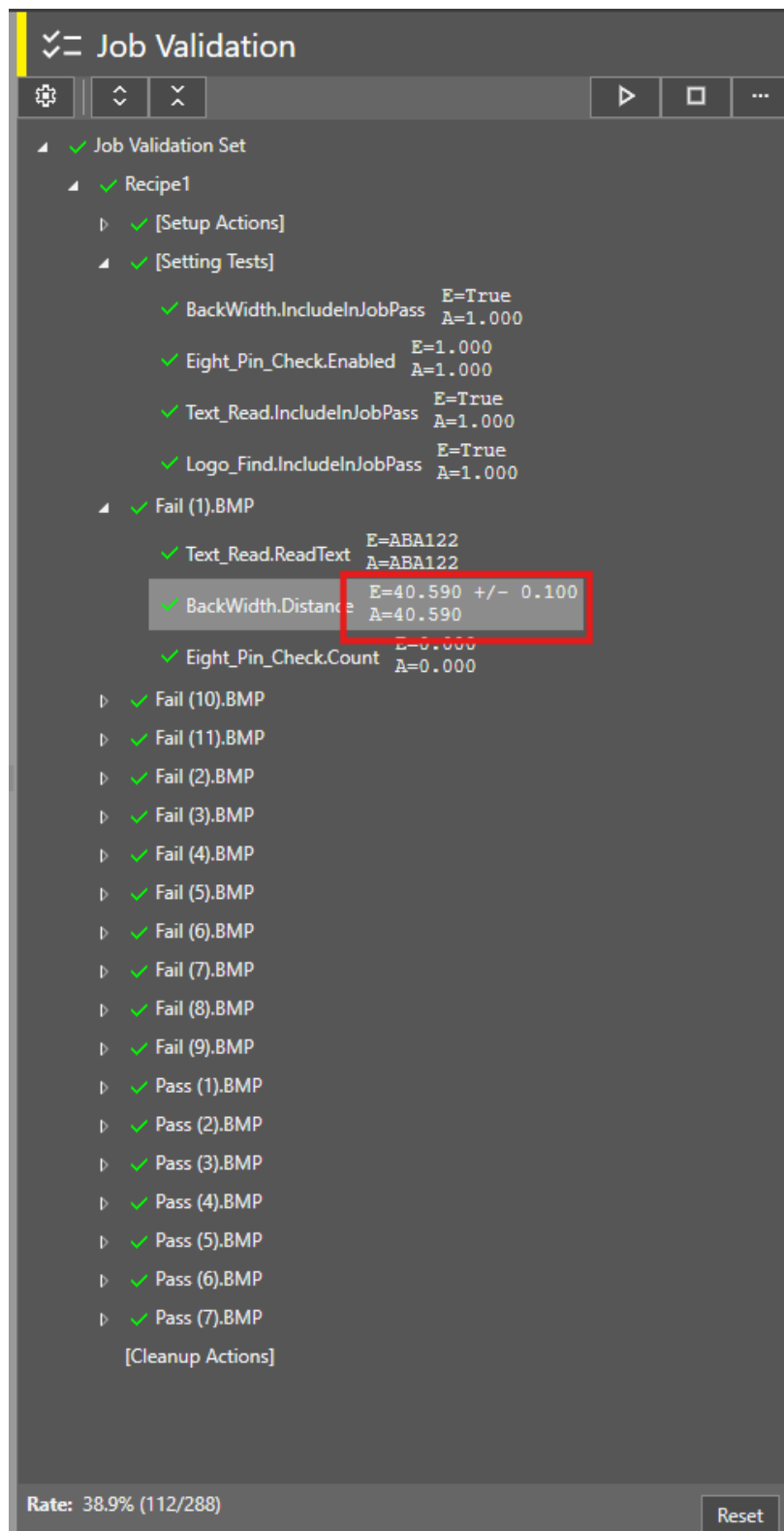
After closing the window, the right-side panel will now display the test. Initially, all tests will show a circle next to them indicating that the test has not yet been run.



To run the validation, click **Run**.



Now, the validation process will begin, and the passing results will be displayed with a green checkmark. You can expand any of these results to see the expected and actual result values, if desired.



If needed, you can expand and collapse all the results using the buttons next to the gear/settings icon.



From here, you can export this validation set to be saved onto the camera or PC to use for another job, if needed. You can do this by clicking the ellipses and selecting **Export Job Validation Set**.

