Auto-Count Quality Module User Guide

Version 2026.1

Auto-Count | Auto-Count Quality Module User Guide

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Introduction

Welcome to Auto-Count 4D Quality module. During production, operators are often required to perform quality checks and tests before proceeding with a run or during a run. Auto-Count can display these tests and questions on the screen for the operator to complete. You must install and use the Quality module to create WIP quality tests and questions for your operators.

> **Note** This is license-specific module of Auto-Count and requires a password to successfully install and use. Please contact Support to obtain this password.

Contact Information

Support	
Web Site:	https://customer.efi.com/support
US Phone:	1.855.EFI.4HLP
UK Phone:	+44 (0) 800.783.2737
EU Phone:	+49.2102.745.4500
E-Mail:	dmi.support@efi.com

Regular Service Desk hours are 8:00 AM to 5:00 PM Eastern Time, Monday – Friday. Outside of these hours, you may leave a voice mail message and an on-call support representative will be paged. Response time is based on the severity of the issue.

> **Note** For problems involving infrastructure (i.e., computers, networks, operating systems, backup software, printers, third-party software, etc.), contact the appropriate vendor. We cannot support these types of issues.

Getting Started

About This Guide

Use this guide to learn how to use the Quality module for the Auto-Count 4D product.

Resources

To learn how to install the Quality module, please see *Auto-Count Quality Module Installation Guide.*

To learn more about how to install Plant Manager and Auto-Count, including Plant Manager Browser, please see the *Plant Manager and Auto-Count Installation Guide*.

To learn how to use the report writing tool, Label Designer, please see *Auto-Count Label Designer Install & User Guide*.

What are Quality Questions and Tests?

The Quality module is used to create Quality Questions and Quality Tests. But what's the difference? Both are created in the same way, triggered mostly by the same types of events like end of output or time elapsed. The key is to understand that questions are used to gather information pertaining to the machine or materials during the entire run. Questions are linked to production – the process that produces the output. For example, asking the operator to check the oven temperature of an extruder machine to ensure it is ready for production. Or check the quality of the material on the infeed. Questions are used to prompt the operator to check the process or state of the machine prior to or during production.

Tests are designed to gather information **specifically on the output** product like a roll or pallet. Once it has completed production, is it up to specification? To determine this, an operator must perform a quality check on the product to ensure proper specifications have been achieved. This can be machine-based or specific to a job like checking if the customer's corporate color is correct. Other examples include, measure the thickness of material, check for warping, measure the compressibility, etc. Sometimes the operator must take a sample and send it to the lab. While tests can be used to check machine attributes like questions, they are mostly used to test output product attributes.

The information gathered through the quality questions and tests is then sent to the MIS system which can act on the information as needed.

Tests Sent Directly from Radius

The Radius MIS can also send quality questions created in Radius directly to Auto-Count. This was an older method for the Quality Question functionality. To determine if a test or question came directly from your Radius system, open the Plant Manager SQL database, and open the QualtyQuestion table. If there is a value in the AutoCount ID column, then that question was not created using the Quality Question module.

> Tip When troubleshooting, if a question keeps displaying but you cannot find it in your list of questions in the Quality module, then check the QualityQuestion table in the Plant Manager database to confirm if the test came directly from Radius. If it has an AutoCount ID, then it came directly from Radius. You can make it inactive if needed.

Creating Tests and Questions

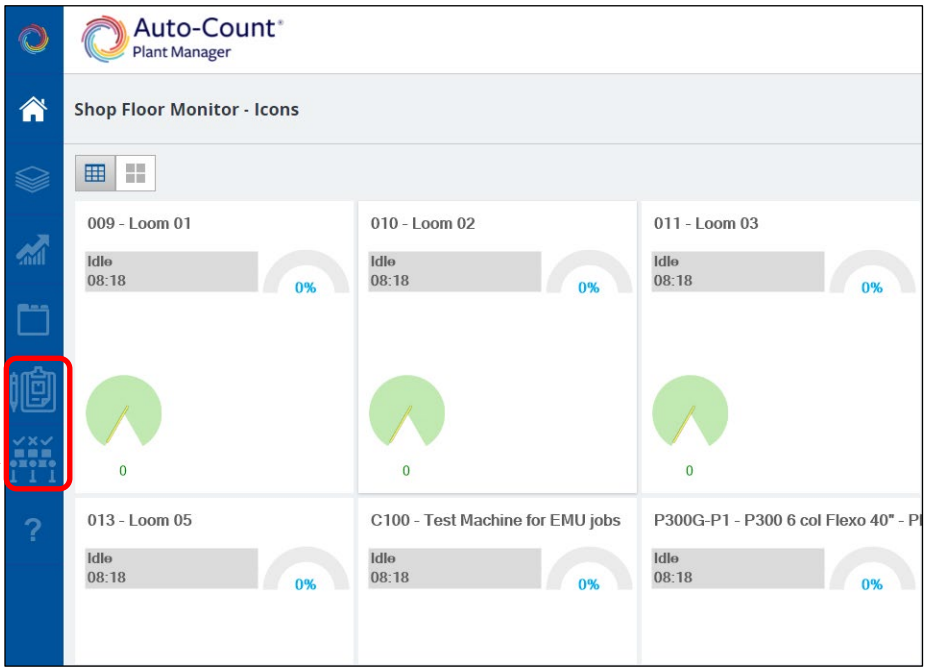
Once you have installed the Quality module, you can access it from Plant Manager Browser or the Quality module in Plant Manager Web.

> **Note** The Test Dashboard, where you can access pending, failed, or passed tests, is only available in Plant Manager Browser.

Plant Manager Browser

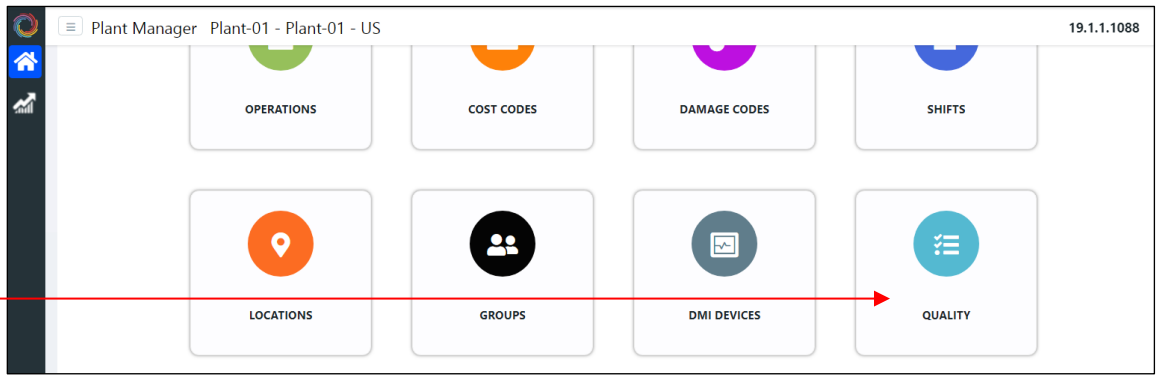
Click here to create tests and questions.

Click here to see the list of pending tests.



Plant Manager – Web

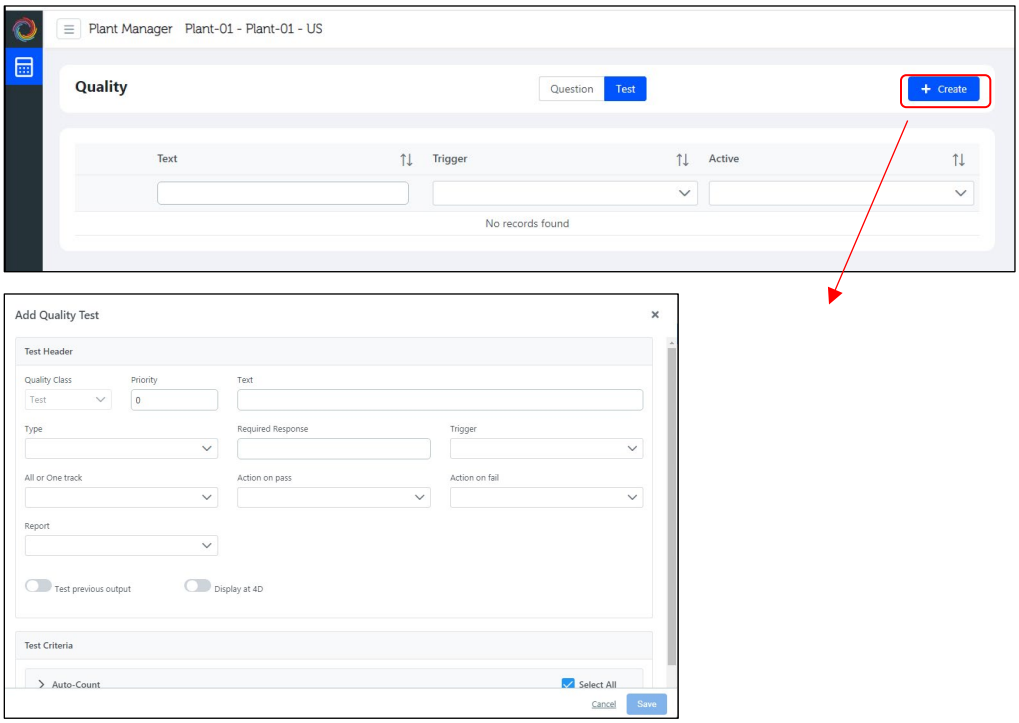
Click here to create tests and questions.



Tests

The Test page is where you will create and manage tests. Depending on the operator's entry and the type of test, Auto-Count determines whether the test passed or failed and sends this to the MIS.

To create a test click **Create**.



How does an Operator Answer a Test?

Quality Questions automatically open on screen where the operator can answer the question. With Tests, unless the test parameter Answer at 4D is selected, a window will open (depending on your settings) which alerts the operator to perform the test. The operator then must open the Dashboard and search for Pending items to complete the test.

> **Note** The test results dashboard page will now timeout after 30 seconds if there is no user interaction. The operator will have to log in again after 30 seconds of inactivity. To change the default of 30 seconds, your administrator can edit the app-config.json file (C:\Program Files (x86)\EFI\PlantManagerBrowser\WIPTest).

What if the operator opens multiple browser windows?

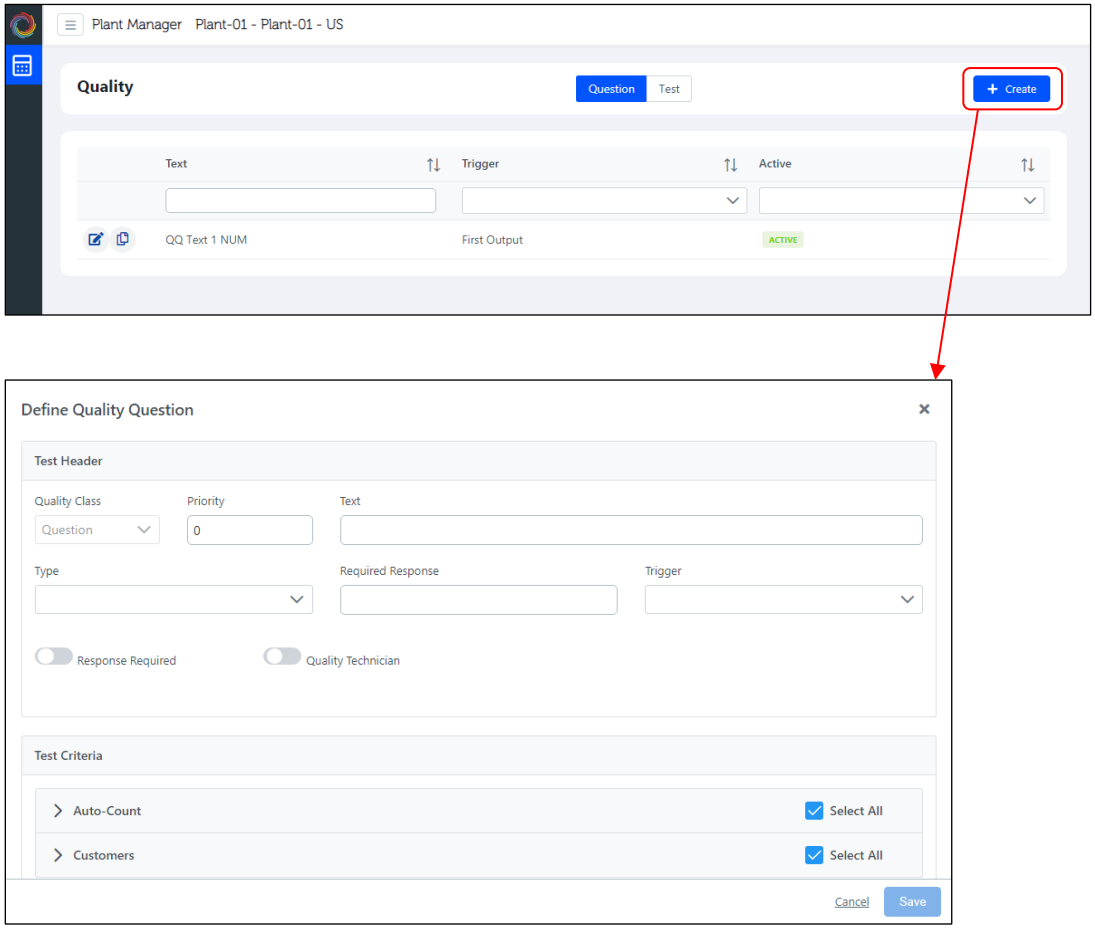
If an operator opens multiple pages of AC4D, it's possible that Quality Questions could be duplicated on the same screen. If this happens simple refresh the browser (<F5>) on the page where you will answer the questions.

Are Test Results Recorded?

When an operator answers a quality test, Auto-Count records this value in a Plant Manager database table called **QualityTestAudit**. Any changes to the test results are logged as a new record in this table so that you can not only track all test results but operator and time. Test results are also recorded in the XML message **TxnSkidTest**.

Questions

The Quality Question page is where you will create and manage questions. Questions usually collect information about the machine itself or necessary setup details. The answers are sent back to the MIS.



Parameters

Field	Description
Priority	For display purposes only. This value (numeric) tells Auto-Count 4D in which order to display the questions/ tests if there are multiples in a single dialog window. Auto-Count will display them in descending order, meaning higher values will display first in the list. For example, a question with a priority of '5' will display above a question with a priority of '4' in the list. When there is no priority specified, Auto-Count will display the questions in the order in which they were created.
Text	Enter the Test text which displays to the operator. For example, *Check the material thickness*.
Type	Below are the types of questions and tests you can create. Each type has different parameters. *Numeric Entry*: User enters a number value. Set the Minimum and Maximum range which determines if the test passes or fails. *Text Entry*: The operator enters any basic text value (alphanumeric.) If a word they use to answer the question matches the one word in the Response field, then the test passes.

	For example, say the test text is "*What color is the cardboard*?" and the Response field value is **blue**. If the operator types *cardboard is blue* (or just *blue)*, then the test passes. If they type *cardboard is green (*or just *green),* then the test fails. The text entered does not need to match the case of the text in the response field. We highly recommend using only one word as the Response value. The text which the user enters must match exactly the text in the Response field to pass. If the Response field is *red yellow blue* and they enter *blue red yellow*, it will fail. *Options List*: User picks from a drop-down list of options. In Response, select which option is considered passing. (If the Required Response does not exist in the list of options, then Auto-Count displays the question with a strikethrough which alerts you to inspect the question itself for errors.) To create the options list, click:  *Yes/No*: User selects Yes or No. Yes is passing the test and No is failing. *Check list*: The user must select items from a checklist. When all items are checked, the test is considered passed. To create the checklist, click:  *Document*: If the job loaded on the AC4D contains a URL to manufacturing instruction documents, then this type of quality question will require the operator to open those documents before proceeding with the job. Typically, the trigger is Start of Job.
Response	The required response. Depending on the test Type (above) this is the value which must be met for the test to be considered passed. Entries outside of this response value are failed.
Trigger	Auto-Count can trigger a test/question during certain scenarios. The following are the trigger types. *Opcode Start*: Start of a specific operation code. Choose one from the **Operation** field. *Job Start/End:* When the job is loaded onto the Home screen (start) or when the job is completed (end). This will also trigger if you suspend a job and you've met the run end percent threshold. *Makeready Start/End:* When the machine enters or exits any Makeready operation code. If you have set up external inputs (buttons, etc.) to go into production, the operator must correctly answer the question before the input is applied. (An operator cannot avoid the questions with external inputs.) If you have a zero makeready workflow and want the operator to answer a question when the job begins, then use the Job Start trigger. **Note** The Makeready End trigger is not compatible with the **Detect stops in makeready** machine setup option in Plant Manager. Do not enable it if you need this trigger. Do not use the Makeready End trigger on a quality question that could be used on a Manual Auto-Count type of machine or any Auto-Count which has a Net Pulse or Net Counter (ending by net pulse or count.) Use the Makeready Start or Job Start triggers instead. *Net Count:* When Auto-Count reaches the net count (in the primary net count unit of the machine) set in the Frequency field, it triggers a test/question. If set to repeat, then it will trigger on every multiple of that value. *Gross Count*: When Auto-Count reaches the gross count (in the UOM of the machine) set in the Frequency field, then it triggers a test/question. If set to repeat, then it will trigger on every multiple of that value. *Output Count:* Depending on the Frequency set, trigger the test/question when an output completes. For example, if the frequency is set to 5, then Auto-Count will trigger the test when the 5th output completes. If set to repeat, then it will trigger every 5 outputs.

	Run time: Number of minutes during a Production opcode. Enter the minutes value in Frequency. For example, if you want to trigger a question/test after the first 5 minutes of production time, you will enter 300 in Frequency. *Percent Done*: The job quantity percentage completed. Enter the percentage value in Frequency. If you enter a percentage over 100, then you can trigger a question/test for overrun scenarios. *Job Time:* Number of minutes that have elapsed during the entire run including makeready, downtime, production, overrun, etc. Enter the minute value in Frequency. *First/Last Output*: These triggers are not based on frequency but simply trigger on the first or last output produced. *Manual*: (Question) Use Manual when you want to add information to an output during the run. For example, the operator must enter the expiration date for the current product on the run. This can be printed on tickets and attached to the outputs. **Note** To access a Manual question, click the blue arrow between the infeed and outfeed icons on the AC4D Home screen. See **Example 3: Text Question – Manual.** *Output After New Input:* When a new input material starts (which includes the first one on the job), then set a trigger for the question. Once the first output for that material completes, display the Quality Question for the operator. This allows the operator to confirm the new input material is correct and of proper quality. Select **Repeat** to make sure the question triggers for each new input material beyond the first input.
Response Required	(*Questions only*) When enabled, the operator must answer the question(s) to proceed. If the Trigger is *Job Start* or *Makeready Start/End* and this option is enabled, then there will be a **Suspend** button on the question window. If you have a mix of questions that are required and not required on the same trigger, then AC4D will display the required questions on the first window. You must answer those properly before the non-required questions are displayed.
Quality Technician	(*Questions only*) Select if this question must be answered by an employee designated as a Quality Technician in Plant Manager > Employee. They must enter a password to access and answer the question.
All or One Track	*(Tests only)* If you do not want to test on all tracks, also called outputs, then here you can choose to use a test on a specific track(s) instead. You can choose first, last, even or odd. This is useful if you produce outputs in sets – odd and even.
Action on Pass/Fail	*(Tests only)* Select the action to attach to the output when a test is considered passed and failed. This information is then sent to the MIS in the XML message's Result attribute for that output. If the output is used again on Auto-Count, then the appropriate action will be taken. For example, if an output is sent back to the MIS with a result of Supervisor, then if an operator scans this output to use in another step of the production, Auto-Count will warn them they need a Supervisor override before allowing the output.
Report	*(Test only)* Select a report to be printed when a test is triggered.
Frequency	The value used to determine when a test/question should be triggered. This unit of value changes depending on what type of question you are creating. For example, for count triggers (Net Count, Output Count) this is an absolute value like net count quantity or an output. For percentage triggers this is a percentage like 50% or 75%. For time-based triggers this is number of minutes.

Test Previous Output	*(Test only)* If the test fails, then this option will ask the operator to test the previous output produced. It will continue to ask the operator until it finds a test which passed.
Repeats	Select this if you want the Frequency value to be repeated. For example, if the frequency of Output Count is set to 5, then Auto-Count will trigger the test when the 5th output starts building. If set to repeat, then it will trigger every 5 outputs. If you selected the Output After New Input trigger, then select Repeat to trigger the question for every new input material.
Display at 4D	*(Test only)* When selected, a test prompt will automatically open on screen. When not selected, Auto-Count will simply display an alert in the Alerts area at the top of the screen to remind the operator to perform a test. See the examples below.
Answer at 4D	*(Test only)* This option is only available if Display at 4D is enabled. Allows operator to answer the test directly at the AC4D. If the test passes, then you do not need to do anything in the Dashboard. If the operator enters a value that doesn't pass the test, then Auto-Count marks it as a **Pending** test. The operator then must open the Dashboard and filter on Pending to find the test. Pending tests do not send a fail message back to the MIS – they must be dealt with by an operator in Dashboard.

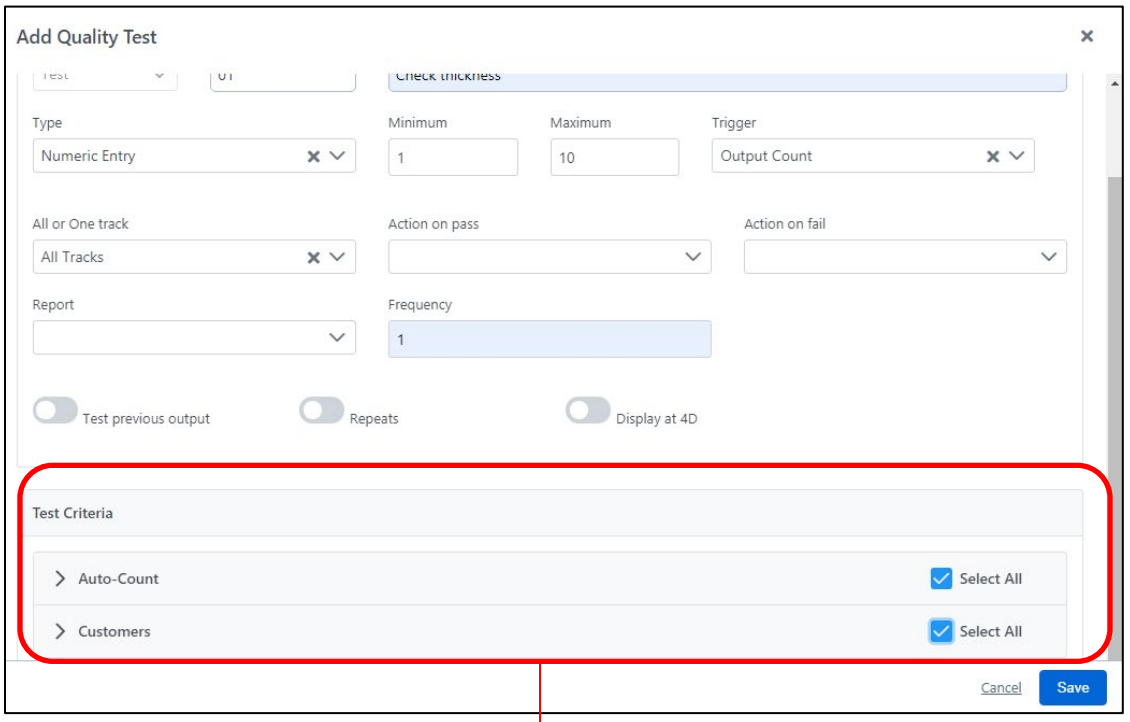
Setting Up Tests - Important Notes

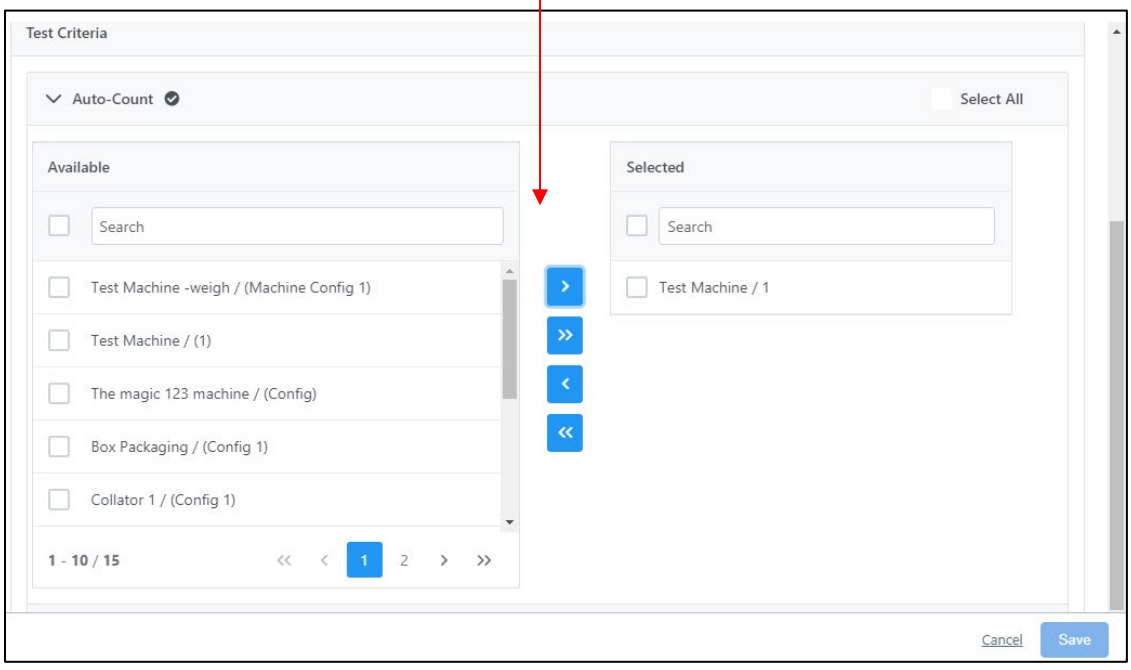
Tests are only recorded when outputs are created. If you set up a test and it triggers before an output is created, you will not see the test in the Dashboard. It is important to understand the following when setting up your triggers for tests.

- Time and quantity-based test triggers are applied against the last completed output. Not the currently building output.
- Tests which are triggered before an output has been created are ignored since there is nothing to test. For example, if you set up a test to trigger when the run time reaches 5 minutes, but no outputs were created in the first 5 minutes of production, Auto-Count will not create the test.
- If you trigger on the creation of an output or multiple of an output, then the test is applied to that output when it is created.
- The technician along with the date and time are recorded when a test is completed. This information is sent to the MIS and you can search on it in the Dashboard.
- All time-based triggers are in minutes.
- **Answer at 4D** type tests will always be set to a status of Pending if they fail at the 4D. This allows you to address a failed test.

Test Criteria

When creating tests and questions, the default is to apply them to all machines and all customers. You can, however, choose specific machines and customers for which to apply tests/questions. Simply uncheck **Select All** and then open the Auto-Count or Customer area. From here you can choose specific machines or customers.

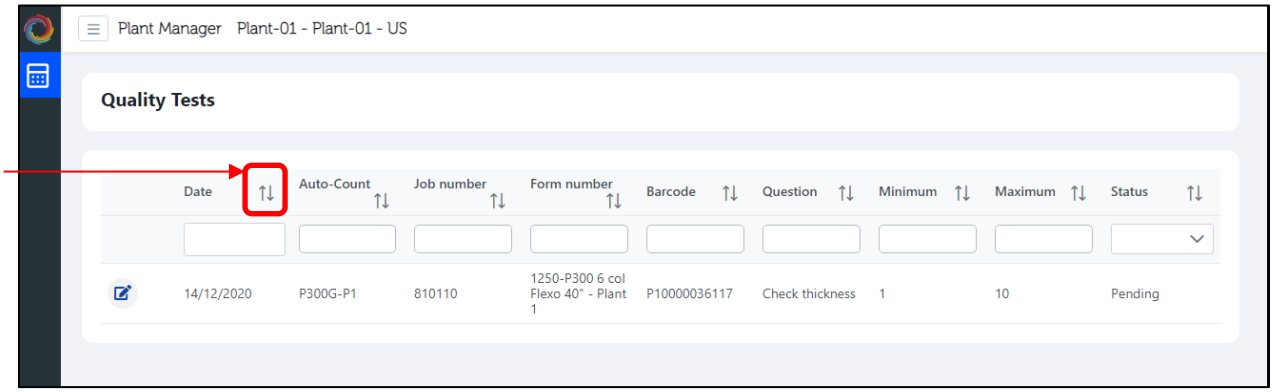




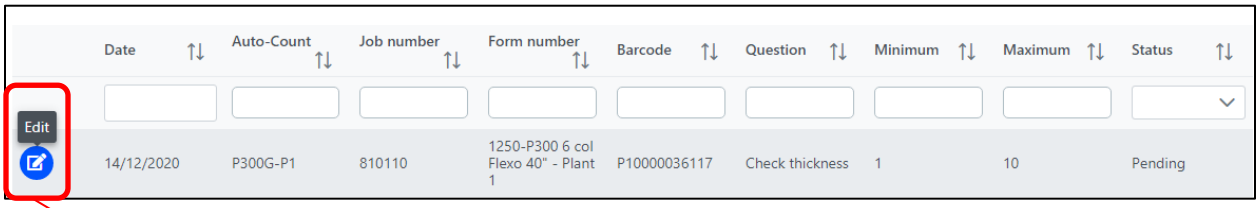
Quality Module Dashboard

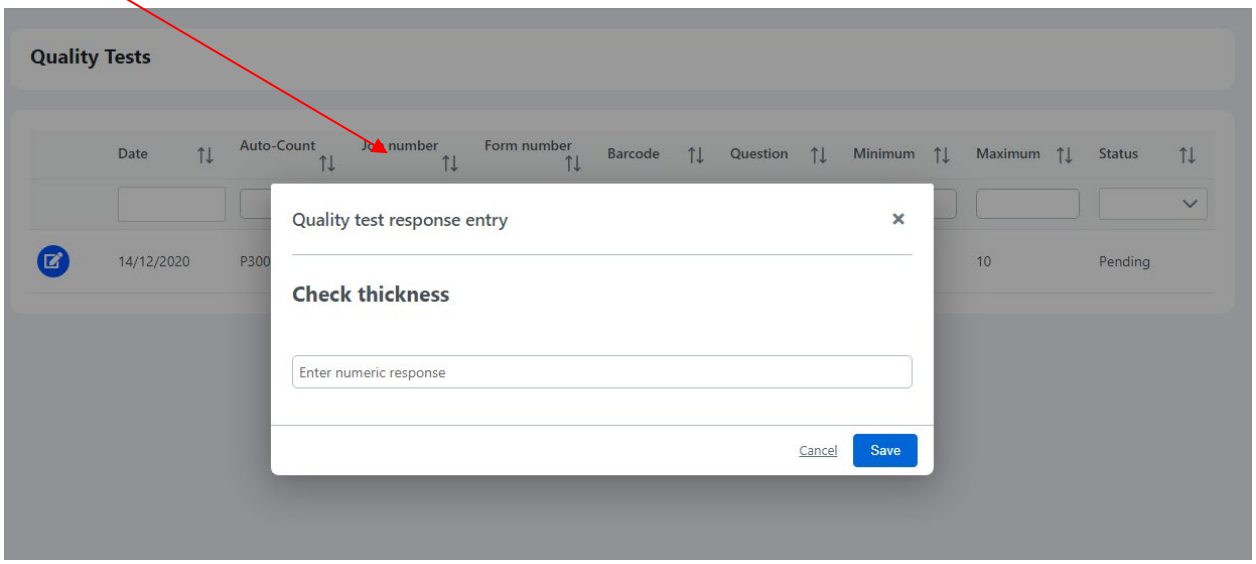
The Quality Dashboard is where you can access a list of tests which were triggered and their status. If there is a Pending status, this means the operator must complete the test. Sort the columns to find items more easily.

Sortable columns.

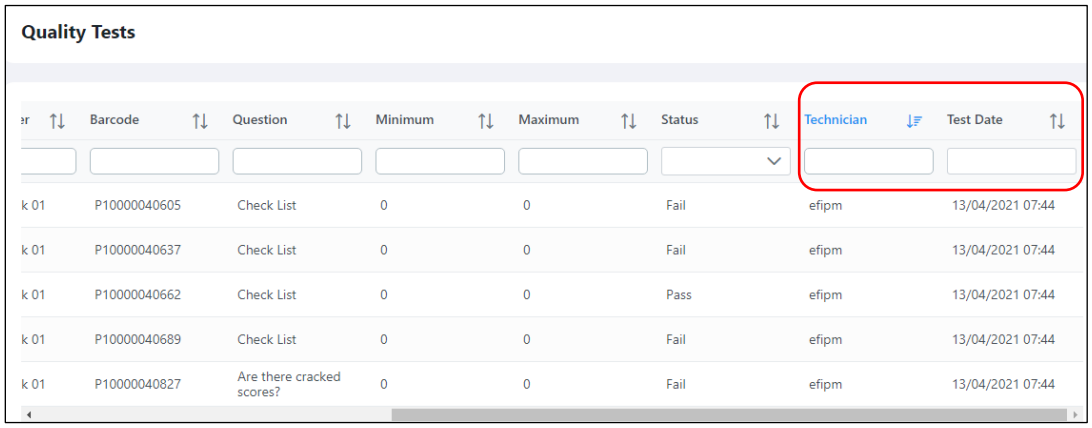


To answer a Pending test or edit a result, click **Edit**. If it is a pending test, then the result will be assigned to the output when the test was triggered.



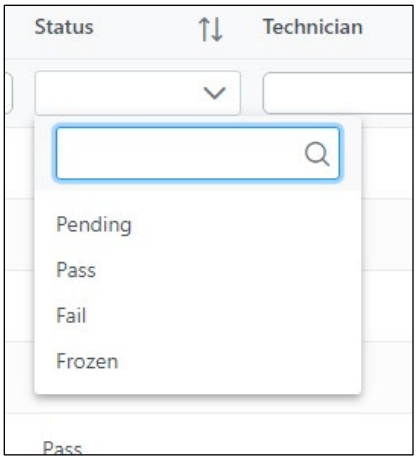


Once the operator has completed the test, their login username, and the date they completed the test are recorded.



Status

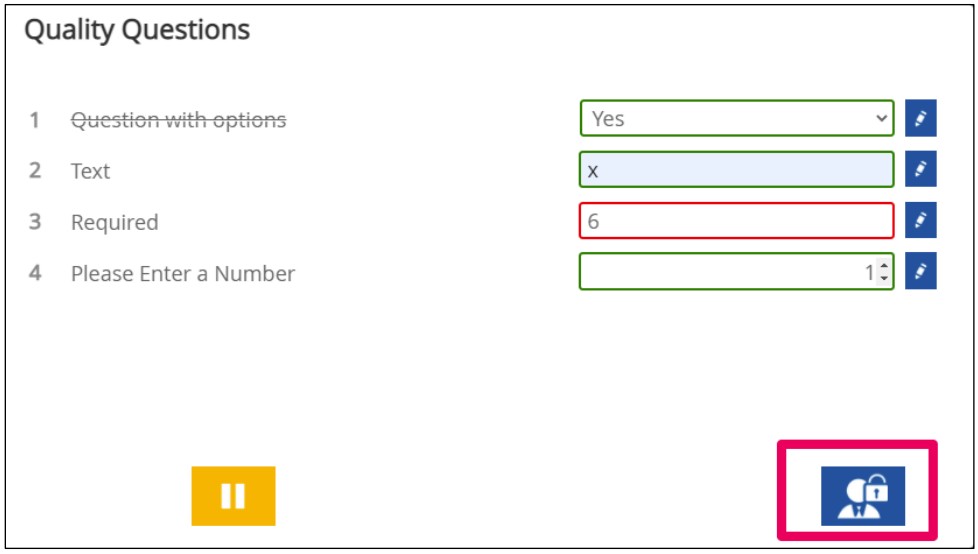
Status	
Pending	The operator has not completed this test.
Pass	The test has passed based on the information entered by the operator.
Fail	The test has failed based on the information entered by the operator.
Frozen	The test is no longer open and cannot be edited. The MIS must send a job status update with status set to open to re-open this test.



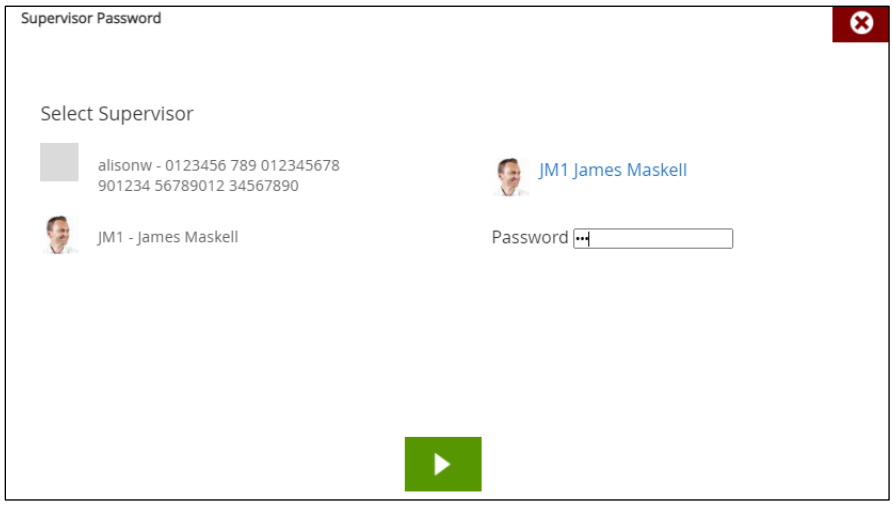
Supervisor Override

There is a supervisor override feature which, when enabled, Auto-Count will display a Supervisor Override button for failed questions.

In this example, the operator has answered each question, but the third question is marked red because the answer is not within the accepted range. Because there is a question which failed, Auto-Count displays the Supervisor Override button.



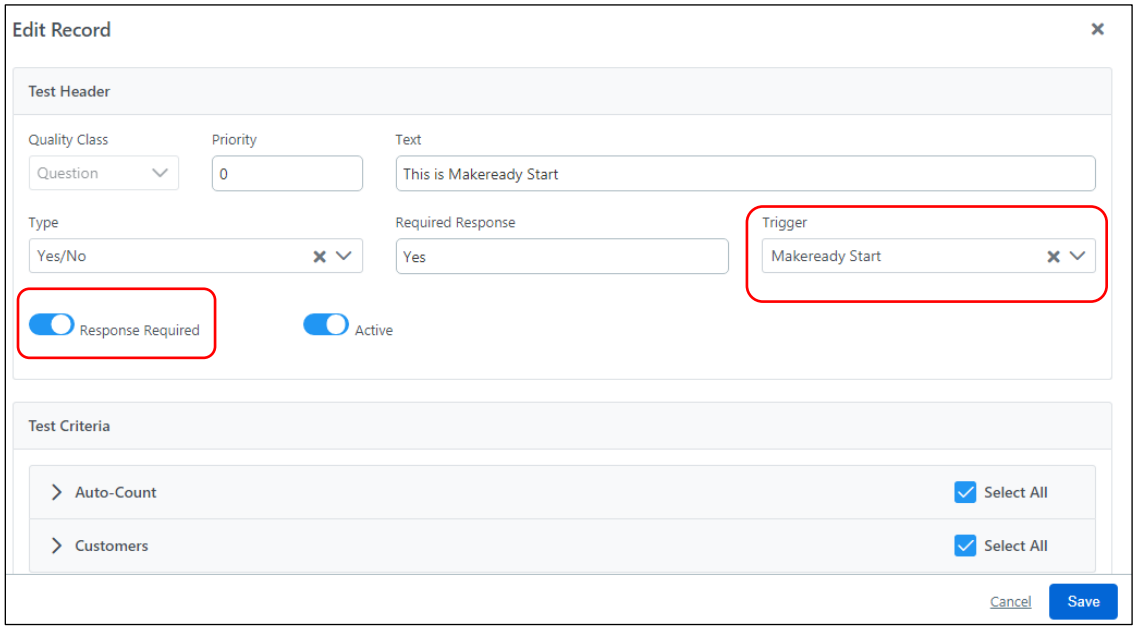
The Supervisor must select their user and enter their password to proceed.



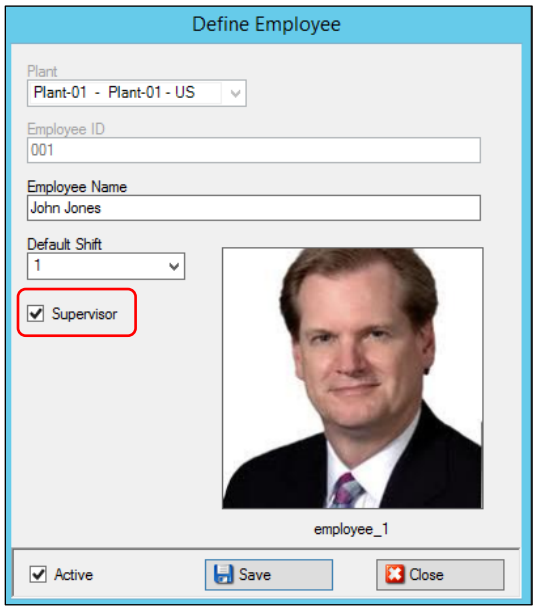
If the password is correct, the Question answers are submitted to the MIS system along with an entry in the TxEvent database table. (The Supervisor name and id is logged in the Note and Response fields.)

Setting up Supervisor Override

To set up a question which requires a Supervisor to override a failed answer, you must choose the **Response Required** option when setting up the question. Also, the only questions which currently support Supervisor override are those triggered on **Makeready Start/End** and **Job Start**.



You must also have an Auto-Count employee set to be a Supervisor. You can do this in Plant Manager > Employee.

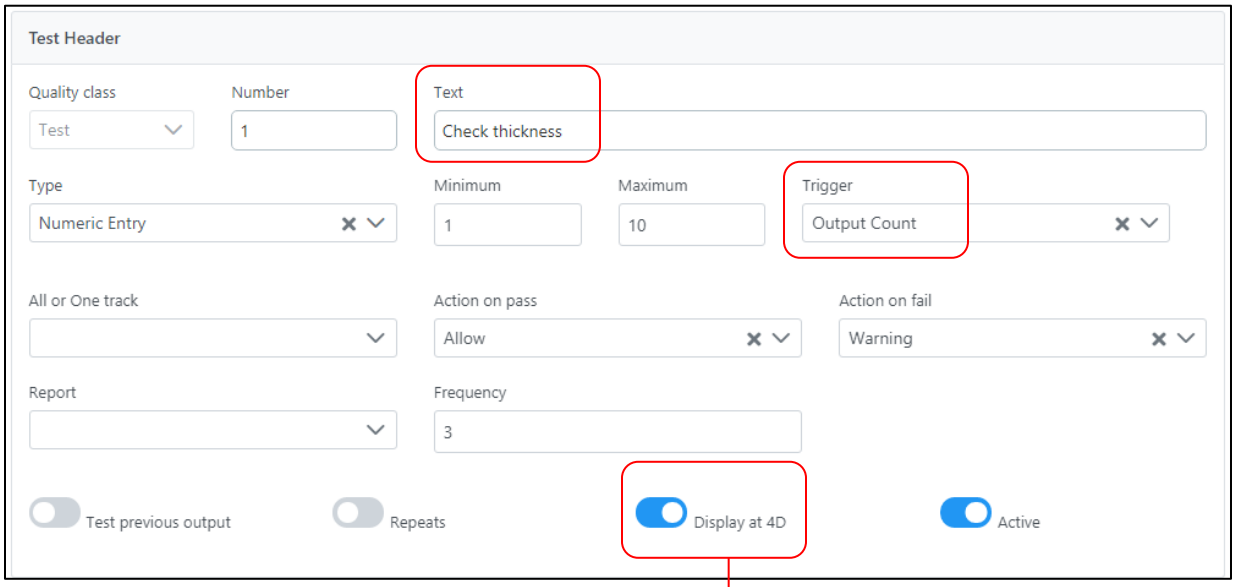


Note If there is no Supervisor user, then the Supervisor button will not display, regardless of the answers.

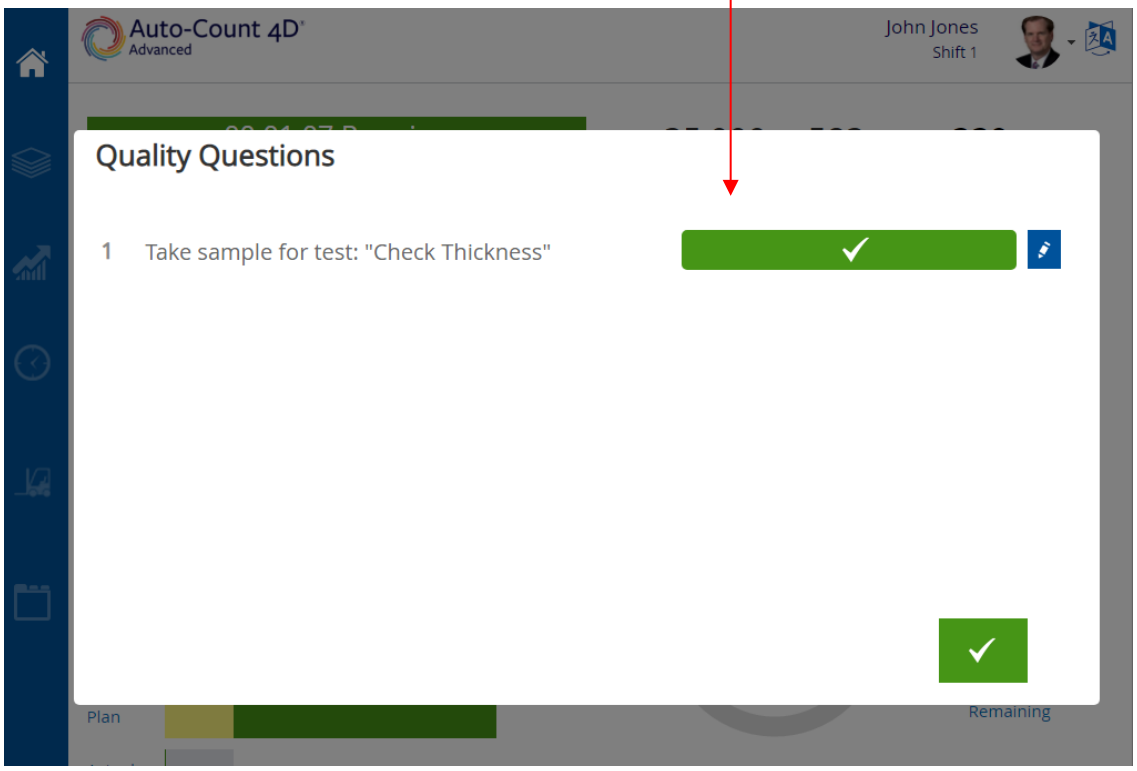
Examples

In this section we'll show you the test parameters and the result in 4D.

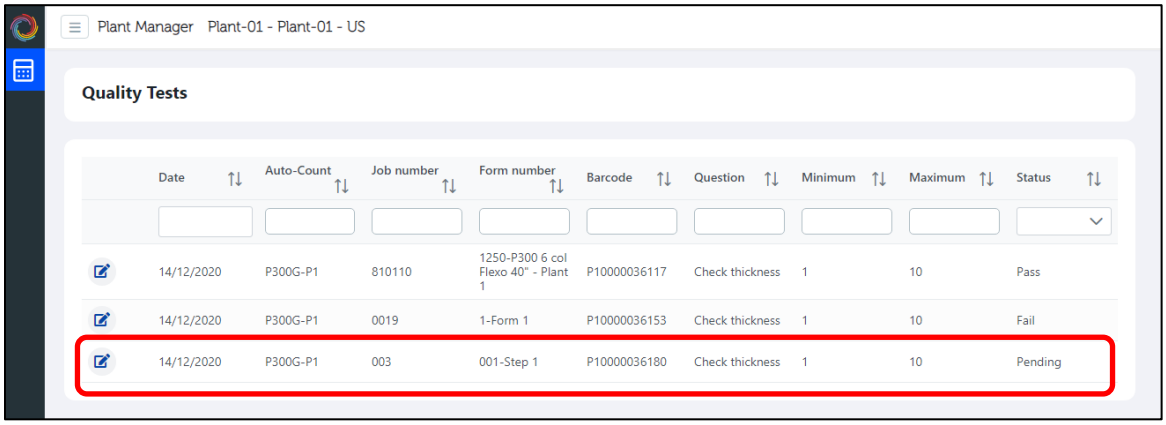
Example 1: Numeric Entry - Output Count

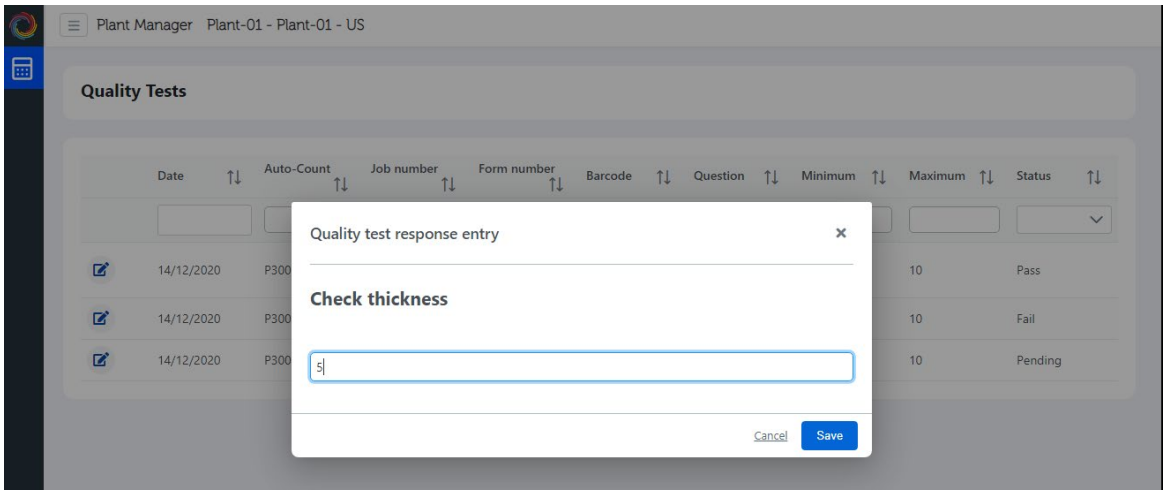


In this example, Auto-Count 4D will display the Test prompt in a dialog box once the third output completes. The operator will check it to close the prompt.

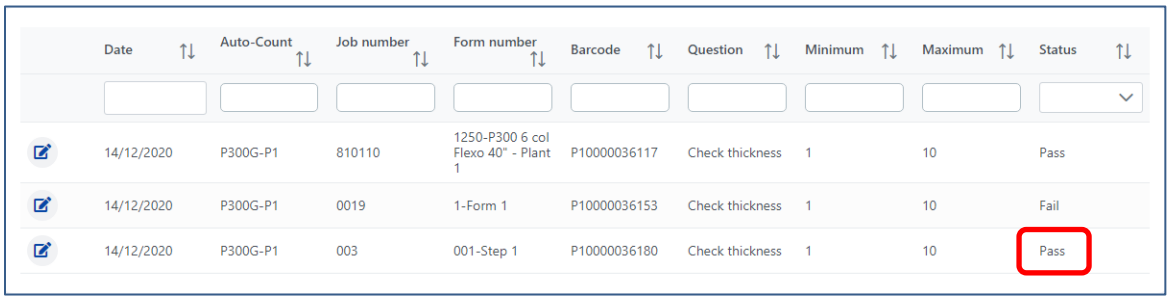


The operator must open the Dashboard to answer this test. You can see the Status is 'Pending'. Click **Edit** to enter the test results.



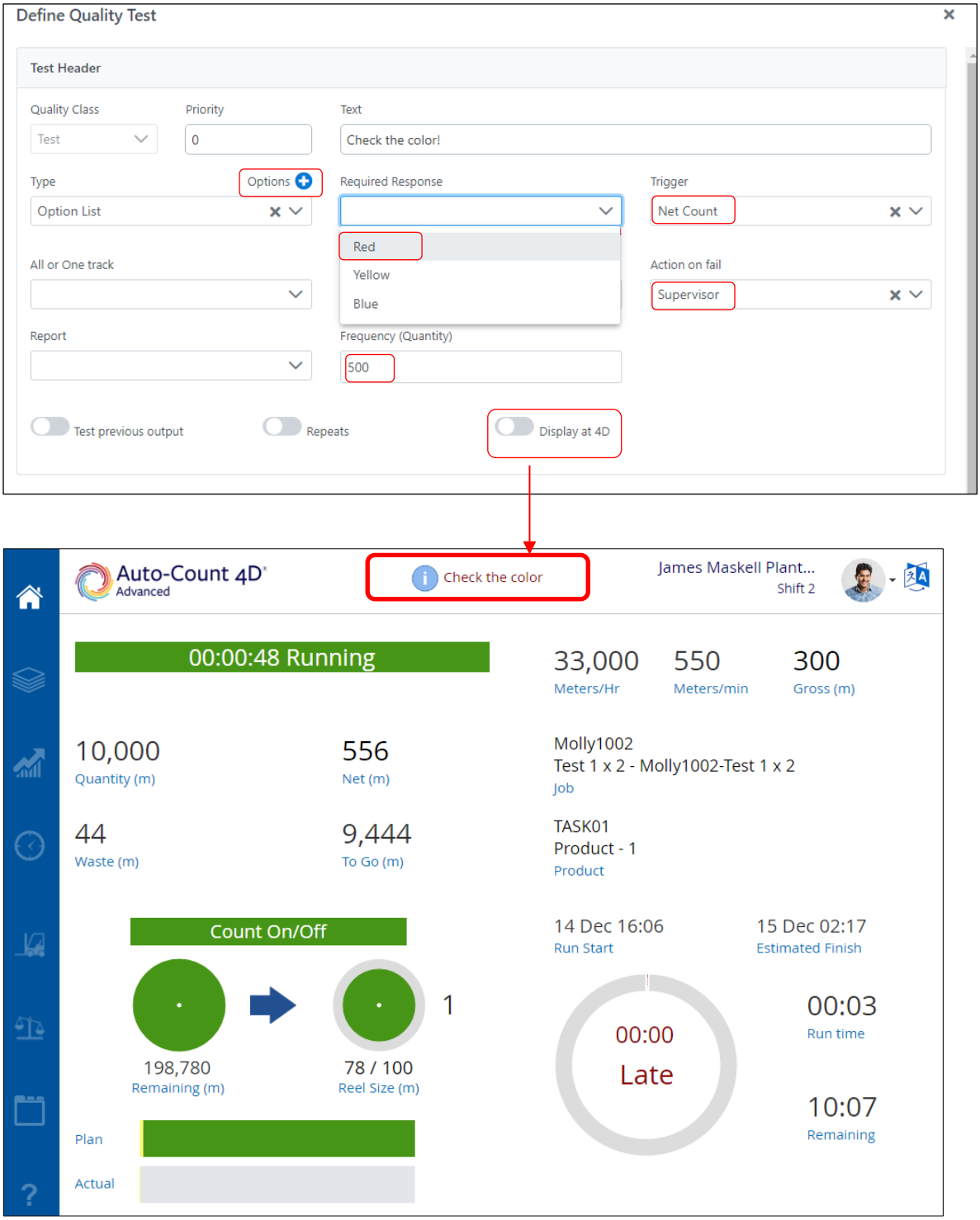


And now the test has **Passed** because the value was within the tolerance of 1-10 (min/max). If the operator had entered a value outside the tolerance of 1-10, then the test would have failed.

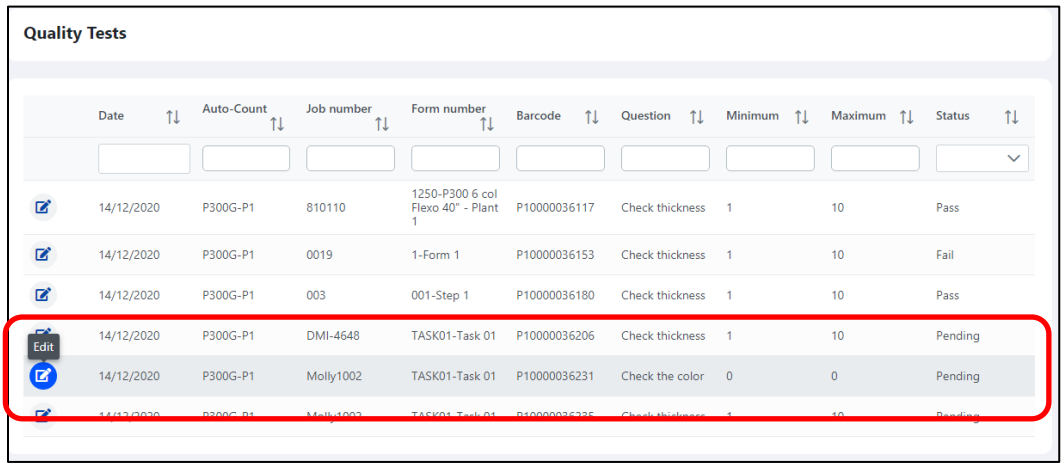


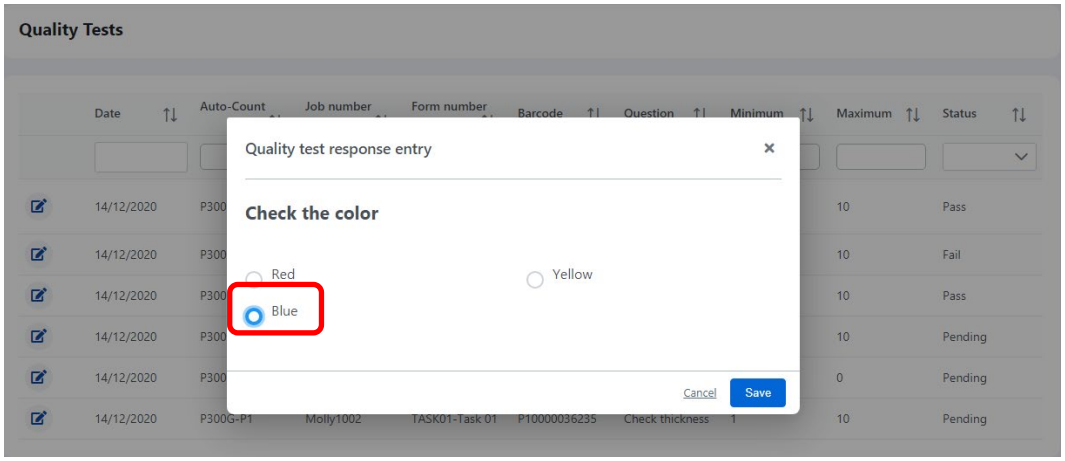
Example 2: Test Option List – Net Count

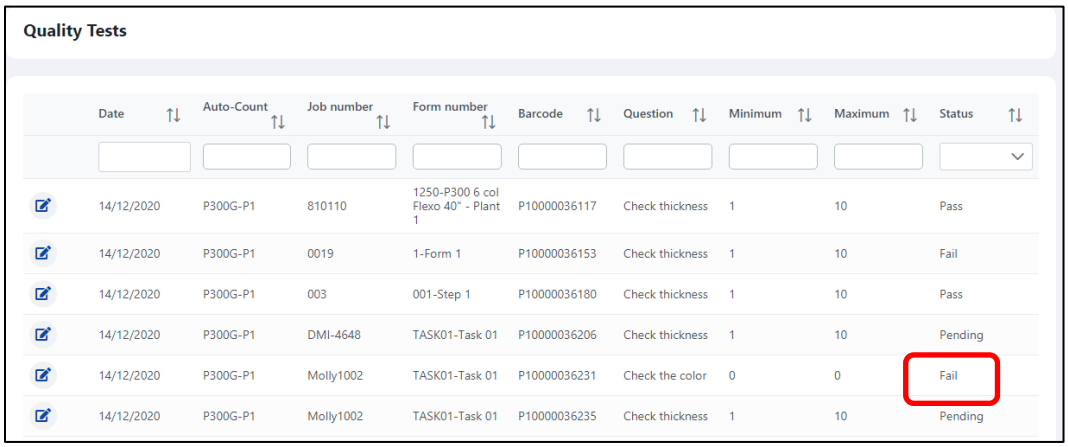
This test is an option list with three options: Red, Yellow, Blue. Red is passing. This question will trigger when the Net Count reaches 500. It will only display an alert on the Auto-Count. If it Fails, then the Result will send back Fail with a *Supervisor* on the message.



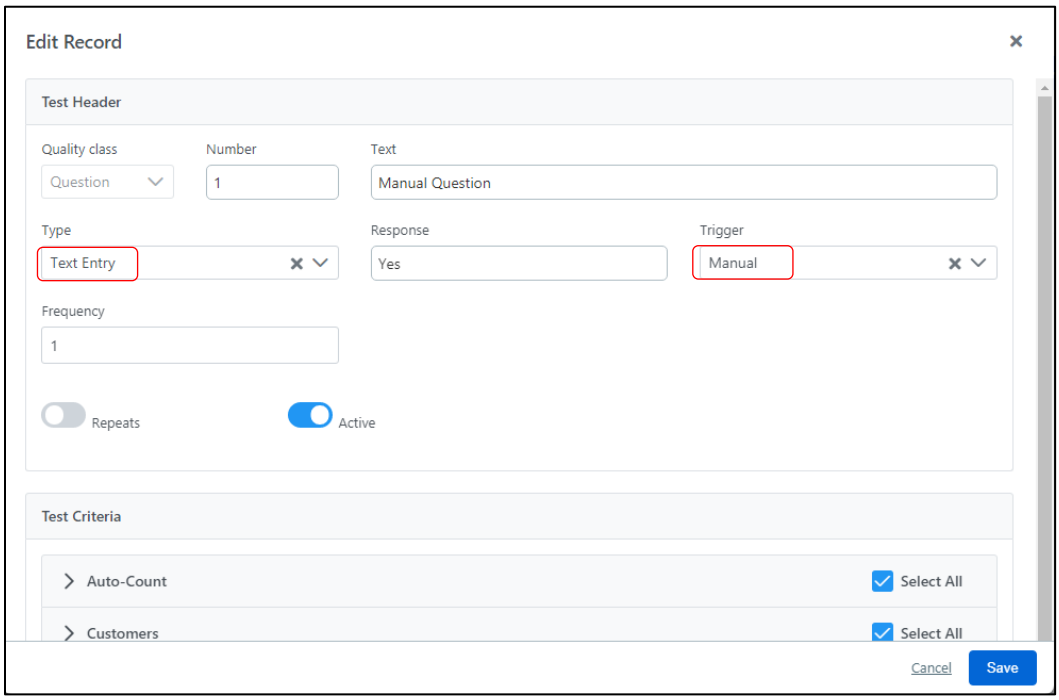
On the Dashboard the operator can now answer this question. Let's fail it to see what happens!



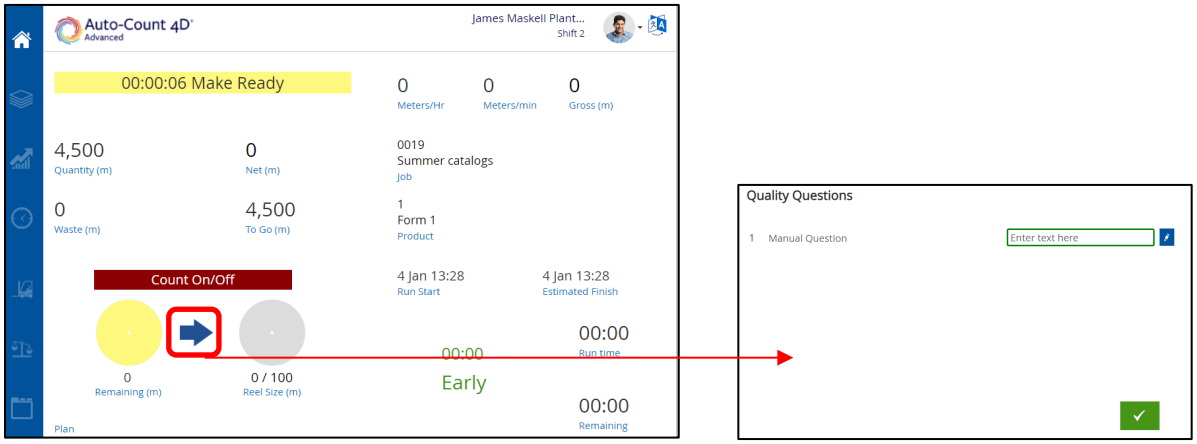




Example 3: Text Question – Manual

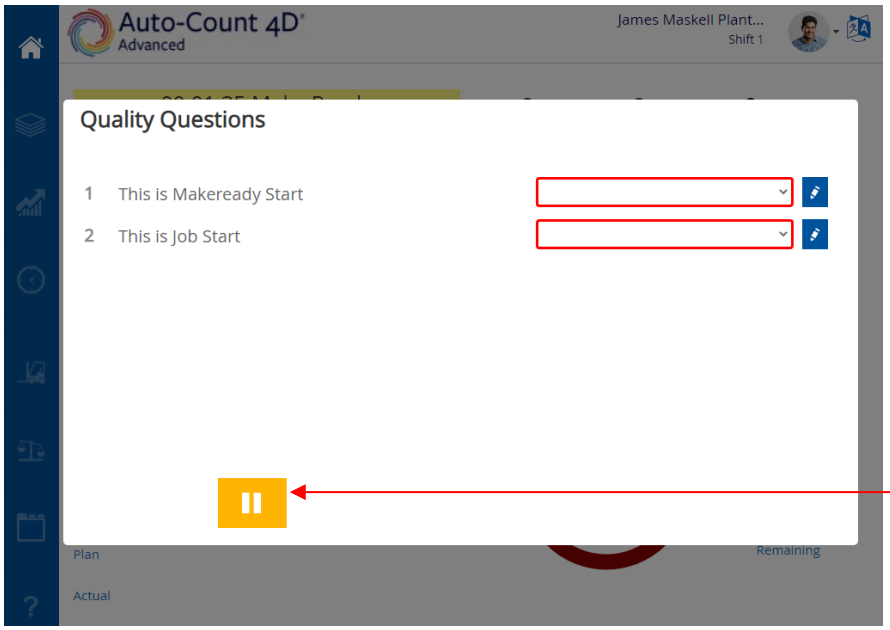


When the Trigger type is Manual, the operator must click the blue arrow between the infeed and outfeed icons on the AC4D Home screen to answer the question.



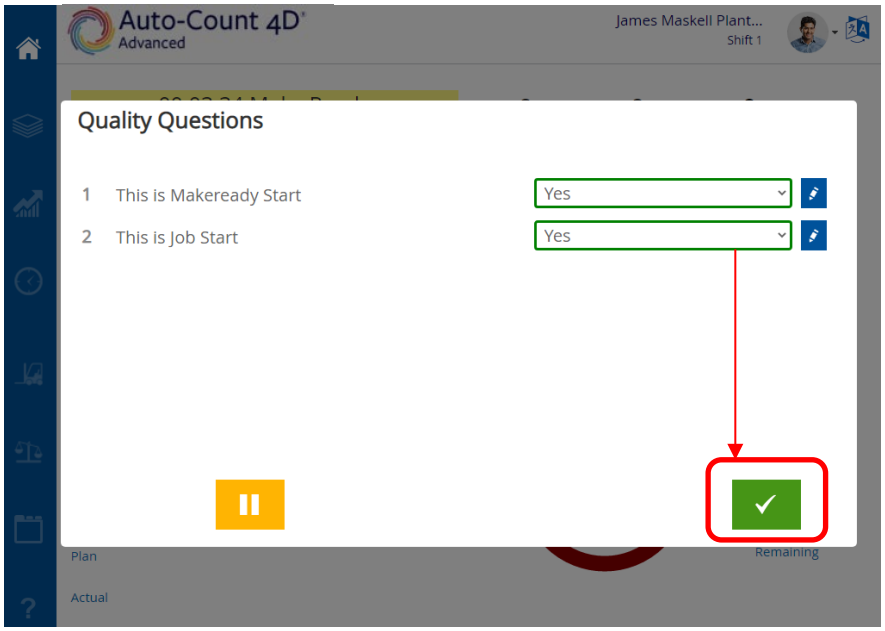
Example 4: Required Response / Pause Button

When using the Required Response feature with the Job Start or Makeready Start/End triggers, the operator must answer the question(s) with a passing value, or they are forced to suspend the job.



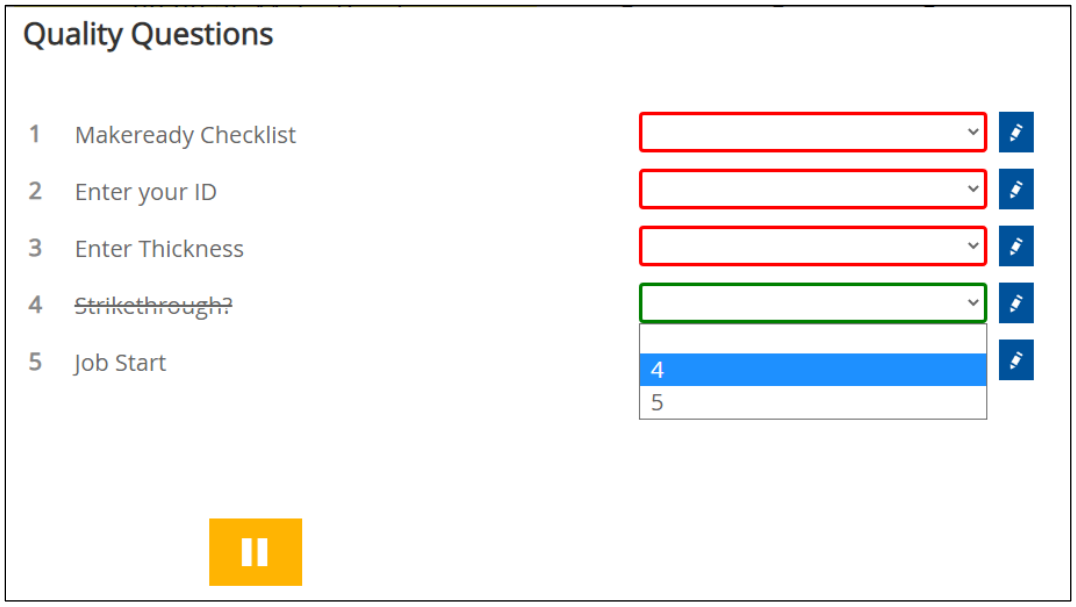
Note: If you have a mix of questions that are required and not required on the same trigger, then AC4D will display the required questions on one window, and you must answer those properly before the non-required questions are displayed.

Only the Suspend button is available until the questions are properly answered.

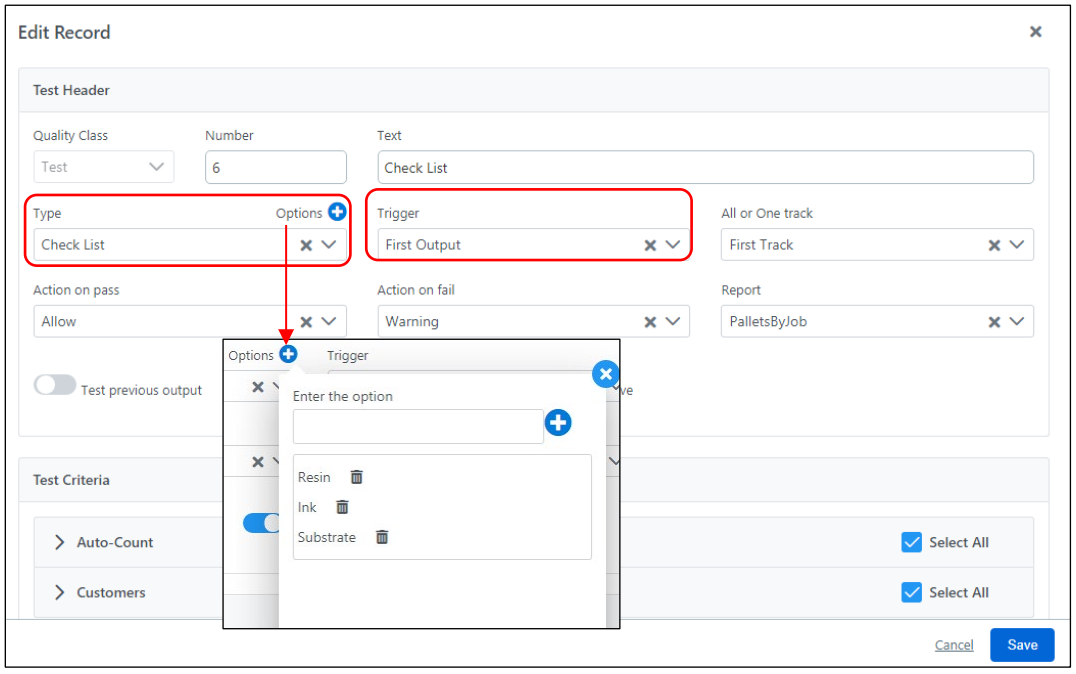


Example 5: Question Option List – Not Required

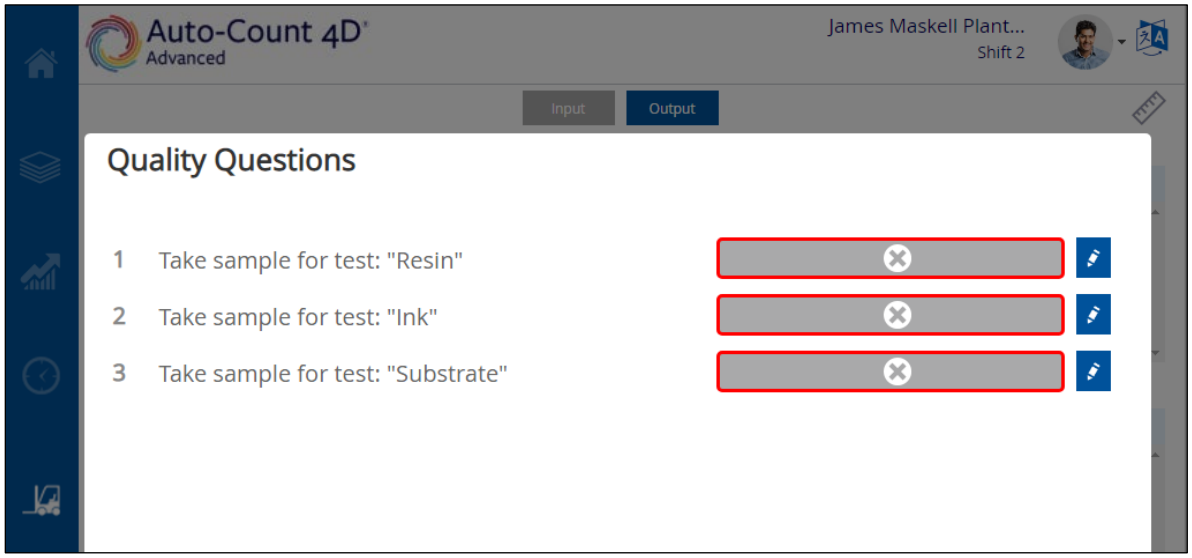
If the Required Response does not exist in the list of options, Auto-Count displays the question with strikethrough text. This allows the operator to choose any response and proceed but indicates that there may be an issue with the question which should be reviewed. For example, the MIS may have incorrectly formed and sent the question to Auto-Count.



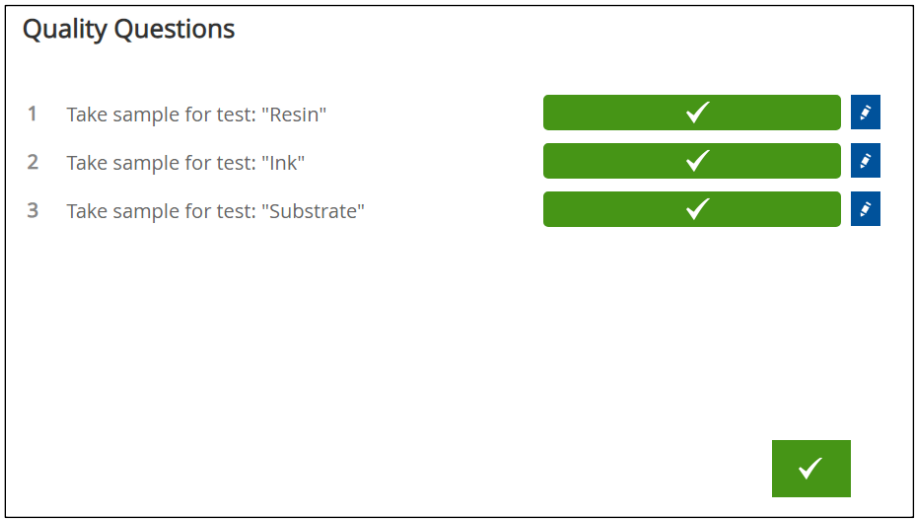
Example 6: Check List – First Output Test



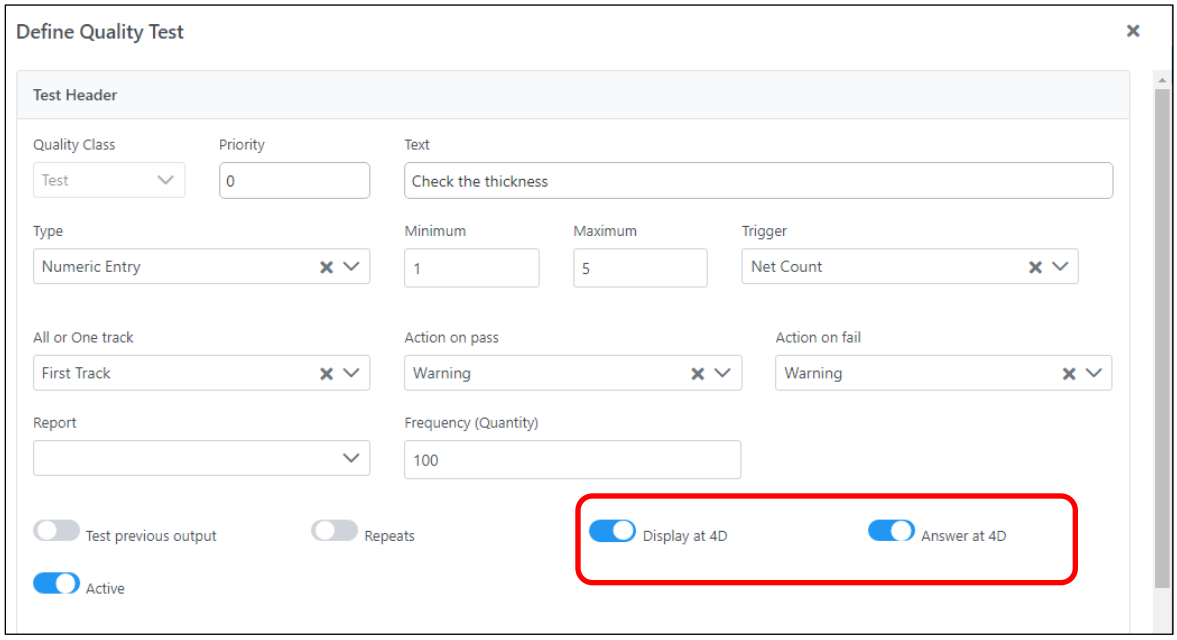
Once the first output completes, this test will display at the 4D.



The operator must select all checkboxes to continue.

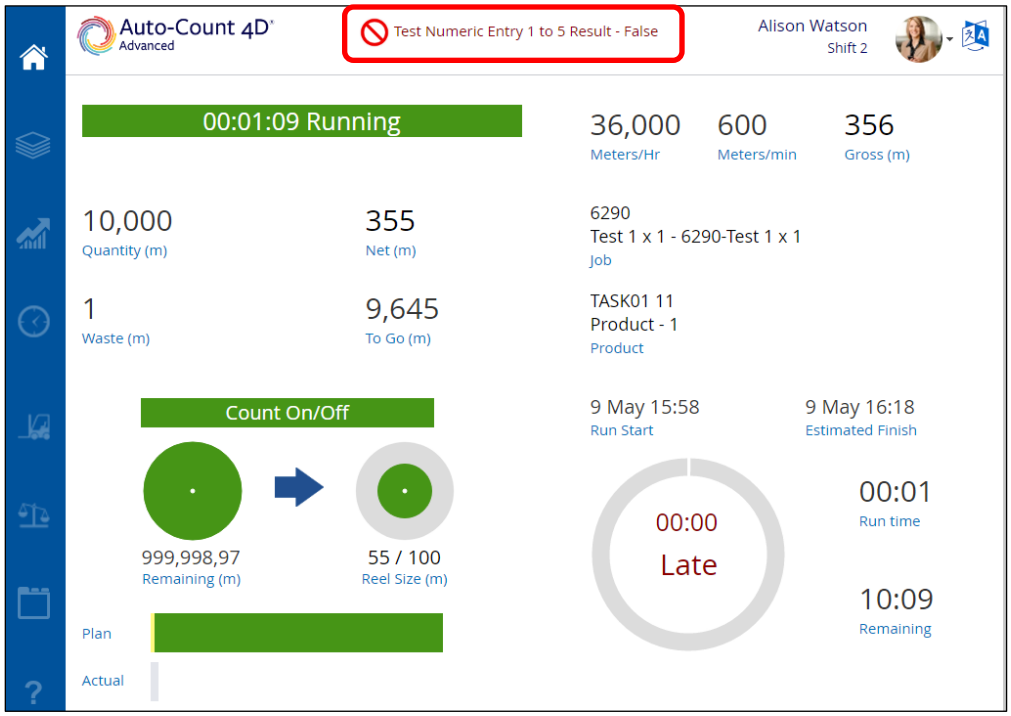


Example 7: Answer Test at 4D

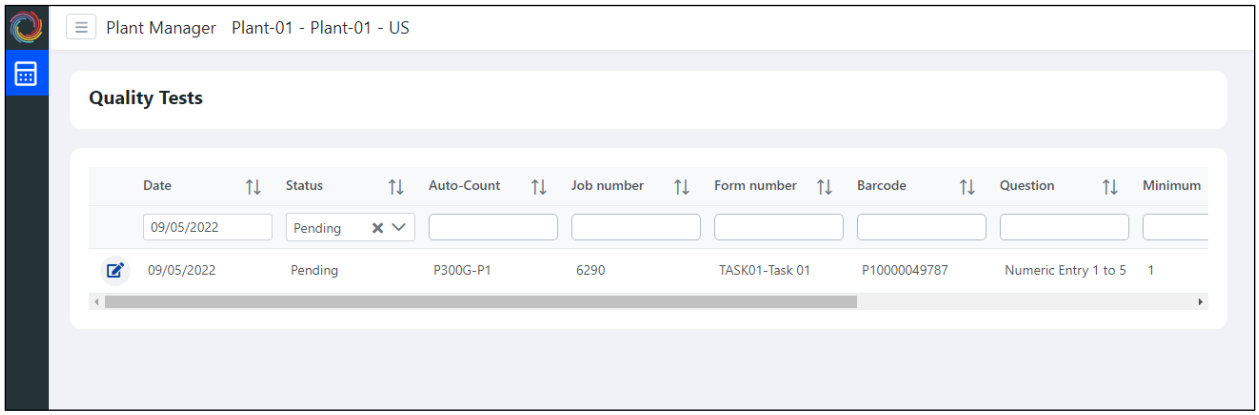


Enter a value outside the ‘pass’ value. In this example we entered 7.

Auto-Count will display the result of the test, pass or fail.



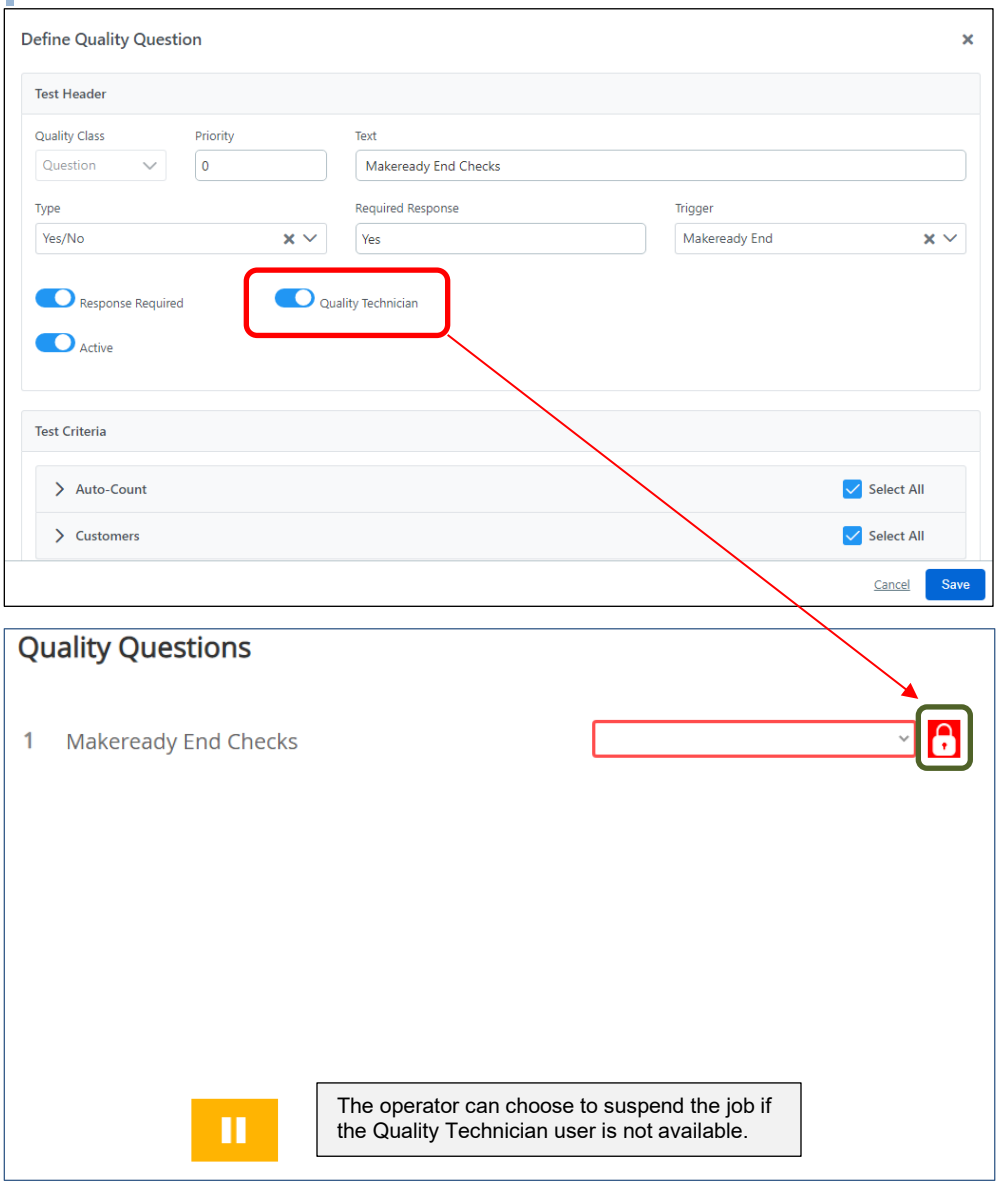
To re-test the sample, open Dashboard and filter on ‘Pending’ status.

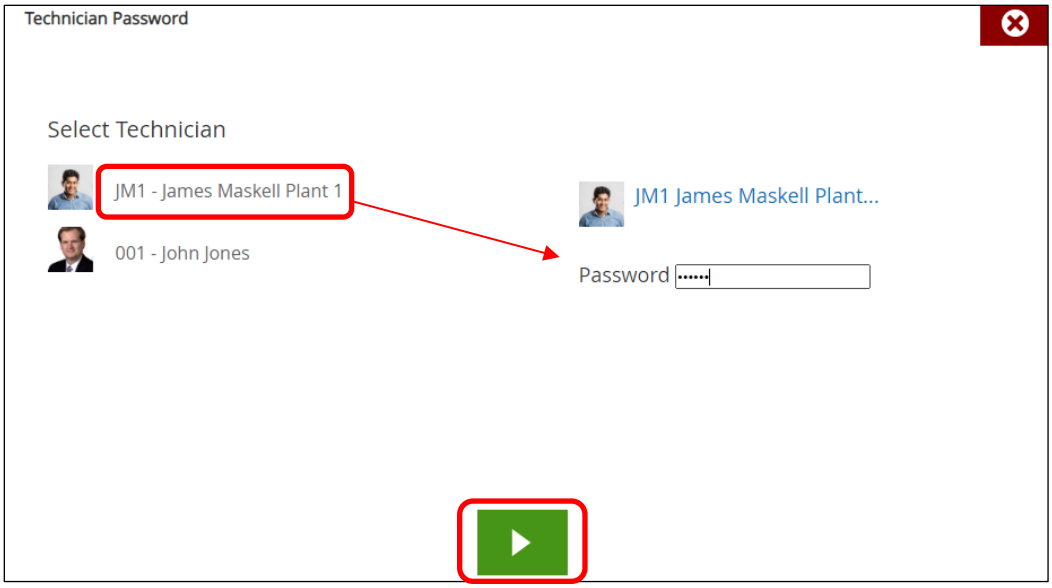


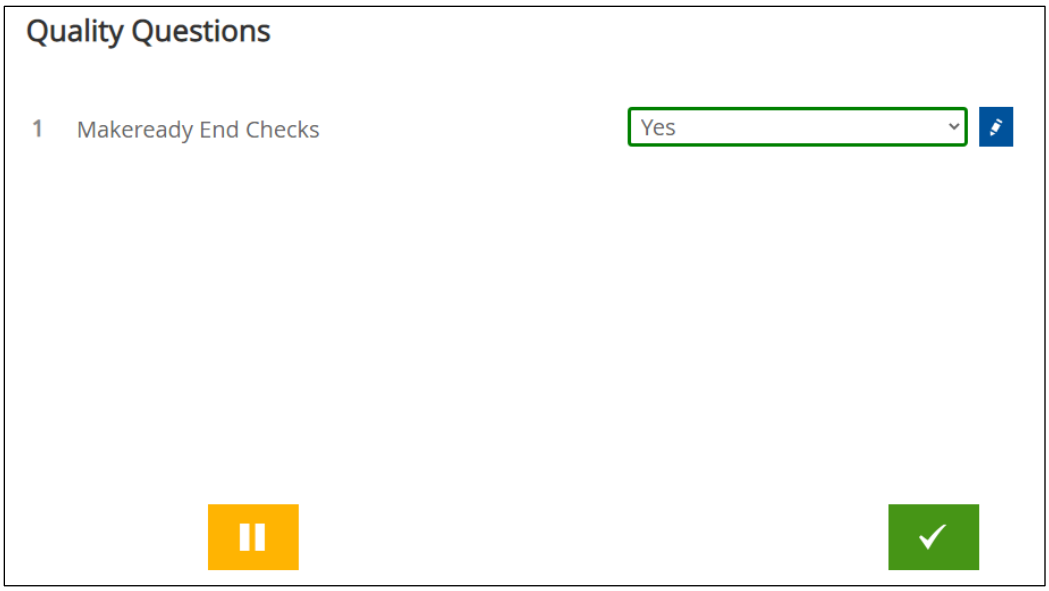
Example 8: Quality Technician Required

This example question requires a Quality Technician type user to answer before proceeding.

Note In Plant Manager > Employee, choose Quality Technician to designate an employee as a quality technician.



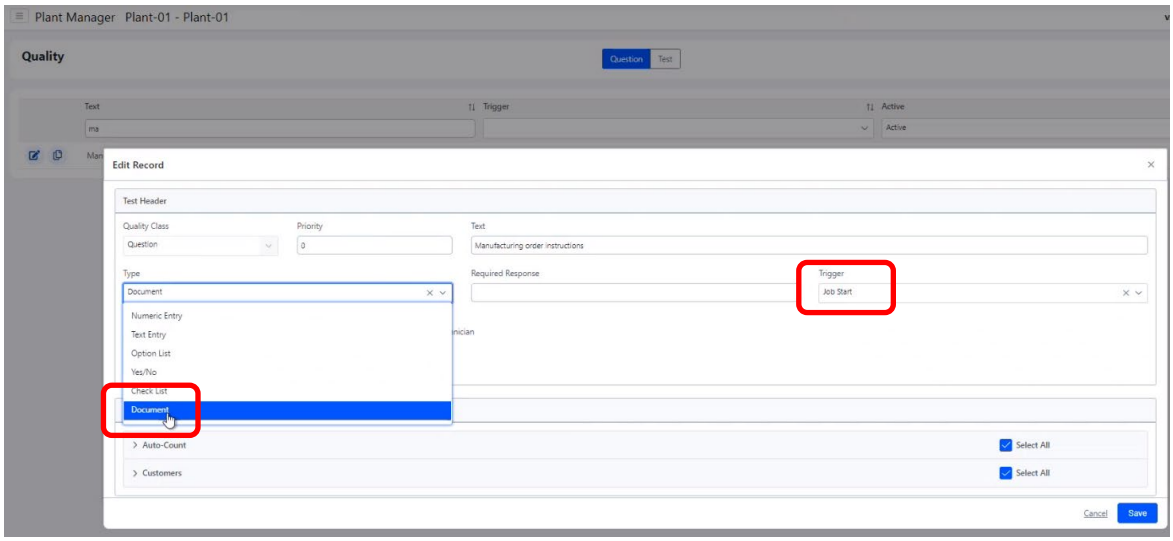

Technician Password
Select Technician
JM1 - James Maskell Plant 1
001 - John Jones
JM1 James Maskell Plant...
Password


Quality Questions
1 Makeready End Checks
Yes

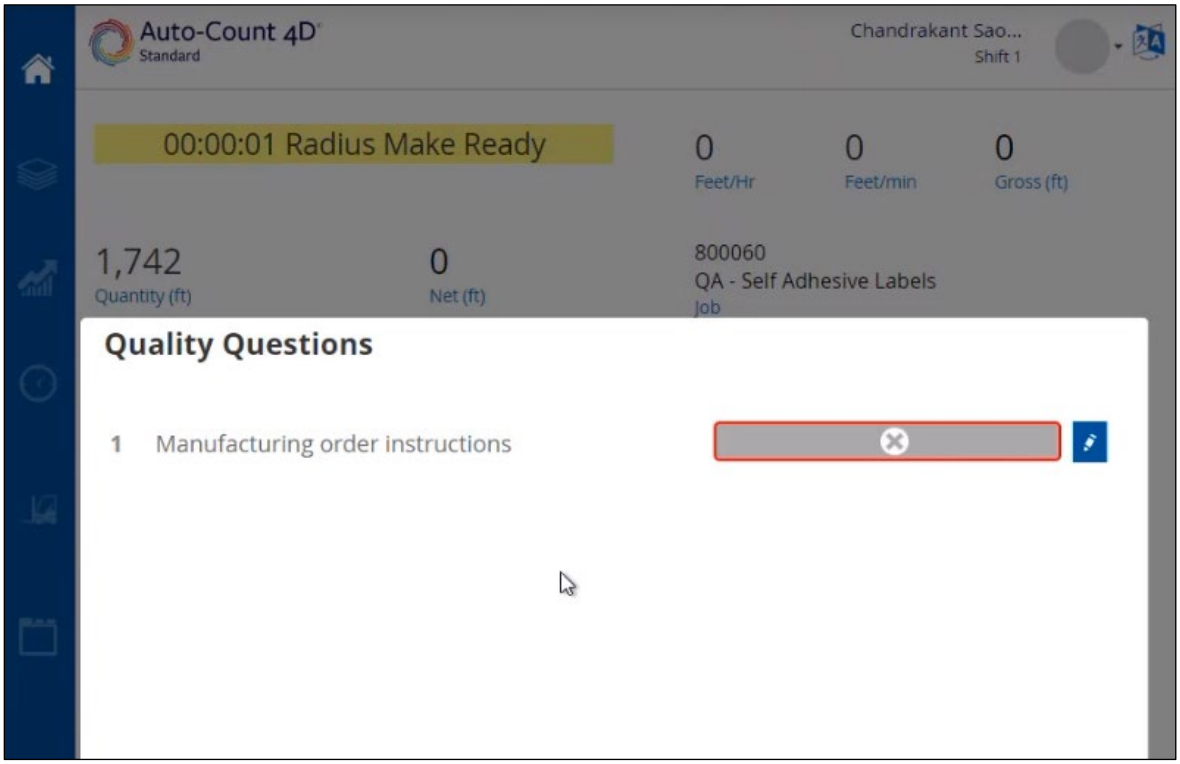
Example 9: Document Type of Question for Manufacturing Instructions

You can create a Quality Question which will require the operator to read a document(s) before running a job. This is very useful for when the operator must adhere to specific manufacturing instructions, especially if those instructions are updated frequently.

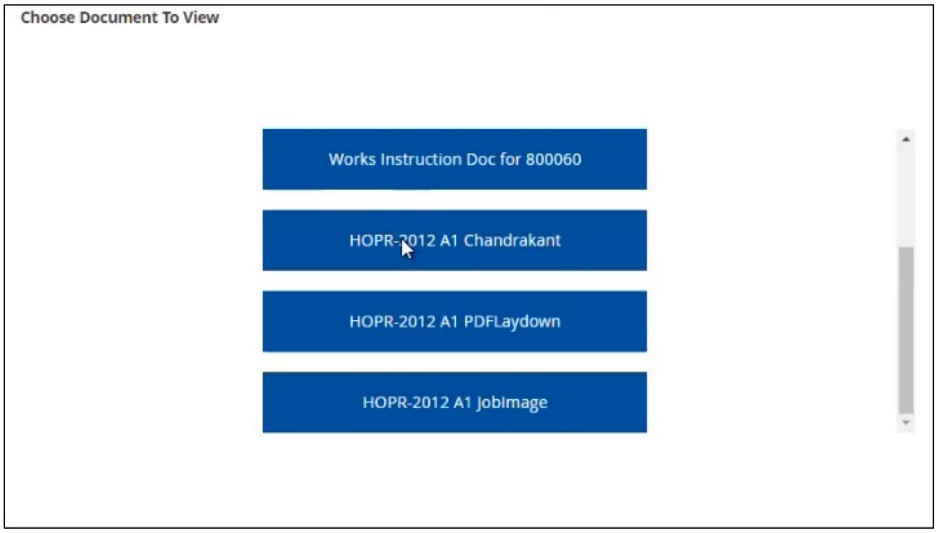
> **Note** This feature is only available if your manufacturing instructions are accessible via a URL address. Please see the Auto-Count Setup and User Guides for details.



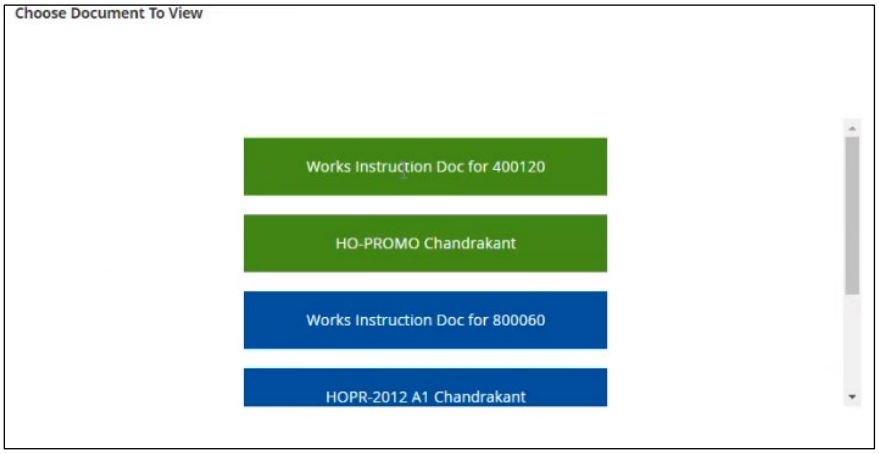
Once the feature is set up, operators will be prompted to open work instruction documents.



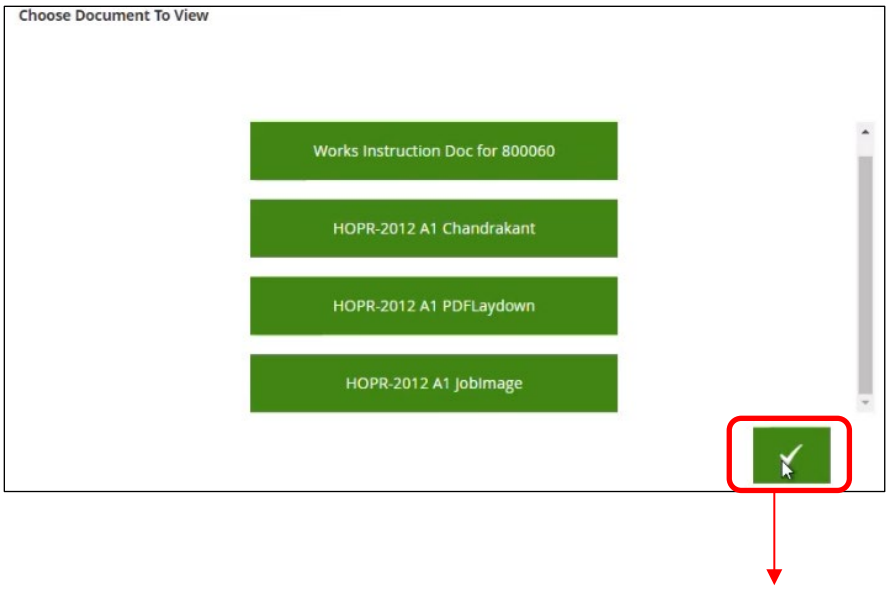
The operator will then choose a document to view.

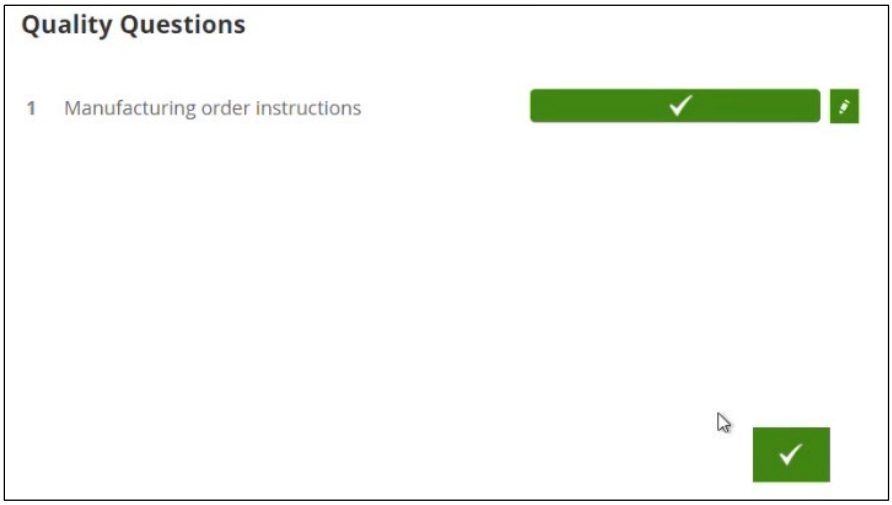


Documents that have been previously opened are displayed in green so the operator can keep track of what they've reviewed if there are several documents.



Once all the documents have been reviewed, the operator can close the documents window, complete the Quality Question and proceed with the job.




Quality Questions
1 Manufacturing order instructions

Adding Quality Data to Output Ticket/Label Reports

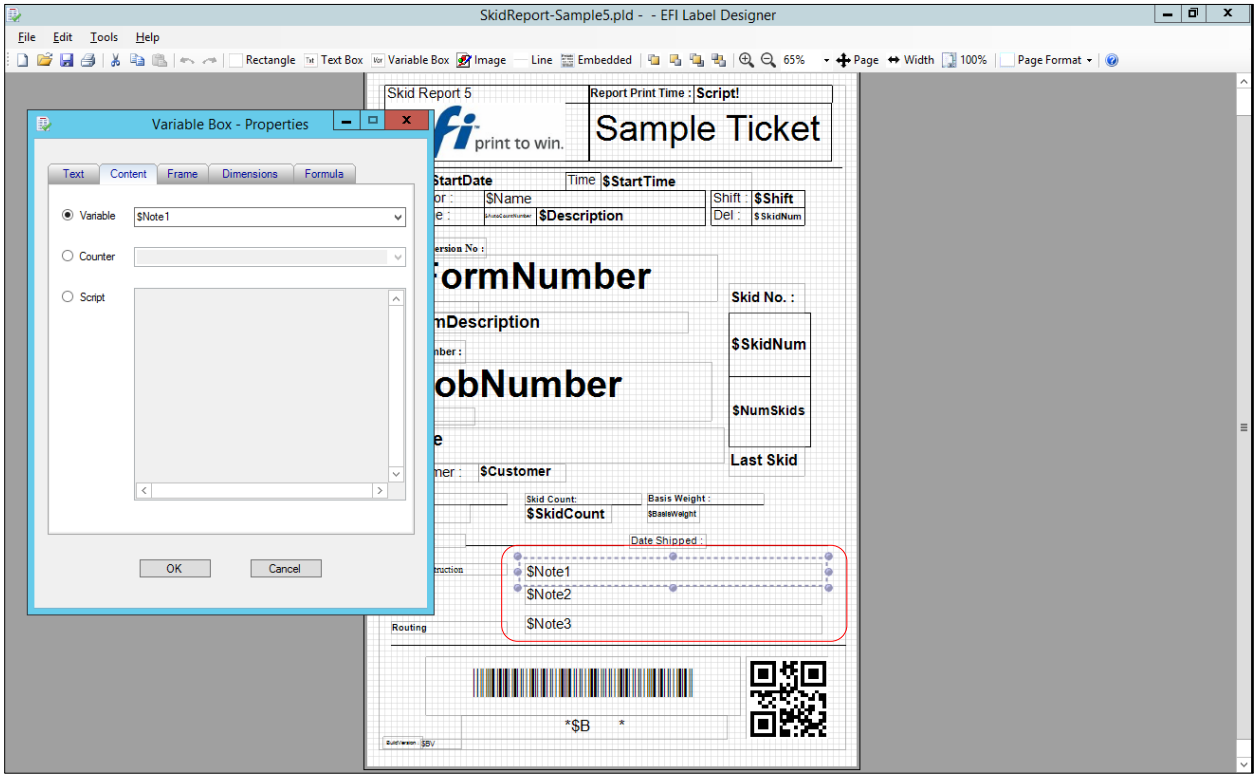
> **Notes** To create reports, you should be familiar with creating SQL statements and navigating your Plant Manager SQL database.
>
> For more information on how to install and use Label Designer, please see *Auto-Count Label Designer – Install & User Guide*.

You may want operators to enter information during a run and have that information automatically printed on a pallet ticket. You can set up a manually triggered question and the operator must enter or scan the information which they want to be printed on the output ticket or label. For example, as the operator is loading infeed product, they may need to enter an expiration date which comes with that infeed material but is not part of the job information from the MIS system. The operator must manually enter it during the run because the expiration date is very important for downstream processes so it must be on the pallet ticket. You can use the Quality Questions feature to capture this information and then print it on the output tickets or labels.

To do this, you must create your ticket/label reports using Label Designer or Crystal Reports.

Label Designer Example

This is an example ticket template with Note1, Note2 and Note3. These fields are variables which pull information from the Plant Manager database.



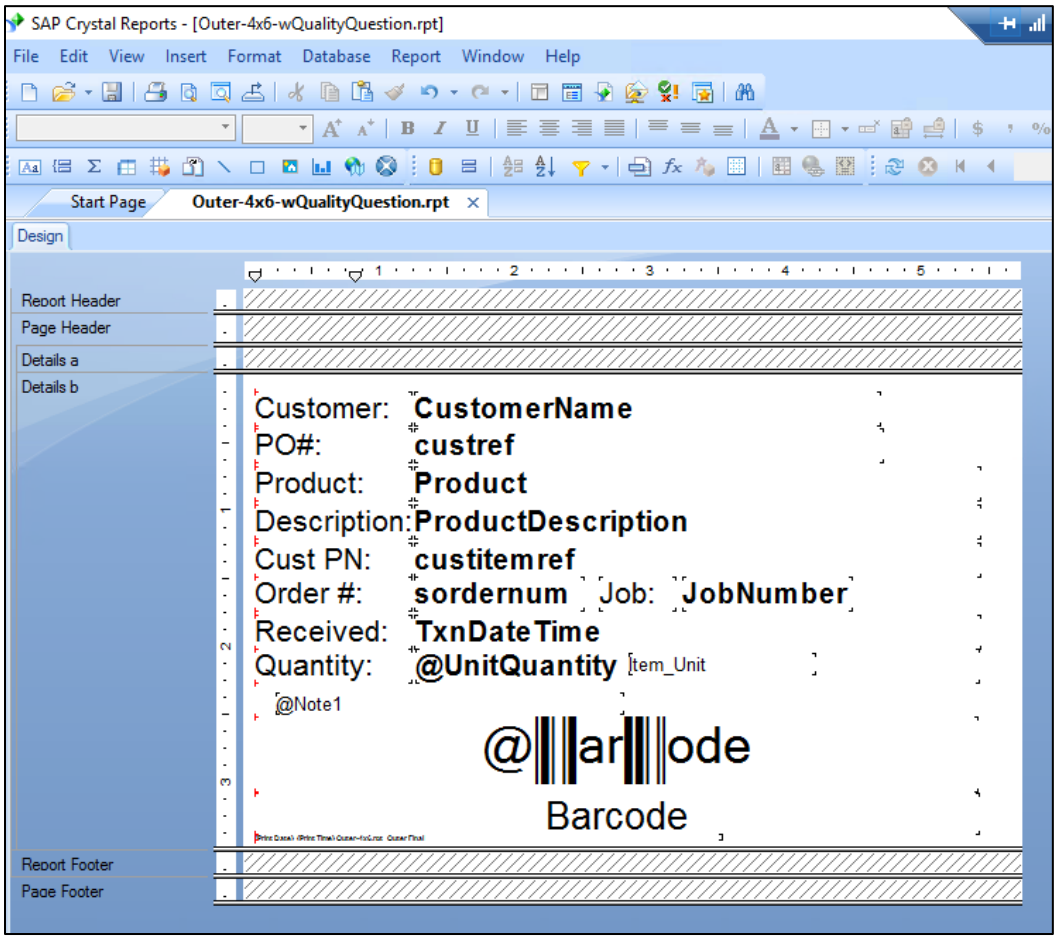
Below is an example SQL query which creates the Note variables used in the ticket report. SQL creates the Note1 variable which is then used by the report to extract the quality question and the operator's answer for the ticket.

```
select
(select BuildVersion from BuildVersion) as BV,
e.Description Name,
j.Description Title,
s.StartDateTime StartDate,
RIGHT('0'+CAST(DATEPART(hour, s.StartDateTime ) as varchar(2)),2) + ':' +
RIGHT('0'+CAST(DATEPART(minute, s.StartDateTime )as varchar(2)),2) StartTime,
f.Description FormDescription,
C.CustomerNumber Customer,
c.Description CustomerDescription,
sh.Shift Shift,
SkidType,
SkidCount,
SkidNum,
NumSkids,
LastSkidFlag,
AveragePieceWeight,
SpecialInstructions,
Net,
Routing,
Barcode,
a.AutoCountNumber AutoCountNumber,
a.Description Description,
e.Employee Employee,
j.JobNumber JobNumber,
f.FormNumber FormNumber,
BasisWeight,
f.FormWidth FormWidth,
f.FormLength FormLength,
s.AddrLine1 AddrLine1,
s.AddrLine2 AddrLine2,
s.AddrLine3 AddrLine3,
s.AddrLine4 AddrLine4,
(select Top 1 e.Description + ' ' + e.Response from TxnSummary t, TxnEvent e where
s.runId = t.RunId
and s.AutoCountId = t.AutoCountId
and t.TxnSummaryId = e.TxnSummaryId
and e.TxnDateTime <= s.TxnDateTime
and e.EventCode = '25' and e.ProductIndex = 1000001 order by t.TxnSummaryId desc) Note1,
(select Top 1 e.Description + ' ' + e.Response from TxnSummary t, TxnEvent e where
s.runId = t.RunId
and s.AutoCountId = t.AutoCountId
and t.TxnSummaryId = e.TxnSummaryId
and e.TxnDateTime <= s.TxnDateTime
and e.EventCode = '25' and e.ProductIndex = 1000002 order by t.TxnSummaryId desc) Note2,
(select Top 1 e.Description + ' ' + e.Response from TxnSummary t, TxnEvent e where
s.runId = t.RunId
and s.AutoCountId = t.AutoCountId
and t.TxnSummaryId = e.TxnSummaryId
and e.TxnDateTime <= s.TxnDateTime
and e.EventCode = '25' and e.ProductIndex = 1000003 order by t.TxnSummaryId desc) Note3
from TxnSkid s, AutoCount a, Employee e, Job j, Form f, Plant p, Customer c, TxnDetail d,
TxnSummary t, Shift sh
Where
a.AutoCountId = s.AutoCountId and
p.PlantId = a.PlantId and
```

```
e.EmployeeId = s.EmployeeId and
j.JobId = s.JobId and
f.FormId = s.FormId and
j.CustomerId = c.CustomerId and
d.TxnDetailId = s.TxnDetailId and
t.TxnSummaryId = d.TxnSummaryId and
sh.ShiftId = t.EmployeeShiftId and
s.Barcode = '{BARCODE}'
```

Crystal Reports Example

Here is an example ticket report in Crystal Reports using Note 1.



Below is an example SQL query which creates the Note variables used in the ticket report. The highlighted text shows how SQL creates the Note1 variable which is then used by the report to extract the quality question and the operator's answer for the ticket.

```
SELECT
 a.AutoCountNumber,
 a.Description ACDescription,
 a.EquipmentTypeId,
 c.CustomerNumber,
 c.Description CustomerName,
 e.Description EmployeeName,
 e.Employee,
 f.BasisWeight,
 f.Description FormDescription,
 f.FormNumber,
 f.FormLength,
 f.FormWidth,
 f.MisTask,
 j.JobNumber,
 j.Description JobDescription,
 pd.Product,
 pd.ProductDescription,

-- Radius default MIS Data Values
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:sordernum[1]',
  'nvarchar(30)') as sordernum,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:custref[1]',
  'nvarchar(30)') as custref,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:addtcustf[1]',
  'nvarchar(30)') as addtcustref,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:sorderlinenum[1]',
  'nvarchar(30)') as sorderlinenum,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:custpolineref[1]',
  'nvarchar(30)') as custpolineref,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:soitemtypecode[1]',
  'nvarchar(30)') as soitemtypecode,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:itemcode[1]',
  'nvarchar(30)') as itemcode,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:itemdec[1]',
  'nvarchar(30)') as itemdesc,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:custitemref2[1]',
  'nvarchar(30)') as custitemref2,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:custitemref[1]',
  'nvarchar(30)') as custitemref,

-- Radius MIS Data from Custom Properties
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:Item_Class[1]',
  'nvarchar(30)') as Item_Class,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:Item_GSM[1]',
  'nvarchar(30)') as Item_GSM,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:Item_Unit[1]',
  'nvarchar(30)') as Item_Unit,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:Est_Module[1]',
  'nvarchar(30)') as Est_Module,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:prof_blank_length[1]',
  'nvarchar(30)') as prof_blank_length,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:prof_blank_width[1]',
  'nvarchar(30)') as prof_blank_width,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:prof_dim_A[1]',
  'nvarchar(30)') as prof_dim_A,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:prof_dim_B[1]',
  'nvarchar(30)') as prof_dim_B,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:SAL_Die_Repeat[1]',
  'nvarchar(30)') as SAL_Die_Repeat,
 pd.MISData.value('/*:AdditionalFields[1]/*:AdditionalFieldsRow[1]/*:SAL_Die_NumDown[1]',
  'nvarchar(30)') as SAL_Die_NumDown,
```

```
 s.Barcode,
 s.ContainerDescription,
 s.FinalTask,
 s.LastSkidFlag,
 s.Net,
 s.NumSkids,
 s.Routing,
 s.SkidCount,
 s.SkidType,
 s.SkidNum,
 s.StartDateTime,
 s.TxnDateTime,
 s.UOM,
 sh.Shift,
 case_qty_per.Qty,
 case_qty_per.qty_per_case,
 case_qty_per.PartialQty,
 case_qty_per.qty_per_partial_case,

-- Subquery to extract quality questions label and data, information will be stored in field labeled Note1
 --Product index value can be found in QualityQuestion table as QualityQuestionID
 --Event code = 25 for QualityQuestions & WIP Quality Tests
--Add additional subqueries for Multiple Quality Questions

 (select Top 1 e.Description + ' ' + e.Response from TxnSummary t, TxnEvent e where s.runId = t.RunId
and s.AutoCountId = t.AutoCountId
and t.TxnSummaryId = e.TxnSummaryId
and e.TxnDateTime <= s.TxnDateTime
and e.EventCode = '25' and e.ProductIndex = 1000002 order by t.TxnSummaryId desc) Note1


 FROM TxnSkid              s
 LEFT JOIN AutoCount       a       ON (s.AutoCountId = a.AutoCountId)
 LEFT JOIN Plant           p       ON (a.PlantId = p.plantId)
 LEFT JOIN Employee        e       ON (s.EmployeeId = e.EmployeeId)
 LEFT JOIN Job             j       ON (s.JobId = j.JobId)
 LEFT JOIN Form            f       ON ((s.FormId = f.FormId) AND (s.JobId = f.JobId))
 LEFT JOIN Customer        c       ON (j.CustomerId = c.CustomerId)
 LEFT JOIN Product         pd      ON (s.ProductId = pd.ProductId)
 LEFT JOIN Shift           sh      ON (e.ShiftId = sh.ShiftId)
 LEFT JOIN TxnDetail       d       ON (d.TxnDetailId = s.TxnDetailId)
 LEFT JOIN TxnSummary      t       ON (t.TxnSummaryId = d.TxnSummaryId)

LEFT JOIN
( SELECT Container, MAX(Qty) AS Qty, MAX(skidcount) AS qty_per_case, MIN(Qty) AS PartialQty, MIN(skidcount) AS
qty_per_partial_case
  FROM ( SELECT COUNT(*) AS Qty, t1.container, t1.skidcount
               FROM txnskid t1
              GROUP BY t1.container, t1.skidcount ) d
GROUP BY Container ) case_qty_per
   ON case_qty_per.container = s.Barcode

 WHERE
 a.PlantId = {?PlantSelection} and
 s.Barcode = '{?Barcode}'
```