Kofax Kapow 10.3 Training and Certification

# Module 16 – More Advanced Device Automation

## Interacting with Available Data

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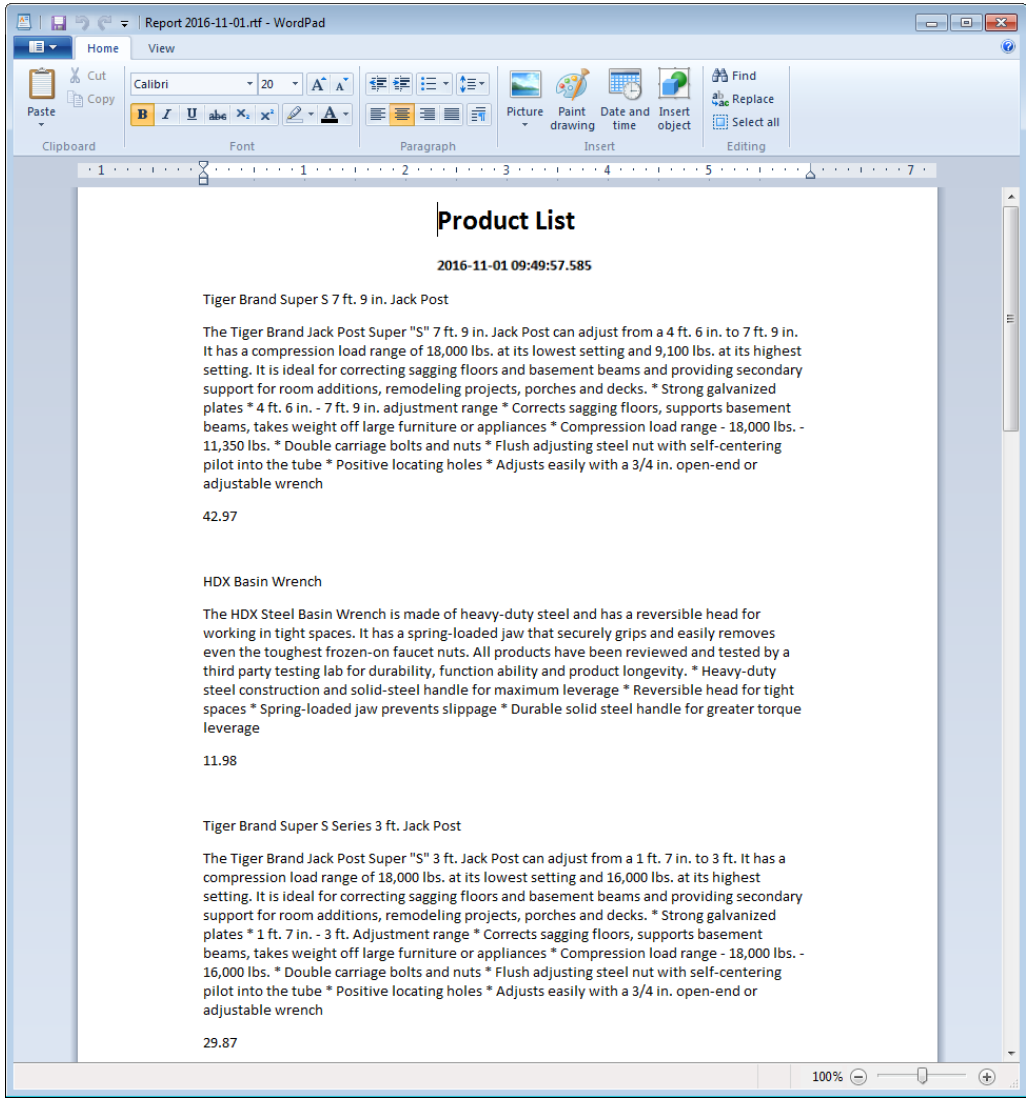
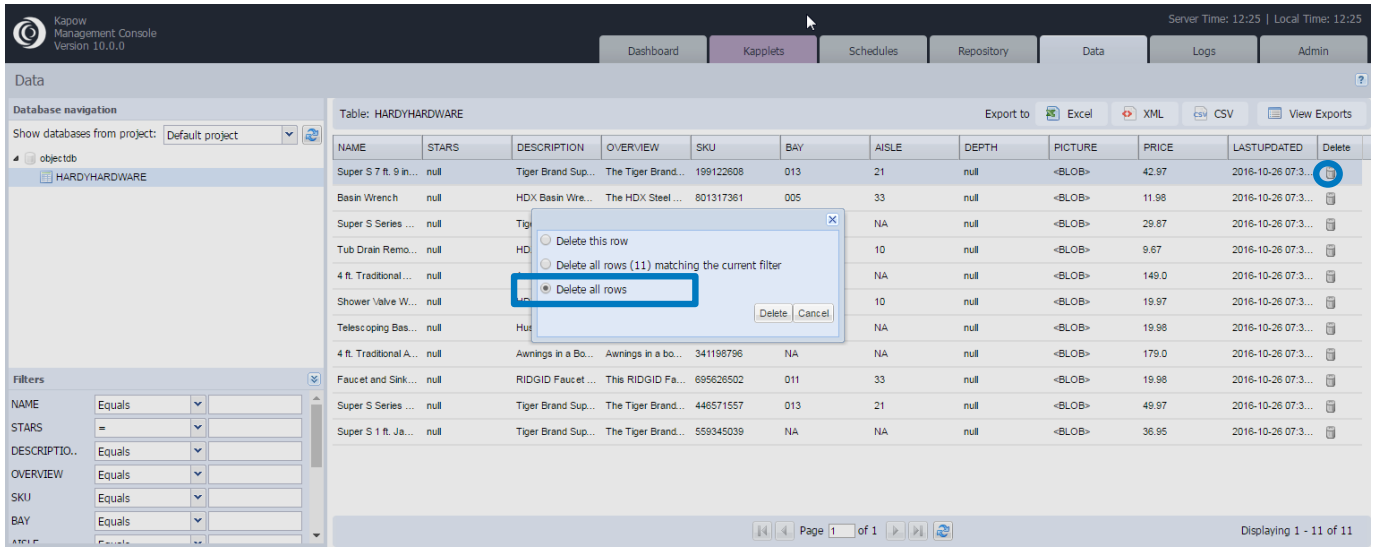
# What You Will Do

- In this module, you'll continue building your Robot to extract existing data created by your Seach_Item robot and residing in the Development Database.
- You'll loop through the database, extracting the description, overview and price for each item and populate your WordPad document with that data. Notice the spacing between items and paragraphs.
- You'll save the document with a unique name that includes the system date, and you'll close WordPad to leave it in a clean state.



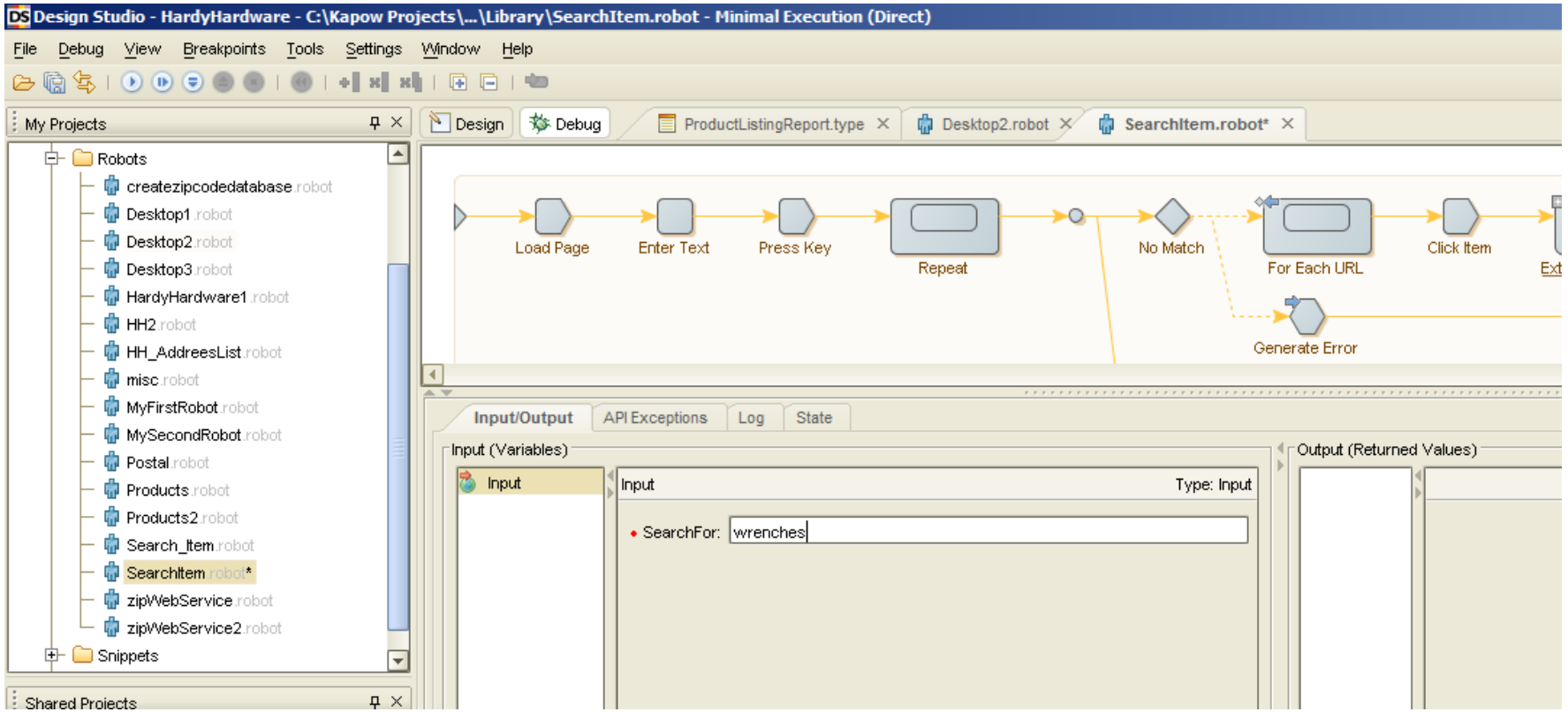
# But Before We Start…

- Our development database contains a lot of data from previous robots we've run in this class.
- We will clear the database of old data.
- We will generate new data with our Search_Item robot to return a limited number of results by using a new search term.
- So we'll begin by going to the Management Console and then the Data tab.



# Then We'll Rerun the SearchItem Robot

- Rerun your SearchItem Robot using "Wrenches" as the value for your input variable. There are only 11 matching items at HardyHardware, and for testing, this smaller database will be much more manageable.

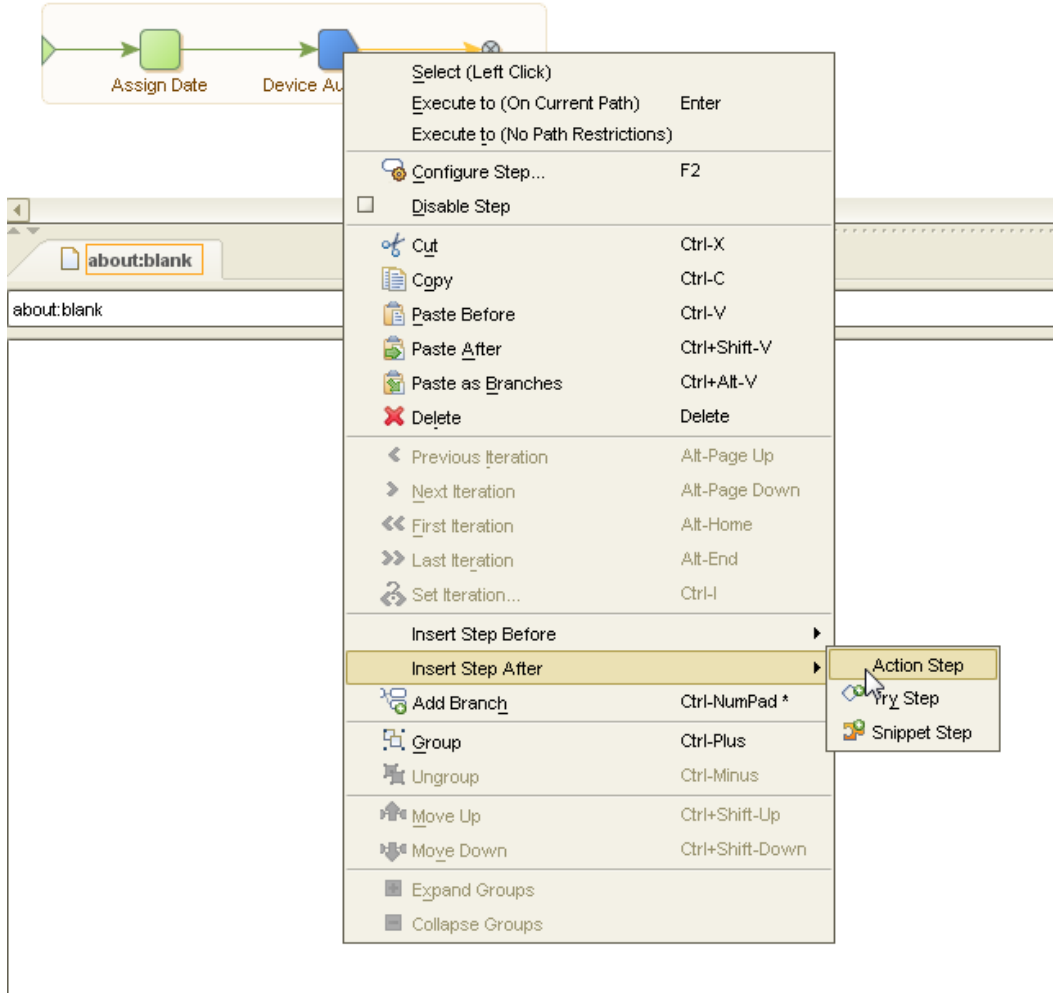


# Go back to your ProductReport Robot

- After making sure that you've closed WordPad on our Remote Device (remember, our robot doesn't do that yet, and your remote desktop will remain in the state you left it), reopen your ProductReport robot (it should be in the Quick Access tabs).
- We will add steps now that will loop through our Development Database and through a second Device Automation step, enter text on our WordPad document.

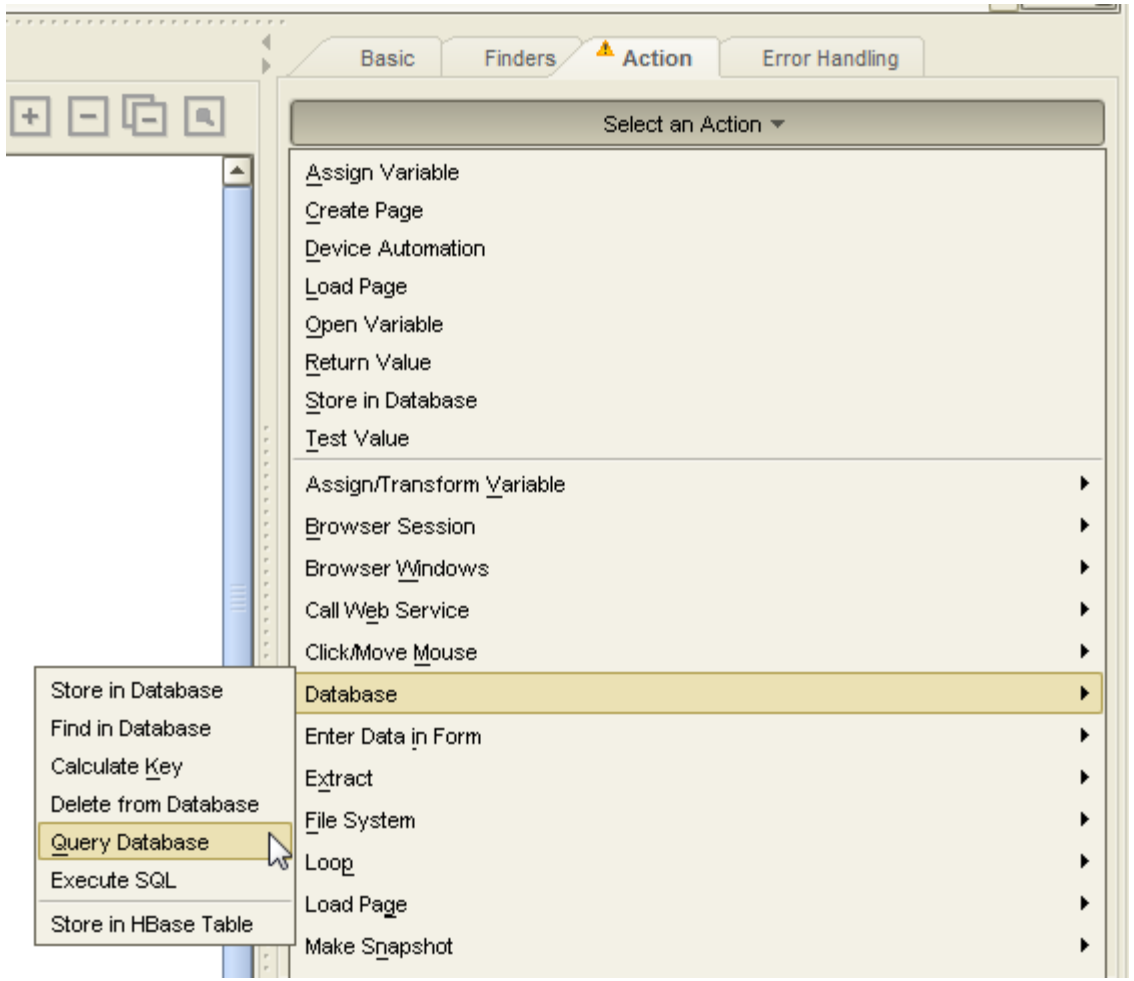
# Insert Action Step

- Insert a new Action Step after your Device Automation Step.
- Note: This will execute everything that comes before, so your device automation step will run.  Your WordPad document is open, the title and date are there, and it's waiting for next steps to happen.



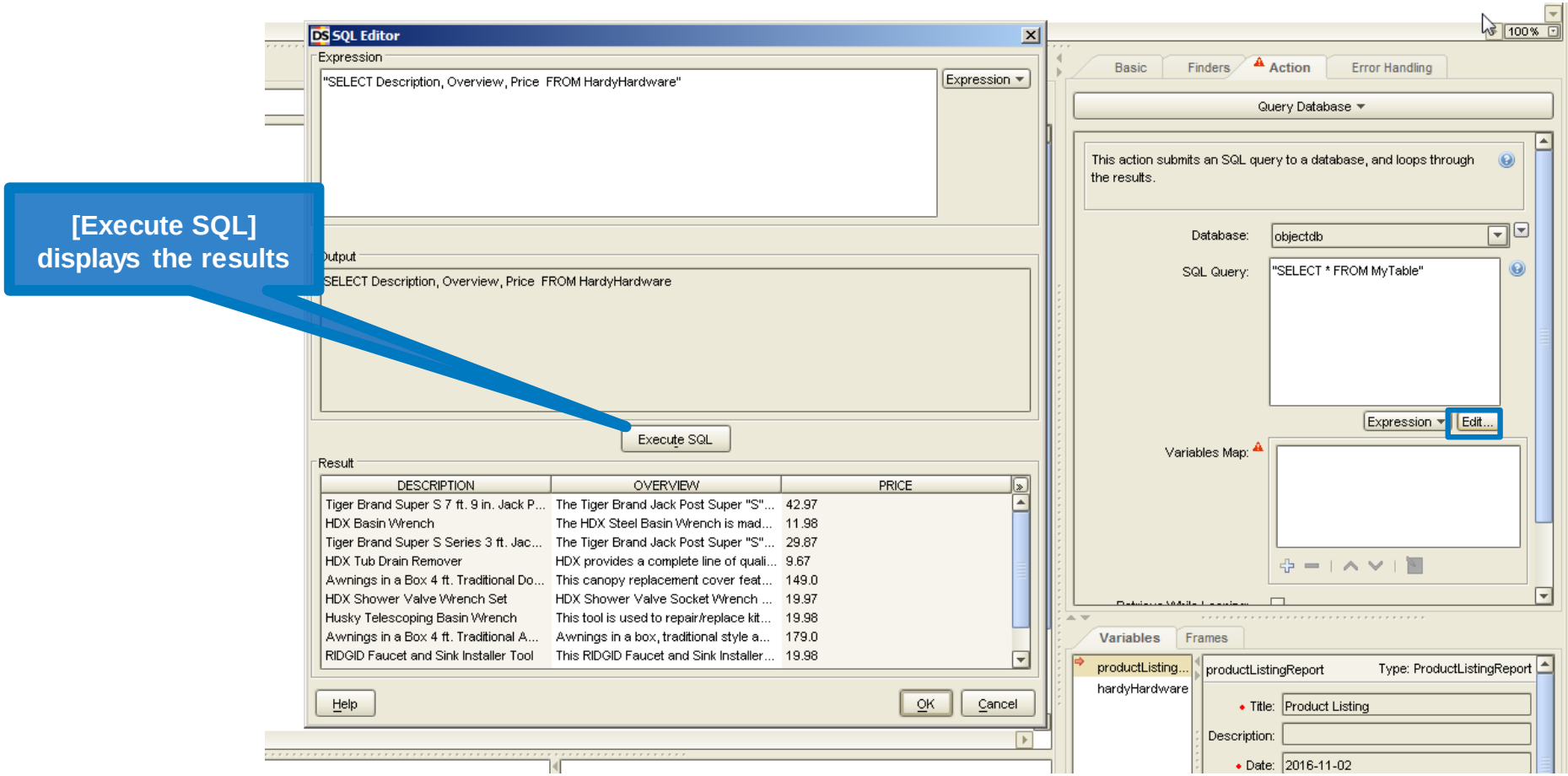
# Create Query Database Step

- Select the Query Database Action from the dropdown menu.
- You will now set this step to loop through your HardyHardware table in the development database.



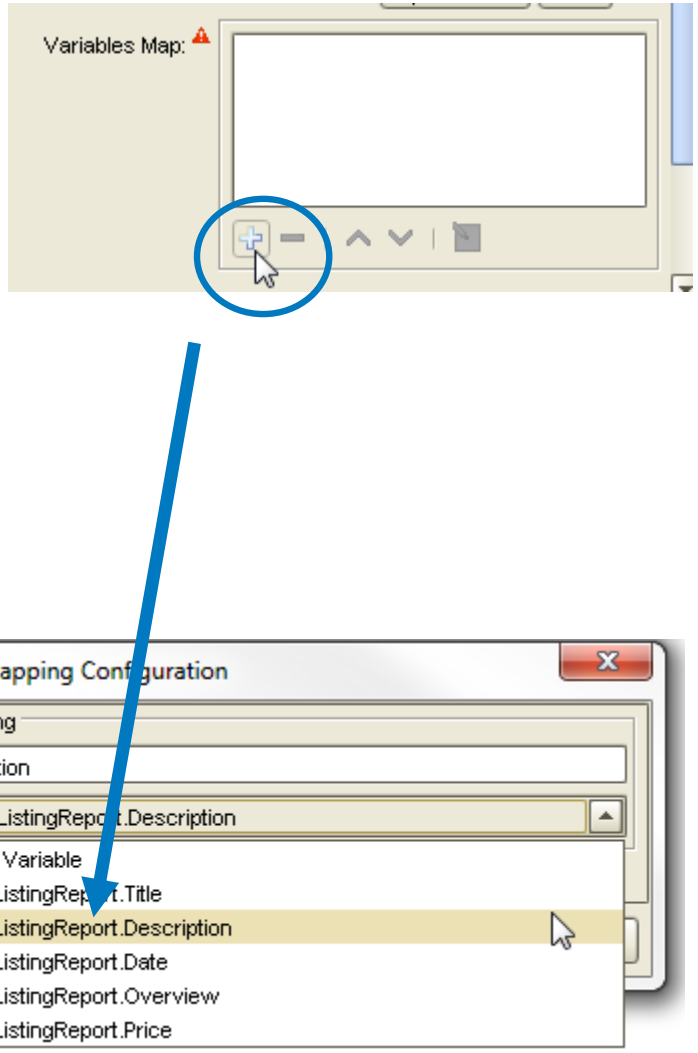
# Set Step Properties

- Edit the SQL statement to say:
  “**`SELECT Description, Overview, Price FROM HardyHardware`**”



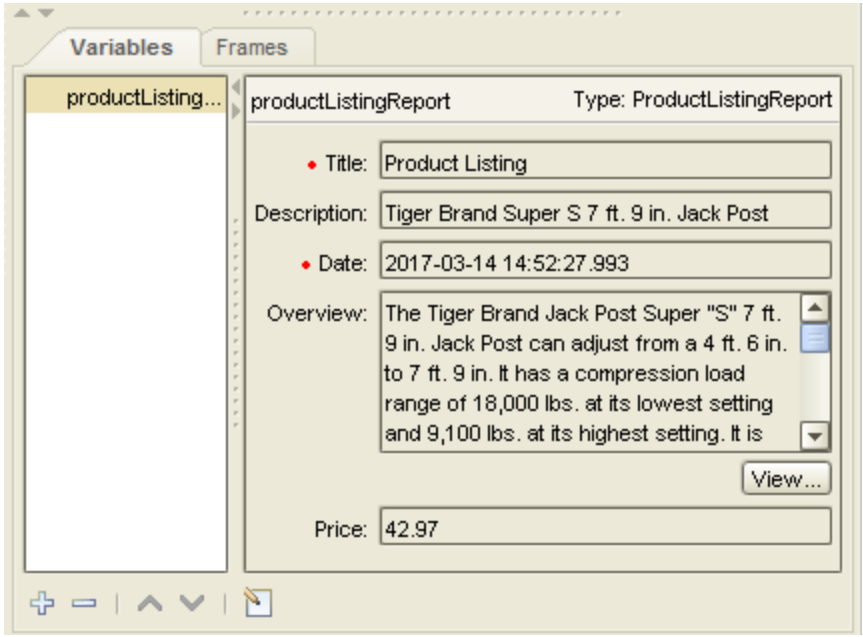
# Map Variables

- Map the three columns from your database table to the Variable:
  - Description > productListingReport.Description
  - Overview > productListingReport.Overview
  - Price > productListingReport.Price

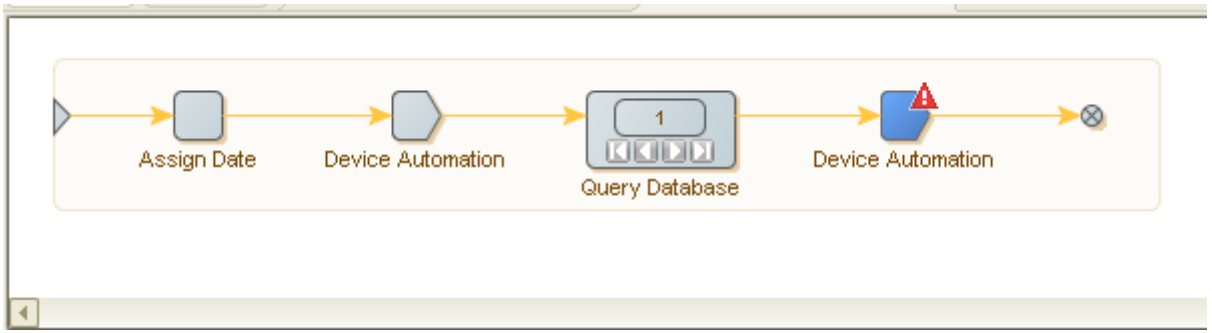


# Go to End Step to Test

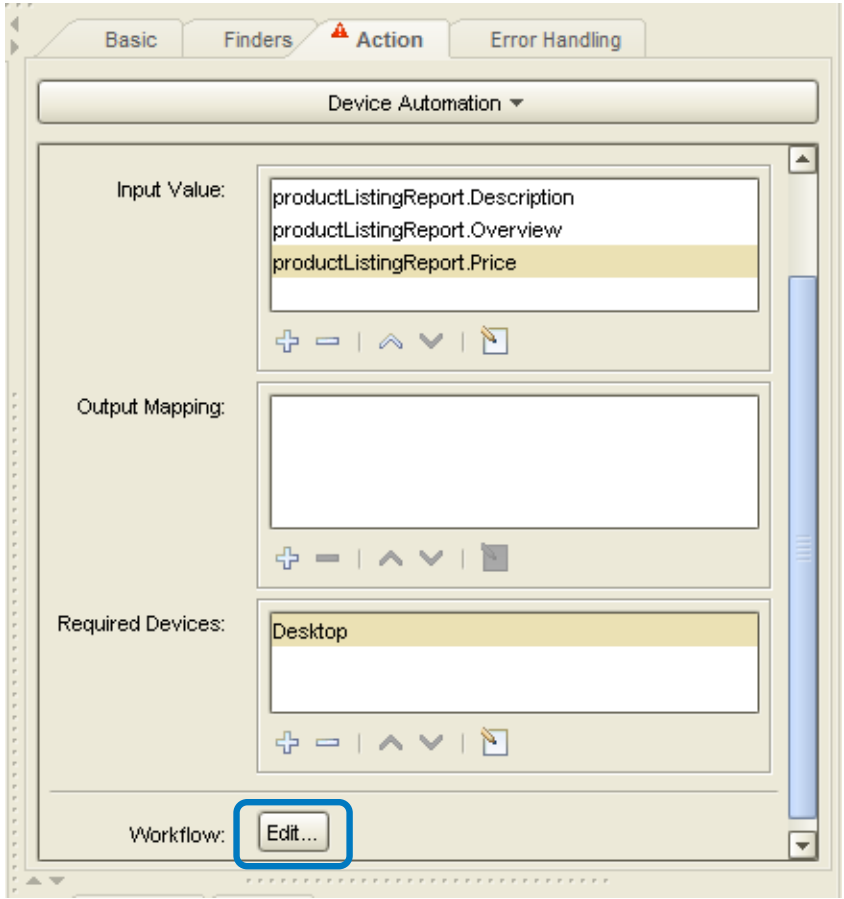

- Loop through the Query Database step and examine the results in the Variables panel.
- This is the data we will be using to enter on our WordPad document.
- The next step is to create a new Device Automation step to do that.



# Set Action Properties on Action Tab




- The new Desktop Automation step has been added.
- You will create three Input Values from our variables that will contain data that has been mapped from our database.
- “Desktop” has been selected as our Required Device. Now you need to [Edit] your workflow.



# How Do We Do What We Want as a Human?

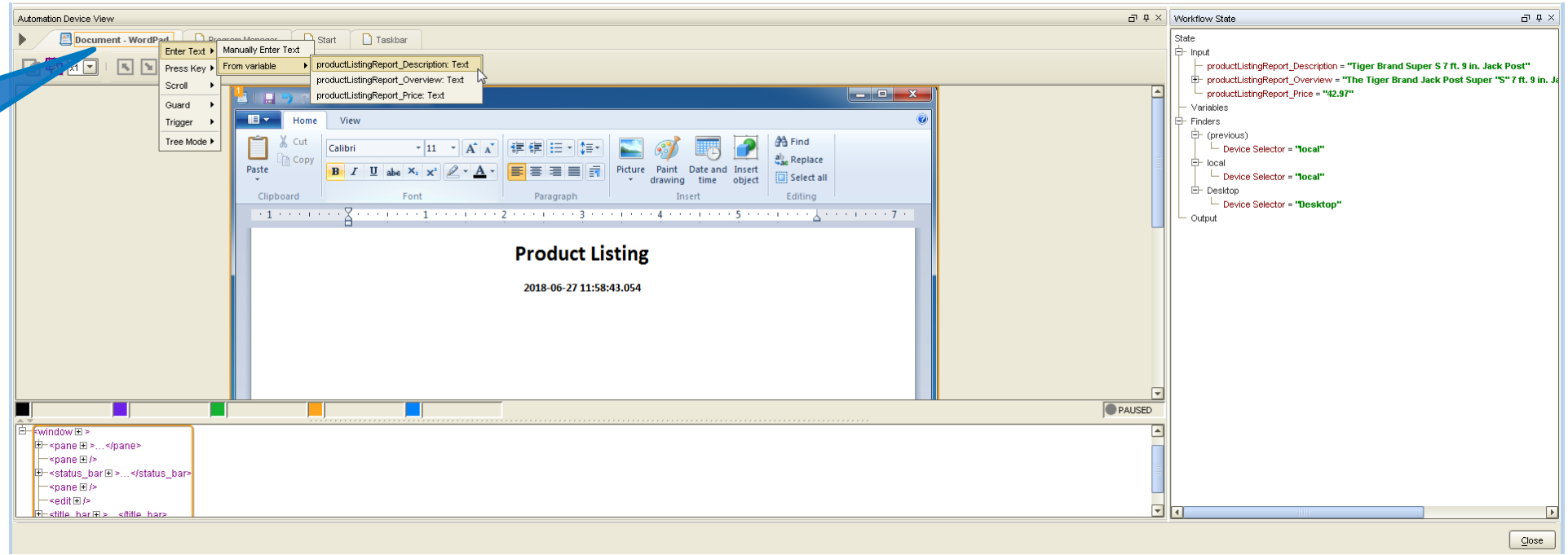
The steps in our workflow will go something like this:

1. Enter text from our Description variable.
2. Press the [Enter] key once to create new line.
3. Enter the text from our Overview variable.
4. Press the [Enter] key once to create new line.
5. Enter the text from our Price variable.
6. Press the [Enter] key twice to double space
7. And then loop back to get the next record in the database
8. After all records have been entered on our document, we want to save our document and close WordPad. (This will actually be a branch to another Device Automation after all records have been extracted)

# Creating our First Workflow Step

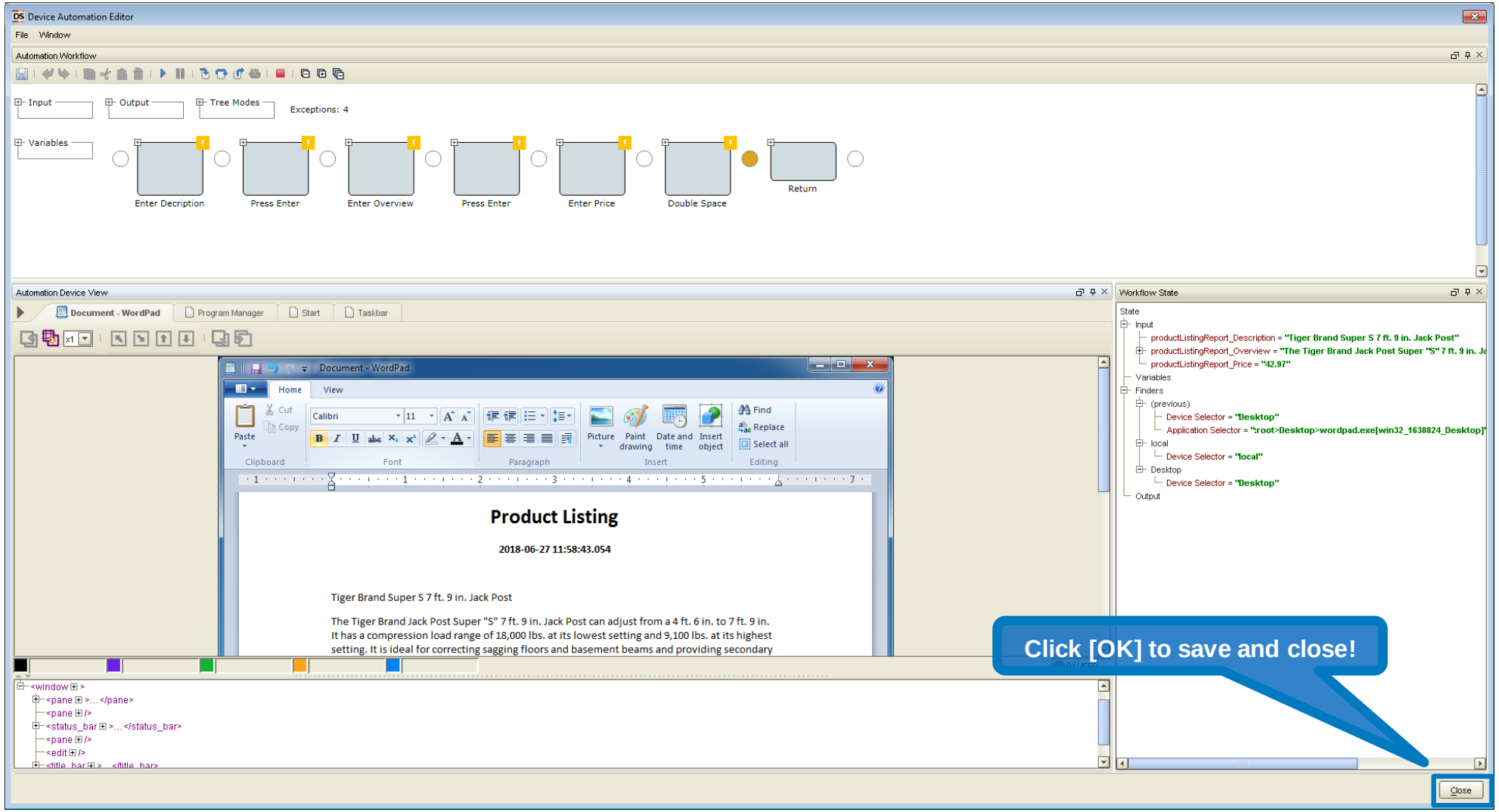
- The first step is to Enter Text from the productListingReport.Description variable.

**Tab selected and then right mouse-clicked. Then select "Enter Text" from the Context Menu.**



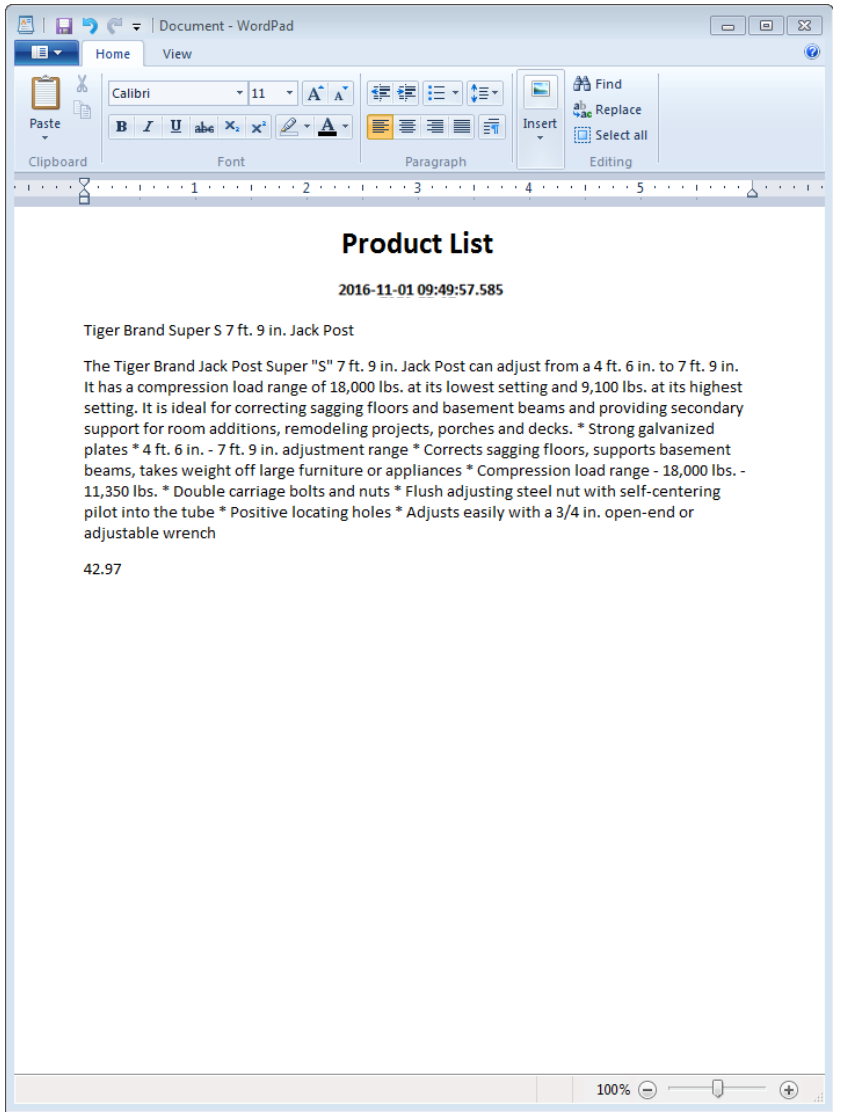
# Creating Subsequent Steps and Setting Properties

- A Press Key Step is created, clicking [Enter]. Subsequent steps are similarly set up.

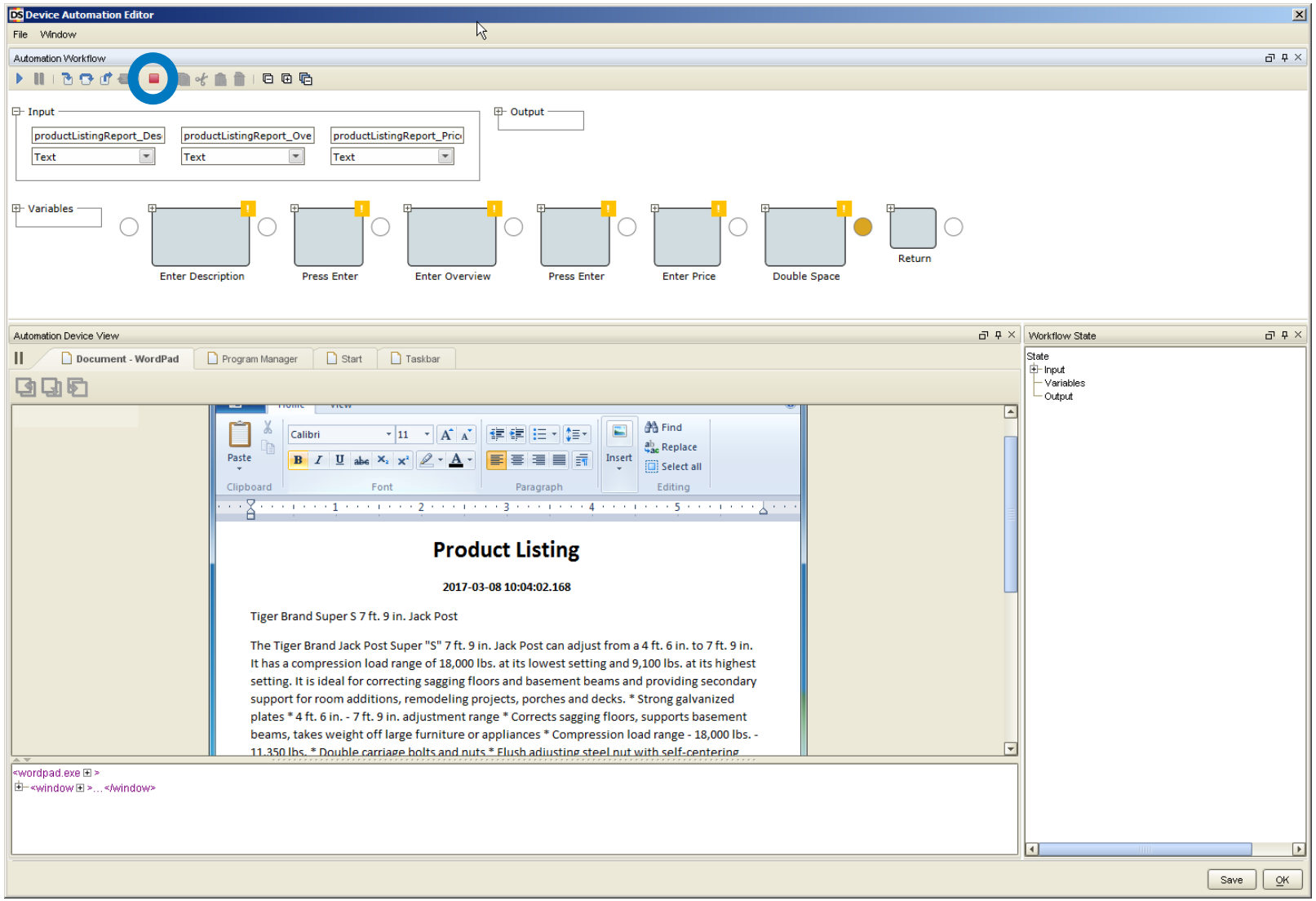


# And After The First Iteration of our Database Query…

- Stepping through our device automation workflow until the end is reached produces the following results on our remote desktop machine.
- This is the first iteration of what will be several records, so only one description, overview and price is displayed.
- Because we have not set a step to close WordPad, we'll close it at this point on our remote system to reset things to their original state.

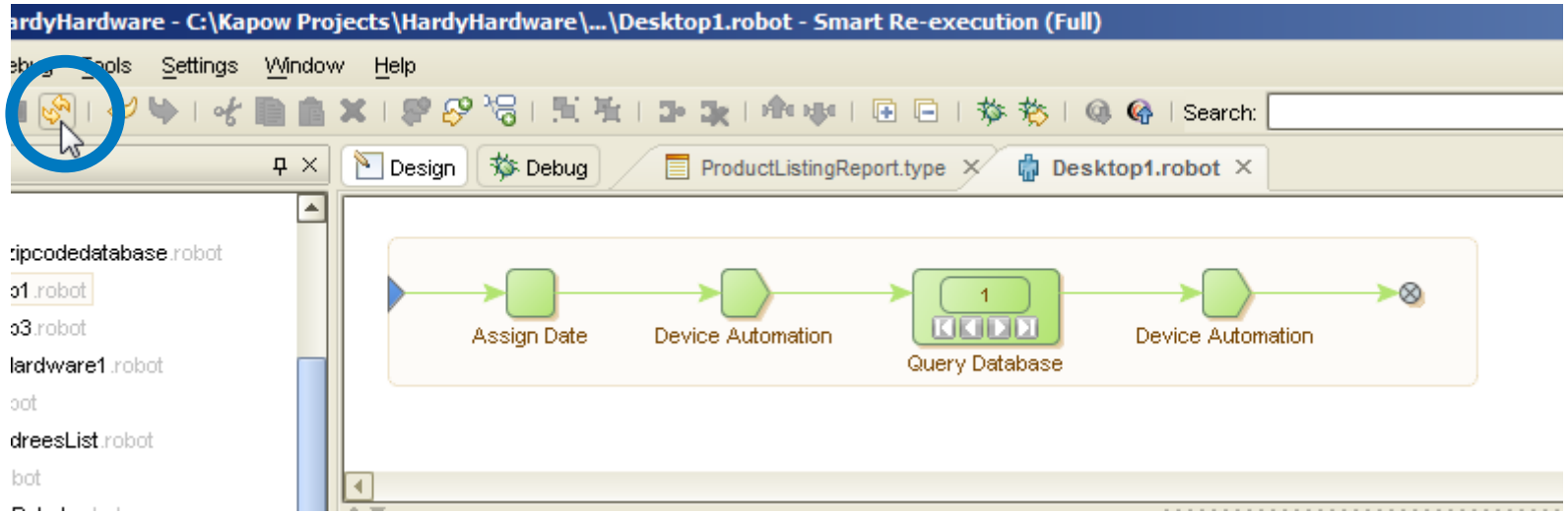


# Reset your Device Automation Step



# Refresh You Robot

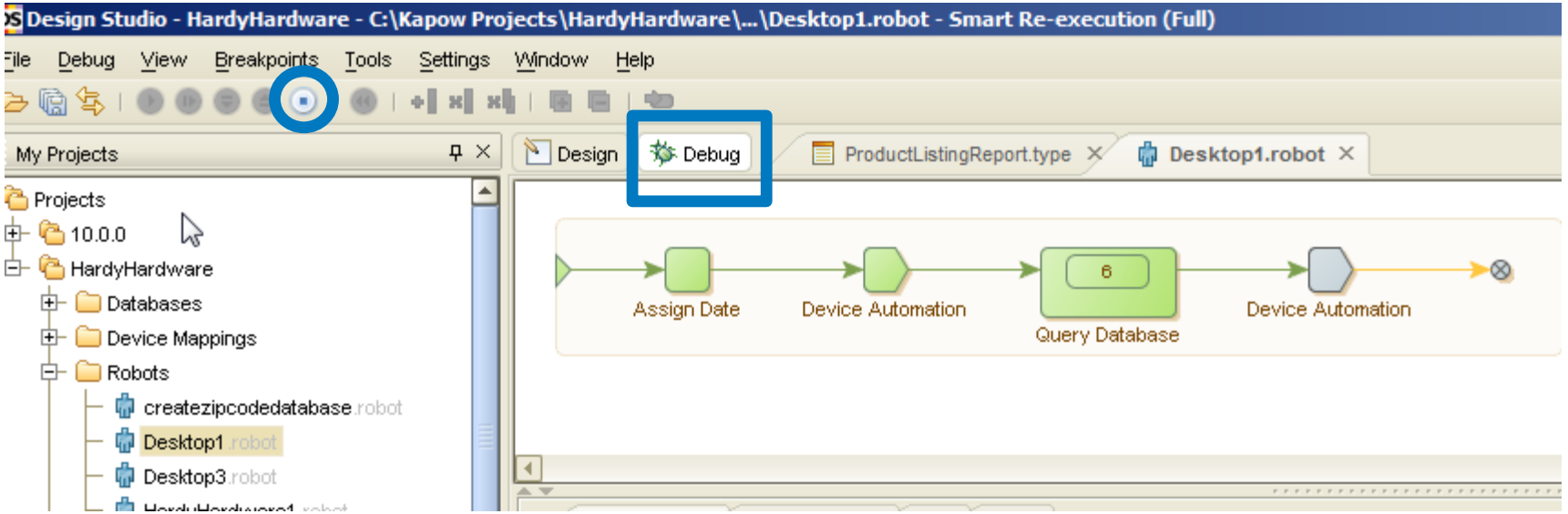
- Move your mouse to the beginning of the Robot and click on the Refresh button. Note that because of the 5000ms ping interval set in the configuration, you may have to wait 5 or more seconds to do this.



# Test in Debug Mode

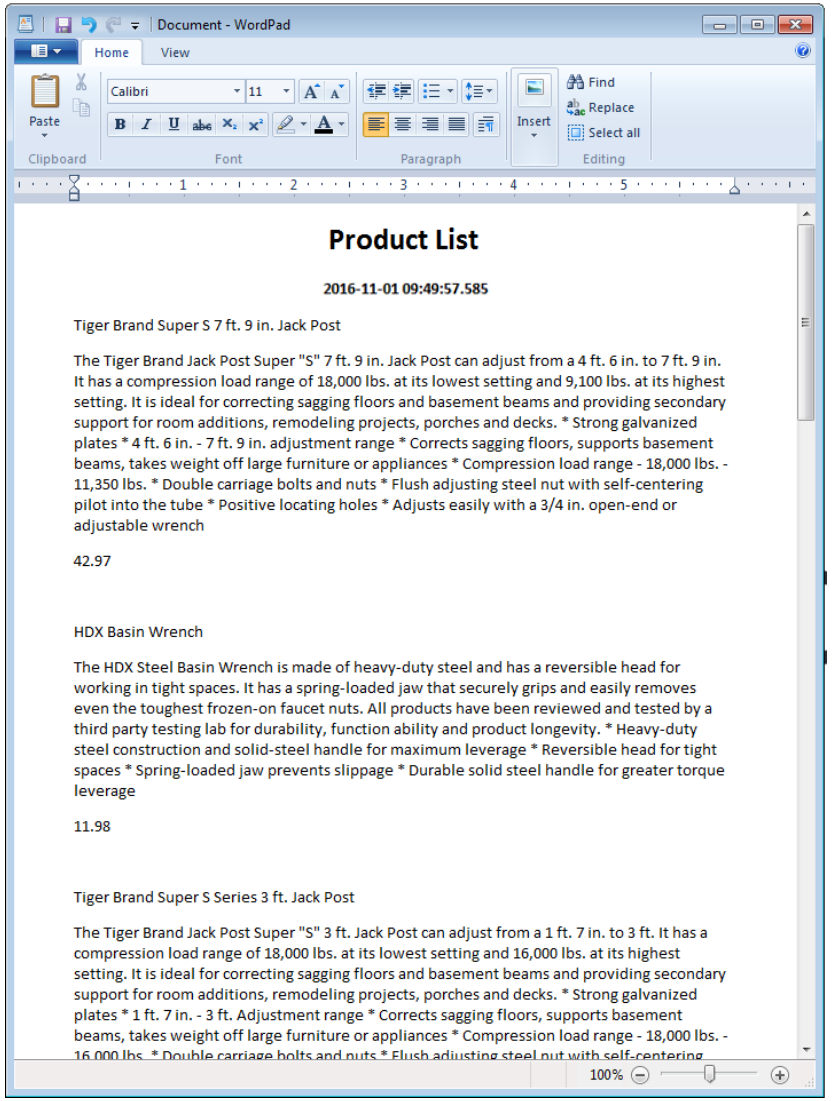
- Now we can run our robot from start to finish in Debug Mode.
  - NOTE: Sometimes you may find that your robot can't reconnect with the remote desktop. If this happens, even after refreshing, try this:

1. Save your project and close Design Studio
2. Go to your remote system and close the Device Automation Service. Then restart it.
3. Reopen Design Studio and try running your robot again in Debug Mode.



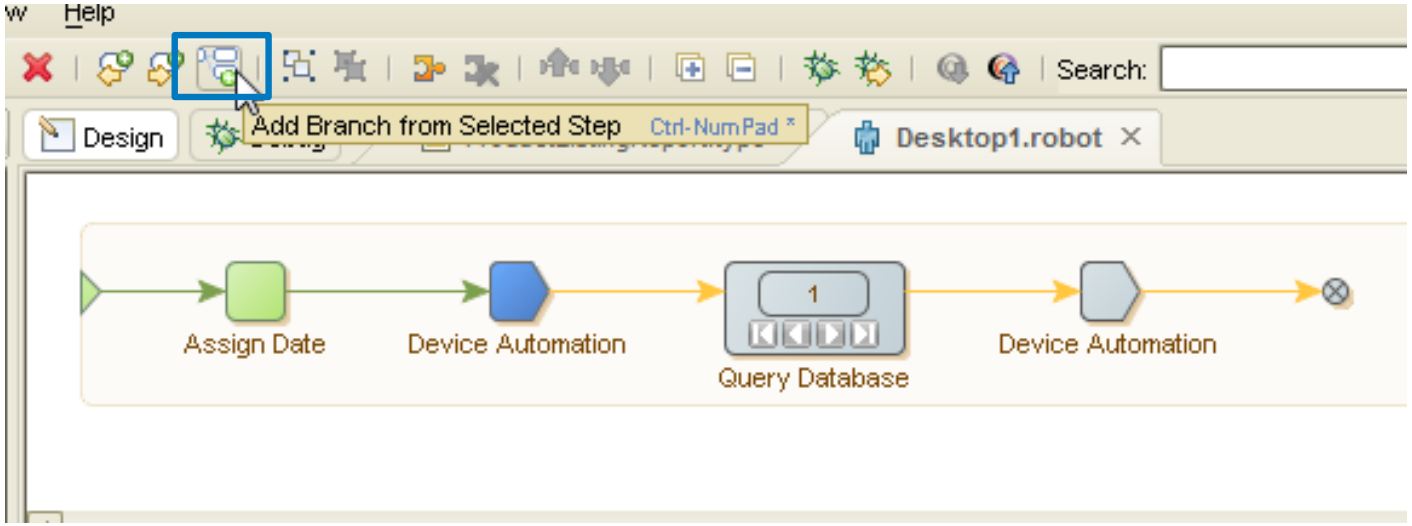
# And Your Document Looks Like This!

- If we go to our remote system, we see an open document in WordPad that looks like this one.
- All records have now been entered on our WordPad Document. Cool!
- But our document is in an open state. We still need to save it and close WordPad.
- So close your document manually for now and refresh your robot.



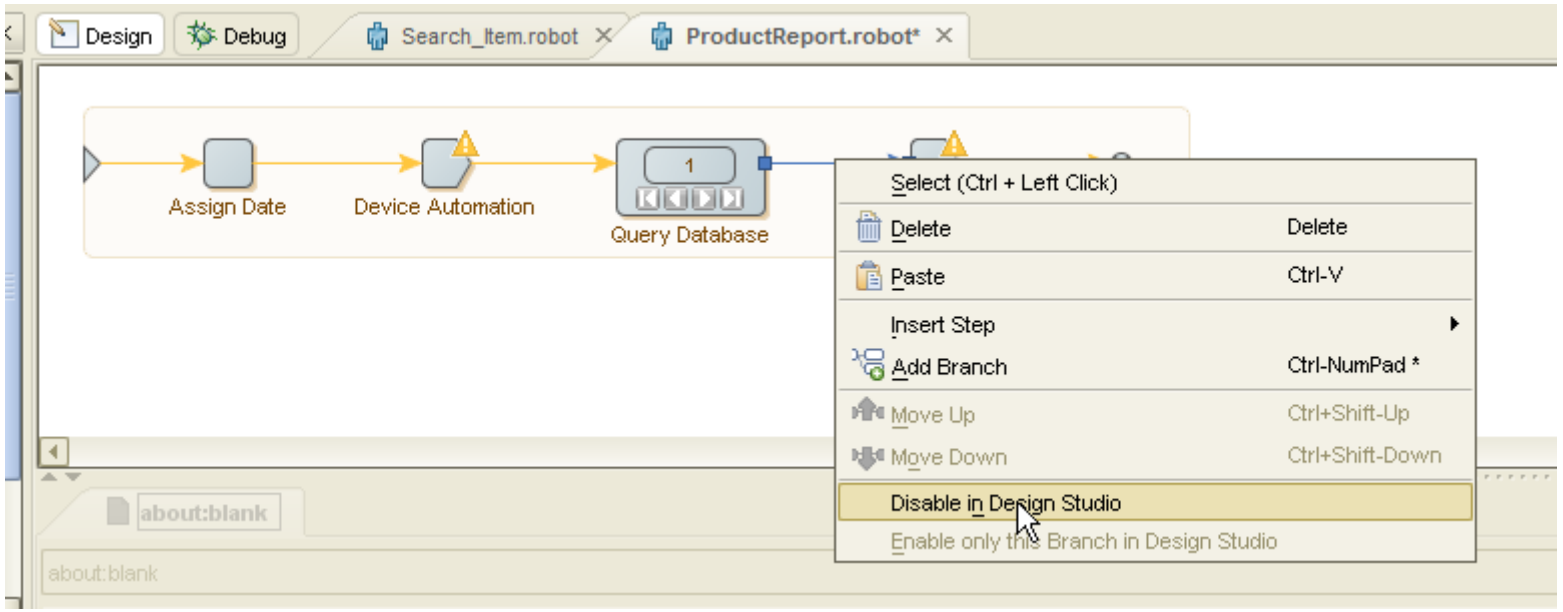
# Create a Branch After the Device Automation Step

- Remember how loops work. The robot will iterate from the loop step (Query Database) through the second Device Automation step to the end step and bounce back and forth until there are no more records in the database. Then the robot will take the next branch which we're creating now.

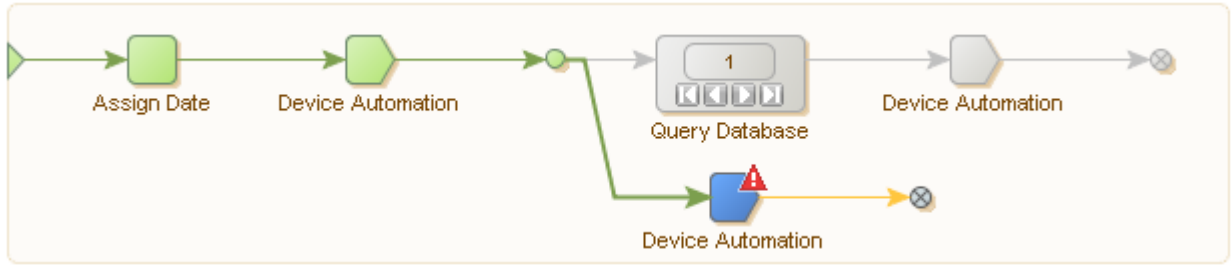


# Set up Branch with Another Device Automation Step

- To avoid having to have the robot run through all iterations from our Query Database Loop, it may be more convenient to select the connector from the loop and “Disable in Design Studio.” Do this by right mouse-clicking on the branch and selecting the option from the context menu. IMPORTANT: Remember to re-enable it later for testing.



# Create New Device Automation Step

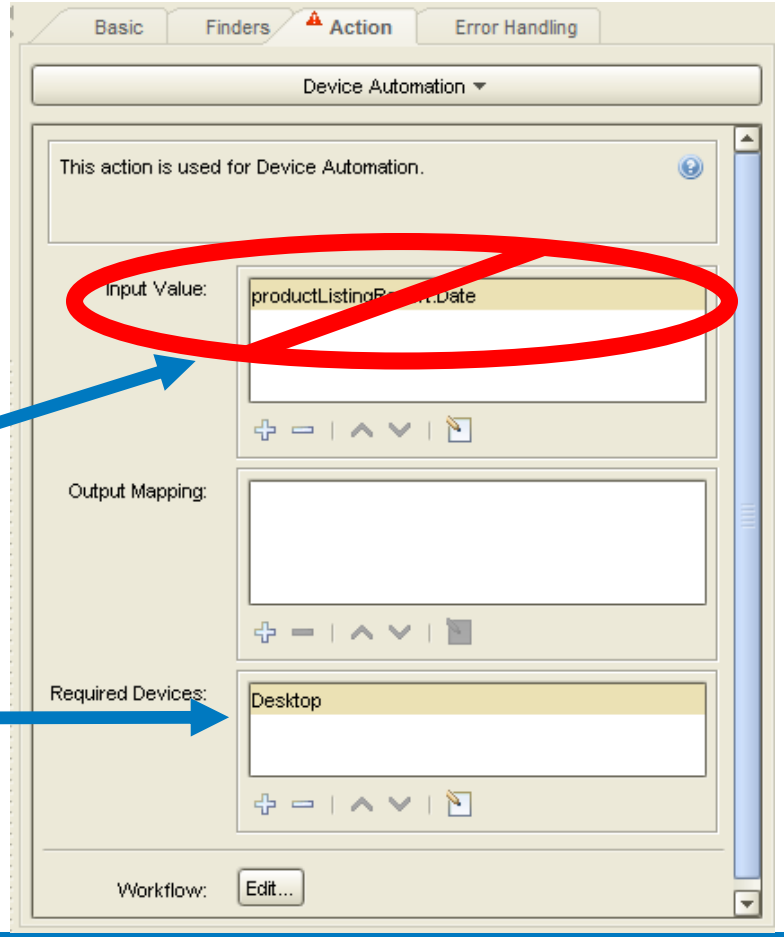



Create a new Device Automation Step on the new branch. But because the text returned by our productListingReport.Date variable contains a string that looks like this…

**2016-11-01 09:49:57.585**

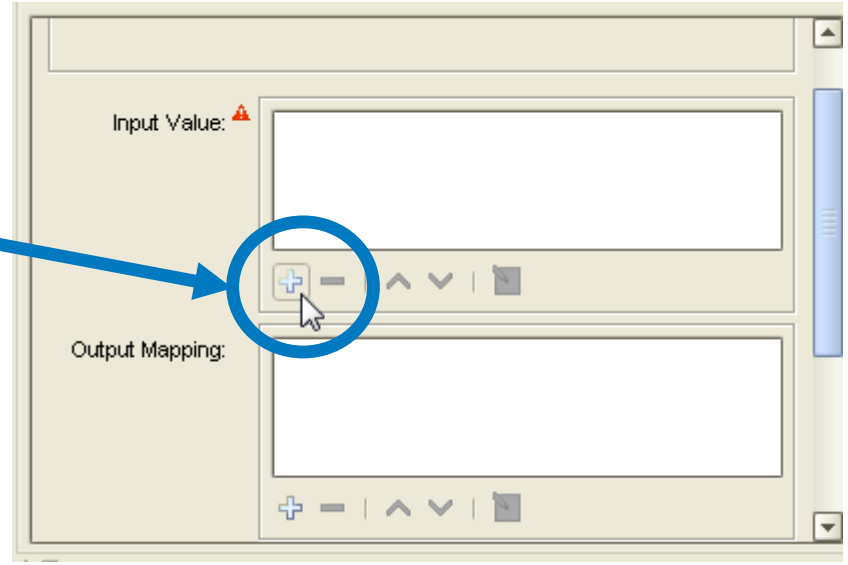
…we cannot use it as a valid file name (it contains colons, and they aren't allowed). So, we'll have to use a converter instead.

But we can (and MUST) set the "Required Devices" to "Desktop."

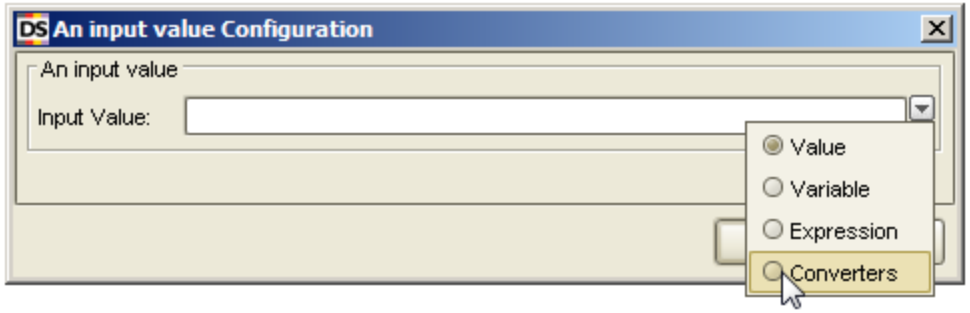


# Adding a Converter as an Input Value

Click the “+” button to add a new Input Value.

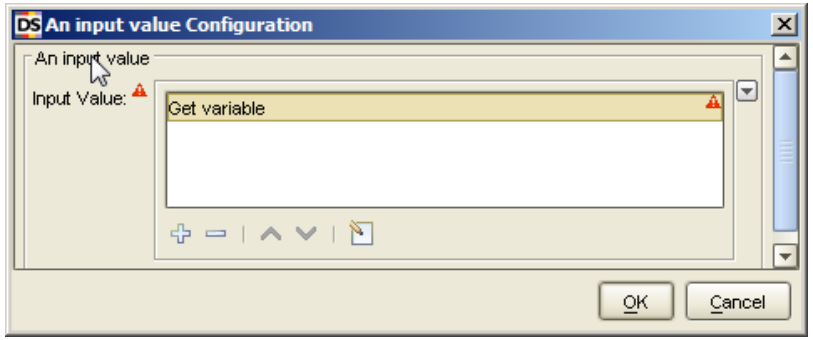


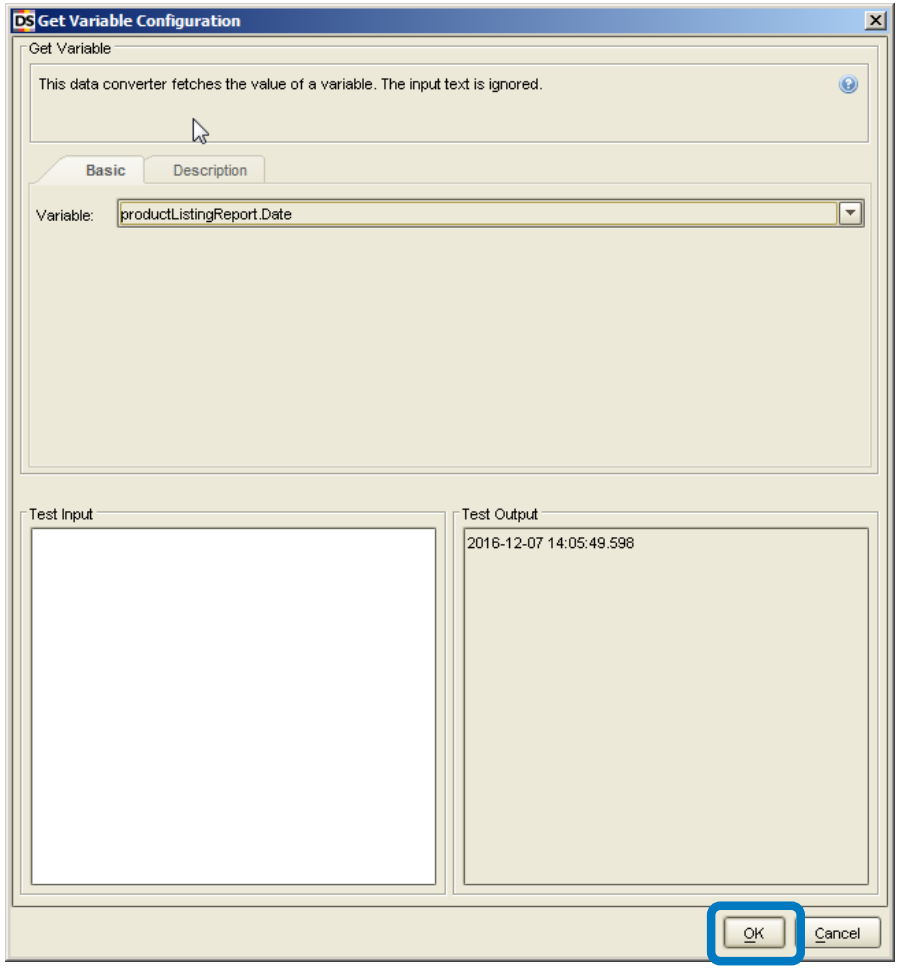

Then select “Converters” from the dropdown menu.



# Begin by Getting the Value from a Variable

- Double-click on “Get variable” (or click on the edit button) to bring up the properties and select “productListingReport.Date” from the dropdown of available variables.

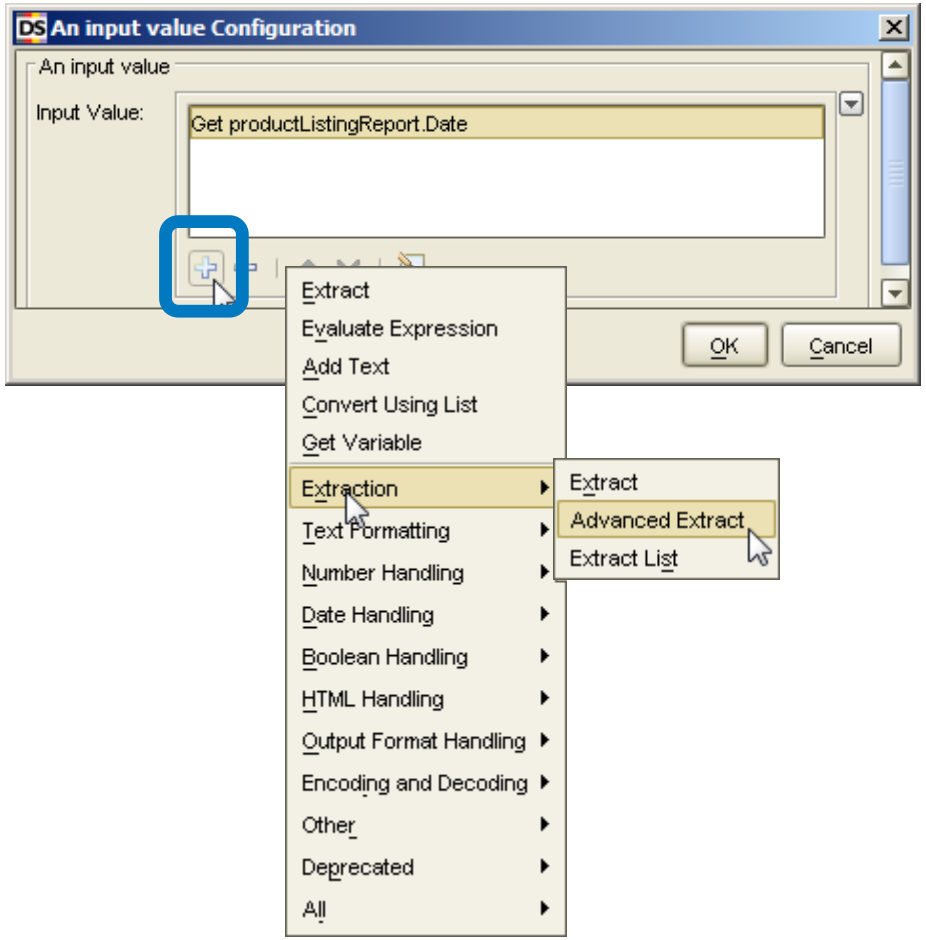



- Then click on [OK].

# Add a Step to the Converter to Alter the Output

- Then to add a new step to your converter, select the “+” symbol and from the context menu select “Extraction” | “Advanced Extract.”

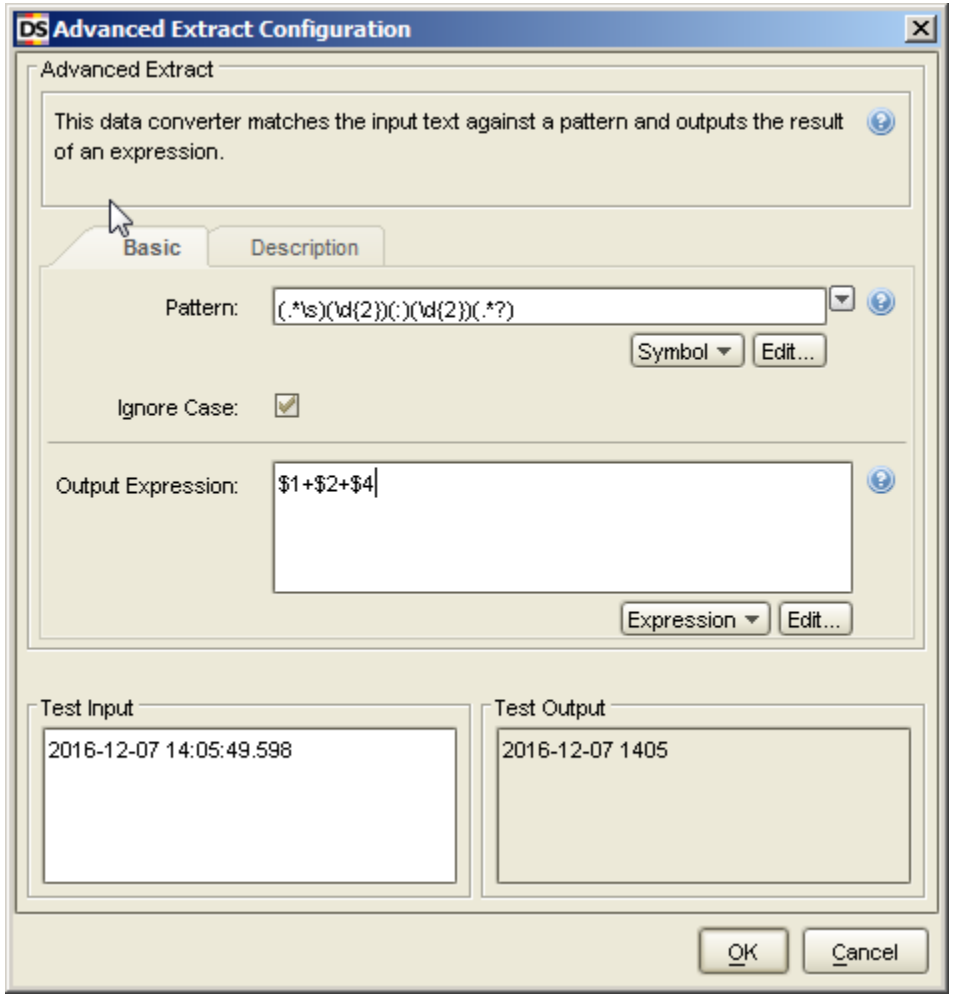


# Create a Pattern that Outputs an Acceptable File Name

- The following pattern will return what we need for a file name for it to be allowed and for it to be unique:

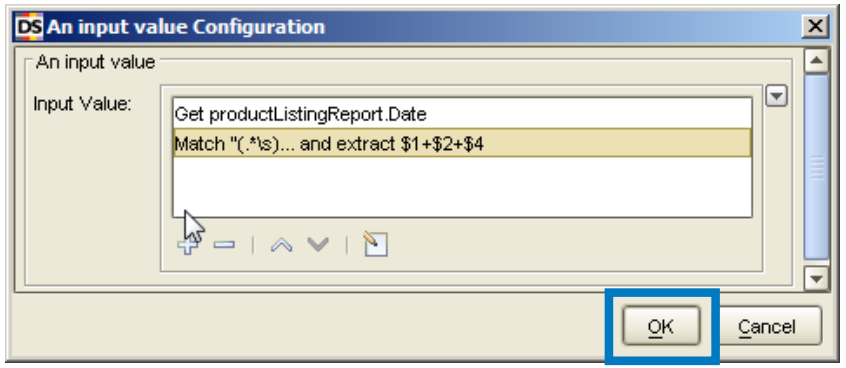
  (.*\s)(\d{2})(:)(\d{2})(.*?)

- We told the converter to return $1, $2 and $4 which is:
- 2016-12-07 1405
- No illegal colons!

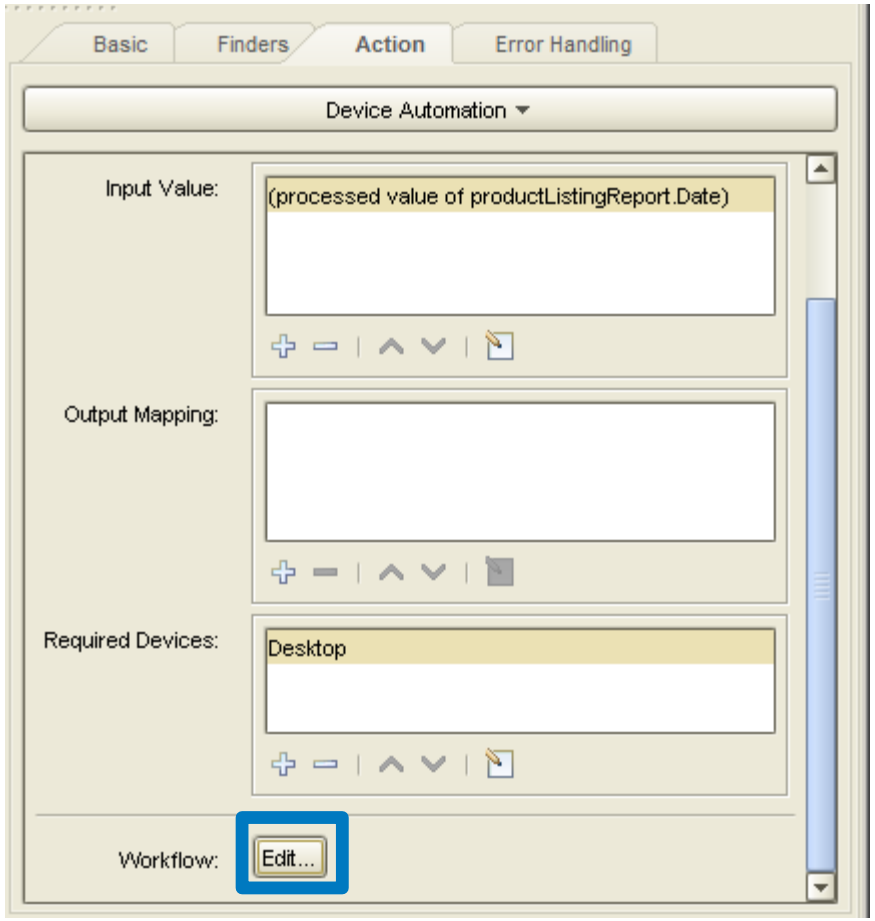


# Click OK to Save

- Click [OK] to save and close.

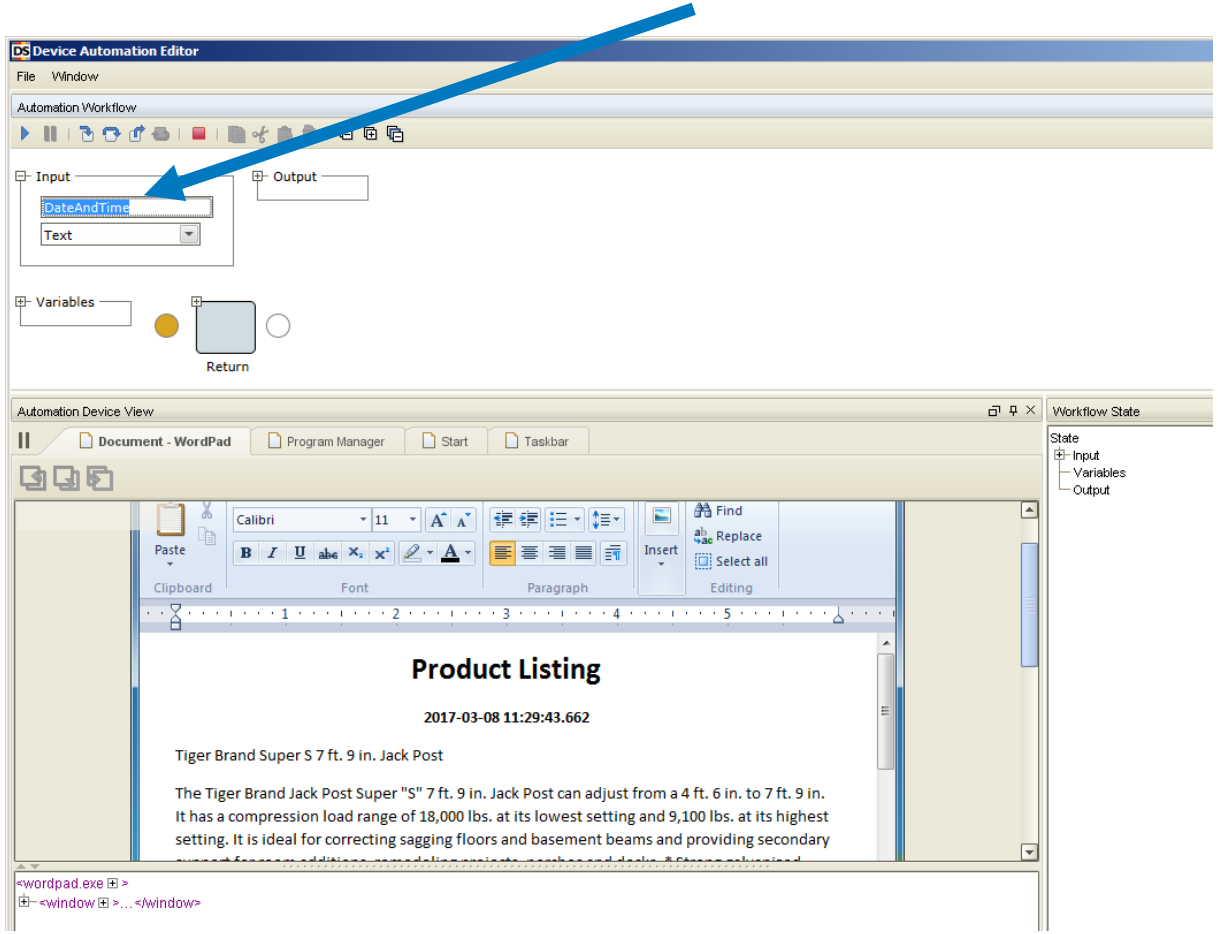



- Your Input Value now shows up as a processed value of the date and time stored in the variable. And it's one you can use as part of a unique file name.
- Click [Edit] to begin editing workflow.



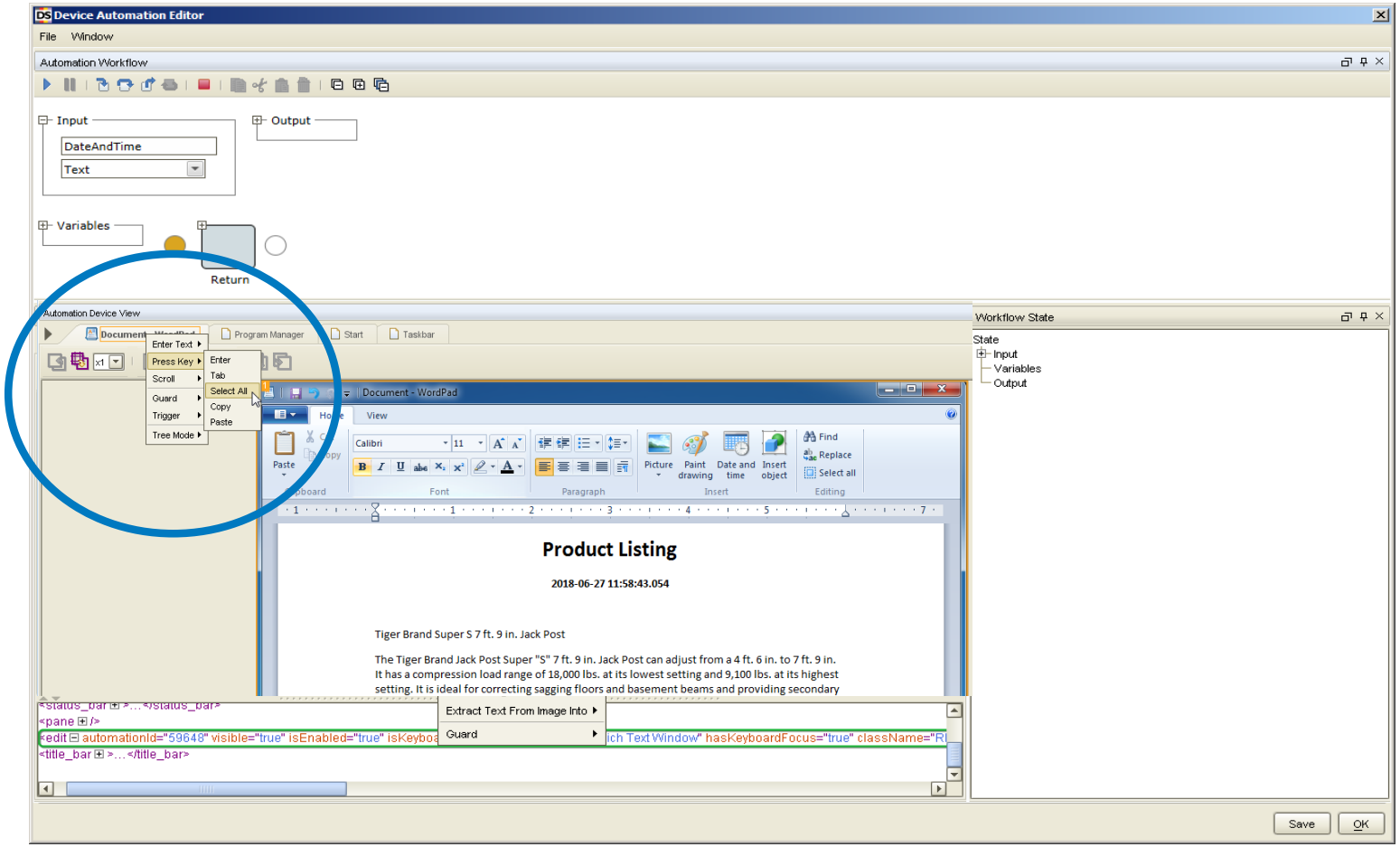
# Workflow Preliminary Values

- Input was added automatically for you. Change the name to “DateAndTime.”



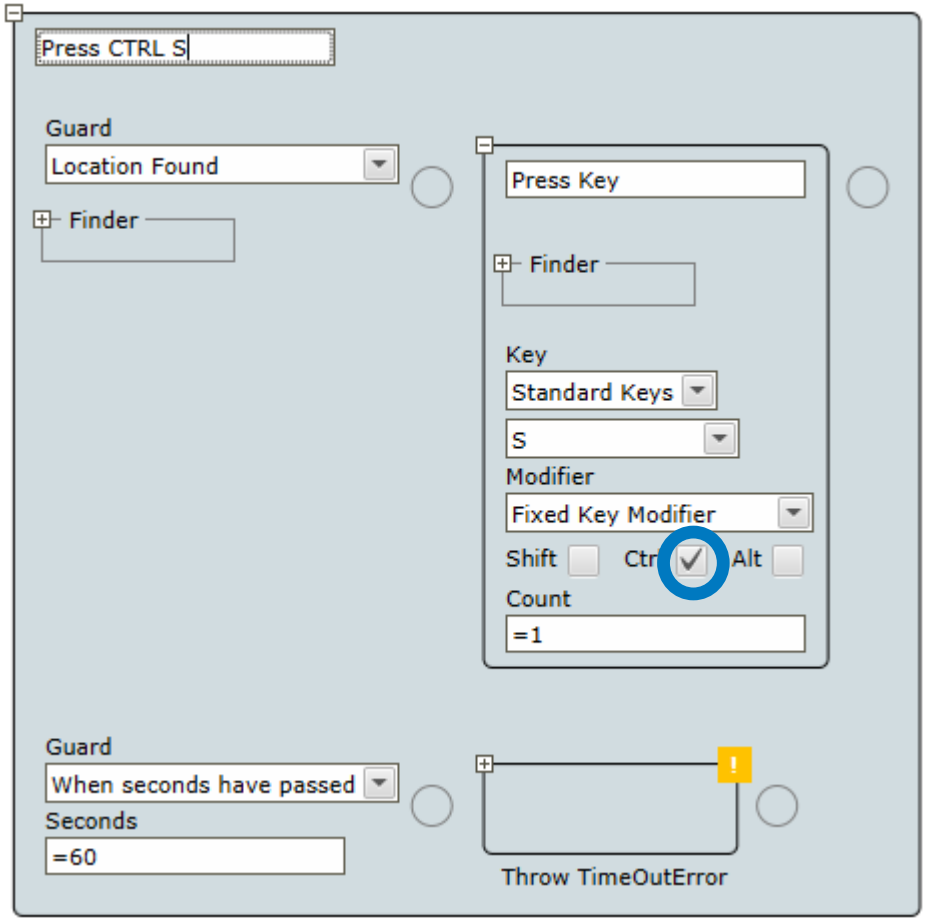
# Add a New Press Key Step

- Right mouse-click on the WordPad – Document and select “Press Key” and then “Select All.”



# Enter CTRL S (Keyboard shortcut to Save)

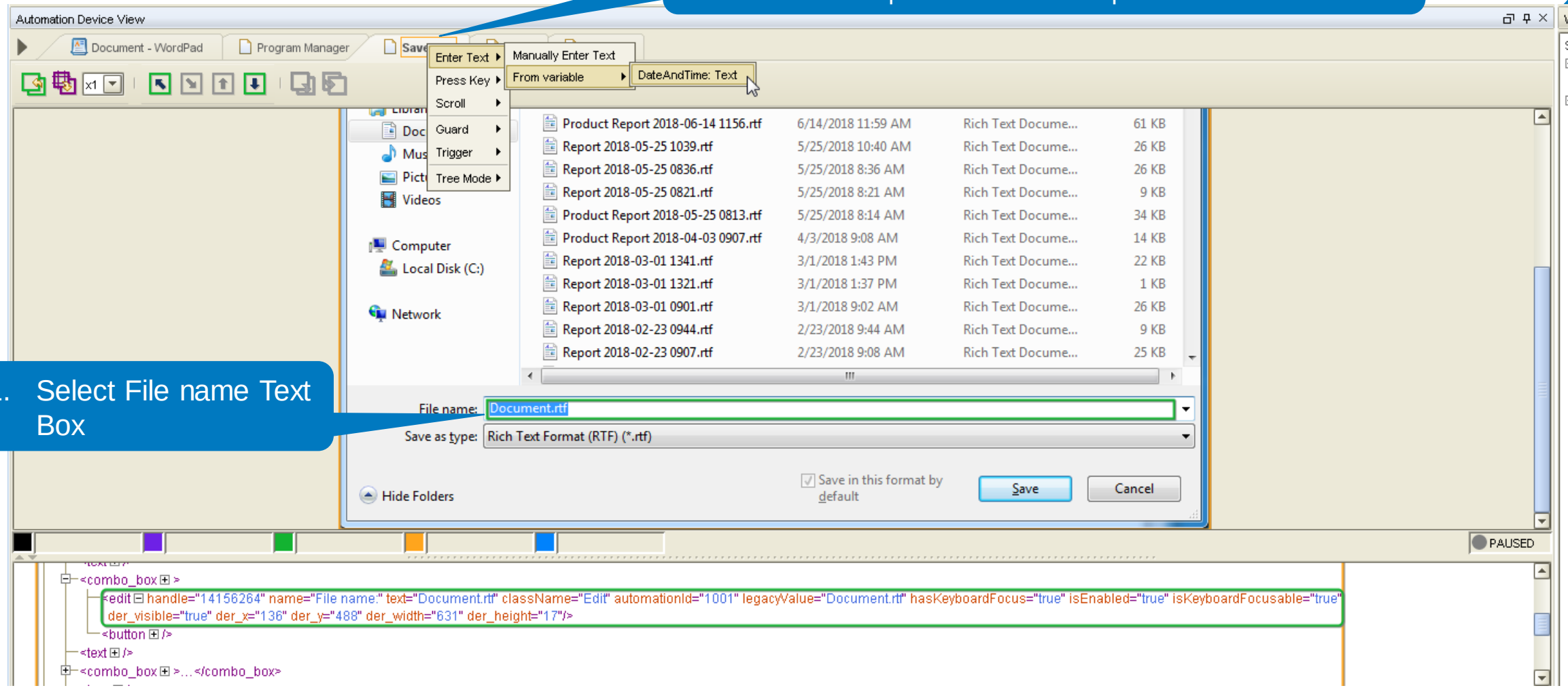
- Keyboard shortcuts are your friends. Use them when possible.



# Enter File Name

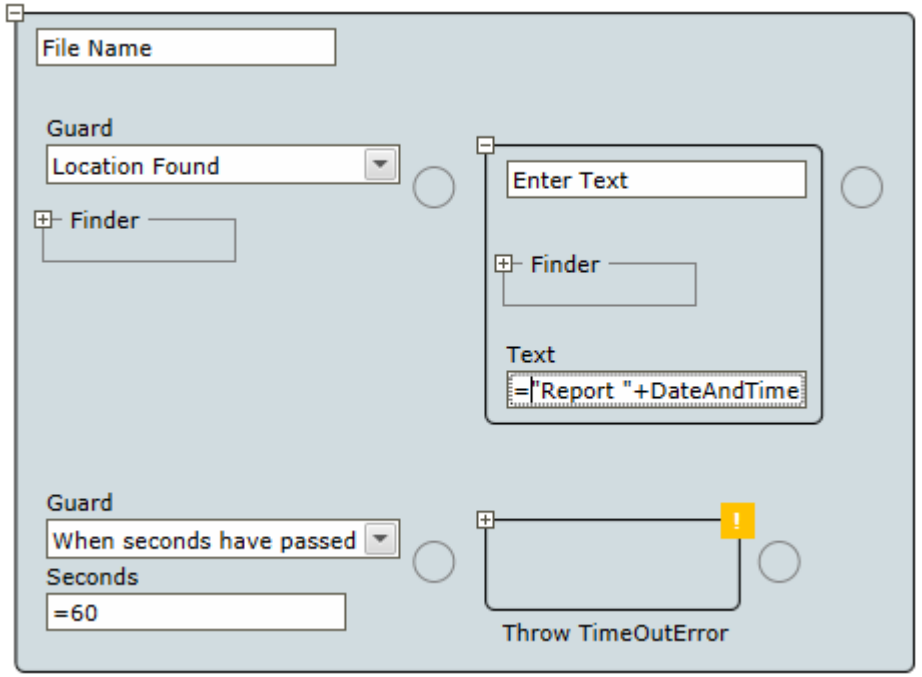
2. Right mouse-click on “Save As” tab and select “Enter Text” | “From Variable” | “DateAndTime: Text”

1. Select File name Text Box



# Edit Step

- Name of step modified to “File Name” to be more descriptive.
- Expression created to concatenate the words “Report ” (includes a space) plus the value of the converted DateAndTime input.
  - Remember, to modify the properties of a step, you must first expand it.



# Expressions for Device Automation Steps

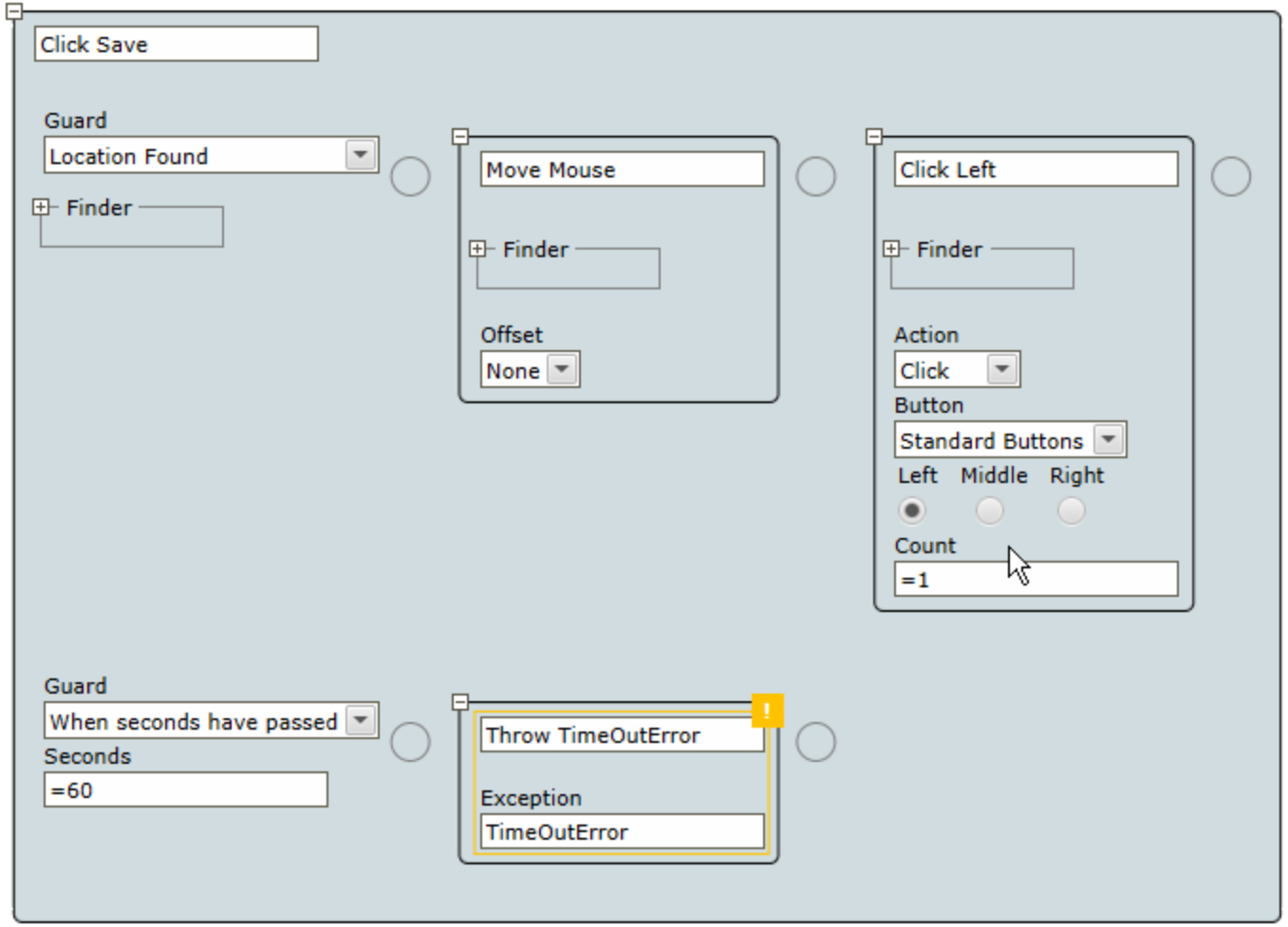
- The User Guide has useful information about properly formatted expressions

| Expression name | Expression syntax |
|---|---|
| expr | = orExp \| ifExpr |
| ifExpr | = orExpr'?'ifExpr':'ifExpr |
| orExpr | = andExpr \| andExpr'\|\|'orExpr |
| andExpr | = relExpr \| relExpr'&&'andExpr |
| relExpr | = addExpr \| addExpr relOp addExpr |
| relOp | ='=='\|'!='\|'<'\|'>'\|'<='\|'>=' |
| addExpr | = mulExpr \| mulExpr'+'addExpr \| mulExpr'-'addExpr |
| mulExpr | = unExpr \| unExpr'*'addExpr \| unExpr'/'addExpr \| unaryExpr'%'addExpr |
| unExpr | = factor \|'-'unExpr \|'!'unExpr |
| factor | ='true'\|'false'\| number \| stringLiteral \| fieldAccess \|'('expr')' |
| number | = <Integer> \| <Decimal> |
| stringLiteral | = <Double quotes (`"`) enclosing a sequence of any character exceptdoublequotes, control characters or backslash (`\`)> |
| fieldAccess | = identifier \| identifier'.'fieldAccess |
| identifier | = <A valid Java identifier> |

The plus sign (+) operation can be applied to Text, Numbers, Integers, and their combination. It also works if one argument is Text and the other is Boolean, but not on any other types.

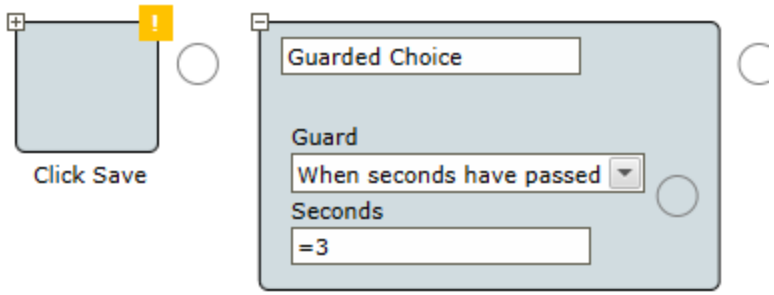
# Click Step

- Then the robot will click the “Save” button.



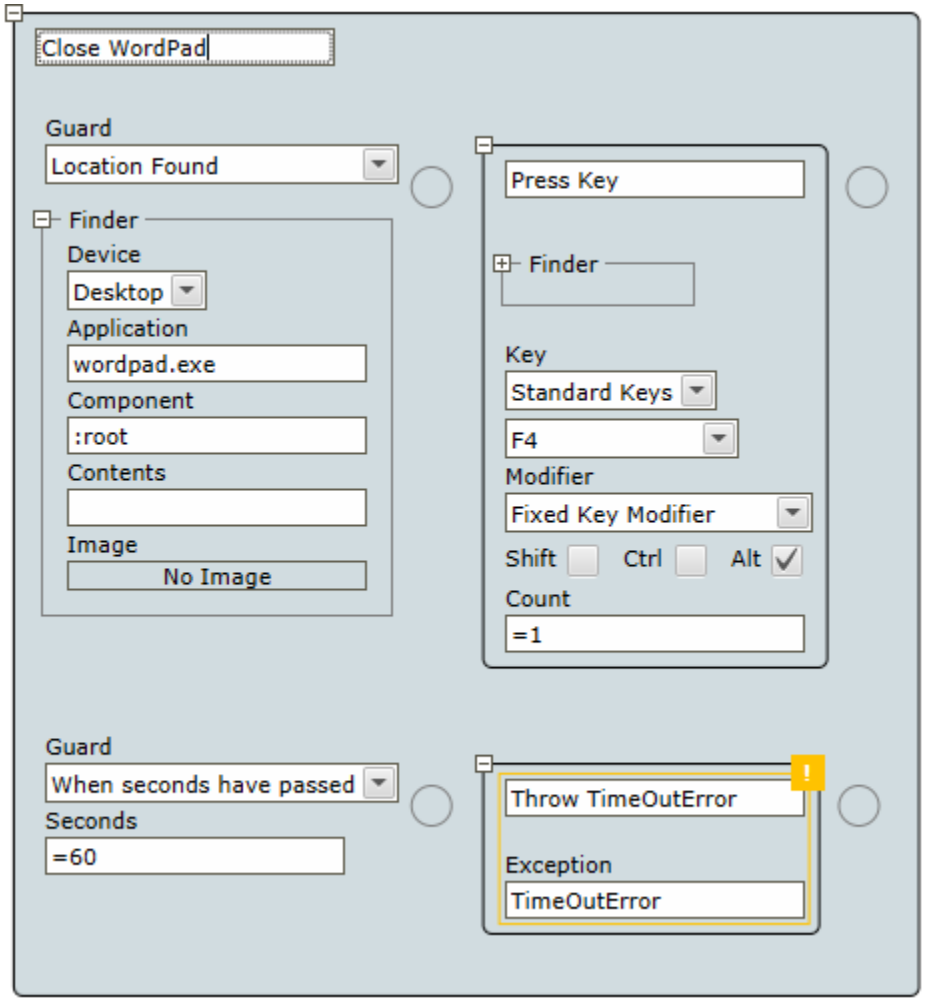
# Add a Guarded Choice Step

- Saving a document in WordPad does not happen immediately. It takes a couple of seconds.
- Before you close WordPad, you'll want to allow time for the Save action to complete. If you don't, the application will be in the middle of saving the document when it gets the close command. It will probably time out and throw an error. The answer is a Guarded Choice step.



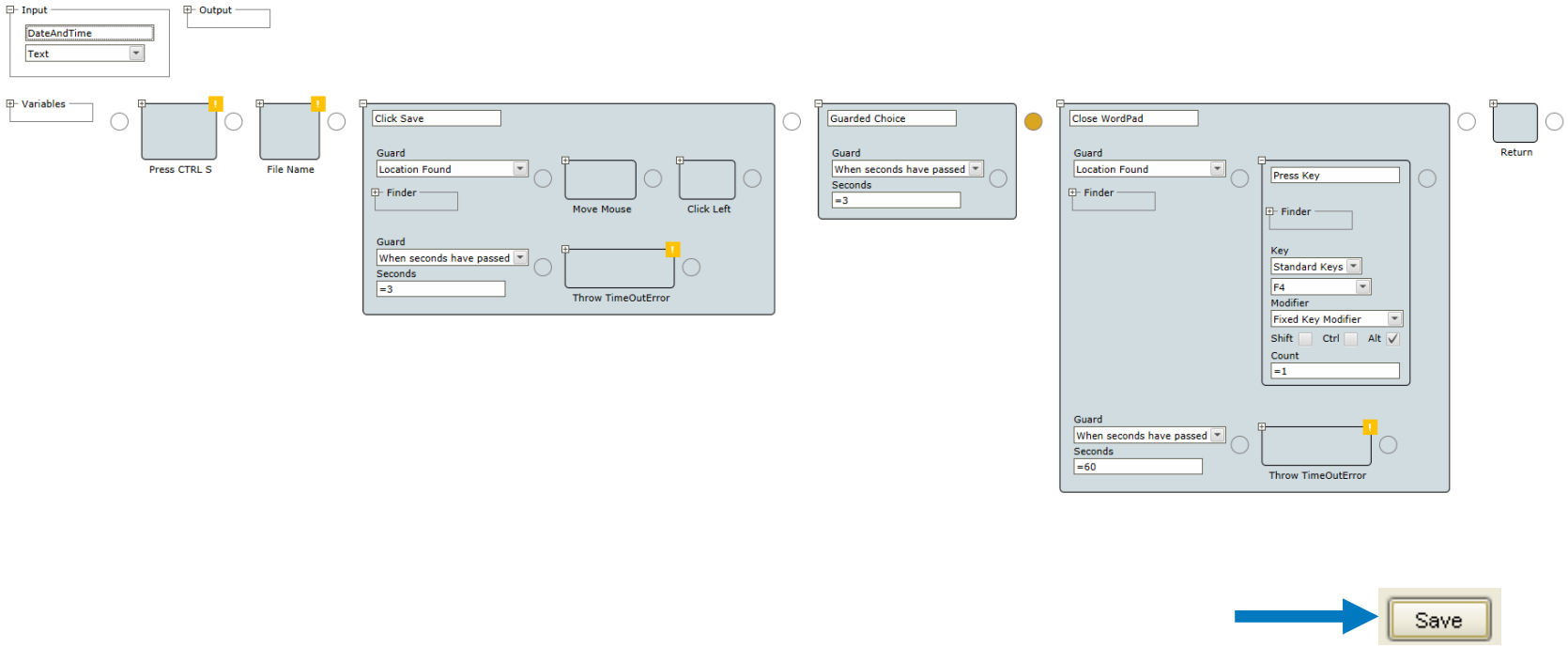
# Close WordPad Using Press Key Step

- The robot will then press ALT F4 which is the keyboard shortcut to close the application.



# We've Set Up a lot of Steps

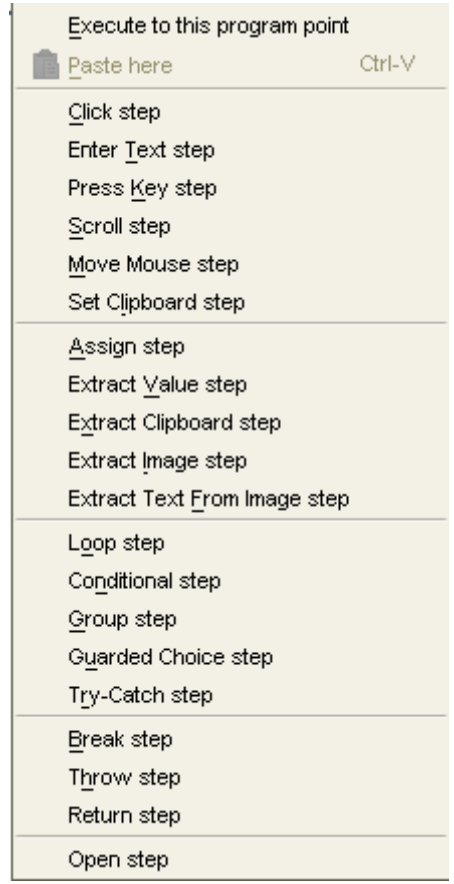
- Make sure you save your device automation step and save your robot. Just to make sure things are clean we'll also close Design Studio and close WordPad on our remote device if it's still open.




You also want take your robot back to the beginning step and refresh it.

# Lots of Other Steps

- As you've seen, there are many other kinds of steps available that we did not get to use in setting up this robot. We'll talk about some of these in the next module.
- This exercise was intended to be an *introduction* to Device Automation.
- Please reference the included User Guide for information about other kinds of steps.  It's available by clicking on "Help" in Design Studio.

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# Demo & Lab

## More Advanced Device Automation