Monitoring MachineLogic Program Variables Through the MachineAnalytics Dashboard

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Introduction

The Custom Metric feature allows MachineLogic program variables to be displayed through the MachineAnalytics dashboard. This feature allows users to view program variables to monitor critical metrics, debug processes, and optimize performance without diving into code. Whether you're managing production lines, Deploying machines, or fine-tuning processes, this feature provides clear visibility into your program's state, empowering you to make data-driven decisions efficiently.

This guide provides the guidelines to configure custom metrics for any MachineLogic programs running on a MachineMotion controller.

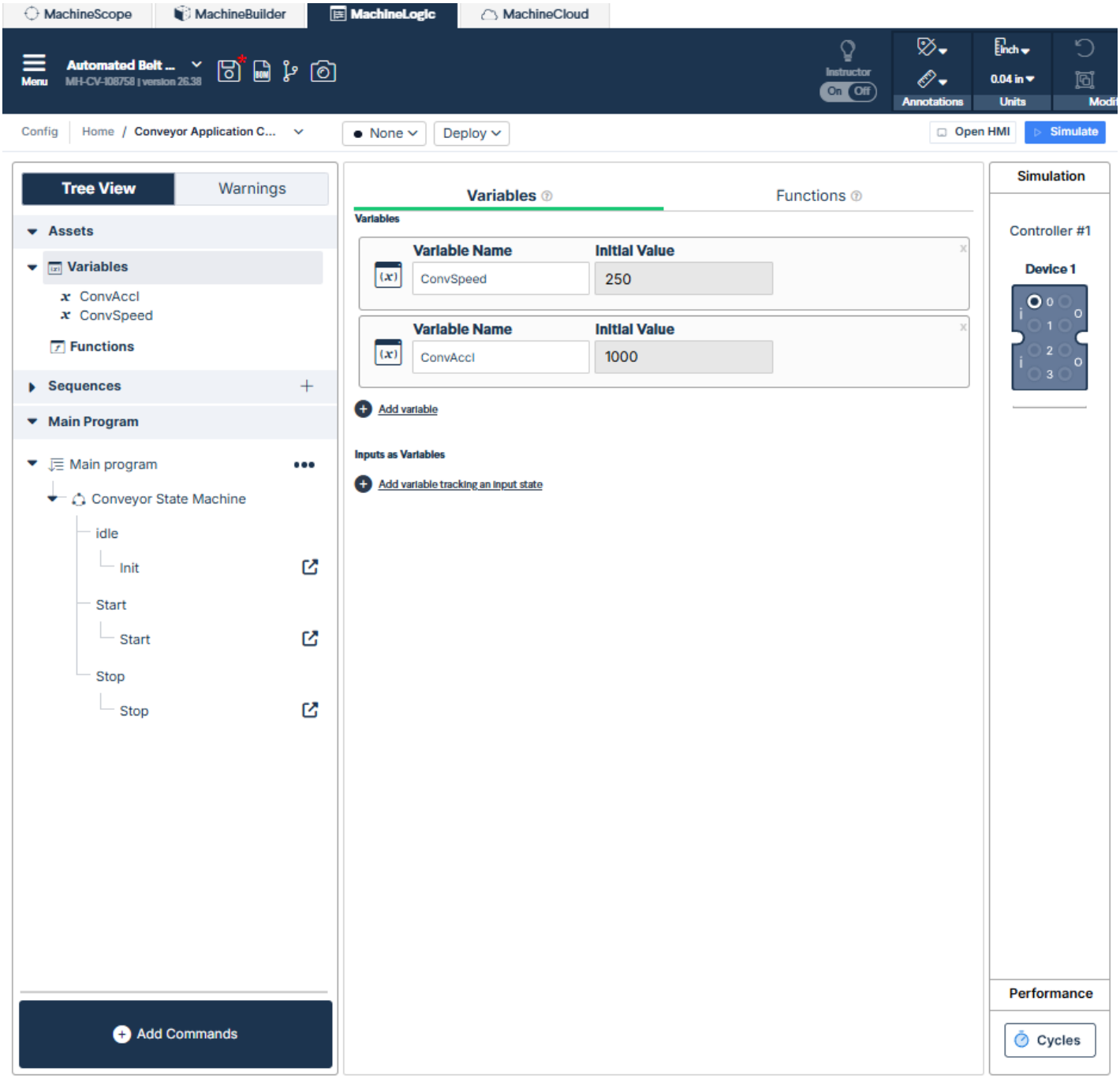
> **Important:** The MachineAnalytics Custom Metric feature can only display numerical values.

MachineLogic Code-Free

Please note that MachineLogic Code-Free programming does not yet provide a code-free instruction to send variables to MachineAnalytics. The steps below show how to manually send a variable value to MachineAnalytics using Lambda functions and the ***Add Output*** *instruction*
For any assistance while using the custom metric feature with Code-Free programming, contact your Customer Success Specialist at integrationsupport@vention.cc

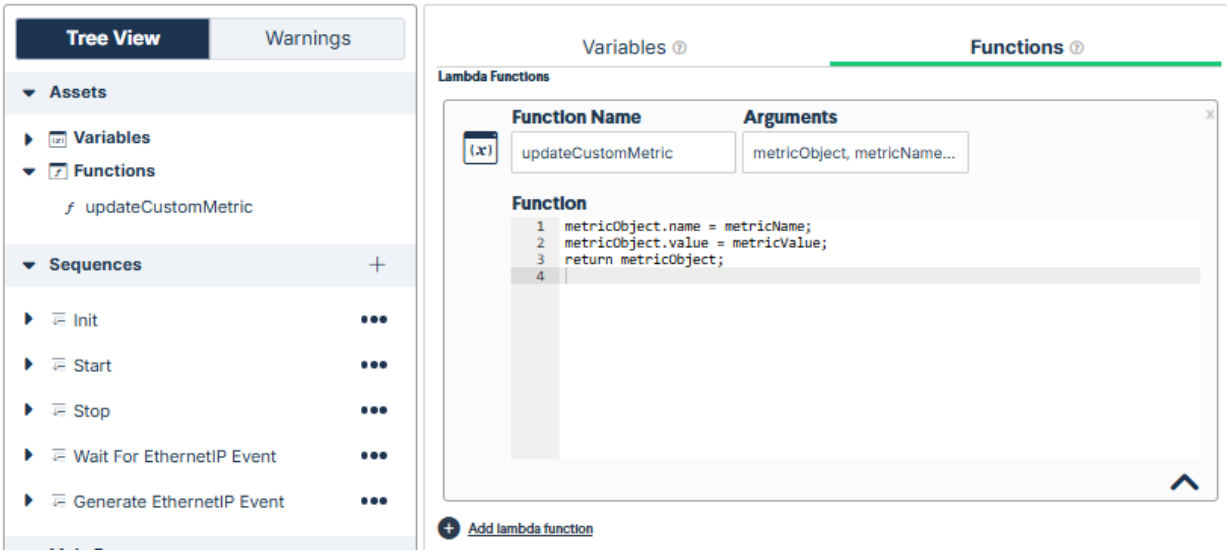
Follow along the step below with the code-free application supplied inThis design

Step 1 - From the Variable section of the**Assets** in the left pane of MachineLogic, create a program variable.



Step 2 - From the Functions section of the**Assets** in the left pane of MachineLogic, create a lambda function updating the value of the variable:

- Function Name: `updateCustomMetric`
- Arguments:`metricObject, metricName, metricValue`
- Function: `metricObject.name = metricName; metricObject.value = metricValue; return metricObject;`



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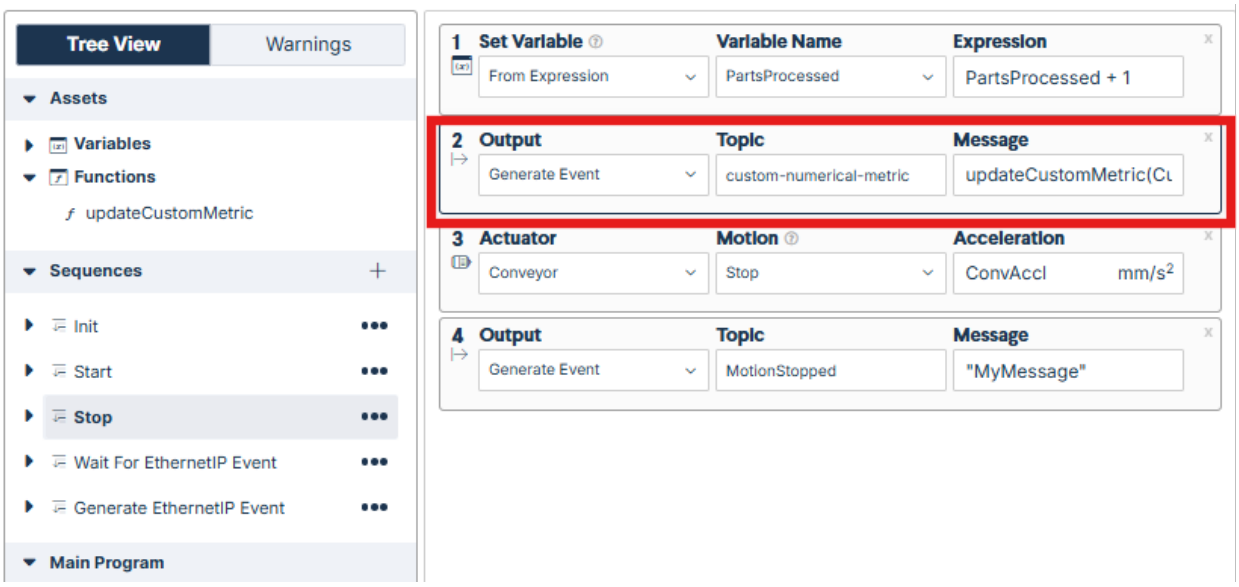
Step 3 - In any sequence, add a **Add Output** instruction.
Step 4 - From the **Output** drop-down, select **Generate Event**, this will send an MQTT message
Step 5 - In the **Topic** field, format the topic as: custom-numerical-metric
Step 6 - In the **Message** field, format the message as: updateCustomMetric(CustomMetricPayload,'Parts Processed',PartsProcessed)



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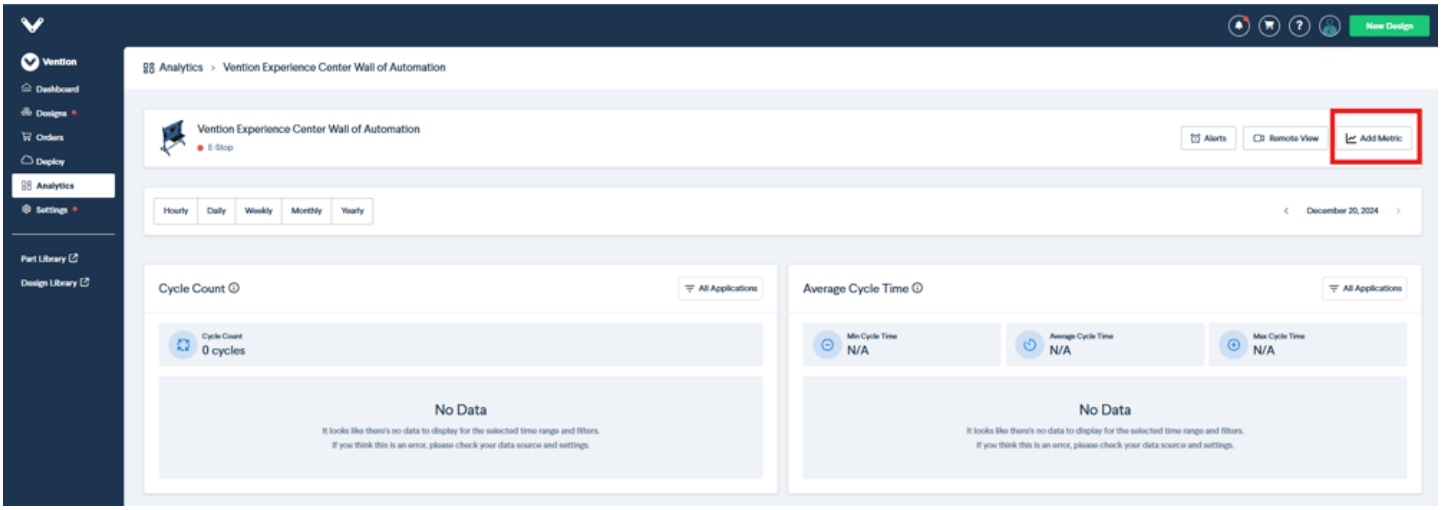
MachineLogic Python

Below is a Python example demonstrating how a variable value can be made accessible to the MachineAnalytics custom metric feature

```
import time
import json
from machinelogic import Machine

machine = Machine()

# Example for publishing custom metric to the analytics dashboard
# to track application cycles in MachineAnalytics
ProcessedParts = 0
custom_metric_topic = "custom-numerical-metric" #configuration of the MQTT Topic
custom_metric_message = {
    "name":"Processed Parts", # Name of the variable sent to MachineAnalytics through the MQTT topic
    "value":0
}

while True:
    print("Cycle Start")
    time.sleep(5)
    ProcessedParts += 1
    custom_metric_message["value"] = ProcessedParts
    json_metric_message = json.dumps(custom_metric_message)
    machine.publish_mqtt_event(custom_metric_topic, custom_metric_message) #publishing the MQTT Topic and Message
    print("Cycle end")
```

Displaying the Variable Value in MachineAnalytics

To display the custom metric, simply select the **Add Metric** button from your MachineAnalytics dashboard and select the metric you want to display:



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