Monitoring MachineLogic Program Variables Through the MachineAnalytics Dashboard

Contents

Introduction MachineLogic Code-Free MachineLogic Python Displaying the Variable Value in MachineAnalytics

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;





- 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)

Tree View Warnings		1	Set Variable		Variable Name	Expression	Ж
✓ Assets			From Expression	~	PartsProcessed ~	PartsProcessed + 1	
variables Functions f updateCustomMetric		2 →	Output Generate Event	~	Topic custom-numerical-metric	Message updateCustomMetric(Cu	Х
✓ Sequences	+	3	Actuator Conveyor	Ý	Motion ⑦ Stop ~	Acceleration ConvAccl mm/s ²	Х
► 🐺 Init	•••	4	Output		Topic	Message	х
F Start	•••		Generate Event	~	MotionStopped	"MyMessage"	
▶ 🐺 Stop	•••						
Wait For EthernetIP Event	•••						
► Generate EthernetIP Event	•••						
 Main Program 							

image

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:

¥					ە 🖲 🍋	Now Design	
Vention	BS Analytics > Vention Experience Center Wall of Automation						
Destboard Dostges Coders Coders Depkoy Analytics Settings	Vention Experience Center Wall of Automation E Stop	☐ Alverts C3 Remote View ∠ Add Metric C December 20,2024 →					
Part Library 🖒 Design Library 🖒	Cycle Count ③		Average Cycle Time ③				
	Copile Court 0 cycles		Min Cycle Time N/A	Average Cycle Time N/A	Max Cycle Time N/A		
	No Data It looks like there's no data to display for the selected time range and Filters. If you think this is an error, please check your data source and settings.		No Data It looks like therein no data to depay for the selected time range and filters. If you blink this is an error, please check your data source and settings.				

image