



AlarmWorX64 Server

Alarm for a Non-Changing Value



APPLICATION NOTE

September 2013

Description: Guide to setting up an alarm that is triggered for an OPC Tag does not change its value during a period of time

OS Requirement: Vista x64/ Windows 7 x64/ Windows 8 x64/ Windows Server 2008 x64/ Windows Server 2008 R2 x64/ Windows Server 2012

General Requirement: Installation of GENESIS64 v10.8. General knowledge of Unified Data Manager expressions and AlarmWorX64 Server.

Introduction

Some applications may come with a specific requirement to identify a situation when a value of a given OPC tag does not change for a period of time, as this may indicate a communication issue of some sort. Although there is no dedicated alarm type in the AlarmWorX64 server that can be used to trigger such an alarm, the requirement can be achieved by setting up an alarm with an expression to calculate the time elapsed since the last change of the OPC tag value.

The expression will read the timestamp of the last data update received for dedicated OPC tag and compare it to the current local time. If the time difference will be greater than a specific time period, then AlarmWorX64 Server triggers an alarm.

In the below example we will trigger a digital alarm, when the value of the tag "@sim64:Float.Static("Static1")" does not change for the period of 60 seconds. The expression will be hosted in Unified Data Manager (UDM) and could be reused for different OPC tags if the OPC tag name will be setup as a string parameter. For more details on Global Expressions in UDM please refer to its documentation.

Basic Steps Overview

1. Create a new UDM expression to be the difference between local time and OPC tag time.
2. Create new digital alarm in the AlarmWorX64 Server that uses this expression.
3. Open GraphWorX64 and check the correct alarm generation in AlarmWorX64 Viewer.

Creating UDM Expression

1. The Read Expression we will configure the difference between the local machine time "currentdatetimeutc(1000)" in UTC and the timestamp (also in UTC) of the last update of the OPC tag
2. "timestamp(@sim64:Float.Static("Static1").Value)"

3. The function "totalseconds()" will be used to convert the result into seconds
4. Logical function "IF THEN ELSE" with a threshold in seconds will define the expression value. Value 1 will be returned in case the time difference is greater than 60 seconds and 0 if the difference is smaller.
5. Verify the syntax of the expression by the Check syntax button in Expression editor.
6. Save the expression – in Figure 1 you can see complete expression.
7. The expression syntax is as follows:

```
IF totalseconds( currentdatetimeutc( 1000 ) - {{timestamp(
@sim64:Float.Static( "Static1" ).Value }}} ) > 60
THEN 1
ELSE 0
```

NOTE: The local time is taken in UTC because OPC timestamps are returned in UTC.

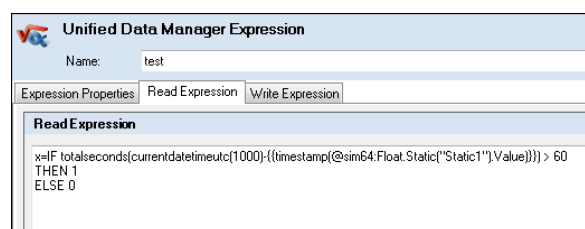


Figure 1 - Complete UDM Expression

Creating Digital Alarm

1. Create a new digital alarm in the AlarmWorX64 Server configuration. The OPC input will be set to use the UDM expression created in steps above.
2. Set the Alarm State value to 1 and save the alarm.

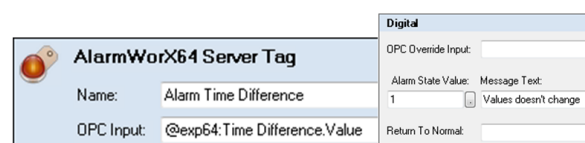


Figure 2 - Digital Alarm definition

GraphWorX64 check

Open GraphWorX64, put an AlarmWorX64 Viewer into the display and wait. If the value does not change in 60 seconds, the alarm should appear.



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Time / Date	Tag	Priority	Type	Q
8/22/2013 5:14 PM	Alarm Time Difference	500	Digital	G

Figure 3 - Alarm Generation check in GrapwWorX64