StruxureWare Building Operation

Function Block Editor and Menta Editor Difference Guide

04-13010-01-en October 2012





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Function Block Editor and Menta Editor Difference Guide

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Introduction

The Introduction part contains information on the purpose of this guide, how this guide is organized, where to find more information, and information on regulatory notices.

1 About This Guide

Topics

Purpose of This Guide How This Guide is Organized Typographical Conventions

1.1 Purpose of This Guide

This guide provides information about the differences between the Menta programs and function block programs. An overview of function block programming and Function Block Editor is also included. 1.2

How This Guide is Organized

This Building Operation Guide is divided into the following parts:

Introduction

The Introduction part contains information on the purpose of this guide, how this guide is organized, where to find more information, and information on regulatory notices.

Reference

The Reference part contains conceptual information, procedures, user interface descriptions and troubleshooting information. If you want more information, see WebHelp or the other Building Operation Reference Guides.

1.3 Typographical Conventions

Building Operation Guides use the following specially marked texts:

Tip

Helps you understand the benefits and capabilities of the product.

Note

Provides you with supplementary information.



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Important

Alerts you to supplementary information that is essential to the completion of a task.



Caution

Alerts you to a condition that can cause loss of data.



Warning

Alerts you to a condition that can cause product damage or physical harm.

Bold texts:

User interface items, such as property names and buttons, are written in bold, for example "On the **File** menu, select **New**."

2 Additional Information

Topics Where to Find Additional Information Regulatory Notices

2.1 Where to Find Additional Information

All the technical Building Operation information is available online, on WebHelp.

You also find additional information in the Building Operation Guides:

- Hardware Reference Guide
- Plain English and Script Difference Guide
- Function Block Editor and Menta Editor Difference Guide
- WebReports Reference Guide
- WebReports Operating Guide
- System Reference Guide
- Technical Reference Guide
- WorkStation Operating Guide
- IT Reference Guide
- WebStation Operating Guide
- Upgrade Reference Guide
- Administering Reports Tutorial Guide
- Configuring an Automation Server as a Controller Tutorial Guide
- Creating and Configuring a LonWorks Network with Xenta LonWorks Devices
 Tutorial Guide
- Creating and Configuring a Modbus Network Tutorial Guide
- Creating and Configuring Alarms Tutorial Guide
- Creating and Configuring Graphics Tutorial Guide
- Creating and Configuring Schedules Tutorial Guide
- Creating and Configuring Trend Logs Tutorial Guide
- Creating and Configuring Users Tutorial Guide
- Starting a Project Tutorial Guide
- Creating and Configuring a BACnet Network with b3 BACnet Devices Tutorial Guide



Regulatory Notices



UL 916 Listed products for the Unites States and Canada, Open Class Energy Management Equipment.

Ŕ

WEEE - Directive of the European Union (EU)

This equipment and its packaging carry the waste of electrical and electronic equipment (WEEE) label, in compliance with European Union (EU) Directive 2002/96/EC, governing the disposal and recycling of electrical and electronic equipment in the European community.

€

CE - Compliance to European Union (EU)

2004/108/EC Electromagnetic Compatibility Directive

This equipment complies with the rules, of the Official Journal of the European Union, for governing the Self Declaration of the CE Marking for the European Union as specified in the above directive(s) per the provisions of the following standards: IEC/EN 61326-1 Product Standard, IEC/EN 61010-1 Safety Standard.

Industry Canada

ICES-003

This is a Class B digital device that meets all requirements of the Canadian Interference Causing Equipment Regulations.

C

N1831

C-Tick (Australian Communications Authority (ACA))

AS/NZS 3548

This equipment carries the C-Tick label and complies with EMC and radio communications regulations of the Australian Communications Authority (ACA), governing the Australian and New Zealand (AS/NZS) communities.

F©

Federal Communications Commission

FCC Rules and Regulations CFR 47, Part 15, Class B

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

Reference

The Reference part contains conceptual information, procedures, user interface descriptions and troubleshooting information. If you want more information, see WebHelp or the other Building Operation Reference Guides.

3 Function Block Programming Overview

Topics

Function Block Programming Function Block Program Status and Configuration Information Tasks

3.1 Function Block Programming

Function Block programming is derived from Menta programming in TAC Vista. You create a Function Block program by putting together a set of function blocks that tell the server to take some type of specific action to control a building. For example, you can tell the server to take the following actions:

- Open the damper
- Close the valve

When programming a function block program in Function Block Editor, you define the functions by using graphical elements that you place in the function block diagram. The function block diagram has two fundamental elements:

- Simple blocks, which process the data
- Connections, which process the data between the simple blocks

The input signals to the blocks are processed and generated into a single output signal.

Each function block can have one or several parameters that process the input signals. The parameters can be defined as numerical values or as identifiers (constants).

The output signal is forwarded to other blocks. The signal follows the route defined by the connections, which represent the data flow during the program execution.

The data normally flows from left to right in the diagram: An exception to this rule is when a connection is used to close a feedback loop. In this case, the data flows back to complete a loop.

Typically, blocks with no inputs (source blocks) are located to the left and blocks with no outputs (destination blocks) are located to the right in the diagram.

Intermediate blocks, which make calculations and logical decisions, are located between the source blocks and the destination blocks. These intermediate blocks are oriented in the direction of the data flow.

A function block program is cyclic and is executed at a constant time interval, by default every 1000 ms. This is called a program cycle. During each program cycle, source blocks send data to the intermeditate blocks, which in turn send data to the destination blocks.

3.1.1 Program, Editor, and Device Schematic

Different device types require different function block programs. You use a different editor depending on the type of function block program.

Program Type	Editor	Device Type
Function Block Program (.AUT)	Function Block Editor	Automation Server
Menta Program (.MTA)	Building Operation Menta Editor and TAC Menta	Xenta 280/300/401

3.2

Function Block Program Status and Configuration Information

Menta programs are executed in the Xenta controllers and Menta program execution times are determined by the Xentas. Menta program execution precedence is determined by the order of the blocks in the Menta program.

For function block programs, Building Operation provides you with the possibility to configure the number of program cycles, the execution time, the task and the execution precedence:

- Task: shows the time interval at which the program executes
- Execution precedence: specifies the priority this program holds against other applications in the same task

3.3Tasks

Function block programs and Script programs must be connected to tasks in order to run. You access Tasks from the Properties dialog box.

The task is a property of the object that defines the program cycles.

Task 3 is the default when you create a new function block program or Script program. This means that one program cycle executes in 1000 ms.

The way you schedule programs to execute in Script differs from how you schedule them to execute in Continuum. For more information, see WebHelp.



Figure: Tasks

Table: Task Intervals

Task	Interval
Task 1	0.1 seconds
Task 2	0.5 seconds
Task 3	1 seconds
Task 4	5 seconds
Task 5	10 seconds

4 Programming Differences

Topics

Function Block and Menta Programming Differences **Program Conversion** Importing a Xenta 280/300/401 Program I/O Point Binding Binding a Function Block Program to I/Os **Binding Values Binding Values Using a Binding Template** Time Schedule and Alarm Blocks Alarm Types Creating a Change of State Alarm Creating a Multistate Alarm Creating a Matching Text String Alarm Creating a Variable Status Alarm Creating an Out of Range Alarm Creating an Out of Reference Range Alarm Creating an Enumeration Alarm Mass Creating Alarms Mass Creating Alarms Using the Search Method Trend Log Types Creating an Interval Trend Log

Creating a Change of Value Trend Log Creating a Meter Trend Log Creating a Variable Triggered Trend Log Creating a Manual Trend Log Mass Creating Trend Logs Mass Creating Trend Logs Using the Search Method Schedule Types Creating an Analog Schedule Creating a Digital Schedule Creating a Multistate Schedule

4.1 Function Block and Menta Programming Differences

There are a number of differences between function block programs and Menta programs.

4.1.1 Program Specifics

Programs created for Automation Servers in Function Block Editor ideally consist of several small program modules in separate files. The output file for programs created in Function Block Editor is .AUT.

Programs created for Xenta 280/300/401 in Menta are single large applications composed by program modules and compiled into a single file. The output file type for programs created in TAC Menta is .MTA.

4.1.2 Editor Menus

There are several differences in the menus of Function Block Editor, Menta Editor, and TAC Menta.

For more information, see section 5.4 "Menus in Edit Mode" on page 137. For more information, see section 5.5 "Menus in Simulation Mode" on page 140.

In Function Block Editor, you test the program by downloading it to the Automation Server. In Menta Editor, you simulate Menta programs in Simulation mode or online.

4.1.3 Block Differences

There are differences regarding the set of available function blocks between function block programs and Menta programs.

For more information, see section 5.6 "Block Differences" on page 143.

4.1.4 Alarms

In Building Operation, alarms are handled outside the function block programs. The function block programs still need the ALARM blocks but the blocks only serve as inputs and outputs to the alarm functions and do not contain any configuration data. For more information, see WebHelp.

4.1.5 Time Schedules

In Building Operation, time schedules are handled outside the function block programs. The function block programs still need the TSCHI blocks but the blocks only serve as inputs to the function block program from Building Operation and contain no configuration data. For more information, see WebHelp.

4.1.6 Error Blocks

The number of error codes has been reduced to three.

4.1.7 Trend Logs

In Building Operation, trend logs are handled by the system. Trend logs do not exist in function block programs. For more information, see WebHelp. You cannot create trend logs in Menta Editor but you can configure trend logs from the Menta program.

4.1.8 I/O Point Bindings

I/O point bindings are made outside the function block program. For more information, see section 4.4 "I/O Point Binding" on page 35.

4.1.9 SNVTs

SNVTs do not exist in Function Block Editor. For more information, see section 4.2 "Program Conversion" on page 33.

4.2 Program Conversion

In Function Block Editor, the programming principles and features are quite different from the programming principles of Menta Editor. In Function Block Editor, the functionality is built up by program modules, but in Menta Editor the functionality is typically built up by logical blocks into a single large program.

It is still possible to import and save Menta programs for Xenta 280/300/401 into Function Block Editor. When you save the program it is saved as a function block program, that is, an .AUT file. Some of the blocks that were available for Xenta 280/300/401 controllers in Menta are automatically converted into new blocks when you save the program in Function Block Editor. Some of the converted blocks lose their configuration data but are necessary for non-public blocks to function properly.

The following conversions are made:

- Al blocks are converted into RI blocks .
- AO blocks are converted into RO blocks.
- ALARM blocks are converted into modified ALARM blocks, with inputs and outputs but no parameters. The block acts as an input/output between the function block program and Building Operation, but because of the alarm capabitlities in Building Operation, it is often unnecessary to keep the alarm handling in the function block program. When imported into Function Block Editor, Alarm blocks in Menta programs generate Change of State alarm objects in Building Operation. You have to configure the alarms from WorkStation. You can mass create alarms in Building Operation. For more information, see WebHelp.

Because of the improved capabilites in Building Operation alarm, it is often possible to remove logic in Menta connected to alarm handling

- CNT blocks are converted into PI blocks connected to control inputs.
- DI blocks are converted into BI blocks.
- DO blocks are converted into BO blocks.
- DOPU blocks are converted into PO blocks.
- ERR blocks are converted into ERROR blocks.
- TSCH blocks are converted into TSCHI blocks, with inputs only. The block acts as an input from the time schedule in Building Operation into the function block program. The conversion does not include week and holiday events. You have to manually recreate week and holiday events in Building Operation time schedule objects. For more information, see WebHelp.
- Trend logs are lost and have to be manually recreated in Building Operation. You can mass create trend logs in Building Operation. For more information, see WebHelp.
- The bindings to physical I/Os are lost. You have to create the I/O point list in Building Operation and then recreate the bindings either manually or by using a binding template. For more information, see section 4.4 "I/O Point Binding" on page 35.
- SNVTs are converted into RI/RO blocks.
- The .MTA file is converted into an .AUT file. For more information, see WebHelp.

4.3 Importing a Xenta 280/300/401 Program

You import a Xenta 280/300/401 program to Function Block Editor to reuse its functions in an Automation Server.

To import a Xenta 280/300/401 program

- 1. In Function Block Editor, on the File menu, click Import.
- 2. Enter the name of the Menta program you want to import.
- 3. Click Open.



The Menta program is now converted into a function block program is now uploaded and can be edited in Function Block Editor.

4.4 I/O Point Binding

A binding is an association between an I/O point and another object. Script and Function Block programs, Graphics, and Trends are some examples of these objects.

You access the Bindings view to select the object that you want to bind to the $\ensuremath{\mathsf{I/O}}$ point.

System Tree 🛛 👻 🗜 🗙	AO-8 × Bindings: A	.0-8 ×				-
7 - 1	* 💎 🗈				🔁 💕 🍞 🔹	
Server 1	Binding template	Description		1	IO Bus	•
 System S1BACnet 	Default name matching	Match according to	name str Drop here to ap	ply	▷ ■ AO-8	
IO Bus	Binding point	Unit Bind	ing		DI-16	
AO-8	AO-8		Drop or type here to bind		Slot03:DOFC8	
▷ ■ DI-16	Outputs				Slot04:UI8AO4	
Slot03:DOFC8	P Current Output	mA 🖛	~/Analog Schedule/Value	1	▷ UI-16	
D 🔤 UI-8.AO-V-4	P Current Output_2	mA	Drop or type here to bind			
 Image: UI-16 Image: Analog Schedule 	P Current Output_3	mA	Drop or type here to bind			
Interval Trend Log	P Voltage Output	V	Drop or type here to bind			
Trend Chart	Voltage Output_2	V	Drop or type here to bind			
	Voltage Output_3	V	Drop or type here to bind			
	Variables					
	Firmware version		Drop or type here to bind			
	👜 Hardware version		Drop or type here to bind			
	Low power		Drop or type here to bind			
	Model name		Drop or type here to bind			
	Module status		Drop or type here to bind	-	Browser Search	

Figure: I/O Point Binding

The example above shows a binding from a schedule to a Current Output point.

4.5

Binding a Function Block Program to I/Os

You bind a function block program to I/Os to connect the inputs and outputs of a function block program to variables in an Automation Server. For more information, see WebHelp.

To bind a function block program to I/Os

- 1. In WorkStation, in the **System Tree** pane, select the function block program to which you want to bind values.
- 2. On the Actions menu, click Edit bindings.
- 3. In the binding **Browser**, drag **IO Bus** values to inputs and outputs in the binding list to create the bindings.
- 4. On the toolbar, click **Save** to save the bindings to the Automation Server.
4.6 Binding Values

You bind values to exchange data between objects.

For more information, see WebHelp.

To bind values

- 1. In WorkStation, in the **System Tree** pane, select the object to which you want to bind values.
- 2. On the Actions menu, click Edit bindings.
- 3. In the binding **Browser**, drag a value to a property in the binding list to create a binding.

My Function Block Pro	gram 🗡 Bi	indings: My de	stination value \times			
🇙 🔻 - 🛅					🔁 🜓 🍸 •	
Binding templates	Description				🔀 Enterprise Server	•
Default name matching	Match accord	ing to name st	Drop here to ap	oply	💊 ConfigDBSize	-
	1	Les			🖌 Hour	
Binding points	Unit	Binding			Minute	
💊 My destination value		Drop	o or type here to bind	1	Second	
					🧀 Folder	
Variables					🔁 Folder_2	
💊 Value		Drop	o or type here to bind	1	📄 Menta	
					My source value	
					Ny source value_co	p
					Servers 🔁	
					🔯 System	
					A Welcome	
					HTTPPort	
					HTTPSPort	
					MaxQueueSize	
					MaxRetryCount	-
					•	•
					Browser Search	

You can also drag objects from the **System Tree** pane, or values from the **Search** pane, or you can type the binding path in the **Binding** box.

4. On the toolbar, click the **Save** button .

4.7

Binding Values Using a Binding Template

You use binding templates to reduce engineering time when creating bindings. Binding templates are defined and created for binding patterns that are frequently reused.

Using binding templates, you create bindings between the Automation Server program variables, internal values, and I/O points using the following recommended process:

- First, bind the Automation Server IO Bus to each of the Programs in the Automation Server that requires data flow with the I/O points.
- Next, bind the Internal Variables to each of the Programs in the Automation Server that requires data flow with Internal Variables.
- Then, bind each of the individual Programs to all other Programs that require data flow with other Programs.
- Finally, bind any time schedules and alarms that are required as part of the programmed control logic.

Tip

 \mathcal{O}

• When creating bindings, follow the recommended general guidelines: create bindings between Inputs and Outputs only and do not create bindings to Public Signals.

For more information, see WebHelp.

To bind values using a binding template

- 1. In WorkStation, in the **System Tree** pane, select the object that you want to bind values to.
- 2. On the Actions menu, click Edit bindings.

3. In the binding point browser, drag the object or folder to the binding template that you want to apply.

Bindings: HighValve ×							-
🗙 💎 - 🛅					🔁 💣 🔇	-	
Binding template	Description				Cooling	Application	•
Default name matching	Match according to nam	ie strings	Drop here to apply		Alarm	s	
IO Points	Drag IO Bus to this temp	late	Drop here to apply		Interr	al Variables	
Binding point	Unit Bi	nding			Progra	ams Iules	
# HighValve			Drop or type here to bind	ТП	Trend	Logs	
Inputs							
💊 Ahu1VlvPosn			Drop or type here to bind				
💊 Ahu2VlvPosn			Drop or type here to bind				
Outputs							
💊 HighVlvPosn			Drop or type here to bind				
Publics							
➢ VIvPosnRavgTime			Drop or type here to bind				
References							
🚰 Task	4	⇒ ~/System/Ta	sks/Task 3				
Variables							
🐵 Current line		Drop or type here to bind					
📝 Enabled		Drop or type here to bind					
📝 Error			Drop or type here to bind				
Line start time			Drop or type here to bind				
Restart			Drop or type here to bind	-	Browser	Search	

4. Select the bindings that you want to create.



5. Click OK.

6.	Verify that all bindings are correctly bou	nd.
υ.	verify that all bindings are correctly bou	nu.

Bindings: HighValve 🔒 🛛						•
🗙 💎 - 🛅				🔁 💣 🤇	₹ -	
Binding template [Description			Cooling	Application	1 •
Default name matching	Match according to name strings	Drop here to apply		Alarm	S	
IO Points	Drag IO Bus to this template	Drop here to apply		Contract Intern	al Variables	
Binding point Unit Bin	ding			Progra	ules	
🗇 HighValve	Drop or typ	e here to bind		Trend	Logs	
Inputs						
💊 Ahu1VlvPosn	Drop or typ	e here to bind				
👒 Ahu2VlvPosn	Drop or type	e here to bind				
Outputs						
	Drop or typ	e here to bind				
A HighVlyPosn	/University X ES1/Servers/CPIant AS/Cooling Application/Programs/PlantStart/H					
-	 /University X ES1/Servers/CPIant AS/Cooling Application/Programs/SecChwP2/F 					
-	/University X ES1/Servers/CPlant AS/Coc	ling Application/Programs/SecChwP1/F				
Publics						
💊 VlvPosnRavgTime	Drop or typ	e here to bind				
References						
🚰 Task 🛛 🖛	~/System/Tasks/Task 3					
Variables						
🐵 Current line	Drop or typ	e here to bind				
Enabled	Drop or typ	e here to bind				
📝 Error	Drop or typ	e here to bind	-	Browser	Search	

7. On the File menu, click Save.



Tip

• To ensure data flow is occurring as intended, use the Watch pane to view values and monitor changes.

4.8 Time Schedule and Alarm Blocks

Time Schedules and Alarms blocks define time control and alarm handling in a function block program. Time schedules and alarms are configured in WorkStation and executed outside the function block program.

4.8.1 ALARM

The ALARM block monitors the state of the binary input signal. For more information, see WebHelp.

4.8.2 TSCHI

The TSCHI block is an integer output indicating the number of minutes until the next change of state of the time schedule.

For more information, see WebHelp.

4.9 Alarm Types

An alarm compares the value from a monitored variable with the conditions of the alarm. Different types of alarms handle different types of variables and different forms of evaluation.

The alarms can monitor values from external sources, such as LonWorks and BACnet devices, as well as values from Automation Servers and Enterprise Servers. Some alarms are also based on system information, such as device restart or network status.

4.9.1 Change of State Alarm

The change of state alarm monitors the state changes of digital variables. You configure the alarm to trigger when the variable changes its state to true or to false.

For more information, see WebHelp.

4.9.2 Out of Range Alarm

When setting up an out of range alarm, you configure the normal range of the monitored variable. If the variable goes below the lower limit or above the upper limit of the normal range, the alarm is triggered.

For more information, see WebHelp.

4.9.3 Out of Reference Range Alarm

The out of reference range alarm monitors variable movements comparing to a reference variable. By setting an upper deviation limit and lower deviation limit, you configure the tolerance the monitored variable can vary from the reference variable before the alarm is triggered. The upper alarm limit of the monitored variable is equal to the reference point current value plus the upper deviation limit. The lower alarm limit of the monitored variable is equal to the reference point current value plus the reference point current value minus the lower deviation limit.

For more information, see WebHelp.

4.9.4 Multistate Alarm

The multistate alarm monitors a variable and triggers the alarm if the variable is between the configured alarm range or equal to a single value. You can add several ranges or single values to trigger the alarm.

For more information, see WebHelp.

4.9.5 Matching Text String Alarm

A matching text string alarm evaluates if the monitored value equals the given text strings.

For more information, see WebHelp.

4.9.6 Variable Status Alarm

The variable status alarm monitors the status of a variable. The alarm is triggered when the value of the monitored variable is either forced or overridden. If you configure the alarm to trigger on both force and override, the alarm is triggered immediately when the variable changes to one of the two statuses.

For more information, see WebHelp.

4.9.7 Sum Alarm

A sum alarm can be seen as a collection of alarms that have one or several common denominators. The conditions you use to filter out which alarms the sum alarm monitors are the same conditions you use to filter the Alarms pane or an Alarm View.

For more information, see WebHelp.

4.9.8 Enumeration Alarm

An enumeration is a variable with labeled values; different variables have different enumerations. When configuring an enumeration alarm, you configure the variable and its enumerations to monitor.

For more information, see WebHelp.

4.9.9 System Information Alarms

System information alarms monitor system entities, such as online status for servers or field devices. The system information alarms are generated by Building Operation. Users cannot create new system alarms. The possible causes of a system alarm are gathered in an enumeration called System alarm ID. When a system alarm is triggered, the cause of the alarm is indicated in the System alarm ID column in the Alarms pane or Alarm View. Some system alarms have an additional description in the Events pane or Event View, Description column.

For more information, see WebHelp.

4.10

Creating a Change of State Alarm

You create a change of state alarm to trigger an alarm when a variable, such as a switch, is either true or false.

For more information, see WebHelp.

To create a change of state alarm

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the alarm.
- 2. On the File menu, point to New and then click Alarm.
- 3. In the object type list, select **Change of State Alarm**.

Create Object: Change of State Alar	m		? x
Create Object: Change of State Alarr Choosing the type and namin Choosing the type and namin Choosing the type and namin Change of State Alarm Change of State Alarm Change Alarm	ng the object Name Location Description	Change of State Alarm /University X ES1/Servers/CPIant AS/Cooling Application/Alarms	? ×
		Previous Next Create	Cancel

- 4. In the Name box, type a name for the alarm.
- 5. In the **Description** box, type a description for the alarm.
- 6. Click Next.

- 7. Select the state of the monitored variable that triggers the alarm:
 - Click **True** to trigger the alarm when the monitored variable is equal to **True**.
 - Click **False** to trigger the alarm when the monitored variable is equal to **False**.

Create Object: Char	nge of State Alarm		8 ×
Alarm Trigger			
		True	
Trigger value	🔘 False 🔘 True		
Monitored variable	Null		
Disable alarm			
Time delay and s	hunt variable		
Alarm delay (s)	0		
Reset delay (s)	0		
Shunt variable	Null		
		Previous Next	Create Cancel

- 8. In the Monitored variable box, enter the variable that the alarm monitors.
- 9. In the **Disable alarm** box, select whether or not to create the alarm in disabled mode.
- 10. Under **Time delay and shunt variable**, in the **Alarm delay** box, enter the time delay.
- 11. In the **Reset delay** box, enter the time delay.

12.	In the Shunt variable box,	enter the shunt variable.
-----	----------------------------	---------------------------

🚹 Create Object: Char	nge of State Alarm	? ×
Alarm Trigger		
	True	_
Trigger value	🔘 False 🔘 True	
Monitored variable	/University X ES1/Servers/CPIant AS/Cooling Application/Programs/PlantAlarms/PlantAlarm	
Disable alarm		
Time delay and s	shunt variable	-
Alarm delay (s)	0	
Reset delay (s)	3	
Shunt variable	/University X ES1/Servers/CPlant AS/Cooling Application/Programs/PlantStart/PlantEnable	
	Previous Next Create	Cancel

13. Click Next.

14. In the **Alarm message** box, type the message to display when the monitored variable exceeds the alarm limit.

Create Object: Cl	nange of State Alarm
Presentation	
Messages	
Alarm message	Cooling Plant is in alarm
Reset message	
Priorities	
Alarm priority Reset priority	100 Same priority 100 Total American State
Category and	Alerts
Category	Null
Flashing alert	
Audible alert	
	Previous Next Create Cancel

- 15. In the **Reset message** box, type the message to display when the alarm is reset.
- 16. In the **Alarm priority** box, enter the priority for the alarm state.

- 17. Select the **Same priority** check box to let the **Reset priority** box inherit the value in the **Alarm priority** box.
- 18. In the **Reset priority** box, enter the priority for the reset state.
- 19. Under **Category and Alerts**, in the **Category** box, enter a category for the alarm.
- 20. Select the **Flashing alert** check box to make the alarm flash in the Alarms pane and Alarm Views when it is triggered.
- 21. Select the **Audible alert** check box to make the alarm sound when it is triggered.

Create Object: Cł	hange of State Alarm
Presentation	
Messages	
Alarm message	Cooling Plant is in alarm
Reset message	Cooling Plant returned to normal
Priorities	
Alarm priority 1 Reset priority 1	1 Same priority 10 🚔 🗸
Category and	Alerts
Category	~/System/Alarm Control Panel/Alarm Handling/Categories/Cooling Plant Statuses
Flashing alert	
Audible alert	
	Previous Next Create Cancel

22. Click Next.

23. Select the type of acknowledgement to use:

- Click **No** when the alarm does not need to be acknowledged.
- Click **Single** when the alarm needs to be acknowledged in the alarm state.
- Click **Extended** when the alarm needs to be acknowledged in the alarm state and the reset state.

🚹 Create Object: Change of	f State A	larm				8 ×
User Action						
Acknowledgement						
Acknowledgement type	© No	🔍 Single 🔘 Extende	ed			
Alarm handling						
Cause note group	Null					
Action note group	Null					
Checklist	Null					
		Comment	Cause note	Action note	Checklist	
When acknowledging an	alarm:					
Required user actions						-
				Previous	Next Cr	eate Cancel

- 24. In the **Cause note group** box, enter a cause note group that you want to connect to the alarm.
- 25. In the **Action note group** box, enter an action note group that you want to connect to the alarm.
- 26. In the **Checklist** box, enter a checklist that you want to connect to the alarm.
- 27. Select the **When acknowledging an alarm: Comment** check box to force the user to add a comment to the alarm before the alarm can be acknowledged.
- 28. Select the When acknowledging an alarm: Cause note check box to force the user to edit the connected cause note before the alarm can be acknowledged.
- 29. Select the When acknowledging an alarm: Action note check box to force the user to edit the connected action note before the alarm can be acknowledged.
- 30. Select the When acknowledging an alarm: Checklist check box to force the user to go through the connected checklist before the alarm can be acknowledged.

31. Under **Required user actions**, select the check boxes for **Comment**, **Cause note**, and **Action note** to specify how the user should respond to the listed actions.

Create Object: Change of	State Alarm				? ×
User Action					
Acknowledgement Acknowledgement type Alarm handling Cause note group Action note group	© No ⊚ Single © Null Null	Extended			
Checklist	Null				
When acknowledging an	Commer alarm:	nt Cause note	Action note	Checklist	
Required user actions					*
	Commer	t Cause note	Action note		
When hiding an alarm:	√				
When unhiding an alarm:					
When disabling an alarm:	V				
When enabling an alarm:					
When disabling the event	log:				
When enabling the event	log:				
When assigning an assign	nment: 🔽				
When accepting an assigr	nment:				
When rejecting an assign	ment: 🔽				
When releasing an assign	ment: 📝				
			Previous	Next	Create Cancel

32. Click Next.

33.	Click the Add attachment button 4 to add an attachment.	
Create Object: Change of State A	larm	? <mark>x</mark>
Attachment		
A 2		
Type Name Display on alarm Path		
	Previous Next Create	Cancel

- 34. In the **Select Object** dialog box, select the object you want to attach to the alarm.
- 35. Click Select.
- 36. On the **Attachment** page, in the **Display on alarm** column, select the check box to automatically open the attachment when the alarm is triggered.

Create Object: 0	Change of State Alarm		? ×
Attachment			
420			
Туре	Name	Display on alarm	Path
🔊 Graphic	Cooling Plant Graphic		/University X ES1/Servers/CPlant AS/Graphics/Cooling Plant Graphic
Trend Log List	Chiller Status Trend Log List		/University X ES1/Central Plant Bldg/Cooling Plant/Chiller Status Trend Log List
			Previous Next Create Cancel

37. Click Create.

4.11 Creating a Multistate Alarm

You create a multistate alarm to trigger an alarm when a variable is within a set range.

To create a multistate alarm

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the alarm.
- 2. On the File menu, point to New and then click Alarm.
- 3. In the object type list, select Multistate Alarm.

Choosing the type and naming t Change of State Alarm Multistate Alarm Matching Text String Alarm Out of Range Alarm Out of Reference Range Alarm Sum Alarm Enumeration Alarm Variable Status Alarm	he object Name Location Description	Multistate Alarm /University X ES1/Servers/CPlant AS/Cooling Application/Alarms	
	(Previous Next Create	Cancel

- 4. In the **Name** box, type a name for the alarm.
- 5. In the **Description** box, type a description for the alarm.
- 6. Click Next.
- 7. Click Add row.

🛽 Create Object: Mult	istate Alarm							8 X
Alarm Trigger								
Trigger alarm when	variable is:			Equal Range	{	Л		
between 🔹)	and	0					
								•
Add row Monitored variable	Null							🥖
Disable alarm	burt variable							
Alarm delay (s)								
Reset delay (s) Shunt variable	0			 				
					Previous	Next	Create	Cancel

8. Click **between** to change the interval to a specific value.

9. Click the **Set unit** *if* button to add a unit to the alarm limits and deadband.



Note

• To define a unit of the alarm, the monitored variable must have a defined unit.

Unit selection		Ş	23
Quick filter			
graines			-
Uston Mass Transfer Coofficie	nt		
(mol/(c m ²))/(mol/m ³)	nı		
(mol/(s.ft ²))/(mol/ft ³)			
Mass Velocity			
g/(s.m ²)			
lb/(s.ft ²)			
Moles			
mol			
lbmol			
Moment of Inertia			
g/m²			
lb/ft*			
Momentum			
g.m/s			
NoCatogon/			
Nolloit			
-			
Prefix: Don't use a p	orefix		
elected unit: NoUnit			
	Select	Can	cel

10. In the Unit selection dialog box, select a unit.

- 11. In the **Prefix** box, select a prefix for the unit.
- 12. Click Select.
- 13. Under **Trigger alarm when variable is** box, in the number boxes, enter the interval or the specific value of the monitored variable that triggers the alarm.
- 14. Click **Add row** to add another interval or specific value to the alarm criteria.
- 15. In the **Monitored variable** box, enter the variable that the alarm is to monitor.
- 16. In the **Disable alarm** box, select whether or not to create the alarm in disabled mode.
- 17. In the Alarm delay box, enter the time delay before the alarm is triggered.
- 18. In the **Reset delay** box, enter the time delay before the alarm is reset.
- 19. In the **Shunt variable** box, enter the boolean variable that enables or disables the alarm.
- 20. Click Next.

🔀 Create Object: Multistate Alarm	? ×
Presentation	
Messages	
Alarm message	
Reset message	
Priorities	
Alarm priority 100 Same priority	
Reset priority 100	
Category and Alerts	-
Category Null	
Flashing alert	
Audible alert	
Previous Next Create	Cancel

21. In the **Alarm message** box, enter the message to display when the monitored variable goes with or is equal to the alarm limits.

- 22. In the **Reset message** box, enter the message to display when the alarm is reset.
- 23. In the **Alarm priority** box, enter the priority of the alarm when the monitored variable triggers the alarm.
- 24. Select the **Same priority** check box to let all priorities inherit the value in the **Alarm priority** box.
- 25. In the **Reset priority** box, enter the priority of the alarm when it is reset.
- 26. In the Category box, enter the category that the alarm belongs to.
- 27. Select **Flashing alert** to make the alarm flash in the Alarms pane and Alarm Views when it is triggered.
- 28. Select Audible alert to make the alarm sound when it is triggered.
- 29. Click Next.

30. Select how the user has to acknowledge the alarm.

- Select No when the alarm does not need to be acknowledged.
- Select **Single** when the alarm needs to be acknowledged once, either in the alarm state or reset state.
- Select **Extended** when the alarm needs to be acknowledged in both the alarm state and the reset state.

👧 Create Object: Multis	tate Alarm					? X
User Action						
Acknowledgement						-
Acknowledgement ty	/pe 🔘 No 🧕	Single 🔘 Extended				
Alarm handling						
Cause note group	Null					
Action note group	Null					
Checklist	Null					
		Comment	Cause note	Action note	Checklist	
When acknowledging	g an alarm:					
Required user acti	ons					•
		Comment	Cause note	Action note		
When hiding an alarn	n:					
When unhiding an ala	arm:					
When disabling an ala	arm:					
When enabling an ala	arm:					
When disabling the e	vent log:					
When enabling the ev	vent log:					
When assigning an as	ssignment:					
When accepting an a	ssignment:					
When rejecting an as	signment:					
When releasing an as	signment:					•
					Previous Next	Create Cancel

- 31. In the **Cause note group** box, select the cause note group that you want to connect to the alarm.
- 32. In the **Action note group** box, select the action note group that you want to connect to the alarm.
- 33. In the **Checklist** box, select the checklist that you want to connect to the alarm.
- 34. Select the **When acknowledging an alarm: Comment** check box to force the user to add a comment to the alarm before the alarm can be acknowledged.
- 35. Select the **When acknowledging an alarm: Cause note** check box to force the user to edit the connected cause note before the alarm can be acknowledged.

- 36. Select the **When acknowledging an alarm: Action note** check box to force the user to edit the connected action note before the alarm can be acknowledged.
- 37. Select the **When acknowledging an alarm: Checklist** check box to force the user to go through the connected checklist before the alarm can be acknowledged.
- 38. Under **Required user actions**, select the check boxes for **Comment**, **Cause note**, and **Action note** to specify how the user should respond to the listed actions.
- 39. Click Next.
- 40. Click the **Add attachment** button 40 to add an attachment to the alarm.

🕺 Create Object: Multistate Alarm	? ×
Attachment	
Type Name Display on alarm Path	
	Carrat
Previous Next Create	Cancel

41. In the **Select Object** dialog box, select the object you want to attach to the alarm and then click **Select**.

Select Obj	ect	8 2
⊿ 💥 Unive	ersity X ES1	
	vstem	
Þ 🧰 4	pplication	
Þ 🧰 4		
Þ 🧰 🛛	entral Plant Bldg	
Þ 🧰 0	entral Plant Bldg_2	
Þ 🧮 🤆	raphics	
Þ 🧰 🤇	raphics_2	
D 🚞 F	eports	
D 🚞 F	eports_2	
D 📄 S	chool of Business	
D 📄 S	chool of Business_2	-
Path:	/University X ES1	
Path Type:		-
		Select Cancel

- 42. In the **Attachment** page, in the **Display on alarm** column, select the check box to automatically open the attachment when the alarm is triggered.
- 43. Click Create.

4.12

Creating a Matching Text String Alarm

You create a matching text string alarm to trigger an alarm when a variable is equal to one or more text strings.

To create a matching text string alarm

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the alarm.
- 2. On the File menu, point to New and then click Alarm.
- 3. In the object type list, select Matching Text String Alarm.

Choosing the type and naming to Choosing the type and naming to Change of State Alarm Multistate Alarm Multistate Alarm Multistate Alarm Out of Range Alarm Out of Reference Range Alarm Sum Alarm Enumeration Alarm Variable Status Alarm	he object Name Location Description	Matching Text String Alarm //University X ES1/Servers/CPlant AS/Cooling Application/Alarms/Other Alarms
		Previous Next Create Cancel

- 4. In the **Name** box, type a name for the alarm.
- 5. In the **Description** box, type a description for the alarm.
- 6. Click Next.

|1/7|

7. Under **Trigger alarm when variable is**, in the **equals to** box, type the text string that has to match with the monitored variable text output to trigger the alarm.

Note

• The text string is case sensitive and must be written exactly as the monitored variable text output.

🔬 Create Object: Matcl	ning Text String Alarm	? ×
Alarm Trigger		
	ABC	
Trigger alarm when	variable is:	
equals to 0		
		•
Add row		
Monitored variable	Null	
Disable alarm		
Time delay and sh	unt variable	^
Alarm delay (s)	0	
Reset delay (s)	0	
Shunt variable	Null	
	Previous Next Creat	te Cancel

- 8. Click Add row to add another text string.
- 9. In the Monitored variable box, enter the variable that the alarm monitors.
- 10. In the **Disable alarm** box, select whether or not to create the alarm in disabled mode.
- 11. In the Alarm delay box, enter the time delay before the alarm is triggered.
- 12. In the **Reset delay** box, enter the time delay before the alarm is reset.
- 13. In the **Shunt variable** box, enter the boolean variable that enables or disables the alarm.
- 14. Click Next.

<u> Create</u> Object:	Matching Text String Alarm	? ×
Presentation		
Messages		
Alarm message	8	
Reset message		
Priorities		
Alarm priority	100 Same priority	
Reset priority		
Category and	d Alerts	-
Category	Null	
Flashing alert		
Audible alert		
	Previous Next Create	Cancel

15. In the **Alarm message** box, enter the message to display when the monitored variable goes with or is equal to the alarm limits.

- 16. In the **Reset message** box, enter the message to display when the alarm is reset.
- 17. In the **Alarm priority** box, enter the priority of the alarm when the monitored variable triggers the alarm.
- 18. Select the **Same priority** check box to let all priorities inherit the value in the **Alarm priority** box.
- 19. In the **Reset priority** box, enter the priority of the alarm when it is reset.
- 20. In the Category box, enter the category that the alarm belongs to.
- 21. Select **Flashing alert** to make the alarm flash in the Alarms pane and Alarm Views when it is triggered.
- 22. Select **Audible alert** to make the alarm sound when it is triggered.
- 23. Click Next.

- 24. Select how the user has to acknowledge the alarm:
 - Select No when the alarm does not need to be acknowledged.
 - Select **Single** when the alarm needs to be acknowledged once, either in the alarm state or reset state.
 - Select **Extended** when the alarm needs to be acknowledged in both the alarm state and the reset state.

🔬 Create Object: Matching Te	xt String Alarm					? ×	
User Action							
Acknowledgement						-	
Acknowledgement type	🔍 No 💿 Single 🔘 Exten	ded					
Alarm handling							
Cause note group	Null						
Action note group	Null						
Checklist	Null						
	Comment	Cause note	Action note	Checklist			
When acknowledging an al	arm:						
Required user actions							
	Comment	Cause note	Action note				
When hiding an alarm:							
When unhiding an alarm:							
When disabling an alarm:							
When enabling an alarm:							
When disabling the event lo	og:						
When enabling the event lo	g:						
When assigning an assignm	ient:						
When accepting an assignn	nent:						
When rejecting an assignme	ent:						
When releasing an assignm	ent:						-
			Previous	Next	Create	Cancel	

- 25. In the **Cause note group** box, select the cause note group that you want to connect to the alarm.
- 26. In the **Action note group** box, select the action note group that you want to connect to the alarm.
- 27. In the **Checklist** box, select the checklist that you want to connect to the alarm.
- 28. Select the **When acknowledging an alarm: Comment** check box to force the user to add a comment to the alarm before the alarm can be acknowledged.

- 29. Select the **When acknowledging an alarm: Cause note** check box to force the user to edit the connected cause note before the alarm can be acknowledged.
- 30. Select the **When acknowledging an alarm: Action note** check box to force the user to edit the connected action note before the alarm can be acknowledged.
- 31. Select the **When acknowledging an alarm: Checklist** check box to force the user to go through the connected checklist before the alarm can be acknowledged.
- 32. Under **Required user actions**, select the check boxes for **Comment**, **Cause note**, and **Action note** to force the user to act on the listed actions.
- 33. Click Next.



Create Object: Matching Text String Alarm	2 ×
Attachment	
A 2 .	
Type Name Display on alarm Path	
Previous	Create Cancel
Previous INEAL	

35. In the **Select Object** dialog box, select the object you want to attach to the alarm and then click **Select**.

🔬 Select Obj	ect	8	23
	ersity X ES1 ystem pplication entral Plant Bldg raphics eports chool of Business ervers		
Path:	/University X ES1		
Path Type:			•
		Select	ancel

- 36. In the **Attachment** page, in the **Display on alarm** column, select the check box to automatically open the attachment when the alarm is triggered.
- 37. Click Create.

4.13

Creating a Variable Status Alarm

You create a variable status alarm to trigger an alarm when the status of a variable is changed to override or force.

To create a variable status alarm

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the alarm.
- 2. On the File menu, point to New and then click Alarm.
- 3. In the object type list, select Variable Status Alarm.

 Change of State Alarm Multistate Alarm Matching Text String Alarm Out of Range Alarm Out of Reference Range Alarm Sum Alarm Enumeration Alarm Variable Status Alarm 	Name Location Description	Variable Status Alarm /University X ES1/Servers/CPlant AS/Cooling Application/Alarms
--	---------------------------------	--

- 4. In the **Name** box, type a name for the alarm.
- 5. In the **Description** box, type a description for the alarm.
- 6. Click Next.

7. Select **Forced** to trigger the alarm when the monitored variable status changes to force.

🔬 Create Object: Variable Sta	atus Alarm	? X
Alarm Trigger		
Trigger when variable is:	Image: Contract of the second sec	
Monitored variable	Null	
Disable alarm		
Time delay and shunt v	variable	•
Alarm delay (s)	0	
Reset delay (s)	0	
Shunt variable	Null	
	Previous Next Create	Cancel

- 8. Select **Overridden** to trigger the alarm when the monitored variable status changes to override.
- 9. In the **Monitored variable** box, enter the variable that the alarm monitors.
- 10. In the **Disable alarm** box, select whether or not to create the alarm in disabled mode.
- 11. In the **Alarm delay** box, enter the time delay before the alarm is triggered.
- 12. In the **Reset delay** box, enter the time delay before the alarm is reset.
- 13. In the **Shunt variable** box, enter the boolean variable that enables or disables the alarm.
- 14. Click Next.

🛃 Create Object: V	ariable Status Alarm	? ×
Presentation		
Messages		
Alarm message		
Reset message		
Priorities		
Alarm priority Reset priority	100 Same priority 100	
Category and	Alerts	-
Category	Null	
Flashing alert		
Audible alert		
	Previous Next Create	Cancel

15. In the **Alarm message** box, enter the message to display when the monitored variable goes with or is equal to the alarm limits.

- 16. In the **Reset message** box, enter the message to display when the alarm is reset.
- 17. In the **Alarm priority** box, enter the priority of the alarm when the monitored variable triggers the alarm.
- 18. Select the **Same priority** check box to let all priorities inherit the value in the **Alarm priority** box.
- 19. In the **Reset priority** box, enter the priority of the alarm when it is reset.
- 20. In the Category box, enter the category that the alarm belongs to.
- 21. Select **Flashing alert** to make the alarm flash in the Alarms pane and Alarm Views when it is triggered.
- 22. Select Audible alert to make the alarm sound when it is triggered.
- 23. Click Next.

24. Select how the user has to acknowledge the alarm.

- Select No when the alarm does not need to be acknowledged.
- Select **Single** when the alarm needs to be acknowledged once, either in the alarm state or reset state.
- Select **Extended** when the alarm needs to be acknowledged in both the alarm state and the reset state.

🔼 Create Object: Variable Stat	us Alarm				8	x
User Action						
Acknowledgement						
Acknowledgement type 🔘) No 💿 Single 🔘 Exten	ded				
Alarm handling						
Cause note group	Null					
Action note group	Null					
Checklist /	Vull					
	Comment	Cause note	Action note	Checklist		
When acknowledging an ala	arm:					
Required user actions						•
	Comment	Cause note	Action note			
When hiding an alarm:						
When unhiding an alarm:						
When disabling an alarm:						
When enabling an alarm:						
When disabling the event lo	q:					
When enabling the event lo	g: 🔲					
When assigning an assignm	ient:					
When accepting an assignm	nent:					
When rejecting an assignme	ent:					
When releasing an assignme	ent:					-
			Previous	Next	Create Ca	ncel

- 25. In the **Cause note group** box, select the cause note group that you want to connect to the alarm.
- 26. In the **Action note group** box, select the action note group that you want to connect to the alarm.
- 27. In the **Checklist** box, select the checklist that you want to connect to the alarm.
- 28. Select the **When acknowledging an alarm: Comment** check box to force the user to add a comment to the alarm before the alarm can be acknowledged.

- 29. Select the **When acknowledging an alarm: Cause note** check box to force the user to edit the connected cause note before the alarm can be acknowledged.
- 30. Select the **When acknowledging an alarm: Action note** check box to force the user to edit the connected action note before the alarm can be acknowledged.
- 31. Select the **When acknowledging an alarm: Checklist** check box to force the user to go through the connected checklist before the alarm can be acknowledged.
- 32. Under **Required user actions**, select the check boxes for **Comment**, **Cause note**, and **Action note** to force the user to act on the listed actions.
- 33. Click Next.



A Create Object: Variable Status Alarm		? ×
Attachment		
A A O		
	Previous Next Create	Cancel
	incriticus invext create	

35. In the **Select Object** dialog box, select the object you want to attach to the alarm and then click **Select**.

Jeleet Obj	ect	8 2
🔺 💥 Univ	ersity X ES1	
Þ	System	
Þ 🧰	Application	
Þ 🧮	Central Plant Bldg	
Þ 🧮	Graphics	
Þ 🧮	Reports	
Þ 🧰	school of Business	
Þ 🧰	servers	
Path:	/University X ES1	
Path:	/University X ES1	
Path: Path Type:	/University X ES1	
Path: Path Type:	/University X ES1	
Path: Path Type:	/University X ES1	Select Cancel

- 36. In the Attachment page, in the **Display on alarm** column, select the check box to automatically open the attachment when the alarm is triggered.
- 37. Click Create.

4.14

Creating an Out of Range Alarm

You create an out of range alarm to trigger an alarm when a variable, such as a temperature, is not within its specified range.

For more information, see WebHelp.

To create an out of range alarm

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the alarm.
- 2. On the File menu, point to New and then click Alarm.
- 3. In the object type list, select Out of Range Alarm.

Create Object: Out of Range Alarm			? ×
Choosing the type and namin	g the object	t	
 Change of State Alarm Enumeration Alarm Matching Text String Alarm Multistate Alarm Out of Range Alarm Out of Reference Range Alarm Sum Alarm Variable Status Alarm 	Name Location Description	Out of Range Alarm /University X ES1/Servers/CPlant AS/Cooling Application/Alarms	
		Previous Next Create	Cancel

- 4. In the Name box, type a name for the alarm.
- 5. In the **Description** box, type a description for the alarm.
- 6. Click Next.

Create Object: Out	of Range Alarm
Alarm Trigger	
Alarm limit	Upper limit Deadband
Upper limit	48
Lower limit	0
Deadband Monitored variable	
Disable alarm	
Time delay and s	hunt variable
Alarm delay (s)	0
Reset delay (s)	0
Shunt variable	Null
	Previous Next Create Cancel

7. In the **Upper limit** box, enter an upper limit for the alarm.

- 8. In the Lower limit box, enter a lower limit for the alarm.
- 9. In the **Deadband** box, enter a deadband for the alarm.
- 10. In the **Monitored variable** box, enter the variable that the alarm monitors.
- 11. Click the **Set unit** button *it* to enter or change the unit of measure for the alarm limits and deadband.

	2.		
17/	1		

Note

• If the monitored value has a unit of measurement defined, the alarm limits and deadband are assigned that unit by default.

12. Select the unit of measure.

Unit selection	on		? ×
Quick filter			
Temperature	9		
°C			
°F			
Temperature	e Diff		
Δ°C			
Temperature	e Rate of Char	ige	
°C/min		-	
°F/min			
°F/h			
K/min			
K/h			
W/(m ² K)			
Thermal Conductivity			
W/(m².K/m)			
Btu/(h.ft*.F/ft)			
	ear Expansion	1	
Prefix:	Don't use a pr	efix	•
Selected unit: °C			
		Select	Cancel

- 13. In the **Prefix** box, select a prefix for the unit.
- 14. Click Select.
- 15. In the **Disable alarm** box, select whether or not to create the alarm in disabled mode.
- 16. Under **Time delay and shunt variable**, in the **Alarm delay** box, enter the time delay.
- 17. In the **Reset delay** box, enter the time delay.
| Create Object: Out of Ra | nge Alarm | 8 x |
|--------------------------|--|----------------------|
| Alarm Trigger | | |
| Alarm limit | Upper limit | Deadhard |
| Upper limit | 48 🗧 °C |) beadband |
| Lower limit | 15 🗧 °C | |
| Deadband | 1 C Lower limit | } Deadband |
| Monitored variable (°C) | /University X ES1/Servers/CPIant AS/Cooling Application/Programs/Calibration | ons/CdwsTempCV 🛛 🔐 🎻 |
| Disable alarm | | |
| Time delay and shunt | variable | • |
| Alarm delay (s) | 20 | |
| Reset delay (s) | 10 | |
| Shunt variable | Null | |
| | | |
| | Previous | lext Create Cancel |

18. In the **Shunt variable** box, enter the digital variable that enables or disables the alarm.

- 19. Click Next.
- 20. In the **Messages** area, in the **Above upper limit message** box, type the message to display when the alarm exceeds the upper limit.

Create Object: Out of Range	Alarm 8 X
Presentation	
Messages	
Above upper limit message	The condenser water supply temperature is above alarm limit
Below lower limit message	
Reset message	
Priorities	
Above upper limit priority	100
Below lower limit priority	100 🚔 🕂 🔲 Same priority
Reset priority	100
Category and Alerts	•
	Previous Next Create Cancel

21. In the **Below lower limit message** box, type the message to display when the alarm falls below the lower limit.

- 22. In the **Reset message** box, type the message to display when the alarm is reset.
- 23. In the **Priorities** area, in the **Above upper limit priority** box, enter the priority for the upper limit of the alarm state.
- 24. Select the **Same priority** check box to let all priorities inherit the value in the **Above upper limit priority** box.
- 25. In the **Below lower limit priority** box, enter the priority for the lower limit of the alarm state.
- 26. In the **Reset priority** box, enter the priority for the reset state.
- 27. Under **Category and Alerts**, in the **Category** box, enter a category for the alarm.
- 28. Select the **Flashing alert** check box to make the alarm flash in the Alarms pane and Alarm Views when it is triggered.
- 29. Select the **Audible alert** check box to make the alarm sound when it is triggered.

Create Object: Out of Range	Alarm
Presentation	
Messages	
Above upper limit message	The condenser water supply temperature is above alarm limit
Below lower limit message	The condenser water supply temperature is below alarm limit
Reset message	The condenser water supply temperature has returned to normal
Priorities	
Above upper limit priority Below lower limit priority Reset priority	2 Same priority 10 •
Category and Alerts	
Category	~/System/Alarm Control Panel/Alarm Handling/Categories/Cooling Plant Temps
Flashing alert Audible alert	
	Previous Next Create Cancel

30. Click Next.

- 31. Select the type of acknowledgement to use:
 - Click No when the alarm does not need to be acknowledged.
 - Click **Single** when the alarm needs to be acknowledged in the alarm state.
 - Click **Extended** when the alarm needs to be acknowledged in the alarm state and the reset state.

Create Object: Out of Ran	ge Alarm					8 ×
User Action						
Acknowledgement						
Acknowledgement type	🔿 No. 🔍 Sinale	C Extended				
Acknowledgement type	l No le Siligie					
Alarm handling						
Cause note group	Null					
Action note group	Null					
Checklist	Null					
	Com	ment	Cause note	Action note	Checklist	
When acknowledging an a	alarm:					
Required user actions						-
				Previous	Next	reate Cancel

- **32.** In the **Cause note group** box, enter the cause note group that you want to connect to the alarm.
- 33. In the **Action note group** box, enter the action note group that you want to connect to the alarm.
- 34. In the **Checklist** box, enter the checklist that you want to connect to the alarm.
- 35. Select the **When acknowledging an alarm: Comment** check box to force the user to add a comment to the alarm before the alarm can be acknowledged.
- 36. Select the **When acknowledging an alarm: Cause note** check box to force the user to edit the connected cause note before the alarm can be acknowledged.
- 37. Select the When acknowledging an alarm: Action note check box to force the user to edit the connected action note before the alarm can be acknowledged.
- 38. Select the **When acknowledging an alarm: Checklist** check box to force the user to go through the connected checklist before the alarm can be acknowledged.

39.	Under Required user action, select the check boxes for Comment, Cause
	note, and Action note to force the user to act on the listed actions.

Create Object: Out of Rar	nge Alarm					? X
User Action						
Acknowledgement						
Acknowledgement type	No	Single 🔘 Extend	ed			
Alarm handling						
Cause note group	Null					
Action note group	Null					
Checklist	Null					
		Comment	Cause note	Action note	Checklist	
When acknowledging an	alarm:					
Required user actions						•
		Comment	Cause note	Action note		
When hiding an alarm:						
When unhiding an alarm:	:					
When disabling an alarm:	:	v				
When enabling an alarm:						
When disabling the event	log					
When enabling the event	log:					
then endoing the creat	log.					
When assigning an assigr	nment:					
When accepting an assig	nment:					
When rejecting an assign	ment:					
When releasing an assign	ment:					
				Previous	Next	Cancel
				Trevious		

40. Click Next.

Create Object: Out of Range Alarm Attachment Image: Comparison of the second	
Attachment Attachment Image: Comparison of the second se	
Type Name Display on alarm Path	
Type Name Display on alarm Path	
	1
Previous Next Create Cancel]

- 42. In the **Select Object** dialog box, select the object you want to attach to the alarm.
- 43. Click Select.
- 44. On the **Attachment** page, in the **Display on alarm** column, select the check box to automatically open the attachment when the alarm is triggered.

🗈 Create Ob	ject: Out of Range A	larm		8 ×
Attachme	ent			
00	•			
	Mama	Display on clarm	D-15	
Granhic	Cooling Plant Graphic	Usplay on alarm	Paul	
Ø Oraphic	cooling hant or aprile	Sec. 1	removes the second se	
			Previous Next	Create

45. Click Create.

4.15 Creating an Out of Reference Range Alarm

You create an out of reference range alarm to trigger an alarm when a variable, such as a temperature, differs from a reference value.

To create an out of reference range alarm

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the alarm.
- 2. On the File menu, point to New and then click Alarm.
- 3. In the object type list, select **Out of Reference Range Alarm**.

Create Object: Out of Reference Ran	Create Object: Out of Reference Range Alarm					
Choosing the type and namin	g the objec	t				
 Change of State Alarm Enumeration Alarm Matching Text String Alarm Multistate Alarm Out of Range Alarm Out of Reference Range Alarm Sum Alarm Variable Status Alarm 	Name Location Description	Out of Reference Range Alarm //University X ES1/Servers/CPlant AS/Cooling Application/Alarms				
		Previous Next Create	Cancel			

- 4. In the Name box, type a name for the alarm.
- 5. In the **Description** box, type a description for the alarm.
- 6. Click Next.

7. In the **Upper deviation limit** box, enter the upper limit the monitored variable is allowed to deviate from the reference variable before the alarm is triggered.

🚹 Create Object: Out of I	Reference Range Alarm	<u>୧</u> ×
Alarm Trigger		
Alarm limit		Danu
Upper deviation limit	5	Upper deviation limit Reference variable
Lower deviation limit	0	Lower deviation limit
Deadband	0	20vidband V
Monitored variable	Null	···
Reference variable	Null	···
Disable alarm		
Time delay and shu	nt variable	*
Alarm delay (s)	0	
Reset delay (s)	0	
Shunt variable	Null	
		Previous Next Create Cancel

- 8. In the **Lower deviation limit** box, enter the lower limit the monitored variable is allowed to deviate from the reference variable before the alarm is triggered.
- 9. In the **Deadband** box, enter the range the monitored variable has to pass within the normal range before the alarm is reset.
- 10. In the Monitored variable box, enter the variable that the alarm monitors.
- 11. Click the **Set unit** button *v* to select the unit of measure for the alarm limits and deadband.



Note

• If the monitored value has a unit of measurement defined, the alarm limits and deadband are assigned that unit by default.

12. Select the unit of measure.

Unit selection	8 ×
Quick filter	
Heat Transfer Coefficient	
W/(m ² .K)	
Btu/(s.ft ² .K)	
Humidity	
% Rh	
Iluminance	
lux	
ft-cd	
Inductance	
н	
Length	
m	
in	
ft	
yard	
mile	
Linear Momentum	
N·s	
Luminance	
cd/m ⁻	
Prefix: Don't use a prefix	•
Selected unit: % Rh	
Select	Cancel

- 13. In the **Prefix** box, select a prefix for the unit.
- 14. Click Select.
- 15. In the **Reference variable** box, enter the reference variable to compare with the monitored variable.
- 16. In the **Disable alarm** box, select whether or not to create the alarm in disabled mode.
- 17. Under **Time delay and shunt variable**, in the **Alarm delay** box, enter the time delay before the alarm is triggered.
- 18. In the **Reset delay** box, enter the time delay before the alarm is reset.

Create Object: Out of Refer	rence Range Alarm	x
Alarm Trigger		
Alarm limit	Upper deviation limit	-
Upper deviation limit	5 Reference variable	7
Lower deviation limit	5 Every deviation limit	
Deadband		
Monitored variable (% Kh)	~/Cooling Application/Programs/Internal Variables/OanCV/Value	
Reference variable (% Rh)	/University X ES1/Weather Service/Current Weather/relative_humidity/Value	1
Disable alarm		_
Time delay and shunt va	ariable	^
Alarm delay (s)	0	
Reset delay (s)	0	
Shunt variable	Null	
	Previous Next Create Can	cel

19. In the **Shunt variable** box, enter the digital variable that enables or disables the alarm.

- 20. Click Next.
- 21. In the **Messages** area, in the **Above upper limit message** box, type the message to display when the monitored variable exceeds the upper alarm limit.

Create Object: Out of Refere	Create Object: Out of Reference Range Alarm						
Presentation							
Messages							
Above upper limit message	The RH sensor's deviation is above the limit						
Below lower limit message							
Reset message							
Priorities							
Above upper limit priority	100						
Below lower limit priority	100 🚔 🗲 🔲 Same priority						
Reset priority	100						
Category and Alerts		-					
	Previous Next Create Cance	el					

- 22. In the **Below lower limit message** box, type the message to display when the monitored variable falls below the lower alarm limit.
- 23. In the **Reset message** box, type the message to display when the alarm is reset.
- 24. In the **Priorities** area, in the **Above upper limit priority** box, enter the priority of the alarm when the monitored variable exceeds the upper alarm limit.
- 25. Select the **Same priority** check box to let all priorities inherit the value in the **Above upper limit priority** box.
- 26. In the **Below lower limit priority** box, enter the priority of the alarm when the monitored variable falls bellow the lower alarm limit.
- 27. In the **Reset priority** box, enter the priority for alarm when it is reset.
- 28. Under **Category and Alerts**, in the **Category** box, enter the category that the alarm belongs to.
- 29. Select **Flashing alert** to make the alarm flash in the Alarms pane and Alarm Views when it is triggered.
- 30. Select Audible alert to make a sound when the alarm is triggered.

Create Object: Out of Refere	nce Range Alarm
Presentation	
Messages	
Above upper limit message	The RH sensor's deviation is above the limit
Below lower limit message	The RH sensor's deviation is below the limit
Reset message	The RH sensor's deviation has returned to normal
Priorities	
Above upper limit priority	100
Below lower limit priority	100 🚔 🗲 🗷 Same priority
Reset priority	100
Category and Alerts	·
Category	Null
Flashing alert	
Audible alert	
	Previous Next Create Cancel

31. Click Next.

- 32. Select the type of acknowledgement to use:
 - Click No when the alarm does not need to be acknowledged.
 - Click **Single** when the alarm needs to be acknowledged once, either in the alarm state or reset state.
 - Click **Extended** when the alarm needs to be acknowledged in both the alarm state and the reset state.

Create Object: Out of Rei	ference R	ange Alarm				? ×
User Action						
Acknowledgement						
Acknowledgement type	◎ No (🖲 Single 🔘 Extende	d			
Alarm handling						
Cause note group	Null					
Action note group	Null					
Checklist	Null					
		Comment	Cause note	Action note	Checklist	
When acknowledging an	alarm:					
Required user actions	5					•
				Previous	Next	reate Cancel

- 33. In the **Cause note group** box, enter the cause note group that you want to connect to the alarm.
- 34. In the **Action note group** box, enter the action note group that you want to connect to the alarm.
- 35. In the **Checklist** box, enter the checklist that you want to connect to the alarm.
- 36. Select the **When acknowledging an alarm: Comment** check box to force the user to add a comment to the alarm before the alarm can be acknowledged.
- 37. Select the When acknowledging an alarm: Cause note check box to force the user to edit the connected cause note before the alarm can be acknowledged.
- 38. Select the **When acknowledging an alarm: Action note** check box to force the user to edit the connected action note before the alarm can be acknowledged.
- 39. Select the **When acknowledging an alarm: Checklist** check box to force the user to go through the connected checklist before the alarm can be acknowledged.

40. Under **Required user actions**, select the check boxes for **Comment**, **Cause note**, and **Action note** to force the user to act on the listed actions.

Create Object: Out of Ref	erence Ra	inge Alarm				8 X
User Action						
Acknowledgement						
Accilowiedgement						
Acknowledgement type	© No	🤊 Single 🔘 Extend	ed			
Alarm handling						
Cause note group	Null					
Action note group	Null					
Checklist	Null					
		Comment	Cause note	Action note	Checklist	
When acknowledging an	alarm:					
Required user actions						•
		Comment	Cause note	Action note		
When hiding an alarm:						
When unhiding an alarm:	1					
When disabling an alarm:						
When enabling an alarm:						
When disabling the event	log:					
When enabling the event	log:					
When assigning an assign	nment:					
When accepting an assign	nment:					
When rejecting an assigni	ment:					
when releasing an assign	ment:					
				Previous	Next Create	e Cancel

41. Click Next.

42. Click	: the Add attachment button 🖉	to add an attachment to	the alarm.
Create Object: Out of Reference Range A	Alarm		8 X
Attachment			
220			
Type Name Display on alarm Path			
	P	revious Next Create	Cancel

- 43. In the **Select Object** dialog box, select the object you want to attach to the alarm and then click **Select**.
- 44. On the **Attachment** page, in the **Display on alarm** column, select the check box to automatically open the attachment when the alarm is triggered.
- 45. Click Create.

4.16

Creating an Enumeration Alarm

You create an enumeration alarm to monitor the enumerations of a variable.

To create an enumeration alarm

- 1. In WorkStation, in the **System Tree** pane, select the folder or Building Operation server where you want to create the alarm.
- 2. On the File menu, point to New and then click Alarm.
- 3. In the object type list, select Enumeration Alarm.

Create Object: Enumeration Alarm Choosing the type and naming t A Change of State Alarm A Multistate Alarm A Multistate Alarm A Out of Range Alarm A Out of Reference Range Alarm A Sum Alarm C	Name Description	Enumeration Alarm /University X ES1/Servers/CPlant AS/Cooling Application/Alarms/Other Alarms
A Enumeration Alarm Variable Status Alarm		Previous Next Creare Cancel

- 4. In the **Name** box, type a name for the alarm.
- 5. In the **Description** box, type a description for the alarm.
- 6. Click Next.

🛃 Create Object: Enum	eration Alarm	? ×
Alarm Trigger		
Trigger alarm when	variable is:	
Monitored variable	Null	
Disable alarm		
Time delay and sl	hunt variable	-
Alarm delay (s)	0	
Reset delay (s)	0	
Shunt variable	Null	
	Previous Next Create	Cancel

7. In the **Monitored variable** box, enter the object and its enumeration type that the alarm monitors.

- 8. Under **Trigger alarm when variable is**, select the enumeration options of the enumeration type that triggers the alarm.
- 9. Click Select.
- 10. In the **Disable alarm** box, select whether or not to create the alarm in disabled mode.
- 11. In the **Alarm delay** box, enter the time delay before the alarm is triggered.
- 12. In the **Reset delay** box, enter the time delay before the alarm is reset.
- 13. In the **Shunt variable** box, enter the boolean variable that enables or disables the alarm.
- 14. Click Next.

<u> Create</u> Object: E	numeration Alarm	? X
Presentation		
Messages		-
Alarm message		
Reset message		
Priorities		
Alarm priority	100 Same priority	
Reset priority	100	
Category and	Alerts	^
Category	Null	
Flashing alert		
Audible alert		•
	Previous Next Create	Cancel

15. In the **Alarm message** box, enter the message to display when the monitored variable goes with or is equal to the alarm limits.

- 16. In the **Reset message** box, enter the message to display when the alarm is reset.
- 17. In the **Alarm priority** box, enter the priority of the alarm when the monitored variable triggers the alarm.
- 18. Select the **Same priority** check box to let all priorities inherit the value in the **Alarm priority** box.
- 19. In the **Reset priority** box, enter the priority of the alarm when it is reset.
- 20. In the Category box, enter the category that the alarm belongs to.
- 21. Select **Flashing alert** to make the alarm flash in the Alarms pane and Alarm Views when it is triggered.
- 22. Select **Audible alert** to make the alarm sound when it is triggered.
- 23. Click Next.

- 24. Select how the user has to acknowledge the alarm.
 - Select No when the alarm does not need to be acknowledged.
 - Select **Single** when the alarm needs to be acknowledged once, either in the alarm state or reset state.
 - Select **Extended** when the alarm needs to be acknowledged in both the alarm state and the reset state.

Create Object: Enumeration Alarm						x		
User Action								
Acknowledgement								-
Acknowledgement type	© № ©	Single 🔘 Extend	led					
Alarm handling								
Cause note group	Null							
Action note group	Neull							
Action note group	Nuu							
Checklist	Null							
		Comment	Cause note	Action note	Checklist			
When acknowledging an	alarm:							
Required user actions							-	
		Comment	Cause note	Action note				
When hiding an alarm:								
When unhiding an alarm:								
When disabling an alarm:								
When enabling an alarm:								
When disabling the event	log:							
When enabling the event	log:							
When assigning an assign	nment:							
When accepting an assign	nment:							
When rejecting an assign	ment:							
When releasing an assign	ment:							-
				Previous	Next	Create	Cancel	
				Frevious	INEXL	create	Cance	

- 25. In the **Cause note group** box, select the cause note group that you want to connect to the alarm.
- 26. In the **Action note group** box, select the action note group that you want to connect to the alarm.
- 27. In the **Checklist** box, select the checklist that you want to connect to the alarm.
- 28. Select the **When acknowledging an alarm: Comment** check box to force the user to add a comment to the alarm before the alarm can be acknowledged.

- 29. Select the **When acknowledging an alarm: Cause note** check box to force the user to edit the connected cause note before the alarm can be acknowledged.
- 30. Select the **When acknowledging an alarm: Action note** check box to force the user to edit the connected action note before the alarm can be acknowledged.
- 31. Select the **When acknowledging an alarm: Checklist** check box to force the user to go through the connected checklist before the alarm can be acknowledged.
- 32. Under **Required user actions**, select the check boxes for **Comment**, **Cause note**, and **Action note** to force the user to act on the listed actions.
- 33. Click Next.



🔏 Create Object: Enumeration Alarm	? x
Attachment	
Type Name Display on alarm Path	
· Man I canada a	
Previous Next Create	Cancel

35. In the **Select Object** dialog box, select the object you want to attach to the alarm and then click **Select**.

	ect			8	23
9.9					
	ersity X ES1				
Þ	System				
	Application				
	Central Plant Bldg				
▶ 🧰	Graphics				
	Reports				
▷ 🧮	School of Business				
	Servers				
Path:	/University X ES1	 	 		
Path:	/University X ES1				
Path: Path Type:	/University X ES1				
Path: Path Type:	/University X ES1				

- 36. In the **Attachment** page, in the **Display on alarm** column, select the check box to automatically open the attachment when the alarm is triggered.
- 37. Click Create.

4.17

Mass Creating Alarms

You mass create alarms to create identical alarms for different objects, instead of creating the alarms one by one.

For more information, see WebHelp.

To mass create alarms

1. In Workstation, in the **List** View, select the objects that you want to create alarms for.



2. On the File menu, point to New and then click Alarm.

Create Objects: Change of State Alarm Choosing the type and naming	the object	2 ×
 Change of State Alarm Out of Range Alarm Out of Reference Range Alarm Variable Status Alarm 	Prefix Suffix	- Change of State Alarm PlantEnable - Change of State Alarm
	Description	Use relative path
	Location	/University X ES1/Servers/CPlant AS/Cooling Application/Internal Variabl
		Previous Next Create Cancel

- 3. In the object type list, select the alarm type you want to create.
- 4. In the **Prefix** box, type a label that is added in front of the name of the alarms.

- 5. In the **Suffix** box, type a label that is added after the name of the alarms.
- 6. In the **Description** box, type a description for the alarms.
- 7. Select **Use relative path** if you want to use relative path addressing, that is, if you want to create the different alarms in positions that all relate to their respective objects with the same pattern of relative path addressing.
- 8. In the **Location** box, enter the location where you want to create the alarms. If you use relative path, this location applies to the first object in the list, and its path will work as a pattern for the relative path that is applied to all the remaining objects.

٦Ŷ١	N

Note

If the specified relative path pattern leads to an unavailable position for any of the objects in the list, **Next** and **Create** will be disabled.

9. If you use relative path, verify that the additional two lines show the resulting relative path pattern that you intend, and the way this pattern applies to an example object in the list.

	Desk Jn
	Location /University X ES1/Cooling Application
	Relative path
	Relative to /University X ES1/Cooling Application/Internal Variables/ExercisePCmd
	Previous Next Create Cancel

10. Click Next.

See the alarm procedures for detailed information on how to create and set up your specific alarm type:

- For more information, see section 4.11 "Creating a Multistate Alarm" on page 51.
- For more information, see section 4.13 "Creating a Variable Status Alarm" on page 64.
- For more information, see section 4.16 "Creating an Enumeration Alarm" on page 86.
- For more information, see section 4.12 "Creating a Matching Text String Alarm" on page 58.
- For more information, see section 4.14 "Creating an Out of Range Alarm" on page 70.
- For more information, see section 4.15 "Creating an Out of Reference Range Alarm" on page 78.
- For more information, see section 4.10 "Creating a Change of State Alarm" on page 44.

4.18

Mass Creating Alarms Using the Search Method

You use the search tool to find objects or properties that have the name or other property in common. You then mass create identical alarms for these objects instead of creating the alarms one by one for each object or property.

For more information, see WebHelp.

To mass create alarms using the search method

1. In WorkStation, in the **Search** box, type the name or the property that the objects have in common.

Help		
n 🗙 🗐 🌚 🕲	Search	, <i>"</i>
CPlant AS ► Cooling Application ►	Internal Variables	- 💎
Internal Variables ×		-
눩 📫 📑 📝 🛛 Quick filter		
	-	

- 2. Click the **Search** button \checkmark .
- 3. In the **Search** view, select the objects or properties you want to create alarms for.

91	5 🗙 🕨	🤊 🌮 🍣			ReqChlr	, <u> </u>
						7 -
P	rograms	× Search_2 × Se	arch_3 × Se	arch_4 ×		•
	<u> </u>	📝 🤞 Quick filter				
>	Name	Location		Description		
Sea	🕫 ReqChl	r /University X ES1/Serve	rs/CPlant AS/C	Request Chiller		
rch o	🥏 ReqChl	r /University X ES1/Serve	rs/CPlant AS/C	Request		
riter	🕫 ReqChl	r /University X ES1/Serve	rs/CPlant AS/C	Request Chiller		
ia'	🥏 ReqChl	r /University X ES1/Serve	rs/CPlant AS/Coc	Request Chiller		
	4 items fo	ound				

🛃 Create Objects: Change of State Alarm	1. Carl		? ×
Choosing the type and naming Change of State Alarm Out of Range Alarm Out of Reference Range Alarm Variable Status Alarm	the object Prefix Suffix Description Location	Change of State Alarm CdwPump - Change of State Alarm Use relative path /University X ES1	
		Previous Next Create	Cancel

4. On the File menu, point to New and then click Alarm.

- 5. In the object type list, select the alarm type you want to create.
- 6. In the **Prefix** box, type a label that is added in front of the name of the alarms.
- 7. In the **Suffix** box, type a label that is added after the name of the alarms.
- 8. In the **Description** box, type a description for the alarms.
- 9. Select **Use relative path** if you want to use relative path addressing, that is, if you want to create the different alarms in positions that all relate to their respective objects with the same pattern of relative path addressing.
- 10. In the **Location** box, enter the location where you want to create the alarms. If you use relative path, this location applies to the first object in the list, and its path will work as a pattern for the relative path that is applied to all the remaining objects.



Note

If the specified relative path pattern leads to an unavailable position for any of the objects in the list, **Next** and **Create** will be disabled.

11. If you use relative path, verify that the additional two lines show the resulting relative path pattern that you intend, and the way this pattern applies to an example object in the list.

Dest Jn Use relative path Location /University X ES1/Cooling Application Relative path/ Relative to /University X ES1/Cooling Application/Internal Variables/ExercisePCmd
Previous Next Create Cancel

12. Click Next.

See the alarm procedures for detailed information on how to create and set up your specific alarm type:

- For more information, see section 4.11 "Creating a Multistate Alarm" on page 51.
- For more information, see section 4.13 "Creating a Variable Status Alarm" on page 64.
- For more information, see section 4.16 "Creating an Enumeration Alarm" on page 86.
- For more information, see section 4.12 "Creating a Matching Text String Alarm" on page 58.
- For more information, see section 4.14 "Creating an Out of Range Alarm" on page 70.
- For more information, see section 4.15 "Creating an Out of Reference Range Alarm" on page 78.
- For more information, see section 4.10 "Creating a Change of State Alarm " on page 44.

4.19 Trend Log Types

You use a trend log to collect data and then store the records. A record contains a log value or an event as well as its time stamp and an optional comment. A trend log can log an analog variable, a digital variable, or an integer variable.

For performance reasons and to make the trend log less sensitive to if a server goes off line, it is recommended that you place trend logs as closely to the logged variable as possible. Preferably on the server where the logged variable is located. For example, if a sensor is connected to an Automation Server, the trend log that records the temperature should be placed on that Automation Server.

You can use extended trend logs to structure the log data and to store it where there is greater storage capacity.

When you create a trend log, the wizard helps you create and set up an extended trend log, a trend log list, and a trend chart as well as the chosen trend log type. For more information, see WebHelp.



Figure: Trend wizard flow chart

4.19.1 Interval Trend Logs

The interval trend log collects data at a specific time interval. Each logged value is stored as a record in the trend log. Use this trend log when the logging interval is less than 1 hour.

For more information, see WebHelp.

4.19.2 Meter Trend Logs

The meter trend log is a variable triggered trend log with extra functionality to seamlessly handle consumption calculations independent of meter rollover or meter exchange.

For more information, see WebHelp.

4.19.3 Change of Value Trend Logs

The change of value trend log records the variable each time the difference between the current value and the last log value exceeds the delta. Use the change of value trend log to, for example, recording a variable that has an unequal oscillation.

For more information, see WebHelp.

4.19.4 Variable Triggered Trend Logs

The variable triggered trend log records the variable according to the changes of an associated trigger variable. Use this type of trend log when the log interval is scheduled to log monthly or yearly, or when another device is used to trigger the log.

For more information, see WebHelp.

4.19.5 Manual Trend Log

The manual trend log records data that you manually enter. The manual trend log does not log a variable. Use this type of trend log when values from offline devices have to be manually registered to the trend log. For example, if you want to create a trend log that monitors an electricity meter that cannot be connected to Building Operation.

For more information, see WebHelp.

4.19.6 Implicit Trend Logs

The implicit log is a change of value trend log which monitors the IO variable and records a new value if the variable exceeds the delta. Each log value is stored as a record in the trend log. The delta is automatically defined by Building Operation depending on the measured unit of the device that is connected to the IO port.

For more information, see WebHelp.

4.20 Creating an Interval Trend Log

You create an interval trend log to record a value of a variable at specified and regularly occurring increments of time.

For more information, see WebHelp.

To create an interval trend log

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the trend log.
- 2. On the File menu, point to New and then click Trend.
- 3. In the object type list, select Interval Trend Log.

Create Object: Interval Trend Log			° ×	J
Choosing the type and nami	ng the obje	ct Interval Trend Log /University X ES1/Servers/CPIant AS/Cooling Application/Trend Logs		
		Previous Next Create	Cancel	111

4. In the Name box, type a name for the trend log.

Create Object: Interval Trend Log			? ×
Choosing the type and nami	ng the obje	Ct ChwrTempCV Log //University X ES1/Servers/CPIant AS/Cooling Application/Trend Logs Captures Chilled Water Return Temperature CV every 1 minute	
		Previous Next Create	Cancel

5. In the **Description** box, type a description for the trend log.

6. Click Next.

7. In the Logged variable box, enter the variable that you want to log.

Create Object: Interval Trend Log				
Configure Inter	Configure Interval Trend Log			
Logged variable	~/Cooling Application/Programs/Calibrations/ChwrTempCV			
Delta	0			
Unit	°F			
Interval	Days Hours Minutes Seconds Milliseconds 0, 0, 0, 10, 0 1000 Records			
Log size	Days Hours Minutes Seconds			
Clear when enabled	False			
Activation method	Always active			
	Previous Next Create Cancel			

- 8. In the **Delta** box, enter the minimum value change that triggers a new record.
- 9. In the **Unit** box, click the browse button

10. Select a unit for the trend log values.

Unit selection	? <mark>x</mark>
Quick filter	
NoCategory	
?	
Temperature °C	
K ∘F	
Prefix: Don't use a prefix	•
Selected unit: °C	
Select	Cancel

- 11. In the **Prefix** box, select the prefix of the unit.
- 12. Click Select.
- 13. In the Interval box, type the log frequency.

14. In the **Log size** box, type the log size time to be stored before old values are overwritten.

Create Object: Interval Trend Log					
Configure Inter	Configure Interval Trend Log				
Logged variable	~/Cooling Application/Programs/Calibrations/ChwrTempCV				
Delta	0				
Unit	°C				
Interval	Days Hours Minutes Seconds Milliseconds				
Log size	Days Hours Minutes Seconds				
Clear when enabled	False				
Activation method	Always active				
	Previous Next Create Cancel				

15. In the **Clear when enabled** box, select **True** to clear the trend log every time the trend log is enabled.

- 16. In the **Activation method** box, select the condition to start the trend log:
 - Select **Always active** to start recording values immediately after the trend log is created.
 - Select Variable controlled and then enter a variable in the Activation variable box to start recording values when the start variable is true.
 - Select **Start at activation time** and then enter the time in the **Activation time** box to specify an exact time for the recording to begin.

Create Object: Inte	Create Object: Interval Trend Log				
Configure Inter	val Trend Log				
Logged variable	~/Cooling Application/Programs/Calibrations/ChwrTempCV				
Delta	0				
Unit	°C				
Interval	Days Hours Minutes Seconds Milliseconds				
Log size	Days Hours Minutes Seconds				
Clear when enabled	False				
Activation method	Start at activation time				
Activation time	2013-01-24 🔽 00:00:0				
	Previous Next Create Cancel				

17. Click Next.

		9 x
Create Object: Inter	rval Trend Log	
Connect Objects	s to the Trend Log	
Extended Trend Log		
Trend Log List		
Trend Chart		
	Previous Next	Create Cancel
	19. In the Trend Log List box, click the browse button	to create a trend log

18. In the **Extended Trend Log** box, click the browse button to create an extended trend log and connect it to the trend log.

- 19. In the **Trend Log List** box, click the browse button is to create a trend log list and connect it to the trend log.
- 20. In the **Trend Chart** box, click the browse button to either create a new trend chart or connect the interval trend log to an existing trend chart.
- 21. Click Create.

4.21 Creating a Change of Value Trend Log

You create a change of value trend log to record the changes of a variable. For more information, see WebHelp.

To create a change of value trend log

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the trend log.
- 2. On the File menu, point to New, and then click Trend.
- 3. In the object type list, select Change of Value Trend Log.

Create Object: Change of Value Trend Log				
Create Object: Change of Value Tree Choosing the type and namin Choosing the type and namin Change of Value Trend Log Extended Trend Log Manual Trend Log Meter Trend Log Meter Trend Log Meter Trend Log Variable Triggered Trend Log	ng the obje	ct Change of Value Trend Log /University X ES1/Servers/CPIant AS/Cooling Application/Trend Logs		
		Previous Next Create	Cancel	2015 1015

4. In the **Name** box, type a name for the trend log.

Create Object: Change of Value Tr	end Log		? ×
Choosing the type and name	Name Location Description	Ct ChwPStatus Log //University X ES1/Servers/CPIant AS/Cooling Application/Trend Logs Captures changes of the Chilled Water Pump Status	
		Previous Next Create	Cancel

5. In the **Description** box, type a description for the trend log.

- 6. Click Next.
- 7. In the Logged variable box, enter the variable you want to log.

Create Object: Change of Value Trend Log	
Configure Chan	ge of Value Trend Log
Logged variable	~/Cooling Application/Programs/Chlr/ChwPStatus
Delta	0.50
Unit	
Log size	1,000
Clear when enabled	False 🔹
Activation method	Always active
	Previous Next Create Cancel

- 8. In the **Delta** box, enter the minimum value change that triggers a new record.
- 9. In the Unit box, click the browse button
10. Select a unit for the trend log values.

Init selection	? <mark>x</mark>
Quick filter	
carat	
graines	
USton	
Mass Transfer Coefficient	
(mol/(s.m*))/(mol/m*)	
(mol/(s.ft*))/(mol/ft*)	
Mass Velocity	
g/(s.m*)	
lb/(s.ft*)	
Moles	
mol	
Ibmol	
Woment of Inertia	
g/m ⁻	
lb/tt"	
Womentum	
g.m/s	
Ib.tt/s	
NoCategory	
NoUnit	-
f	
Prefix: Don't use a prefix	•
Selected unit: NoUnit	
Select	Cancel

- 11. In the **Prefix** box, select the prefix of the unit.
- 12. Click Select.
- 13. In the **Log size** box, enter the number of records to be stored before old values are overwritten.
- 14. In the **Clear when enabled** box, select **True** to clear the trend log every time the trend log is enabled.

- 15. In the **Activation method** box, select the condition to start the trend log:
 - Select **Always active** to start recording values immediately after the trend log is created.
 - Select Variable controlled and then enter a variable in the Activation variable box to start recording values when the start variable goes on.
 - Select Activation at start time and then enter the time in the Activation time box to specify an exact time for the recording to begin.

Create Object: Cha	ange of Value Trend Log					
Configure Change of Value Trend Log						
Logged variable	~/Cooling Application/Programs/Chlr/ChwPStatus					
Delta	0					
Unit						
Log size	60					
Clear when enabled	False					
Activation method	Always active					
		_				
	Previous Next Create Cancel					

16. Click Next.

Create Object: Char	ange of Value Trend Log	? <mark>x</mark>
Connect Objects	s to the Trend Log	
Extended Trend Log		
Trend Log List		
Trend Chart		
	Previous Next Create	Cancel
	18. In the Trend Log List box, click the browse button to create	e a trend log

17. In the **Extended Trend Log** box, click the browse button to create an extended trend log and connect it to the trend log.

- list and connect it to the trend log.
 19. In the Trend Chart box, click the browse button to either create a new trend chart or connect the trend log to an existing trend chart.
- 20. Click Create.

Creating a Meter Trend Log

You use the meter trend log to record the value of a meter and seamlessly handle consumption calculations independent of meter rollover and meter exchange.

For more information, see WebHelp.

To create a meter trend log

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the trend log.
- 2. On the File menu, point to New, and then click Trend.
- 3. Select Meter Trend Log.

Choosing the type and naming Trend Log Change of Value Trend Log Variable Triggered Trend Log Chanual Trend Log Trend Chart Trend Log List	Name Location Description	Meter Trend Log /University X ES1/Servers/CPlant AS/Cooling Application/Trend Logs
		Previous Next Create Cancel

- 4. In the Name box, type a name for the trend log.
- 5. In the **Description** box, type a description.
- 6. Click Next.

<u> R</u> Create Object: Met	ter Trend Log	? ×
Configure Mete	r Trend Log	
Logged variable	Null	
Trigger variable	Null	
Unit		
Trigger when	Change to true	•
Log size	1 000	
Clear when enabled	False	•
	Previous Next Create	Cancel

7. In the **Logged variable** box, enter the variable that you want to log.

- 8. In the **Trigger variable** box, enter the variable that triggers the log.
- 9. In the **Unit** box, click the browse button
- 10. Select a unit for the trend log values.

🛃 Unit selection	ନ	23
Quick filter		
graines LISton		
Mass Transfer Coefficient		
(mol/(s.m ²))/(mol/m ³) (mol/(s.ft ²))/(mol/ft ³)		
Mass Velocity		
g/(s.m ²) lb/(s.ft ²)		
Moles		
mol		
Ibmol		
Moment of Inertia		
g/m ² lb/ft ²		
Momentum		
g.m/s lb.ft/s		
NoCategory		
NoUnit		-
Prefix: Don't use a prefix		•
Selected unit: NoUnit		
Seiect	Can	icel

- 11. In the **Prefix** box, select the prefix of the unit.
- 12. Click Select.
- 13. In the **Trigger when** box, select when to record the value of the logged variable.
 - Select **Change to true** to record the value of the logged variable when the trigger variable changes to true.
 - Select **Change to false** to record the value of the logged variable when the trigger variable changes to false.
 - Select **All changes** to record the the value of the logged variable anytime the trigger variable changes state.
- 14. In the **Log records** box, select the number of records to be recorded before old ones are overwritten.
- 15. In the **Clear when enabled** box, select **True** to clear the trend log every time the trend log is enabled.
- 16. Click Next.
- 17. In the **Start time** box, enter the time when the meter is installed.

<u> Create</u> Object:	Meter Trend Log	8 ×
Initial Meter	Settings	
Start time	2012-01-24 🔍 00:00:0	
Start value	0	
Meter constant	1	
Min value	0	
Max value	0	
	Previous Next Create	Cancel

- 18. In the Start value box, enter the value of the meter when it was installed.
- 19. In the **Meter constant** box, enter the constant of the meter.
- 20. In the Min value box, enter the first value of the meter when it rolls over.
- 21. In the Max value box, enter the last value of the meter before it rolls over.
- 22. Click Next.

🔬 Create Object: Mete	r Trend Log	-				ନ	23
Connect Objects	to the Trend Log						
Extended Trend Log							
Trend Log List							
Trend Chart							
			Previous	Next	Create	Cancel	

23. In the **Extended Trend Log** box, click the **Browse** button to create an extended trend log and connect it to the trend log.

- 24. In the **Trend Log List** box, click the **Browse** button to create a trend log list and connect it to the trend log.
- 25. In the **Trend Chart** box, click the **Browse button** to either create a new trend chart or connect the trend log to an existing trend chart.
- 26. Click Create.

The meter trend log is created in the selected folder.

Note

• When a meter trend log is created, you need to add the current meter value.

Creating a Variable Triggered Trend Log

You create a variable triggered trend log to record the variable according to the changes of an associated trigger variable.

For more information, see WebHelp.

To create a variable triggered trend log

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the trend log.
- 2. On the File menu, point to New, and then click Trend.

3. Select Variable Triggered Trend Log.

Create Object: Variable Triggered Trend Choosing the type and naming Interval Trend Log Change of Value Trend Log Change of Value Trend Log Variable Triggered Trend Log Extended Trend Log Extended Trend Log Trend Chart Trend Log List	the object Name Location Description	Variable Triggered Trend Log /University X ES1/Servers/CPlant AS/Cooling Application/Trend Logs	8	
		Previous Next Create	Cancel	

- 4. In the **Name** box, type a name for the trend log.
- 5. In the **Description** box, type a description.
- 6. Click Next.

<u> Create</u> Object: Vari	iable Triggered Trend Log
Configure Varia	ble Triggered Trend Log
Logged variable	Null
Trigger variable	Null
Unit	
Trigger when	Change to true 🔻
Log size	1,000
Clear when enabled	False •
	Previous Next Create Cancel

7. In the **Logged variable** box, enter the variable you want to log.

- 8. In the **Trigger variable** box, enter the variable that triggers the log.
- 9. In the Unit box, click browse button
- 10. Select a unit for the trend log values.

🔬 Unit selection	?	X
Quick filter		
graines LiSton		
Mass Transfer Coefficient		
(mol/(s.m ²))/(mol/m ³)		
(mol/(s.ft ²))/(mol/ft ³)		
Mass Velocity		
g/(s.m ²)		
lb/(s.ft ²)		
Moles		
mol		
Ibmol		
Moment of Inertia		
g/m ⁻ lb/ft ²		
Momentum		
g.m/s		
lb.ft/s		
NoCategory		
NoUnit		-
Prefix: Don't use a prefix		•
Selected unit: NoUnit		
Select	Car	ncel

- 11. In the **Prefix** box, select the prefix of the unit.
- 12. Click Select.
- 13. In the **Trigger when** box, select **Change to true** to log the variable when the trigger variable changes to true.
- 14. In the **Log records** box, select the number of records to be stored before old ones are overwritten.
- 15. In the **Clear when enabled** box, select **True** to clear the trend log every time the trend log is enabled.
- 16. Click Next.
- 17. In the **Extended Trend Log** box, click the **Browse** button is to create an extended trend log and connect it to the trend log.

🛃 Create Object: Varia	ble Triggered Trend Log	? ×
Connect Objects	to the Trend Log	
Extended Trend Log		
Trend Log List		
Trend Chart		
	Previous Next C	reate Cancel
<u> </u>		

- 18. In the **Trend Log List** box, click the **Browse** button to create a trend log list and connect it to the trend log.
- 19. In the **Trend Chart** box, click the **Browse button** to either create a new trend chart or connect the trend log to an existing trend chart.

20. Click Create.

The variable triggered trend log is created in the selected folder.

4.24 Creating a Manual Trend Log

You create a manual trend log that records data that you manually enter. For more information, see WebHelp.

To create a manual trend log

- 1. In WorkStation, in the **System Tree** pane, select the folder or server where you want to create the trend log.
- 2. On the File menu, point to New, and then click Trend.
- 3. Select Manual Trend Log.

R Create Object: Manual Trend Log		8	23
Create Object: Manual Trend Log Choosing the type and naming Interval Trend Log Meter Trend Log Change of Value Trend Log Variable Triggered Trend Log Manual Trend Log Extended Trend Log Manual Trend Log Trend Chart Trend Log List	the object Name Location Description	Manual Trend Log /University X ES1/Servers/CPlant AS/Cooling Application/Trend Logs	
		Previous Next Create Car	ncel

- 4. In the **Name** box, type a name for the trend log.
- 5. In the **Description** box, type a description.
- 6. Click Next.

7. In the Unit box, click browse button	<u> </u>
Create Object: Manual Trend Log	8 23
Configure Manual Log	
Unit	
Previs	ous Next Create Cancel

8. Select a unit for the trend log values.

Quick filter graines USton Mass Transfer Coefficient (mol/(s.m²))/(mol/m²) (mol/(s.ft²))/(mol/ft²) Mass Velocity g/(s.m²) lb/(s.ft²) Moles mol lb/mol Moment of Inertia g/m² lb/ft² Momentum g.m/s lb.ft/s NoCategory NoUnit	🕺 Unit selection	9	23
graines USton Mass Transfer Coefficient (mol/(s.m ²))/(mol/m ³) (mol/(s.ft ²))/(mol/ft ³) Mass Velocity g/(s.m ³) lb/(s.ft ²) Moles mol lbmol Moment of Inertia g/m ² lb/ft ² Momentum g.m/s lb.ft/s NoCategory NoUnit - Prefix: Don't use a prefix Select Cancel	Quick filter		
USton Mass Transfer Coefficient (mol/(s.m ²))/(mol/m ³) (mol/(s.ft ²))/(mol/ft ³) Mass Velocity g/(s.m ³) lb/(s.ft ²) Moles mol lbmol Moment of Inertia g/m ² lb/ft ² Momentum g.m/s lb.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit	graines		
Mass Transfer Coefficient (mol/(s.m²))/(mol/m³) (mol/(s.ft²))/(mol/ft²) Mass Velocity g/(s.m²) lb/(s.ft²) Moles mol lbmol Moment of Inertia g/m² lb/ft² Momentum g.m/s lb.ft/s NoCategory NoUnit Prefix: Don't use a prefix Select Cancel	USton		
(mol/(s.m ²))/(mol/m ²) (mol/(s.ft ²))/(mol/ft ³) Mass Velocity g/(s.m ²) lb/(s.ft ²) Moles mol lbmol Moment of Inertia g/m ² lb/ft ² Momentum g.m/s lb.ft/s NoCategory NoUnit • Prefix: Don't use a prefix Selected unit: NoUnit	Mass Transfer Coefficient		
(mol/(s.ft ²))/(mol/ft ²) Mass Velocity g/(s.m ²) lb/(s.ft ²) Moles mol lbmol Moment of Inertia g/m ² lb/ft ² Momentum g.m/s lb.ft/s NoCategory NoUnit Prefix: Don't use a prefix Select Cancel	(mol/(s.m²))/(mol/m³)		
Mass Velocity g/(s.m ²) lb/(s.ft ²) Moles mol lbmol Moment of Inertia g/m ² lb/ft ² Momentum g.m/s lb.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	(mol/(s.ft²))/(mol/ft³)		
g/(s.m ²) lb/(s.ft ²) Moles mol lbmol Moment of Inertia g/m ² lb/ft ² Momentum g.m/s lb.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	Mass Velocity		
Ib/(s.ft ²) Moles mol Ibmol Moment of Inertia g/m ² Ib/ft ² Momentum g.m/s Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	g/(s.m ²)		
Moles mol Ibmol Moment of Inertia g/m ² Ib/ft ² Momentum g.m/s Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Cancel	lb/(s.ft ²)		
mol Ibmol Moment of Inertia g/m ² Ib/ft ² Momentum g.m/s Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Cancel	Moles		
Ibmol Moment of Inertia g/m ² Ib/ft ² Momentum g.m/s Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Cancel	mol		
Moment of Inertia g/m ² lb/ft ² Momentum g.m/s lb.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Cancel	Ibmol		
g/m ² Ib/ft ² Momentum g.m/s Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix ▼ Selected unit: NoUnit Select Cancel	Moment of Inertia		
Ib/ft ² Momentum g.m/s Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	g/m ²		
Momentum g.m/s lb.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	lb/ft ²		
g.m/s Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	Momentum		
Ib.ft/s NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	g.m/s		
NoCategory NoUnit Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	lb.ft/s		
NoUnit Image: Constraint of the second sec	NoCategory		
Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel	NoUnit		-
Prefix: Don't use a prefix Selected unit: NoUnit Select Cancel			
Selected unit: NoUnit	Prefix: Don't use a prefix		•
Select	Selected unit: NoUnit		
Select Cancel			
	Select	Can	cel

- 9. In the **Prefix** box, select the prefix of the unit.
- 10. Click Select.

11. Click Next.

12. In the **Extended Trend Log** box, click the **Browse** button **und** to create an extended trend log and connect it to the trend log.

🛃 Create Object: Manu	ial Trend Log	2 X
Connect Objects	to the Trend Log	
Extended Trend Log		
Trend Log List		
Trend Chart		
	Previous Next Cre	ate Cancel

- 13. In the **Trend Log List** box, click the **Browse** button use to create a trend log list and connect it to the trend log.
- 14. In the **Trend Chart** box, click the **Browse** button with to either create a new trend chart or connect the trend log to an existing trend chart.
- 15. Click Create.

The manual trend log is created in the selected folder. You have to manually add the records to the manual trend log.

Mass Creating Trend Logs

You use the mass create feature to create identical trend logs for different objects, instead of creating the trend logs one by one.

For more information, see WebHelp.

To mass create trend logs

1. In Workstation, in the **List** View, select the objects that you want to create trend logs for.

System Tree 🔷 🗸 🖡	× Inter	nal Variables ×
💎 - 📑	E 🖆	Quick filter
System	· · · · · · · · · · · · · · · · · · ·	
Application	Name	Description
Application_2	🕝 Exerc	
Central Plant Bldg	🔗 Heati	
Central Plant Bldg_2	• ricau	
Graphics	🥑 Planti	Enable
Graphics_2		
Reports		

- 2. On the File menu, point to New and then click Trend.
- 3. In the object type list, select the trend log you want to create.

	Create Objects: Interval Trend Log Choosing the type and namin Change of Value Trend Log Meter Trend Log Variable Triggered Trend Log	g the object Prefix Suffix Description Location	Interval Trend Log ExercisePCmd - Interval Trend Log Use relative path /University X ES1/Servers/CPlant AS/Cooling Application/Internal Variable
--	---	---	---

- 4. In the **Prefix** box, type a label that is added in front of the name of the trend logs.
- 5. In the **Suffix** box, type a label that is added after the name of the trend logs.
- 6. In the **Description** box, type a description for the trend logs.

- 7. Select **Use relative path** if you want to use relative path addressing, that is, if you want to create the different trend logs in positions that all relate to their respective objects with the same pattern of relative addressing.
- 8. In the **Location** box, enter the location where you want to create the trend logs. If you use relative path, this location applies to the first object in the list, and its path works as a pattern for the relative path that is applied to all the remaining objects.

ולק

Note

If the specified relative path pattern leads to an unavailable position for any of the objects in the list, **Next** and **Create** are disabled.

9. Click Next.

See the trend log procedures for detailed information on how to create and set up your specific trend log type:

- For more information, see section 4.20 "Creating an Interval Trend Log " on page 101.
- For more information, see section 4.21 "Creating a Change of Value Trend Log " on page 107.
- For more information, see section 4.22 "Creating a Meter Trend Log " on page 112.
- For more information, see section 4.23 "Creating a Variable Triggered Trend Log" on page 116.

Mass Creating Trend Logs Using the Search Method

You use the search tool to find objects or properties that have the name or other property in common. You then mass create identical trend logs for these objects instead of creating the trend logs one by one for each object or property.

For more information, see WebHelp.

To mass create trend logs using the search method

1. In WorkStation, in the **Search** box, type the name or the property that the objects have in common.

9 f	š 🗙 🗐 🌮 🏟 🕲	ReqChlr	, Q
			- 💎
F	Programs × Search_2 × Search_3 × Search_4 ×		-
	🔯 🚍 📝 🤞 Quick filter		
>	Name Location Description		
Sea	ReqChlr /University X ES1/Servers/CPlant AS/C Request Chiller		
rch	ReqChlr /University X ES1/Servers/CPlant AS/C Request		
criter	ReqChlr /University X ES1/Servers/CPlant AS/C Request Chiller		
ria'	ReqChlr /University X ES1/Servers/CPlant AS/Coc Request Chiller		
	4 items found		

2. Click the **Search** button \swarrow .

3. In the **Search** view, select the objects or properties you want to create trend logs for.

d) (` 🗙 🗐 🌮 🏟		value	<i>,</i> , <i>,</i>
				7 -
	nternal Variables × Search ×			-
	🔯 🗮 📝 🤞 Quick filter			
	Name Location	Description		
Sea	Value /University X ES1/System/Backup and	Value		
rch o	Value /University X ES1/Application/Calenda	Value		
riter	Value /University X ES1/Application_2/Calen	Value		
a.	Value /University X ES1/School of Business/Net	Value		
1				
]	4 items found			

- 4. On the File menu, point to New and then click Trend.
- 5. In the object type list, select the trend log you want to create.

Create Objects: Interval Trend Log Choosing the type and naming Interval Trend Log Change of Value Trend Log Meter Trend Log Variable Triggered Trend Log	the object Prefix Suffix Location Description	? × - Interval Trend Log Value - Interval Trend Log /University X ES1
		Previous Next Create Cancel

- 6. In the **Prefix** box, type a label that is added in front of the name of the trend logs.
- 7. In the **Suffix** box, type a label that is added after the name of the trend logs.
- 8. In the **Description** box, type a description for the trend logs.

- 9. Select **Use relative path** if you want to use relative path addressing, that is, if you want to create the different trend logs in positions that all relate to their respective objects with the same pattern of relative path addressing.
- 10. In the **Location** box, enter the location where you want to create the trend logs. If you use relative path, this location applies to the first object in the list, and its path works as a pattern for the relative path that is applied to all the remaining objects.

ואק

Note

If the specified relative path pattern leads to an unavailable position for any of the objects in the list, **Next** and **Create** are disabled.

11. Click Next.

See the trend log procedures for detailed information on how to create and set up your specific trend log type:

- For more information, see section 4.20 "Creating an Interval Trend Log " on page 101.
- For more information, see section 4.21 "Creating a Change of Value Trend Log " on page 107.
- For more information, see section 4.22 "Creating a Meter Trend Log " on page 112.
- For more information, see section 4.23 "Creating a Variable Triggered Trend Log" on page 116.

4.27 Schedule Types

You can create three types of schedules: Digital, Multistate, or Analog. You create a digital schedule if the schedule needs to control a device with two output states, such as On or Off. You create a multistate schedule if the schedule needs to control a device that has output states based on multiple states, such as low, medium, or high. You create an analog schedule if the schedule controls a device that gauges the output in real numbers.

You create schedules using WorkStation.

4.27.1 Analog Schedules

An analog schedule controls a device that gauges the output in real numbers. The real numbers include positive or negative numbers, fractions, and decimal values. For example, a thermostat controls the temperature in a room. To regulate the temperature, you can adjust a thermostat by tenths of a degree to accommodate the needs of the people occupying the room.

For more information, see WebHelp.

4.27.2 Digital Schedules

A digital schedule controls a device that has an on output state and an off output state. If you want to create a schedule for lights to turn on and off at specified times, create a digital schedule. You select the value Off at the time you want the lights to be inactive, and you select the value On at the time you want the lights to be active.

For more information, see WebHelp.

4.27.3 Multistate Schedules

A multistate schedule controls a device that has output states based on integers or positive whole numbers including zero. For example, you can set a fan in a room to off, low, medium, or high. To regulate the fan in the room, you can assign whole numbers 0, 1, 2, and 3 to represent the states in the room.

For more information, see WebHelp.

Creating an Analog Schedule

You create an analog schedule to control the state of an analog value. For more information, see WebHelp.

To create an analog schedule

- 1. In WorkStation, in the System Tree pane, select the server or the folder.
- 2. On the File menu, point to New and then click Schedule.
- 3. In the object type list, select Analog Schedule.

🔬 Create Object: Analog Sched	lule	Sector 1	? X	
Create Object: Analog Sched Choosing the type and Calendar Digital Schedule Multistate Schedule	Name Location Description	object Analog Schedule /Server 1/Schedules		
		Previous	Cancel	

- 4. In the **Name** box, type a name for the schedule.
- 5. In the **Description** box, type a description for the schedule.
- 6. Click Create.

Now you can add events to the analog schedule and bind it to an analog value.

4.29 Creating a Digital Schedule

You create a digital schedule to control the state of a digital value. For more information, see WebHelp.

To create a digital schedule

- 1. In WorkStation, in the **System Tree** pane, select the server or the folder where you want to create the schedule.
- 2. On the File menu, point to New and then click Schedule.
- 3. In the object type list, select Digital Schedule.

Create Object: Digital Schedule		? <mark>×</mark>
Choosing the type and naming the Choosing the type and naming the Calendar Calendar Digital Schedule Multistate Schedule	Digital Schedule /University X ES1/Servers/CPIant AS/Cooling Application/Schedules	
	Previous Next Create	Cancel

- 4. In the Name box, type a name for the schedule.
- 5. In the **Description** box, type a description for the schedule.

6. Click Create.

Now you can add events to the digital schedule and bind it to a digital value.

Creating a Multistate Schedule

You create a multistate schedule to control the state of a multistate value. For more information, see WebHelp.

To create a multistate schedule

- 1. In WorkStation, in the **System Tree** pane, select the server or the folder where you want to create the schedule.
- 2. On the File menu, point to New and then click Schedule.
- 3. In the object type list, select **Multistate Schedule**.

🛃 Create Object: Multistate Sch	edule		8 ×
Create Object: Multistate Schoosing the type and type and the type and the type and the type and the type and typ	Name Location Description	object Multistate Schedule /Server 1/Schedules	
		Previous Next Creace	Cancel

- 4. In the Name box, type a name for the schedule.
- 5. In the **Description** box, type a description for the schedule.

6. Click Create.

Now you can add events to the multistate schedule and bind it to a multistate value.

5 Function Block Editor Overview

Topics

Function Block Editor Overview Function Block Editor (Edit Mode) Function Block Editor (Simulation Mode) Menus in Edit Mode Menus in Simulation Mode Block Differences

5.1 Function Block Editor Overview

Function Block Editor is a graphical programming tool for Automation Servers, which you use to create function block programs that control and monitor building automation systems. For example, you create a basic program, called OfficeLight, to control lighting in a room based on occupancy.

Important

Ensure that you have a working and available Function Block Editor license. A working license is required to start the Function Block Editor software. For more information, see WebHelp.

When you open your new OfficeLight program in Function Block Editor, you begin by adding function blocks based on the type of action you wish the program to perform. You then connect the blocks. For more information, see WebHelp.

When you have finished the graphical programming, you create points in WorkStation. You then bind the signals of the function block program to those points to view the output.

When you are finised, you use the Function Block Editor Simulation mode to check the program for errors and save the program.

In WorkStation, in the Properties pane, you select the task in which you want to include your programs. You then execute your function block program.

You can store your function block programs and include them later in projects for use in your control system. By putting small function block programs together, you can create function block programs that perform anything from simple to very complex operations, such as lighting, boilers, and air handling units at multiple sites.

Function Block Editor (Edit Mode)

Use Function Block Editor in Edit mode to program new or edit existing function block programs. The work area in Edit mode consists of the diagram window.



Figure: Function Block Editor window in Edit mode

Table: Function Block Editor Window in Edit Mode

Number	Description
0	Function Block Editor menu bar
2	Function Block Editor diagram window
3	Function block program in diagram window
4	Function Block Editor position indicator

5.3 Function Block Editor (Simulation Mode)

Use Function Block Editor in Simulation mode to test function block programs.



Figure: Function Block Editor window in Simulation mode

Table: Function Block Editor Window in Simulation Mode

Number	Description
1	Function Block Editor menu bar
2	Simulation control buttons
3	Function block diagram window
4	Online/Offline status box
6	Cycle counter

Continued

Number	Description
6	Trend area
Ô	Input buttons

Function Block Editor Simulation mode has a numer of buttons that you use to control how the Simulation is done.

Table: Tools in Simulation Mode

Button	Description
Execute	Click to start or stop a simulation.
Step	Click to execute a simulation in steps.
Cycle: 61	Displays the number of executed program cycles.
I RST	Click to reset the cycle counter.
چې کې Binary Inpus	Right-click to open the Input dialog box.
Binary_Input 0	Click to open the Modify dialog box, or right- click to open the RECORD menu where you make the required recording settings.

5.4 Menus in Edit Mode

There are several differences in the menus of Function Block Editor, Menta Editor, and TAC Menta.

_												_
8	Functio	on Block Progra	im1 - Strux	ureWare Function	Block Editor						×	
F	ile Edit	Preferences	Options	Zoom Tools	Help							
		Function Block I	Program	PVE1 PVB Innvalue 0	alam ALARM	_						

Figure: Function Block Editor in Edit mode

Table: Menu Differences in Edit Mode

Menu	Function Block Editor	Menta Editor	TAC Menta
File	 Save Import Export Print Exit 	 New Open Save Save As Print Export I/O List Create Labels Exit 	 New Open Save Save As Print Export I/O List Create Labels Exit
Vista Database	N/A	N/A	 Open Save Save As Log In Log Out

Menu	Function Block Editor	Menta Editor	TAC Menta
Edit	 Undo Copy to	 Undo Copy to	 Undo Copy to
	Clipboard Copy Paste Delete Select All Search Replace Center	Clipboard Copy Paste Delete Select All Find Replace Center	Clipboard Copy Paste Delete Select All Find Replace Center
	Selection Add Boundary	Selection Add Boundary	Selection Add Boundary
	Ties Remove	Ties Remove	Ties Remove
	Boundary Ties	Boundary Ties	Boundary Ties Unmark All
Preferences	 Page Setup View Only	 Page Setup View Only	 Connections Page Setup View Only
	Public Identifier Show Status	Public Identifier Show Status	Public Identifier Show Status
	Bar Orthogonal	Bar Orthogonal	Bar Orthogonal
	Connections Black and White	Connections Black and White	Connections Black and White Settings

Continued

Continued

Menu	Function Block Editor	Menta Editor	TAC Menta
Options	 Simulate Set Date and Time Constants Table Public Signal Table Show HFB Navigation Tree 	 Simulate Set Date and Time Device Specification Program Specification Constants Table IO Configuration Table Time Schedule Table Alarm Text Table Trend Logs Public Signal Table Show HFB Navigation Tree Memory Usage 	 Simulate Set Date and Time Device Specification Program Specification Constants Table I/O Configuration Table Time Schedule Table Alarm Text Table Alarm Text Table Trend Logs Public Signal Table Show HFB Navigation Tree Memory Usage
Zoom	 Zoom In Zoom Out Normal Zoom Out 200% Zoom Out 300% Zoom Out 400% 	 Zoom In Zoom Out Normal Zoom Out 200% Zoom Out 300% Zoom Out 400% 	 Zoom In Zoom Out Normal Zoom Out 200% Zoom Out 300% Zoom Out 400%
Tools	Redraw Screen	 Text File OP Configuration Toolbar Redraw Screen 	 Text File OP Configuration Toolbar Redraw Screen
Help	 Online Help About Building Operation Function Block Editor 	 Contents About Building Operation Menta Editor 	 Contents Schneider Electric on the Web About TAC Menta

Menus in Simulation Mode

There are several differences in the menus of Function Block Editor, Menta Editor, and TAC Menta.

E Function Block	Program1 - StruxureWare Function Block E	ditor				
File Preferences	Options Zoom Commands Tools	Help				
	Execute Step Skip Co	nst	OFFLINE		Cycle:	0 RST
$\begin{array}{c} & & \\ a' \\ c \\ $	Function Block Program PVB1 PVB	alarm ALARM 0 -				

Figure: Function Block Editor in Simulation mode

Table: Menu Differences in Simulation Mode

Menu	Function Block Editor	Menta Editor	TAC Menta
File	PrintExit	 New Open Save Save As Print Export I/O List Exit 	 New Ope Save Save As Print Export I/O List Exit
Vista Database	N/A	N/A	 Open Save Save As Log In Log Out
Preferences	 Page Setup View Only Public Identifier View Signal Values Show Status Bar 	 Page Setup View Only Public Identifier Show Status Bar Othogonal Connections Black and White 	 Page Setup View Only Public Identifier View Signal Values View Diagram Show Status Bar Automatic Generation of Menu Tree Optimize Signal Update Settings

Continued

Menu	Function Block Editor	Menta Editor	TAC Menta
Options	 Edit Set Date and Time Constants Table Public Signal Table Show HFB Navigation Tree 	 Edit Online Skip Constants Set Date and Time Device Specification Program Specification Constants Table IO Configuration Table Time Schedule Table Alarm Text Table Trend Logs Public Signal Table Show HFB Navigation Tree 	 Edit Online Download Through TAC Vista Skip Constants Set Date and Time Device Specification Constants Table IO Configuration Table Time Schedule Table Alarm Text Table Trend Logs Public Signal Table Show HFB Navigation Tree
Zoom	 Zoom In Zoom Out Normal Zoom Out 200% Zoom Out 300% Zoom Out 400% Reset Step Execute n Times Sampling 	 Zoom In Zoom Out Normal Zoom Out 200% Zoom Out 300% Zoom Out 400% Reset Step Execute Execute n Times Sampling Generate Warm Start 	 Zoom In Zoom Out Normal Zoom Out 200% Zoom Out 300% Zoom Out 400% Reset Step Execute Execute n Times Sampling Generate Warm Start

Continued

Menu	u Function Block Editor		TAC Menta		
Tools	Redraw Screen	 Text File OP Configuration Logger Redraw Screen 	 Text File OP Configuration Logger Redraw Screen 		
Help	 Online Help About Building Operation Function Block Editor 	 Contents About Building Operation Menta Editor 	 Contents Schneider Electric on the Web About TAC Menta 		

5.6 Block Differences

There are differences regarding the set of availabe function blocks between function block programs and Menta programs.

Table: Block Differences

Function Block Programs	TAC Menta Programs	
ALARM	ALARM	
For more information, see WebHelp.		
BI	DI	
For more information, see WebHelp.		
ВО	DO	
For more information, see WebHelp.		
ERROR	ERR	
For more information, see WebHelp.		
	STRIN	
For more information, see WebHelp.		
IO	STROUT	
For more information, see WebHelp.		
PI	CNT	
For more information, see WebHelp.		
PO	DOPU	
For more information, see WebHelp.		
RI	AI	
For more information, see WebHelp.		
RO	AO	
For more information, see WebHelp.		
TSCHI	TSCH	
For more information, see WebHelp.		

5.6.1 ALARM The ALARM block monitors the state of the binary input signal. For more information, see WebHelp.

5.6.2

BI

The BI block is a binary input to a function block program. For more information, see WebHelp.

5.6.3 BO

The BO block is a binary output from a function block program. For more information, see WebHelp.

5.6.4 ERROR

The output of the system ERROR block is an integer value where each bit represents an internal signal or error from the system program. For more information, see WebHelp.

5.6.5

The II block is an integer input to function block program. For more information, see WebHelp.

5.6.6 IO

The IO block is an integer output from function block program. For more information, see WebHelp.

5.6.7 PI

The PI function block counts the number of pulses on the input during one execution of a function block program.

For more information, see WebHelp.

5.6.8

The PO block is designed to be used together with the PIDI function block.

PO
For more information, see WebHelp.

5.6.9 RI

The RI block represents a real input in a function block program. For more information, see WebHelp.

5.6.10 RO

The RO block represents a real output in a function block program. For more information, see WebHelp.

5.6.11 TSCHI

The TSCHI block is an integer output indicating the number of minutes until the next change of state of the time schedule.

For more information, see WebHelp.

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