



Version 6.36

TopView OPC/SCADA
TopView Events (OPC A&E)
TopView Events (SQL Events)
TopView Events (MQTT)
TopView PI/PIAF
TopView SQL Lookup
TopView CanaryLabs
TopView PerfMon

©Copyright 2021
Exele Information Systems, Inc.
+1 (585) 385-9740
<http://www.exele.com>
Support: support@exele.com
Sales: sales@exele.com

Table of Contents

Introduction	22
Requirements	23
TopView Components Overview	24
TopView Configurator	24
Contacts, Schedules, Global Recipients	25
TopView Engine: Alarm and Notification Engine	26
TopView Admin Tools	27
TopView Information Icon	28
Remote Viewer	29
Mobile Web App	30
Web Configurator	31
How to use TopView	32
Create a configuration file	32
Launch the TopView Engine Instance for the Configuration File	33
Installation and Directory Structure	34
TopView Data Source	34
Installation Process	34
File/Folder Permissions: ProgramPath and DataPath	34
Directory Locations and Contents	35
Alarm Notification Requirements	36
Audible notification	36
Email notification	36
SMS Notification	37
Cellular modem	37
SMS Provider	37
Cellular Phone Text notification	38
Pager notification	39
Voice notification	40
EventHook Notification	41
Write-to-Server notification	41
Data Sources	42
Using Multiple Data Sources	42
Simulation Server	43
Overview	43
Using the Simulation Server	44
The Simulation tags	45
TopView Status Tags	46
Overview	46
Tag Search for status tags	46
OPC Server Configuration (TopView OPC)	47
Overview	47
OPC Server Alias	47
How should I configure my OPC Server Alias?	47
Reading current values through OPC-HDA	48
OPC DA1.0 Servers	48
Defining an OPC Server Alias	49

OPC Server Alias Groups and Backup/Failover OPC Servers	50
OPC Server Alias Group	50
Specify primary::failover OPC Server Alias.....	50
How does OPC Server failover work?	50
How does TopView retrieve OPC tag values?	51
Support for OPC array tags.....	51
Tag Retrieval Delay for OPC DA Cache	51
OPC A&E Server Configuration (TopView Events for OPC A&E)	52
Overview	52
Database Configuration (TopView SQL Events)	53
Overview	53
MQTT Broker (TopView Events for MQTT).....	54
Overview	54
PI Server Configuration (TopView PI)	55
Overview	55
Defining the PI Server(s).....	55
How does TopView connect to PI?	55
How does TopView retrieve PI tag values?	56
PI/AF Configuration (TopView PIAF)	57
Overview	57
Defining AF Servers and Databases.....	57
Defining PI Servers	57
Configuring AF data retrieval	58
Data Retrieval options	58
SQL Database Configuration (TopView SQL Lookup)	59
Overview	59
How does TopView retrieve SQL tag values?.....	59
Canary Labs (TopView CanaryLabs)	60
Overview	60
Defining the default Canary Labs Historian	60
How does TopView connect to the Canary Labs Historian?.....	60
How does TopView retrieve Canary Labs tag values?.....	60
PerfMon (TopView PerfMon)	61
Overview	61
"Tag" = Counter	61
How does TopView retrieve PerfMon tag values?	61
"Read tag values" duration	62
Connecting to remote and local computers	63
PingTime counter.....	63
Computer heartbeat counter for Windows Performance Counters	63
Required Permissions	63
PingTime Tags and Alarm Configuration	64
Value and Status.....	64
Alarm conditions for PingTime tags.....	64
Performance Counters and Alarm Configuration	64
Counter value and status.....	64
"Bad server connection" for performance counters.....	65
Missing Performance Counters	65
Missing Categories	65
Alarm conditions for counters.....	65
Key Windows Performance Counters	66

Browsing for Counters in TopView.....	68
Browse options.....	68
Returning counters to the TopView Configurator.....	69
TopView Configurator.....	70
Configuration Files.....	71
Current Configuration File.....	71
Notify me if current configuration is changed.....	71
File.....	71
Description.....	71
Save description.....	71
Start a new configuration.....	71
Open an existing Configuration file.....	72
Upgrading one or more Configuration files.....	72
Left Menu.....	73
Configuration settings.....	73
Global Settings.....	73
Engine Status.....	74
TopView Engine for this configuration.....	74
Running TopView Engine Summary.....	75
TopView Engine Services.....	76
Starting and Stopping a TopView Service.....	76
Changing the configuration file location for a TopView Service.....	78
Tags and Limits.....	79
Add tags.....	80
Server.....	80
Tagname.....	80
Tag Search.....	80
Add other items.....	81
Current tag List.....	82
Filters.....	82
Tag Group filter.....	82
Tag name filter.....	82
Display Monitored tags or All tags.....	82
The Tag List.....	83
Tag Order.....	83
Duplicate tag.....	83
Go to row.....	83
Show/Hide columns in Tag List.....	84
Limits column (X or I).....	84
Root tag and extensions.....	85
User Tags.....	86
Get Values.....	87
Retrieval options.....	87
Retrieve the values.....	88
Show Value columns first.....	88
Export the displayed tag information to CSV.....	88
Selected tag settings.....	89
Tag.....	89
Row.....	89
Configure alarm limits and notification settings.....	89
Tag properties.....	89
Duplicate tag.....	89
Edit tag name.....	89
Remove.....	89
General.....	90

Priority.....	90
Tag Group.....	90
Description.....	90
Row UID.....	91
Events Tags and Row UID.....	91
Format.....	91
Units.....	93
Hide this tag (row).....	93
Latch last good value.....	93
Display value.....	94
Disable alarms.....	94
Deliver value events to EventHooks.....	95
User values.....	96
Groups.....	97
Alarm limits.....	98
Operation.....	99
Operation Editor.....	100
Operation Arguments.....	101
Operations that require a source tag.....	102
Operations for that do not require a source tag.....	107
Custom fields.....	111
Custom Field Value Placeholders.....	114
Bulk tag configuration.....	119
Import options.....	120
CSV file field values for Export/Import file.....	121
Configure Alarm Limits and Notification.....	125
Select a tag/row.....	126
Inherit.....	127
Inherit settings from the following tag/row.....	127
Items to inherit.....	127
Copy and Paste settings.....	127
Special notes about inheritance.....	128
Multi-level inheritance not supported.....	128
Row references in template tag (use RowUID!).....	128
Alarm limits Screen.....	129
Disable alarms.....	129
Check for good status.....	129
Priority (tag/row).....	130
Comment.....	130
Entered limits should be Or'd/And'd.....	131
Inhibit/Gate.....	131
Condition.....	132
Value.....	133
Deadband.....	135
Delays and Expiration.....	135
Blackout.....	137
Schedule.....	138
Alarm message and Custom message.....	138
Color.....	139
"Alarm" label.....	139
Priority (alarm limit).....	139
Notification settings.....	140
Notify.....	140
WAV file (Voice Notification only).....	140
Notification message.....	140
Resend.....	141
Custom subject (email notification only).....	142
Attach (email notification only).....	142
Alarm Condition Notes.....	143

LO/LOLO and HI/HIHI alarm conditions	143
Value change alarms	144
Timestamp change alarms	144
Calculating flat-line alarms	145
Trend UP and Trend DOWN alarms.....	146
PI Questionable bit or OPC uncertain quality	147
Row reference conditions.....	147
How to configure escalation of alarms and additional notification	148
Placeholders for messages, text, and Logic Function arguments.....	149
Placeholders - General.....	151
Placeholders – Current tag/row information.....	152
Placeholders – Other tag/row information	160
Placeholders – Information about any tag	163
Disabled alarms: settings and behavior	164
Overview of “Disable alarms”	164
Hard restart: persistence of “Disable alarms”	165
Soft restart: persistence of “Disable alarms”	165
Default behavior.....	165
Modified behavior.....	167
Advanced Notification...Escalation	168
Escalation Templates.....	169
Advanced Notification...Return to Normal Notification	170
Send notification to	170
RTN Message	170
Custom RTN message.....	170
RTN Notification Message	171
Custom RTN subject.....	171
Attach file	171
Advanced Notification...Acknowledge Notification	172
Send notification to	172
Acknowledge Message.....	172
Custom ACK message.....	172
Acknowledge Notification Message	173
Custom ACK subject.....	173
Attach file	173
Acknowledge Settings	174
No Acknowledge required	174
Do not add to “unacknowledged” counts.....	175
Prompt for alarm comment/annotation on acknowledge	175
Acknowledge on return-to-normal	175
Suppress new alarms if unacknowledged	175
Acknowledge Tag.....	176
Acknowledge tag syntax	176
Input acknowledge tag	176
Output acknowledge tag	177
Acknowledge Row.....	178
Acknowledge Group	179
Inhibit/Gate	180
Inhibit Row	181
Inhibit row	181
Inhibit condition	181
Inhibit tag	181
Inhibit tag.....	181
Inhibit tag value	181
Options Screen	182
Update value of placeholders...	182
Override Configuration time zone for this row.....	183
How is alarm time zone used?.....	183
Trigger row	183
Suppress Audible Text-To-Speech (TTS) of alarm messages	183

Repeat Audible Text-To-Speech (TTS) every X seconds	183
Suppress Tag Group notification and escalation	183
Suppress alarm notification at startup and for the first X seconds... ..	184
Suppression duration	184
Acknowledge state for startup alarms with suppressed notifications.....	184
Suppress alarm messages in icon balloon	185
Suppress new alarms if unacknowledged	185
Initial Alarm comment value	185
Custom Actions Screen	186
Custom Application Alarm Response	186
Start/Stop a TopView Engine Service	186
Outputs	187
Output tag	187
Event Output Points	188
SNMP Trap – Tag Settings	190
Overview of SNMP and Terminology	190
Settings vs. Command String	190
SNMP Trap enabled for this configuration.....	190
SNMP Manager settings for this configuration.....	191
Alarm SNMP Trap Message when an alarm occurs for this tag/row	191
Use Placeholders for dynamic information	191
Version 1 vs Version 2	191
Version 1 Settings	191
Version 2 Settings	191
Trap Messages (variable list).....	192
Command String	192
Sending test SNMP Trap Messages	193
Use the TopView SNMP Trap Manager for testing	193
Sending test Trap Messages.....	193
MQTT Publish – Tag Settings	194
Overview of TopView MQTT Publish and Terminology	194
Enable MQTT Publish for this tag.....	195
Use default settings for this configuration?	195
MQTT events, topics, and message content.....	195
Tag Groups.....	196
Primary and Secondary.....	198
Example (Primary/Secondary)	199
Assigning Tag Groups to tags	200
Tag Groups Configuration Screen	201
Options	202
Acknowledge alarms on RTN (return-to-normal).....	202
Show by default in clients	203
Notification.....	204
Priority filter	204
Notify	204
Notification Events: Send message	204
Escalation template	205
Inhibit/Gate.....	206
Inhibit row	206
Inhibit condition	206
Bulk Configuration	206
Output Points.....	207
Event vs. Health Output Points	208
Health output frequency	Error! Bookmark not defined.
Existing Output Points	210
Usage	210
Output Tag	211
Disable this Output Point	211

Health Signal Type	212
Health output frequency	212
Event Signal Type	213
Handling Multiple Output Points Events	215
Engine Settings: General	216
Refresh rate	216
Behavior of TopView Engine	216
Startup delay	216
Suspend on bad Server connection	216
Apply configuration changes while running	217
Changes that do not require an internal restart	217
Changes that require an internal restart	217
What happens if the Engine internally restarts?	217
How do I know if my change will require an internal restart?	217
Write run-time alarm disable and snooze actions back to this configuration file.....	218
Persist alarm, acknowledge, and disable state during internal restart (Engine remains running) .	219
How do I know if my saved configuration change/restart will persist alarms?	220
Reasons for "Can't persist"	220
Suppress notification of alarms at startup	221
About suppression of startup alarm notification	221
Suppress notifications for all alarms that go active within X seconds... ..	222
Do not set alarms with suppressed notifications to "unacknowledged"	222
Testing Options – Disable features	223
Disable notifications (Email-SMS, Voice, Modem)	223
Disable Outputs	223
Alarm Priority Ranges	224
Set alarm color or alarm label by priority	224
Set alarm color based on priority range color	224
Set alarm label based on priority range description	224
Priority ranges	224
Time Zone settings	225
Default time zone for this configuration.....	225
How is alarm time zone used?	225
TopView Information Icon	226
Show alarms in System tray pop-up window.....	226
Alarm History screen – Custom tasks.....	227
Engine Settings: Display	230
Initial View	230
Values View columns.....	231
Alarms View columns	231
Settings of the TopView Engine window (interactive)	232
Show items with priority <=	232
Start Window Minimized	232
Show Event Viewer (TopView Events).....	232
Show minimized Window on new alarm	232
Only show tags (rows) in alarm (Values view)	232
Flash alarm rows	232
Window on-top of other applications.....	232
Hide bottom status pane	233
Hide column headers.....	233
Show top toolbar	233
Font for TopView Engine window	233
User Permissions for TopView Engine window.....	233
3 rd Party Application path	234
Engine Settings: Logging	235
Maximum file size	236

Create a log file each day	236
Log alarms to SQL Server	236
Sync SQL Server	237
Event logs (TopView Events)	238
Purging	238
View log files in Admin Tools	238
Notification: Audible Alarms.....	239
When will you hear audible alarms?	240
Mute locally at startup.....	240
Sending Audible Alarms to the Remote Viewer.....	240
Text-to-speech alarms.....	241
Play through TopView Information Icon	241
Global Contact List	242
How to View/Edit the Global Contact List.....	242
Contacts.....	243
Contact name	244
Contact details.....	244
Linking Contacts to Active Directory users.....	245
Manage.....	246
How to link a Contact to an Active Directory User.....	246
Using Tag values as Contact field values	248
Contact Aliases	249
Contact Alias	249
Assigned Contact	249
Contact Groups.....	250
Import/Export Contacts	250
Using a Contact as a notification recipient	251
Notification: Email-SMS Notification	254
Email-SMS Notification Settings screen	255
General Settings	256
Email-SMS notification recipients	257
Email-SMS settings.....	258
Send errors to Default Email-SMS Group (lost connections ...)	258
Blackout period	258
Outgoing and Incoming Email Usage.....	259
Outgoing Email	259
Incoming Email.....	259
Outgoing Email Settings	260
SMTP Settings	260
Manually enter SMTP settings.....	260
Use OAuth to authenticate (Google/Microsoft).....	260
Global Email Delivery settings	261
Email message settings	262
Other outgoing email settings	265
Retry failures	265
Queue settings for Retry	265
Health email	266
Email "Sent" time UTC offset.....	267
Send a test email	267
Copy/Paste Outgoing Email Settings	267
Deprecated/older settings.....	268
Incoming Email Settings	269
POP/IMAP Settings.....	269
Manually enter POP/IMAP settings.....	270
Use OAuth to authenticate (Google/Microsoft).....	270
Incoming email filter	272

POP3 and Microsoft Exchange	273
"Reply-to-email" Acknowledge.....	274
TopView Information Request	275
Row/tag information request.....	275
HTML Snapshot request.....	276
Outgoing and Incoming SMS (text messages)	277
Outgoing SMS.....	277
Incoming SMS (cellular modems only)	277
Outgoing SMS Settings	278
Outgoing Method	278
GSM Serial Cellular Modem	279
Modem port settings.....	279
Example: Finding the correct serial modem port properties	279
Other serial modem settings	283
GSM/CDMA Networked Cellular Modem	285
Primary and Backup modem.....	285
Modem information	285
General information.....	285
Failover/redundancy health indicators	286
Retries and failover/redundancy	287
Test Modem.....	288
Twilio.....	289
Twilio phone number format	289
Twilio API settings.....	289
Resend connection failures.....	289
Send test SMS message.....	290
Incoming SMS Settings.....	291
Overview and limitations.....	291
All cellular modems.....	291
Serial cellular modems	291
Networked cellular modems	292
Settings	293
Incoming message storage (Serial modems)	293
"Reply-to-SMS" Acknowledge	294
TopView Information Request	295
Global Email-SMS Notification Groups	296
Alarm notification delay	298
Alarm notification delay notes:	298
Notification timeline	298
Configuration Usage.....	298
Notification: Modem Notification	299
Modem settings	300
TAP dialing information	301
Default Modem Group	302
Other settings.....	302
Send test page	302
Direct-to-pager function	303
PagerID = Numeric number	303
PagerID = Direct-to-pager information.....	303
Global Modem Notification Groups.....	306
Notification: Voice Notification	309
Callout device settings.....	311
VOIP Callout Settings	311
VOIP Codecs	313
TAPI Callout Settings.....	315
Voice notification recipients	315
Starting and ending the call	316

Greeting and access code	317
Alarm Message to play over phone.....	318
Convert alarm message text to speech.....	319
Alarm Message – WAV Files	320
Text-To-Speech WAV file generation.....	321
Acknowledge settings.....	323
Recipient can acknowledge alarm by pressing KEY button on the phone keypad	323
Acknowledge message	323
Recipient can acknowledge ALL alarms by pressing numeric code CODE	323
Acknowledge ALL message	323
Message must play X times before acknowledge action is allowed	323
Other Settings	324
Blackout period.....	324
Delay X seconds between loops of greeting/alarm msg	324
Dial prefix	324
Strip non-numeric characters from recipient phone numbers.....	324
Combine messages to same recipient into one call	324
Deprecated/older Call Settings	325
Callout queue – Acknowledge and Return-to-normal	325
Call recipient list until first acknowledge.....	325
Remove call from outgoing queue if alarm acknowledged	325
Remove call from outgoing queue if alarm RTN (returns-to-normal)	326
Global Voice Notification Groups.....	327
Alarm notification delay	329
Alarm notification delay notes:	329
Notification timeline	329
Configuration Usage.....	330
Notification: MQTT Publish	331
What is MQTT?	331
How does TopView use MQTT?.....	331
MQTT Terminology in TopView	332
When can TopView publish MQTT Messages?	332
Overview: Configuring MQTT Publish in TopView	333
MQTT Publish – TopView Configuration Settings	334
MQTT Message Publishing	334
Enable MQTT Publishing	334
MQTT Broker.....	334
Default Per-Tag MQTT Publish Settings.....	334
Notification: SNMP Trap	335
What is SNMP?	335
Agent and Manager.....	335
SNMP Get/Set Messages.....	335
SNMP Trap Messages	335
How does TopView use SNMP?	335
SNMP Terminology in TopView	335
Overview: Configuring SNMP Trap Messages in TopView	336
SNMP Trap – TopView Configuration Settings	337
TopView alarm SNMP Trap Settings Screen	337
Enable SNMP Traps.....	337
SNMP Manager	337
Port.....	337
Version	337
Notification: EventHook Notification.....	338
What are EventHooks?	338
What is EventHook Notification?	338

EventHook recipients.....	338
Configuring EventHook Notification	339
Global EventHook Notification Groups	340
Schedules.....	342
Schedule uses.....	343
Alarm Limit Schedule.....	343
Notification Recipient Schedule.....	343
Alarm Report Schedule	343
Configuring a Recipient's Schedule	344
How does a recipient's schedule affect notification?	345
Creating Schedules	346
To create a new Schedule.....	347
Example: Day Shift	347
Example: Night Shift	348
Date ranges	349
Exclude or Include date ranges	349
Add a new date range	349
Existing date ranges	350
Configuration Usage.....	350
Schedule Groups.....	351
Configuration Usage.....	352
Notification Message Templates	353
Example	353
Notification Message Template Notes	354
Create/Edit Notification Message Templates.....	354
Notification Message Template Screen	355
Creating a new template.....	356
A simple text-based message body template	357
Template syntax	358
Notification message body (<MESSAGE_BODY_START>).....	358
HTML-based message body (<FORMAT_HTML>).....	358
Comments (<!>).....	358
Placeholders.....	358
Recipient exclusions.....	359
Including a template within a template	360
%inc:templatexyz% placeholder.....	360
Escalation Templates.....	362
Template details	363
Include step information in notification message.....	363
After last step, repeat all steps X times	363
Template steps	364
Condition	364
Delay	364
Notify	365
Notification message	365
Creating an Escalation Template	366
Notes about Escalation Templates.....	367
Mobile Web App.....	368
Configuring the Mobile Web App web server	369
Enable Mobile Web App.....	370
Enable HTTP, listen port	370
Displayed web server URL.....	370
Enable HTTPS, listen port.....	370
Permissions for hosting the web server	370
Custom title.....	371
Show hidden rows	371

Allow real-time updates	371
Play Audible TTS Alarms	371
Domain for %ackurl%	371
Security	372
Without security (no web logon).....	372
With security (web logon)	372
Accessing and Using the TopView Mobile Web App	374
Test with Interactive TopView Engine	374
How to access the TopView Mobile Web App from your network	374
Using the TopView Mobile Web App.....	375
Narrow or wide format.....	375
Data update	376
Switching between Alarms View, Values View, and Alarm History	376
Tag Group filter	377
Rows filter	377
Sorting.....	377
Alarms View	378
Values View	378
Item details.....	379
Acknowledging Alarms	380
Alarm history.....	381
Remote Viewer and Dial-in.....	383
Remote Viewer settings.....	384
Remote Viewer Security (server-side).....	385
Security entry types	386
Grant access by	386
Tips for Debugging Connection failures	387
Permissions	387
Accumulating Permission	388
Dial-in settings.....	389
Enable dial-in access... ..	389
Dial-in Configuration	390
General Settings	391
Security	392
Dial-in Menu.....	393
Dial-in Session.....	394
HTML Snapshot Reports	395
Example HTML Snapshot Reports.....	396
Alarm and unacknowledged information.....	396
Examples Snapshot Reports:.....	396
HTML Snapshot Reports	398
HTML Snapshot Report Details.....	398
Name.....	398
Report Type	399
Report Columns.....	400
Custom Columns	400
Report footer.....	401
Report Output	402
Report Filter	405
Email the HTML Snapshot Report	406
Incoming Email Information Request	407
Publish the HTML Snapshot Report.....	408
Snapshot Output (File and SQL Server)	409
Snapshot Output File.....	409
SQL Server Snapshot Table	410
Alarm Reports.....	411
Alarm Report source: Files or SQL Server	412

Alarm log files	412
SQL Server	412
Alarm Reports contents	413
Ad-hoc Alarm Reports	414
Ad-hoc Alarm Report settings (TopView Configurator)	415
Alarm Report Output	416
Scheduled Alarm Reports.....	417
Alarm Report Scheduled Tasks	417
Alarm Report Task details	418
Schedule and report period	418
Alarm report data source	419
Report filter.....	420
Output.....	421
Report output file (optional)	422
Email report (optional).....	423
Alarm RSS Feeds.....	424
Overview	424
Example Alarm RSS Feeds in Readers.....	425
My Yahoo.....	425
Android Mobile App	425
Alarm RSS Feeds Screen.....	426
List of Alarm RSS Feeds.....	427
Alarm RSS Feed Details	428
Name.....	428
Output RSS Feed File	428
RSS Feed Item Details (alarms).....	429
Feed filter (alarms to include)	430
Publish the RSS Feed	431
Health	432
Heartbeat settings.....	433
Enable heartbeat signal output.....	433
Health Output Point	433
TopView Performance Counters	434
Negative values – only supported for Status Tags	434
Available TopView Performance Counters.....	434
Enable TopView Performance Counters.....	439
Status of TopView Performance Counters.....	439
Remove TopView Performance Counters	439
Behavior of TopView Performance Counters	440
Create Shortcuts	441
Shortcut Details	442
Shortcut location.....	443
Configure Services	444
Install/Re-install the Service for this TopView Configuration.....	445
Install or Re-install the Service.....	445
Service name.....	445
Startup type	445
Delayed startup	445
LogOn account for Service	445
Manage existing TopView Engine Services	446
Tag & Limit Changes.....	447
Search parameters.....	447
Configuration.....	447
From and To dates.....	447
Track changes by.....	447

Change history results	448
Change history columns	448
Change types	449
Configuration Reports	450
Configuration Details Report	451
Recipient Report	452
Global Settings (overview)	453
Logic Functions (Expressions)	454
Overview: using Logic Functions	454
Creating Logic Functions	455
Function details	456
Name	456
Arguments	456
Test	457
Using Logic Function result and status	458
Status of result	458
Edits to Logic Functions (TopView running)	458
Imports and References to .Net assemblies	459
References to .Net assemblies	459
Import	460
Logic Function Tutorials and Examples	461
Example #1	461
Example #2	464
Global Options	468
Global Options: General	468
Missing tags	468
Default TopView behavior (do not allow missing tags)	468
Allow TopView to run with missing tags	468
Logic Functions	469
Load all Logic Functions at startup	469
Load any changes without a restart	469
Configuration File Changes	469
Persisting runtime disable/enable states delay	469
TopView Engine should wait X seconds after last disable/enable change before persisting changes to the configuration file	469
Remote Viewer	469
Text-to-speech Conversion	470
Max characters to convert to speech	470
Text-to-speech engine	470
Tag import/export CSV in Configurator	470
Replacement character for commas	470
Global Options: Alarms	471
Alarm Color	471
Alarm summary grouping	471
Alarm Conditions	471
Value Flatline Alarm: Calculate flat line alarm duration using local machine time	471
Alarm Messages	471
Default TopView alarm message should display	471
Change order of TopView alarm message and custom alarm message	471
Timestamp/Value Change alarms: suppress "from" in alarm message	471
Acknowledge	472
Suppress writing to acknowledge output tag	472
Return-to-normal actions	472
Global Options: Applications	473
General	473
Configurator: Startup: load last configuration	473
Startup: check for elevated permission (run as Administrator)	473
Force single instance	473
IPC (Interprocess Communication)	473

Configurator: Simplified View	473
General: Hide alarm RSS feeds.....	473
Tag Settings: Hide advanced tag settings.....	473
Tag Settings: Hide Custom Fields	474
Tag Settings: Hide Operations/Log Functions	474
Alarm Limits and Notification Settings Screen (General): Hide advanced notification – Escalation	474
Alarm Limits and Notification Settings Screen (General): Hide advanced notification – RTN.....	474
Alarm Limits and Notification Settings Screen (General): Hide advanced notification – Acknowledge.....	474
Alarm Limits and Notification Settings Screen (General): Hide inhibit/Gate	474
Alarm Limits and Notification Settings Screen (General): Hide Custom Actions	474
Alarm Limits and Notification Settings Screen (General): Hide Event Output Points	474
Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification	474
Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification custom subject	474
Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification recipients	474
Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification attachments	475
Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit priority	475
Alarm Limits and Notification Settings Screen (Alarm limits): Hide comment for alarm limits	475
Alarm Limits and Notification Settings Screen (Acknowledge Settings): Hide 'Suppress new alarms if unacknowledged'	475
Alarm Limits and Notification Settings Screen (Acknowledge Settings): Hide 'Acknowledge on return-to-normal'	475
Notifications (Left menu): Hide Modem Notification/Pagers	475
Notifications (Left menu): Hide MQTT Publish	475
Notifications (Left menu): Hide EventHooks	475
Notifications (Left menu): Hide SNMP Traps.....	475
Global Options: Format	476
Timestamp format for display.....	476
Custom field date/time format.....	476
Global Options: Folders	477
TEMP folder.....	477
TEMP files	477
Persist report	477
Configuration changes	477
Global Options: SQL Server.....	478
Server name.....	478
Logon settings.....	478
Database name	478
Connection timeout.....	478
Query with NOLOCK.....	478
Verify.....	479
SQL Server Alarm Log Table Schema	480
SQL Server Snapshot Table Schema	481
Global Options: PI.....	483
Connect without PI Login.....	483
Retrieve PI snapshot values each scan.....	483
PointList EventPipe maximum size	483
Use EventPipe per monitored PI Point.....	483
Global Options: PIAF	484
Monitored lists (recommended)	484
Use Data Pipes	484
PI pipe pull count: the maximum number of events pulled from the data pipe each ½ second.....	484
Snapshots	484
Global Options: OPC.....	485
Initial tag value retrieval delay	485
Separator character for OPC array tags	485
Suppress retrieval of tag attributes	485
Perform OPC DEVICE read of current values.....	485
When latching, include “uncertain” qualities	485
Write output values from a separate thread.....	485
Data Access Method.....	486
Global Options: PerfMon.....	487

Heartbeat performance counter.....	487
Value for bad status.....	487
Global Options: Memory & Queues.....	487
Default maximum queue and event sizes.....	489
Modem Notification maximum messages per TAP call.....	490
Global Options: Notification.....	491
General:.....	491
Allow duplicate recipient for same ALARM event.....	491
Email-SMS.....	491
Delay between multiple outgoing messages.....	491
Suppress UTC Offset in date field of email notification messages.....	491
Use local language for month format in Date field.....	491
Custom date format at start of message.....	492
Footer: Suppress "<Sent by TopView>" at the end of the message.....	492
Return to normal (RTN) notification.....	492
Resend notification.....	492
Sync cellular modem's date and time with this machine.....	493
Incoming email filter.....	493
Clear old SMS messages from the Inbox after X hours.....	494
Reply-to-acknowledge email/SMS.....	494
Tag/row information request (IRQ): suppress echo of IRQ.....	496
SMS Format for HTTP/HTTPS modem.....	496
SMTP HELO Argument.....	497
SMTP Encoding.....	497
Voice callout notification.....	497
Force the Engine to process each VOIP call on a single thread.....	497
Global Options: Audit & Backup.....	498
Record configuration changes in the Audit Change Log.....	498
Store backup of configuration changes.....	498
Record configuration changes and backups to the AuditLog SQL Server table.....	498
Global Options: EventHooks.....	498
Registered EventHooks.....	498
Selecting the Notify recipients.....	499
Default Notification Groups.....	499
How are changes recognized by a running instance of the TopView Engine?.....	499
Global Notification Groups.....	500
How are changes recognized by a running instance of the TopView Engine?.....	500
Custom Notification Recipient List.....	501
How are changes recognized by a running instance of the TopView Engine?.....	501
Configuring the custom recipient list.....	502
Contacts, Schedules, and Global Settings.....	504
TopView Engine: Alarm and Notification Engine.....	505
Launching a TopView Engine instance.....	506
Stopping a TopView Engine instance.....	506
TopView Engine Window Contents.....	507
Current values and alarms VS Alarm history and analytics.....	507
Current values and alarms.....	508
Alarm and Unacknowledged.....	508
Blocked and Disabled items.....	509
Pop-up Tooltip.....	510
Values View vs. Alarms View.....	511
Values View.....	511
Alarms View.....	512
Priority: 1-X.....	512
Tag Groups Pane.....	513
Group summary.....	515

Top Toolbar	516
Alarm history and analytics	519
Alarm history source	520
Time range.....	521
Relative time.....	521
Absolute time.....	521
Include spanning alarms.....	521
Retrieve alarm history	521
Filter.....	522
Alarm events: List of Alarm Events	524
Comments / Annotations.....	525
Export.....	526
Selected alarm event details.....	526
Alarm events: Alarm Reports.....	527
Alarm summary grouping.....	527
Formats	527
Report contents.....	527
Save and View reports	527
Alarm events: Alarm Analytics	528
Alarm summary	529
Alarm occurrence by period.....	531
Active alarm count over time.....	532
Zooming the X axis (time) on charts	533
Making changes to the TopView configuration	534
Running the Configurator	534
Re-reading the Configuration File	534
Run a silent import from scripts or custom code	534
Alarms.....	535
Acknowledging alarms.....	536
Alarm Events (notification, output points ...)	537
Log Files.....	537
TopView Engine Service Manager.....	538
TopView Service Manager commands	538
LIST	538
REMOVE.....	538
INSTALL.....	538
TopView Information Icon.....	540
Starting the TopView Information Icon	540
Stopping the TopView Information Icon.....	540
New alarm icon window	541
Audible Alarms through icon	541
The TopView Information Screen.....	542
Running TopView Engine Summary.....	542
Sleep pop-up alarm window.....	543
Pop-up alarm window screen location	543
Mute Audible Alarms played by TopView Information	543
TopView Applications Quick Launch.....	543
TopView Admin Tools.....	544
Starting TopView Admin Tools	546

Overview of all running TopView Engines	546
Manage TopView Engine Services	546
Select a running TopView Engine instance	547
Real-time Monitor.....	548
Overview Summary	548
TopView Summary	548
Values and Alarms Summary.....	551
Limit and Acknowledge tags.....	551
Audible Alarms.....	552
Email-SMS, Modem, and Voice Notification Queue, SNMP Trap Queue.....	553
Notification enabled for this configuration	553
Outgoing message queue	553
Most recent outgoing message information	553
Email Incoming Status.....	554
SMS Incoming Status	555
EventHooks	555
Mobile Web App.....	555
Remote Viewer Connections	556
Total vs. unique connections.....	556
Reset Listener.....	557
Selected TopView configuration.....	558
All TopView configurations.....	559
Remote Dial-in Status.....	561
Remote Dial-in enabled for this configuration	561
Remote Dial-in Device Status	561
Remote Dial-in Log	561
HTML Snapshot Reports	562
Report list	562
Selected Report Details	562
Most recent HTML file	562
Snapshot file/SQL Server	562
Snapshot Output File.....	562
Snapshot Output to SQL Server.....	562
Alarm RSS Feeds.....	563
RSS Feed list	563
Selected Feed Details	563
Most recent RSS Feed file	563
Alarm Report Tasks.....	564
Performance	564
General.....	564
Tag reads.....	564
Tag writes/outputs.....	564
Log files – write queues.....	565
TopView task execution times	566
TopView Performance Counters.....	568
View Logs.....	569
Location of log files	569
Application Logs.....	570
Path	570
Select log file.....	570
Filter	571
Log file contents	571
Alarm Logs	572
Path	572
Select log file.....	572

Filter	573
Log file contents	573
Alarm Actions Logs.....	574
Path	574
Select log file.....	574
Filter.....	574
Log file contents	574
Email-SMS, Modem, Voice Notification Logs, SNMP, Logs.....	575
Path	575
Select log contents.....	575
Remote Dial-in Logs	575
Email Incoming Stored Msgs.....	575
SMS Incoming Stored Msgs	577
Events Logs (TopView Events)	578
Reports and Audits	579
Alarm Report	579
Audit Change Log & Backup.....	580
Backup path	580
Change log.....	580
[Refresh]	580
Change type filter.....	580
Change log contents	580
Tag and alarm limit changes	581
How-to, Advanced Concepts, and Notes	582
When do I need to restart a running TopView Engine instance/configuration? ...	582
Changing tag names	582
Alarm Summary Grouping	583
Which grouping options should I use?	583
Bad Server Connections.....	584
Behavior for bad Server connections	584
Behavior after reconnection	585
Priorities and Notification Message Queues.....	586
Priority for non-alarm messages.....	586
Configuring HTTPS in the Mobile Web App (MWA)	587
Certificate.....	587
Helpful resources	587
Generating a self-signed certificate using PowerShell	587
Adding the self-signed certificate as a trusted certificate authority	588
Bind the MWA port to your certificate	589
Find the thumbprint for your certificate.....	589
Generate a GUID for your certificate.....	589
Bind the certificate to the port	589
Optional: register the port	590
Automating Configuration Changes	591
Implementing a "silent import"	592
Silent Import Example	593
Phone Lines and Modems	594
TAPI Errors and Uninitialization	594
Multi-use modem, Single phone line	594
Modems	595

Failover and Redundancy	596
Data Server Failure	596
TopView Failure and Redundancy.....	596
Commands to Start or Stop a TopView Engine instance/configuration.....	597
Launching a TopView Engine interactively:	597
Starting a TopView Engine Service:	597
Custom date formats	598
Format Examples	598
Format syntax.....	599
Running a large number of TopView Services.....	603
How many TopView Services can I run?	603
Modifying heap size.....	603
If you are TopView running as a specific user account.....	603
If you are running TopView Services as LocalSystem.....	603
Moving the TopView DataPath	604
SQL Server Information, Installation and Tips.....	606

Introduction

Exele TopView is a highly configurable, intuitive, and robust alarming and notification package that interfaces with a variety of data sources. The **TopView Configurator** is used to create and configure files that contain server and tag names, alarm limits, notification settings, etc. Once created, an instance of the **TopView Alarm and Notification Engine** reads a configuration file and performs actions based on the configuration settings. Each instance can run interactively on the Desktop or as a Windows Service. Alarm acknowledgement, state, and information can be monitored using the **TopView Remote Viewer** or **TopView Mobile Web Application**. Logs, connections, and detailed engine information can be monitored using **TopView Admin Tools**.

Each instance of the TopView Engine will monitor items from a TopView data source (PI, OPC, SQL, ...). TopView can monitor the item's value, timestamp, or the result of a logic operation.

Alarm notification can be performed in a number of different ways. Options include audible, visible, email, SMS/text, pager, mobile phone, voice callout, etc. Alarms can be triggered by current tag values, tag operation results, tag timestamp, value flat-lines, value status, and more. Limits for alarms can be a fixed value or the current value of another tag within the configuration.

In addition to the **TopView Remote Viewer** and **TopView Mobile Web Application** HTML reports and RSS feeds can be generated and delivered to users. TopView also includes alarm analytics to help discover frequent alarms, periods of alarm flooding, and periods of high alarm activity.

Requirements

- **Data Source**
 - **TopView OPC and SCADA:**
OPC Servers: OPC Data Access (DA) 2.05 or later.
 - **TopView Events -OPC A&E**
OPC A&E Servers: OPC Alarms and Events 1.1
 - **TopView Events –SQL Events**
ODBC: ODBC Driver (installed on TopView computer) for data source
 - **TopView Events –MQTT**
MQTT Broker: 3.1.0 and 3.1.1
 - **TopView PI and PIAF:**
PI Servers: PR1 (3.4. 375.38) or later. PI Server can be local or remote to the TopView computer
PI data source: PISDK: 1.3.5.338 or later on the TopView computer.
PIAF data source: AFSDK v2.7.5.7166 or later on the TopView computer.
 - **TopView SQL Lookup:**
OLDB or OLEDB database or data source.
ODBC: ODBC Driver (installed on TopView computer) for data source
OLEDB: OLEDB Provider (installed on TopView computer) for data source
 - **TopView PerfMon:**
No special requirements.
- **Computer**
 - **Operating Systems:**
Windows 7 SP1, Windows 8.1, Windows 10 Anniversary Update (1607) or later (32/64 bit)
Windows Server 2008 R2 SP1, 2012, 2012R2, 2016, 2019 (32/64 bit)
 - **CPU**
Modern Intel/AMD CPU. TopView takes advantage of multi-core CPUs since each TopView Engine instance/configuration runs as a separate process.
 - **Disk:**
10GB free disk space. This is much more than is required by the TopView program files but is recommended to accommodate log files. Log files will accumulate over time but can be automatically purged.
 - **Memory:**
500MB baseline plus 150MB per TopView Engine.
- **SQL Server (optional)**
 - SQL Server 2000 or later for optional database alarm logging and snapshot

TopView Components Overview

TopView consists of five core components that run on the TopView computer plus three applications that can either run locally or remotely with network access to the TopView computer.

Core Components:

- TopView Configurator
- Contacts, Schedules, and Global Recipients
- TopView Engine – one or more instances
- TopView Admin Tools
- TopView Information Icon

Remote Components:

- Remote Viewer
- Mobile Web App
- Web Configurator

TopView Configurator

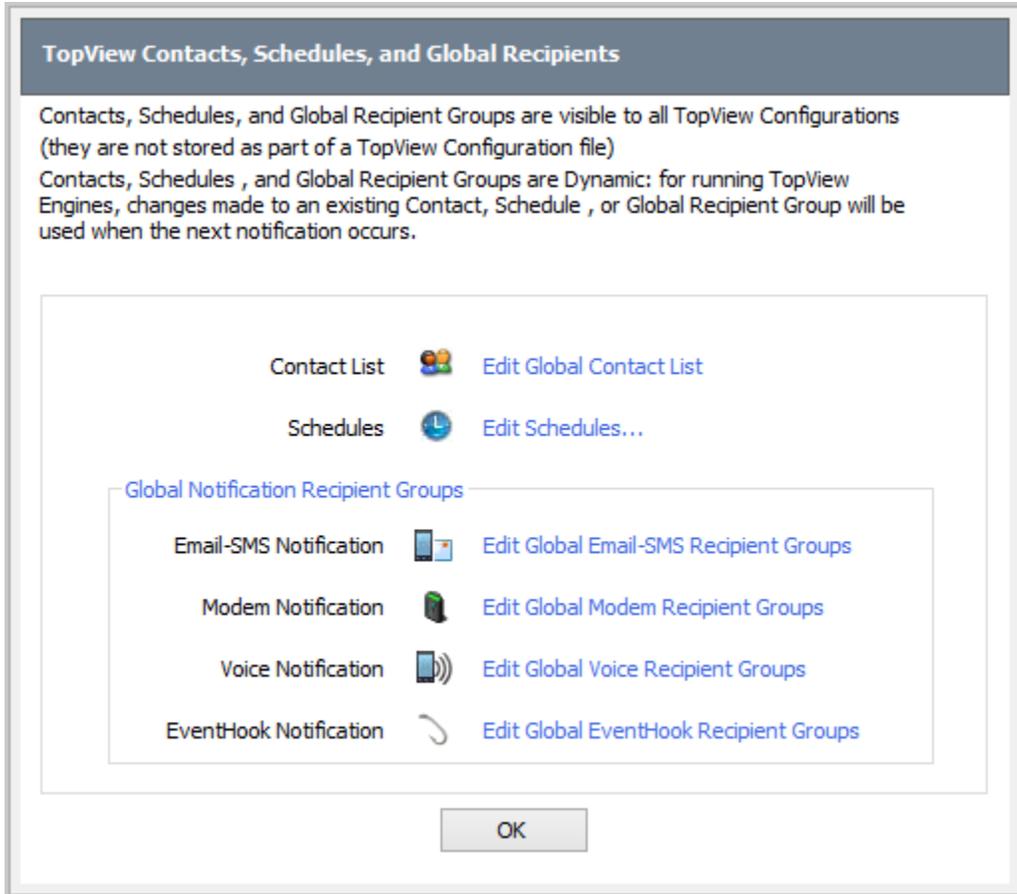
Create configuration files that define the tags, alarm conditions, and notification settings for each instance of the TopView Engine.

The screenshot displays the TopView Configurator application window. The main area is titled 'Tags and Limits' and shows a table of monitored points. The table has columns for Row, Limits, Tag, Server, Occur, Description, and Primary Group. The first row is selected, showing 'TopView.Dev1.OutletTemp' with a limit of 'X' and a description of 'Outlet temperature'. To the right of the table is a 'Selected tag settings' panel for the selected tag, showing fields for Priority, Tag Group, RowUID, Description, Format, and Units. Below the table is a status bar showing 'Displayed: 19/19' and 'Disabled count: 0'. At the bottom, there are buttons for 'Export' and 'Import'.

Row	Limits	Tag	Server	Occur	Description	Primary Group
1	X	TopView.Dev1.OutletTemp	MyKServer	1	Outlet temperature	Unit1 Tempe
2	X	TopView.Dev1.OutletTemp	MyKServer	2	Avg outlet temp	Unit1 Tempe
3	X	TopView.Dev1.Level_Ind_1	MyKServer	1	Level 1 indicator	Unit1 LevelI
4	X	TopView.Dev1.Level_Ind_2	MyKServer	1	Level 2 indicator	Unit1 LevelI
5	X	TopView.Dev1.Discharge_Pump_1	MyKServer	1	Discharge Pump 1	Unit1 Pump
6	X	TopView.Dev1.Discharge_Pump_2	MyKServer	1	Discharge Pump 2	Unit2 Pump
7	X	TopView.Dev1.Outlet_Press_4	MyKServer	1	Outlet 4 pressure	Pressure
8	X	TopView.Dev1.Outlet_Press_5	MyKServer	1	Outlet 5 pressure	Pressure
9	X	TopView.Dev1.Outlet_Temp_4	MyKServer	1	Outlet 4 temperature	Unit1 Tempe
10	X	TopView.Dev1.Outlet_Temp_5	MyKServer	1	Outlet 5 temperature	Unit1 Tempe
11	X	TopView.Dev1.Station_Status_4	MyKServer	1	Station 4 status	Station Statu
12	I	TopView.Dev1.Station_Status_5	MyKServer	1	Station 5 status	Station Statu
13	I	TopView.Dev1.Station_Status_6	MyKServer	1	Station 6 status	Station Statu
14	X	TopView.Dev1.NoX_Unit1	MyKServer	1	Unit 1 NOx	NOx
15	X	TopView.Dev1.NoX_Unit2	MyKServer	1	Unit 2 NOx	NOx
16	X	TopView.Dev1.Power_Unit_1	MyKServer	1	Unit 1 power	Power
17	X	TopView.Dev1.Power_Unit_2	MyKServer	1	Unit 2 power	Power
18	X	user_tag_OperationRunning	MyKServer	1	Operation running	OperationSta
19		user_tag_TotalNox	MyKServer	1		(none)

Contacts, Schedules, Global Recipients

Manage the Contacts, Schedules, and Global Recipients independently of the TopView Configurator. These settings are available to all TopView configurations.



TopView Engine: Alarm and Notification Engine

Monitors data values, triggers alarm conditions, logs alarms, sends notifications, creates alarm reports, accepts Remote Viewer connections, and performs all other tasks defined in a TopView configuration file. Runs interactively or as a Windows Service.

TOPVIEW Alarm and Notification Engine Not running as a Service **EXELE**

Current values and alarms | Alarm history and analytics

Tag Groups: All (5), Level (1), NOx (1), Power (0), Pressure (0), Pump (1), Station Status (1), Temperature (1)

Alarms View | Selected Tag Group: All

State	Ack	Time in alarm	Time of alarm	Alarm Message	Primary Group
Alarm	ACK	000:00:05	2/20 10:43:27 AM	Outlet temperature, 166.0, is too high	Temperature
	ACK			Level 1 indicator alarm	Level
Alarm	ACK	000:00:30	2/20 10:43:02 AM	Level 2 indicator alarm	Level
Alarm	ACK	000:00:47	2/20 10:42:44 AM	Discharge pump 2 is running	Pump
Alarm	ACK	000:01:00	2/20 10:42:31 AM	Station number 6 is down	Station Status
Warning		000:00:00	2/20 10:43:32 AM	Unit 1 NOx emissions, 223, is too high	NOx
	ACK			Unit 1 power output, 170, is greater than 165	Power

Group summary: Rows 23, Alarms 5, Unack 6, Hidden 0, Disabled 0

Current Values View | Current Alarms View

Rows 23 | Points 20 | Alarms 5 | Unack 6 | Hidden 0 | Disabled 0 | Remote Error during listen setup | Web server: HTTP startup... | HTTPS startup...
 Latest msg: 2/20 10:43:33 AM: Audio TTS queue size = 0

TopView Admin Tools

Monitor notification queues, log files, and performance information of running TopView Engines instances

The screenshot displays the 'TOPVIEW Admin Tools' interface for 'Running Engine instances (1)'. The main window shows 'TopView Engine Details' for the instance 'perfmontest', which is in a 'Running' state. The 'Performance' section is active, showing various metrics and a task execution times table.

Performance Section:

- General:** Local time: 4/19/2020 1:46:50 PM; Refresh rate: 15 sec; Last refresh: 4/19/2020 1:46:35 PM.
- Tag reads:** Last completed: 4/19/2020 1:46:35 PM; Retrieval time: 19.0 (msec); Unique tag list read (monitored, limits, FCN args) [checked].
- Tag writes/outputs:** Current queue count: 0; Last group completed: [empty]; Time to write: [empty]; Avg time/item: [empty]; Writes on separate thread.

TopView task execution times: Performance items: (duration resolution is approximately 10 msec)

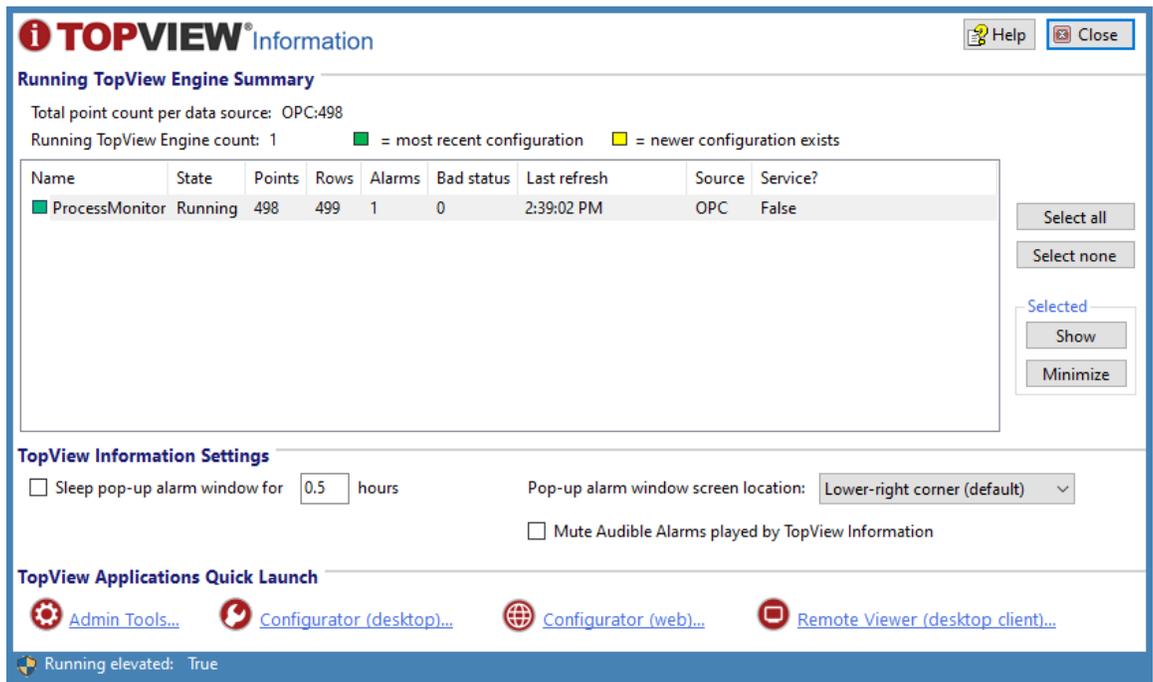
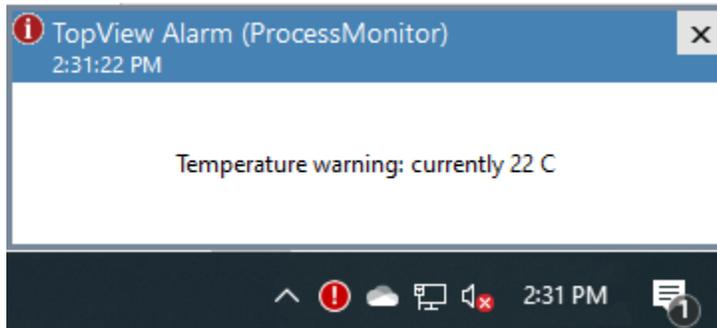
Item	Last completed	Duration (msec)
Alarm processing	4/19/2020 1:46:35 PM	0
Check Server(s)	4/19/2020 1:46:35 PM	0
Email-SMS notification queue processing		
Modem notification queue processing		
MQTT publish upon refresh	4/19/2020 1:46:35 PM	0
Operation processing	4/19/2020 1:46:35 PM	0
POP3/IMAP processing		
Process alarms		
Retrieve tag values	4/19/2020 1:46:35 PM	19
SMS Incoming message processing, backup modem		
SMS Incoming message processing, primary modem		
Snapshot memory to file		

TopView Performance Counters: TopView Performance Counters enabled? Not enabled

Counter name	Value	Description

TopView Information Icon

Runs in the System Notification Area of the TopView machine. Displays new alarms and play audible alarms. It allows the user to see a quick summary of running instances of the TopView Engine and to launch the TopView Configurator, TopView Admin Tools, or the TopView Remote Viewer client.



Remote Viewer

Remote access to TopView from any computer on network. Users can monitor and acknowledge alarms, view alarm history, and perform alarm analytics. The Remote Viewer icon in the System Notification Area can display new alarm messages in a pop-up balloon when the Remote Viewer is running.

Note: The Remote Viewer documentation and help is separate from the TopView documentation and help.

TopView Remote Viewer

Displaying: Unit2, Current values and alarms

Current values and alarms | Alarm history and analytics

Acknowledge Acknowledge Comment Show alarm history Audible Disable

Values View Alarms View Filter: No filter Max Priority 10

State	Ack	Time in alarm	Alarm Message
	ACK		*Outlet temperature, 165.3, is too high
	ACK		*Level 1 indicator alarm
Alarm	ACK	000:00:39	Level 2 indicator alarm
Alarm	ACK	000:00:05	Discharge pump 2 is running
Alarm	ACK	1847:46:54	Station number 6 is down
	ACK		*Unit 1 NOX emissions, 224, is too high
	ACK		*Unit 1 power output, 168, is greater than 165
Alarm	ACK	000:01:55	Unit 2 power output, 167, is too high [TopView.Dev1.Power_Unit_2 (
	ACK		*The valve position, 55.2, is greater than 50 percent

Row summary
 Displayed: 9 / 18
 In Alarm: 4 / 4
 Unack'd: 9 / 9
 Disabled: 0 / 0
 Hidden: 0 / 0

Actions
 Permissions
 Options
 Sounds: (Speech)
 Lock-down

Since last timed update: 5 seconds Update every 5 sec Refresh now

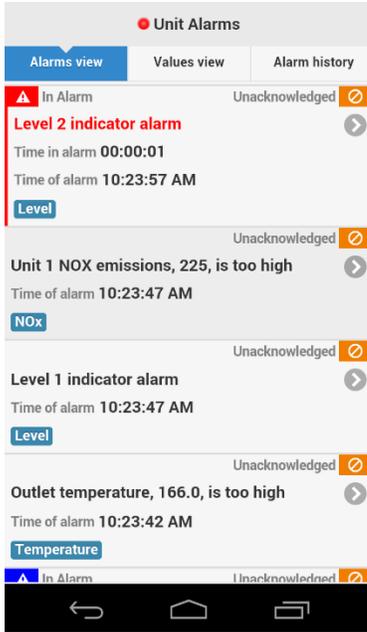
Latest Msg: 10/23/2013 10:39:35 AM: RowAlarmRTN_14... ID=20131023-143930-14... AlarmMsg=Unit 1 NOX emissions, 224, is too high... AlarmLimits=>227



Mobile Web App

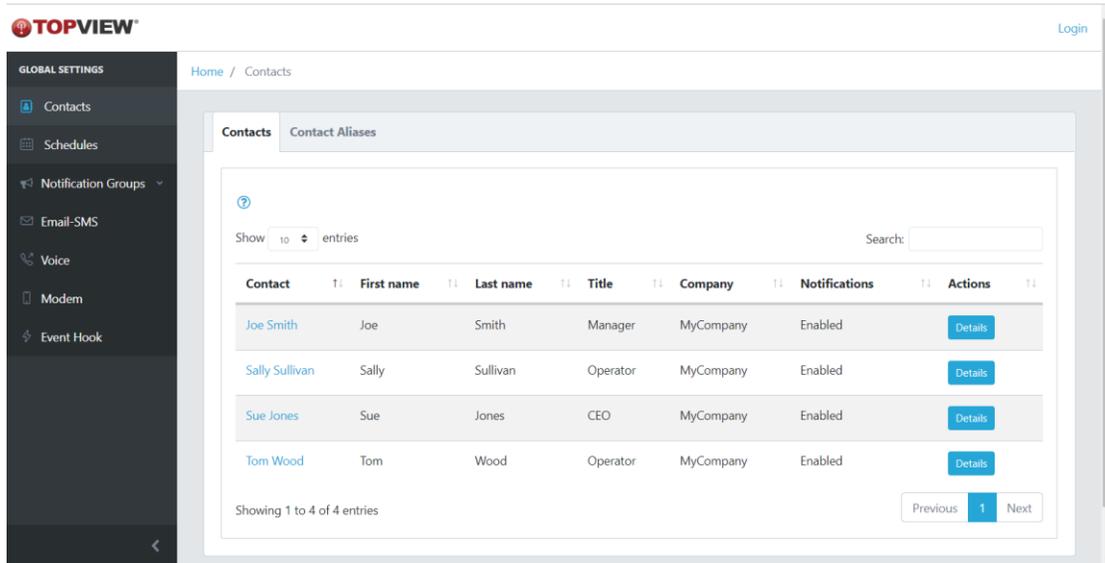
The Mobile Web App is a web-based application designed for running on mobile devices.

The Mobile Web App allows users to view all monitored values and alarms, and to acknowledge alarms and view alarm history.



Web Configurator

The Web Configurator is a web-based configurations tool that can be used to make configuration changes by local and remote users through a browser. Information about installing and using the Web Configurator is contained in a separate help/doc.



The screenshot displays the TOPVIEW Web Configurator interface. On the left is a dark sidebar with 'GLOBAL SETTINGS' and a list of menu items: Contacts, Schedules, Notification Groups, Email-SMS, Voice, Modem, and Event Hook. The main content area shows the 'Contacts' page with a breadcrumb 'Home / Contacts'. Below the breadcrumb are tabs for 'Contacts' and 'Contact Aliases'. The 'Contacts' tab is active, showing a table of contact information. The table has columns for Contact, First name, Last name, Title, Company, Notifications, and Actions. There are four entries listed: Joe Smith, Sally Sullivan, Sue Jones, and Tom Wood. Each entry has a 'Details' button. At the bottom of the table, it says 'Showing 1 to 4 of 4 entries' and includes 'Previous', '1', and 'Next' navigation buttons.

Contact	First name	Last name	Title	Company	Notifications	Actions
Joe Smith	Joe	Smith	Manager	MyCompany	Enabled	Details
Sally Sullivan	Sally	Sullivan	Operator	MyCompany	Enabled	Details
Sue Jones	Sue	Jones	CEO	MyCompany	Enabled	Details
Tom Wood	Tom	Wood	Operator	MyCompany	Enabled	Details

How to use TopView

The TopView Configurator is used to configure the tags, alarm limits, notification, etc. for a single instance of the TopView Engine. This is the main tool of the person responsible for configuring TopView.

The output of the TopView Configurator is a configuration file. This configuration file is read by a running instance of the TopView Engine to instruct the engine of the duties it needs to perform.

An instance of the TopView Engine is the run-time alarm and notification engine for a single configuration file. If run interactively, the engine displays a window of current tag values and alarms, alarm history, and performs all configured duties (notification, output points, etc.).

The Remote Viewer can be used locally or from across the network to connect to instances of the TopView Engine for real-time monitoring of alarms, the alarm history, and to perform alarm analytics. Alarms can be viewed, heard (audible WAV or text-to-speech), and acknowledged.

Create a configuration file

Launch the TopView Configurator:

Start...Programs...Exe TopView...TopView Config

Create a configuration file. For details on creating a configuration file, see **TopView Configurator** on page 70.

Launch the TopView Engine Instance for the Configuration File

One or more instances of the TopView Engine (one per configuration file) can be launched. The TopView Engine instance can run interactively or as a Windows Service.

Interactive: The configuration file name is passed on the command line to the TopView Engine (TopView.exe).

Service: The Service name is TopView_cfgname where cfgname is the name of the configuration file.

Interactive: [Launch] button in the TopView Configurator

Once a configuration file is created the user can use the [Launch] button in the TopView Configurator to run an instance of the TopView Engine for this configuration file.



Interactive: Create a shortcut

The TopView Configurator can also be used to create shortcuts that launch the TopView Engine for various configuration files.

From the TopView Configurator, select "Create Shortcuts" from the left menu. See **Create Shortcuts** on page 441 for more information.

Service: Create a TopView Service

The user can create a Windows Service for each configuration file. From the TopView Configurator, select "Configure Services" from the left menu. See **Configure Service** on page 444 for more information.

Installation and Directory Structure

TopView Data Source

TopView can support one or more data sources (PI, OPC, SQL, Canary Labs, PerfMon) on the same computer. A valid license file is required for each data source.

Installation Process

The TopView installation program includes the following tasks:

- Select the data source (OPC, PI, SQL, PerfMon, ...)
- Select the installation directory (ProgramPath)
- Select the user-writable directory (DataPath)

File/Folder Permissions: ProgramPath and DataPath

TopView separates the program executables (ProgramPath) from the data files that require write access (DataPath). Administrators can then modify user security and permission to the folders and files in DataPath in order to control the ability of users to modify TopView configuration information.

ProgramPath: Product installation directory (binaries/executables)

Selected during product installation.

Default Location: C:\Program Files (x86)\Exele\TopView

DataPath: Product data file directory (writeable files)

Selected during product installation.

Default Location – Windows versions prior to Vista:

C:\Documents and Settings\All Users\Application Data\Exele\TopView\

Default Location: Windows Vista and later:

C:\ProgramData\Exele\TopView\

To open Windows Explorer to the current ProgramPath or DataPath

Start...Programs...Exele TopView...More...**Open DataPath Folder**

Start...Programs...Exele TopView...More...**Open ProgramPath Folder**

Note: if you need to move the DataPath folder after TopView installation, see **Moving the TopView DataPath** on page 604.

Directory Locations and Contents

ProgramPath	Product executables (except Remote Viewer)
DataPath\Audit	Audit log and backup
DataPath\Config\	Configuration file storage, Global notification groups, and Schedules
DataPath\HTML\	HTML Snapshot Reports
DataPath\Log\	Root log directory
DataPath\Log\Alarms	Alarm log files
DataPath\Log\Application	Application log files
DataPath\Log>EmailNotification	Email-SMS Notification log files
DataPath\Log\ModemNotification	Modem Notification log files
DataPath\Log\RemoteDialin	Remote Dial-in log files
DataPath\Log\VoiceNotification	Voice Notification log files
DataPath\RemView	Remote Viewer executable and configuration file
DataPath\RemView\Mobile	Remote Viewer Mobile installation files
DataPath\Reports	Default output directory for Scheduled Alarm reports
DataPath\RSS	Default output directory for Alarm RSS Feed files
DataPath\Sounds	WAV sound files
DataPath\SQL	Sample database for testing TopView SQL
DataPath\Voice	Text-to-speech output WAV files

Alarm Notification Requirements

The TopView Configurator allows the user to select various notification methods when the configured limits are violated. These include:

- Audible notification using the PC speakers
- Email notification using direct email or an SMTP Mail Server
- SMS notification using serial or networked cellular modem or SMS provider
- Cell Phone Text notification through an email or TAP
- Alphanumeric Pager notification through the TAP protocol or email
- Voice callout notification over a phone line
- Custom EventHook notification (written by the user)

Audible notification

The TopView Configurator allows the user to select a WAV file which will be played through the PC speakers when an alarm condition is violated. Playing of this WAV file requires a sound card and speakers. The ability to play this WAV file is the same as playing WAV files for various Windows events (startup, shutdown, etc.)

The user can also select Text-To-Speech Audible alarms. Using this method, the alarm message text is converted to an audible message which is played through the computer's speakers when an alarm occurs.

Email notification

TopView can email alarm violation messages to each recipient directly over an internet connection or through an SMTP mail server (remote or local).

Direct Email

If the TopView machine can access the Internet, it can most likely send direct email with TopView. Direct email requires a DNS server to resolve the necessary information for sending direct email. This DNS can be automatically discovered by TopView. Direct email is sent directly to each recipient's domain, thus bypassing any intermediate mail servers which may delay delivery of alarm messages.

The Configurator allows the user to send test messages to verify the ability to send direct email.

SMTP

The user may be able to retrieve the name of the SMTP mail server from his/her mail client's settings (Outlook, Outlook Express, Eudora, etc.).

In order to email alarms through an SMTP mail server, the user will need to know the name or IP address of his/her SMTP server and the SMTP port (default 25). In addition, the user's SMTP server may require authorization using a username and password.

The SMTP server must accept mail from the TopView machine and the configured "from" address. A verification test message can be sent from within the outgoing email configuration screen of the configurator.

Local SMTP Delivery

Local SMTP delivery can be used on a machine which is running an SMTP mail server. The email messages are delivered to the entered pickup directory. From this point, the local SMTP server will process and deliver them. For TopView, this method is more efficient than directly sending through an SMTP Server.

On Windows 2000, XP, and later, you may be able to use the SMTP Server which is installed with Internet Information Services (IIS).

Two-way Email

TopView supports receiving email for alarm acknowledge and information query. Email notification recipients can reply to received messages in order to acknowledge alarms. Alarm state and other information can be also be queried through email.

SMS Notification

TopView can send SMS/text messages using a cellular modem or SMS provider (e.g., Twilio).

Cellular modem

There are two types of cellular modems supported by TopView:

1. A USB/serial GSM modem that is connected to the TopView computer
2. A networked cellular modem (GSM/CDMA) available on the TopView network.

In order for the cellular modem to communicate on a cellular network, you must have SMS/text service through a cellular provider and a SIM card for the cellular account. The SIM card is inserted into the cellular modem giving the modem its identity on the cellular network.

Recipients of SMS notification are cellular phones.

Two-way SMS

TopView cellular modem SMS supports receiving SMS messages for alarm acknowledge and information query. SMS notification recipients can reply to received messages in order to acknowledge alarms. Alarm state and other information can be queried through serial GSM modems.

SMS Provider

TopView supports using the Twilio SMS provider for sending SMS messages. Two-way SMS vis Twilio is not currently supported.

Cellular Phone Text notification

There are 3 methods available for cellular phone text notification:

SMS: using a cellular modem or SMS provider you can send SMS text messages from TopView to cellular phones using SMS notification.

Email: Most cellular phone companies support sending text messages through an email address. For example, sending an email to 1115552222@vtext.com will send the message text to Verizon Wireless cellular phone number 111-555-2222. Contact your cellular phone company to see if this is supported. If this method is supported and you have the ability to send Email notification (see above), you can use Email notification to accomplish Cellular Phone Text notification. This is the preferred method for text-messaging cellular phones.

Modem: Some cellular phone companies (e.g., Verizon Wireless) offer a TAP terminal phone number for sending text messages to cellular phones over a modem connection. This technology has been used for alphanumeric pagers (see below). Contact your cellular phone company to see if they support TAP. This method can be used if the TopView machine does not have network access to send email, or cellular access to send SMS messages.

Pager notification

There are 3 methods available for pager notification.

Email Notification: Most paging companies support sending a pager message through an email address. For example, sending an email to 1112222@mypageco.com will send the email message text to the alphanumeric pager number 111-2222. Talk to your paging company to see if this is supported. If this method is supported and you have the ability to send Email notification (see above), you can use Email notification to accomplish Pager notification.

Modem Notification (TAP):

Note: Modem Notification support has ended and this feature will be removed in a future release

The TAP protocol allows the user to send alphanumeric pager messages through a modem by making a connection to the paging company. Most paging companies support the TAP protocol and will allow TopView to send messages using a TAP phone number.

For TAP, TopView uses a modem to dial the paging company's TAP phone number. Once connected, TopView will enter the target pager ID(s) and the message text. The paging company will then send the message to the pager Pager ID(s). The ID is not the same as the pager's phone number. The paging company will be able to tell you the pager ID for each pager.

Required information from your paging company:

Access Number

The paging terminal's alphanumeric paging access telephone number. This is the phone number of the modem at the paging company that will receive the message using the TAP protocol. This number is the same for all pagers from that company. Many carriers will offer 800 numbers.

Baud rate

The paging company's modem baud rate associated with the access number.

Characters per message block

Most paging carriers limit how many characters can be sent in one message. Many carriers limit the message size to 80 characters. Others have expanded their service to 230 characters per message. TopView messages which are larger than the message block size will automatically be split into several messages.

Password

Paging password, not required by every carrier.

Modem Notification (Direct):

Note: Modem Notification support has ended and this feature will be removed in a future release

Numeric messages can be sent directly to alphanumeric and numeric pagers. This is equivalent to dialing a pager phone number and entering the numeric message using the phone keypad.

Voice notification

Voice Notification allows callout over VOIP(SIP) and TAPI. VOIP is the recommended method for callout. TAPI is available but no longer supported. We have [VOIP solutions that can replace existing TAPI solutions](#) with analog phone lines.

VOIP Voice Notification requires a network connection and an account on a VOIP SIP Server. TAPI Voice Notification requires a voice modem or TAPI device and analog phone line.

Voice notification will speak an alarm message (converted text-to-speech of the alarm message or stored as a pre-recorded WAV file) to the receiving phone. The recipient can be a land-line phone, cellular phone, software phone, or paging system.

TAPI Voice device

TAPI Voice notification requires a TAPI device or Voice-enabled modem or voice card. Voice modems and TAPI devices are typically much less expensive than a voice card (e.g., Dialogic). Please check our web site for the latest information about recommended modems and known problems: www.exele.com/modems/

Note: TAPI is available in TopView but no longer supported.

VOIP callout

VOIP Voice notification requires network connection to a VOIP SIP Server and a SIP account to perform the callout. The SIP Server may be part of a company's internal phone system, a hosted VOIP service, or an IP/PBX device.

Text-to-Speech of alarm message

The generated alarm message (e.g., Tag 'TT400' > 50), the custom alarm message ("Temperature is high"), or a combination of the two messages can be converted to speech and played to the recipient(s). See **Alarm message and Custom message** on page 138 for more information.

WAV File alarm message

Each alarm message, stored as a WAV file, is created and assigned to an alarm condition during configuration.

Microphone: If you would like to create custom messages, you can use the free Windows Sound Recorder (typically in Start...Programs...Accessories) to record your voice to WAV files. Copy these WAV files to the \TopView\voice\ directory.

Text to Speech: The TopView Configurator can create WAV files from typed text using the Microsoft Speech API 5.0 (SAPI) which is installed with TopView. There is a set of free voices which are installed with TopView. Higher quality voices can be purchased which are compatible with SAPI 5.0. Please see the release notes and Exele forum for the latest information on voices.

EventHook Notification

EventHooks are user-written plug-in modules that can receive events from TopView. One of the available events is a notification event. EventHook Notification is custom notification handled by the user within an EventHook plug-in module when it receives an EventHook notification. See **Notification: EventHook Notification** on page 338 for more information.

Write-to-Server notification

“Write-to-Server” notification (TopView PI and OPC) allows TopView to write notification messages to one or more string/character tags on the Server. In order for this to succeed, the TopView computer must have permission to write to the tags. TopView runs under the logged in user (if running interactively) or under a Windows account (if running as a Service). The user account for TopView may affect the ability to write to the string/character output tags.

For more information, see **Outputs** on page 187 and **Output Points** on page 207

Data Sources

TopView supports multiple data sources and a simulator

- **TopView OPC/SCADA** supports one or more OPC DA/HDA Servers as the data source
- **TopView Events**
 - **OPC A&E** supports subscriptions to one or more OPC Alarms and Events Servers
 - **SQL Events** supports monitoring one or more SQL-based event databases through ODBC
 - **MQTT** supports subscriptions to one or more MQTT brokers
- **TopView PI** supports one or more OSIsoft PI Servers as the data source (monitor PI tags)
- **TopView PIAF** supports one or more OSIsoft PI Server and AF databases as the data source (monitor PI tags and AF element attributes)
- **TopView SQL** supports ODBC and OLEDB databases and data sources
- **TopView CanaryLabs** supports the Canary Labs Enterprise Historian
- **TopView PerfMon** supports one or more computers for performance counter data and ping response time
- TopView also contain a Simulation Server so a user can test TopView without live data

Using Multiple Data Sources

The user can configure and run instances of the TopView Engine for multiple data sources using the same installation of TopView if a valid license for each data source has been purchased. Each instance of the TopView Engine connects to a single data source.

The data source is selected for a configuration using a drop-down box in the TopView Configurator.

Simulation Server

Overview

TopView contains a Simulation Server that provides simulated tags and values. This server can be used to test or demonstrate TopView even if there is no access to a "live" data source or data server.

There are random simulation tags as well as simulation tags related to the current date and time. Simulation tags can be used in any TopView configuration along with tags from the underlying data source (OPC, PI, SQL, CanaryLabs, PerfMon). Simulation tags do not count against your TopView point license.

Note: The Simulation Server is not a separate process and cannot be connected to from networked machines. The functionality of the Simulation Server is built into the TopView Configurator and TopView Engine and only exists within their use.

Simulation tags
Simulation tags contain both random values and legitimate data (date, time, counters). If added to the monitored tag list, the user can configure alarms/notification for these points. Simulation tags may be useful for testing or if you need to recognize conditions such as day change or month change.

Simulation tags can be used as part of any TopView configuration and with any other tags.
Simulation tags do not count against your TopView tag license.

Select one or more tags and click [Return selected tags]

Tag name	Description	Current Value
Day	Current day of the month, 1 to 31	25.000
DayOfWeek	Current day of the week (0=Sunday)	5.000
f_rnd_100	Float (psi) random tag 0 to 100	32.859
f_rnd_200	Float (volts) random tag 0 to 200	112.303
f_sin_100_1m	Float (%) 1 minute sin wave 0 to 100	99.558
f_sin_100_5m	Float (%) 5 minute sin wave 0 to 100	99.983
Hour	Current hour, 0 to 23	13.000
i_counter_min_1d	Integer (counter) minutes past midnight (0-1439)	791.000
i_counter_min_1h	Integer (counter) minutes past current hour (0-59)	11.000
i_counter_sec_1m	Integer (counter) seconds into current minute (0-59)	16.000
i_counter_sec_5m	Integer (counter) seconds into current 5 minute (0-299)	76.000
Minute	Current minute, 0 to 59	11.000
Month	Current month, 1 to 12	1.000
s_even_min	String (bool) True if current minute is even	False
s_pump_1m	String (state) 1 minute pump state OFF/ON	On
Second	Current second, 0 to 59	16.000

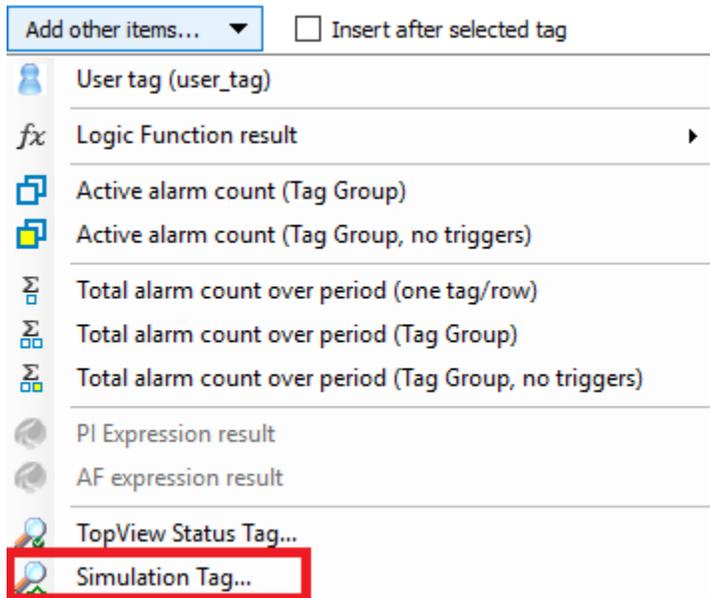
Buttons: Refresh tag list, Return selected tags, Cancel

Using the Simulation Server

The Simulation Server is named "**localSim**".

If a server with this name is entered, the Simulation Server will be used.

To perform a Tag Search against the simulation server, click the [Add other items...] drop-down next to the Tag Search button and select **Simulation tag**.



The Simulation tags

The following tags exist on the Simulation Server

Simulation Tag	Eng Units	Description
DayOfWeek		Current day of the week (0=Sunday)
Day		Current day of the month (1-31)
Hour		Current hour (0-23)
Minute		Current minute (0-59)
Month		Current month (1-12)
Second		Current second (0-59)
Year		Current four-digit year
f_rnd_100	psi	Float random tag 0 to 100
f_rnd_200	volts	Float random tag 0 to 200
f_sin_100_1m	%	Float 1 minute sine wave 0 to 100
f_sin_100_5m	%	Float 5-minute sine wave 0 to 100
i_counter_min_1h	counter	Integer minutes into current hour (0-59)
i_counter_sec_1m	counter	Integer seconds into current minute (0-59)
i_counter_sec_5m	counter	Integer seconds into current 5 minute (0-299)
s_even_min	bool	String True/False if current minute is even
s_pump_1m	state	String 1 minute pump state OFF/ON

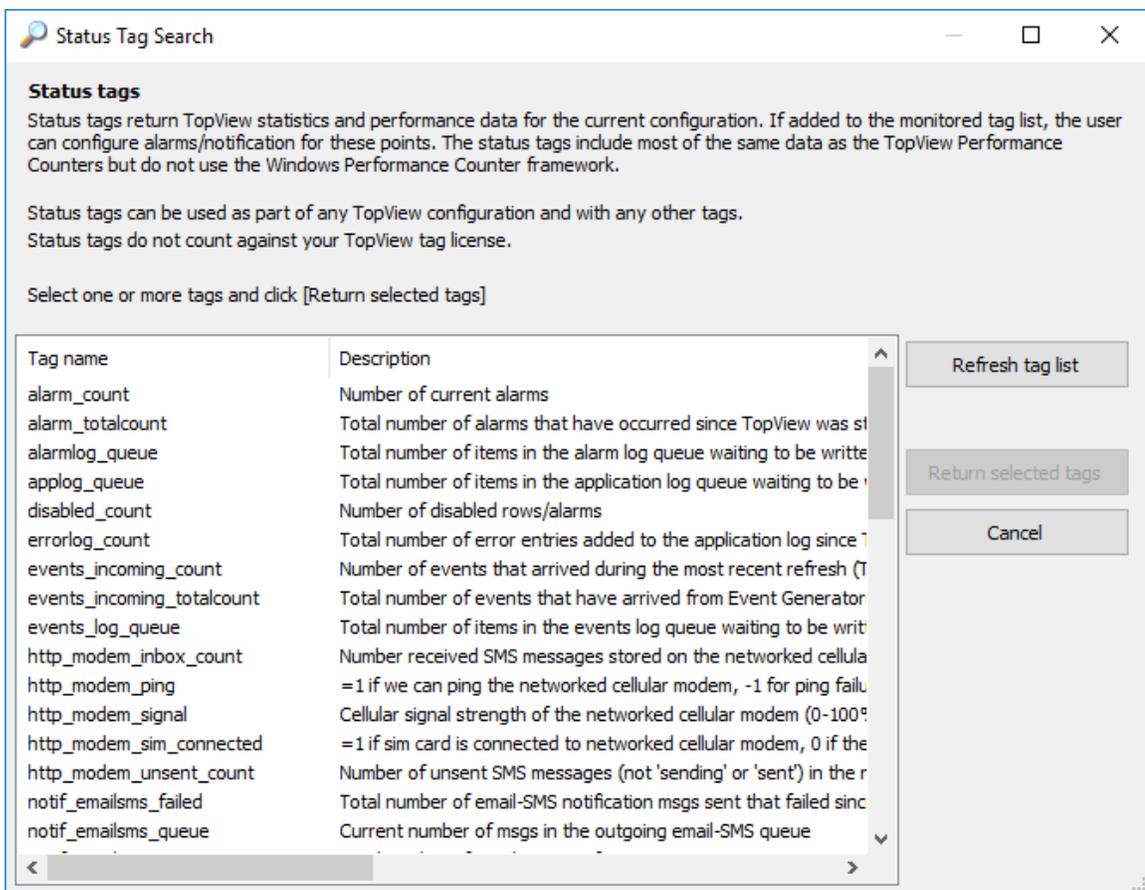
TopView Status Tags

Overview

TopView contains a set of status tags that return information about the running instance of the TopView Engine for the current configuration file.

TopView status tags can be added to any TopView configuration. The user can monitor the current values, set alarm condition, and send notifications using the same steps that are used for other alarm tags in TopView.

TopView status tags contain the same information available through the optional TopView performance counters, but they do not require the use of TopView performance counters. For a description of the available status tags, see **Available TopView Performance Counters** on page 434.



Tag Search for status tags

The Status tag Server is named "**localStatus**".

If a server with this name is entered, TopView will attempt to access status tag information.

To perform a Tag Search against the list of status tags, click the [Add other items...] button - down menu next to the Tag Search button and select **TopView Status Tag**.

OPC Server Configuration (TopView OPC)

Overview

OPC allows access to current tag values through OPC-DA or OPC-HDA.

OPC-DA (Data Access) is designed for read/write of current values and is typically more efficient than read/write of current values through OPC-HDA (Historical Data Access).

OPC Server Alias

To simplify access to an each OPC Server, TopView requires the user to create an OPC Server Alias to define each OPC Server node, DA ProgID (the name of the OPC-DA Server), and HDA ProgID (the name of the OPC-HDA Server).

Once the OPC Server Alias has been defined, TopView will only require the use of the Server Alias whenever a specific OPC Server is required.

For example, the OPC Server may be defined as follows:

OPC Server Node: machine04

OPC DA ProgID: OPC.vendorDA.1

OPC HDA ProgID: OPC.vendorHDA.1

In TopView, the user can define a Server Alias named "MyOPCServer" that points to this OPC Server. Whenever TopView needs the name of the OPC Server, the user can use the name "MyOPCServer".

How should I configure my OPC Server Alias?

If you only have an OPC-DA Server, configure the OPC Server Node and OPC DA ProgID (name of the OPC-DA Server). TopView will access the OPC-DA Server for read/write of current tag values.

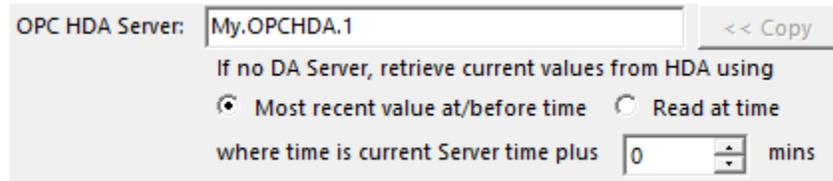
If you only have an OPC-HDA Server, configure the OPC Server Node and OPC HDA ProgID (name of the OPC-HDA Server). TopView will access the OPC-HDA Server for read/write of current tag values.

If you have both OPC-DA and OPC-HDA, you can specify both DA and HDA for your Alias as long as the tag names (ItemIDs) are the same in both Servers. Configure the OPC Server Node, OPC DA ProgID (name of the DA Server), and OPC HDA ProgID (name of the HDA Server). TopView will access OPC-DA for read/write of current tag values.

Reading current values through OPC-HDA

If you only have OPC-HDA configured for your OPC Server Alias, TopView will read current tag values through this Server.

When reading tag values through OPC-HDA, TopView must tell the OPC-HDA Server the tag, the time, and the method of retrieval.



The screenshot shows a configuration dialog for an OPC HDA Server. The 'OPC HDA Server' field contains 'My.OPCHDA.1' and has a '<< Copy' button. Below this, the text reads 'If no DA Server, retrieve current values from HDA using'. There are two radio buttons: 'Most recent value at/before time' (which is selected) and 'Read at time'. Below the radio buttons, it says 'where time is current Server time plus' followed by a spin box containing '0' and the unit 'mins'.

Configuration of the OPC-HDA Server for your Alias allows you to define the retrieval time and retrieval method.

- Retrieval Time: the "read at time" is configured as the current Server time +/- an offset. You can specify the offset as a number of minutes.
- Retrieval Method:
 - Most recent value at/before time: if a value exists at Retrieval Time, return this value. Otherwise return the most recent value before Retrieval Time.
 - Read at time: return the value at Retrieval Time. If a value exists at Time, return this value. Otherwise, the OPC-HDA Server will calculate the value at Retrieval Time (e.g., interpolation)

You may need to experiment with different settings to ensure proper reading of current tag values.

OPC DA1.0 Servers

If there are problems browsing the OPC Server, it may not support some of the OPC DA 2.0 tag browsing specifications. Check the "Use alternate OPC Tag Search" checkbox on the Tags and Limits screen and try again.

Defining an OPC Server Alias

The TopView Configurator allows the user to define OPC Server Aliases.

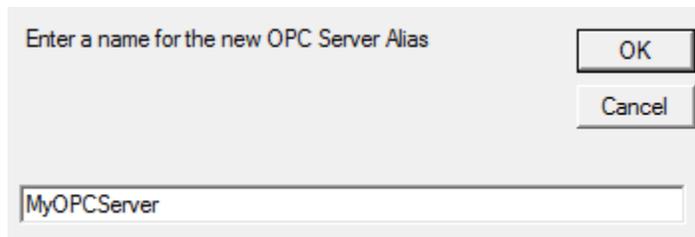
Run the TopView Configurator:

Start...Programs...Exele TopView...TopView Config

The first time the user runs the TopView Configurator, it will allow the user to define OPC Server Aliases. The user may also define Server Aliases on the **Tags and Limits** screen by clicking the [...] button to the right of the server name.

Note: The following procedure assume that the "Use alternate Tag Search" checkbox on the "Tags and Limits" screen is not checked. If it is checked, the following screens will look slightly different although the procedure for defining an OPC Server Alias is similar.

If you do not have any Aliases defined, you will be prompted for the Alias name and host computer. Otherwise, click [Create new Alias]



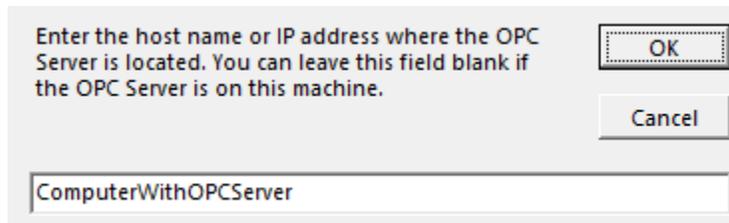
Enter a name for the new OPC Server Alias

OK

Cancel

MyOPCServer

If the OPC Server is on the local machine, the host computer field can be left blank.



Enter the host name or IP address where the OPC Server is located. You can leave this field blank if the OPC Server is on this machine.

OK

Cancel

ComputerWithOPCServer

Configure the details of your OPC Server Alias:

- DA and HAD Prog IDs:
 - Click the [Query] button to display a list of OPC Servers on the entered host. The results will display both OPC DA and HDA Servers.
 - Click [<<Copy] to Copy the OPC-DA and/or OPC-HDA Server to the DA and HDA ProgID fields. Do not fill the OPC-HDA ProgID field if you have an OPC-DA ProgID
- OPC Private Security: some OPC servers support the IOPCSecurity interface which allows additional login credentials when connecting to an OPC Server. The additional credentials are a username and password that can be specified as part of the OPC Server Alias in TopView.
Note: only enter the username/password if IOPCSecurity is supported by your OPC Server
- Click [Apply] to save the Alias, the [Close] to close the Alias definition dialog

OPC Server Alias Groups and Backup/Failover OPC Servers

The "server" listed for each monitored tag defines the OPC Server on which the tag exists.

If there is a single OPC Server for your tag data, the listed server for each tag will be the OPC Server Alias created for the OPC Server.

If there is a backup/redundant OPC Server that contains the same tag(s), TopView can use the backup OPC Server if the primary server is unavailable.

TopView provides two methods for configuring a backup OPC Server. The preferred method is to create an OPC Server Alias Group. The alternate method provides compatibility to users who implemented a backup OPC Server before OPC Server Alias Groups were available in TopView.

OPC Server Alias Group

An OPC Server Alias Group is a single name that specifies a primary and failover OPC Server. If tags in TopView specify the tag's server as an OPC Server Alias name, TopView will automatically handle accessing the primary or failover OPC Server.

Select the "Alias Groups for primary/failover" tab to configure OPC Server Alias Groups

- Group name: the user-entered name for the OPC Server Alias Group
- Primary Alias: select the primary OPC Server Alias
- Failover Alias: select the failover OPC Server Alias

When browsing for OPC tags or entering a server and tag name, the user can select/enter an OPC Server Alias Group to configure TopView to perform OPC Server failover for the tag.

Specify primary::failover OPC Server Alias

Note: this method is supported for backward compatibility. Consider using OPC Server Alias Groups instead.

From the Tags and Limits screen of the TopView Configurator:

- Create a Server Alias for the primary and backup OPC Server. Click the [...] button to the right of the Server name to add additional Server Aliases.
- Add tags to the configuration using the Server Alias of the primary OPC Server.
- Export the tag configuration to a CSV file using the [Export] button on the **Tags and Limits** screen.
- Edit the Server Alias in the exported CSV file using the following syntax:
serveralias1::serveralias2
where serveralias1 is the primary OPC Server Alias and serveralias2 is the backup OPC Server alias
- Save the CSV file and import the changes into the TopView Configurator using the [Import] button.

How does OPC Server failover work?

If connection to the primary OPC server is lost, TopView will attempt to use the backup OPC server. If successful, TopView will operate using the backup server. A "primary reconnection" thread will be launched to continuously attempt connection to the primary OPC Server. Once reconnected to the primary TopView will switch communication back to the primary OPC Server.

How does TopView retrieve OPC tag values?

Each TopView configuration file specifies a refresh interval. At this interval, TopView performs a group read against each OPC Server. If the group read fails, TopView will perform a single read for each OPC tag. If necessary, the user can change the default read behavior (see **Global Options: OPC** on page 485 for more information).

TopView polls each OPC Server for the current tag values and uses the current value for alarm limit comparison - only the current value is retrieved and used in TopView. If multiple values occur between TopView scans (the refresh interval), these values will not be seen by TopView. The user can decrease the refresh interval if necessary.

TopView Admin Tools contains a "Performance" screen which will display the number of milliseconds required to poll all OPC tag values during the most recent update.

Support for OPC array tags

An OPC array is a tag whose "value" is a list of values. For example, the current value of an OPC array tag may be four values: 0, 3, 7, 14.

In TopView the value of an OPC array tag is returned as a single value consisting of all array element values separated by "^". The array in the previous example is returned as a single value 0^3^7^14.

The ARRAY operation can then be used to return one of the array elements. See **Operation** on page 99.

The user can also change the default delimiter from ^ to a different character. See **Global Options: OPC** on page 485 for more information.

Tag Retrieval Delay for OPC DA Cache

When an instance of the TopView Engine starts, it performs the following actions:

1. connect to the OPC Server(s)
2. verify the tags (adds them to an OPC-DA Group)
3. retrieve the current value of each tag

With some OPC Servers, the OPC-DA cache may not be immediately updated with the current value of each tag in the DA Group, resulting in the retrieval of bad values during the first tag retrieval.

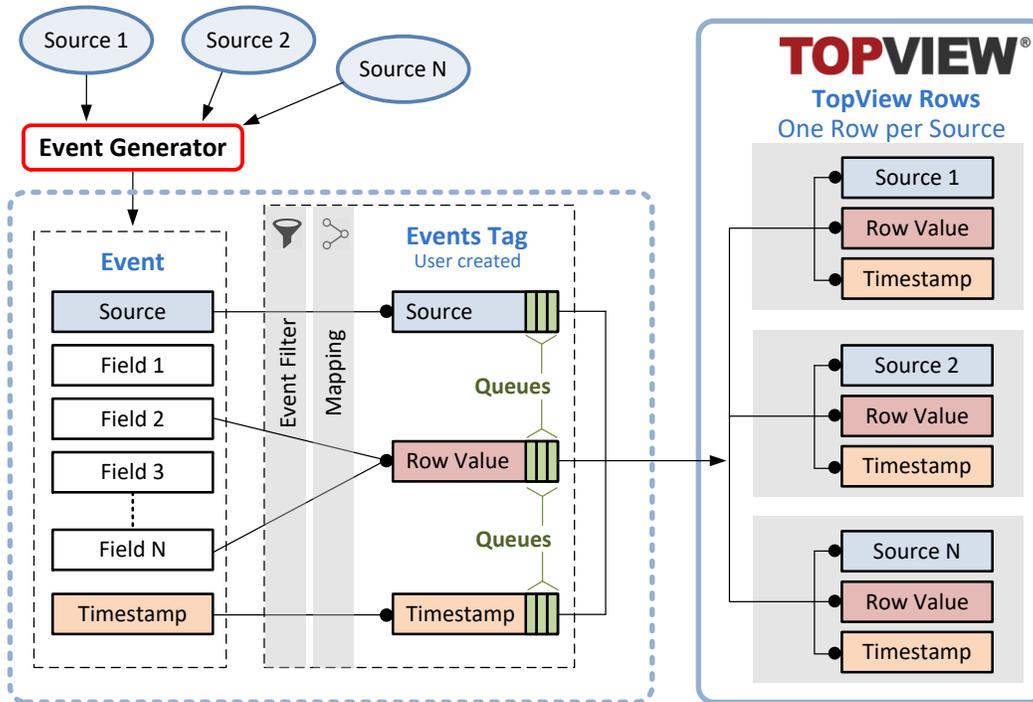
TopView supports a Tag Retrieval Delay that delays the TopView startup between steps 2 and 3 above. This delay allows the OPC Server to update the DA Server cache with the current tag value so that the initial tag retrieval (step 3) results in good values. The user can also change the default OPC read mode from CACHE to DEVICE. See **Global Options: OPC** on page 485 for more information.

OPC A&E Server Configuration (TopView Events for OPC A&E)

Overview

TopView Events for OPC A&E supports real-time monitoring of events from OPC A&E subscriptions.

Unlike TopView data sources that already contain points or tags, TopView OPC A&E requires that the user configure the events that will be monitored. This involves the configuration of OPC A&E subscriptions and Events Tags.



The details of this configuration along with configuration examples are contained in a separate document named TopViewEvents.pdf and help file TopViewEvents.chm. Both files are installed with TopView and are available in the TopView installation folder and the Help menu of the TopView Configurator.

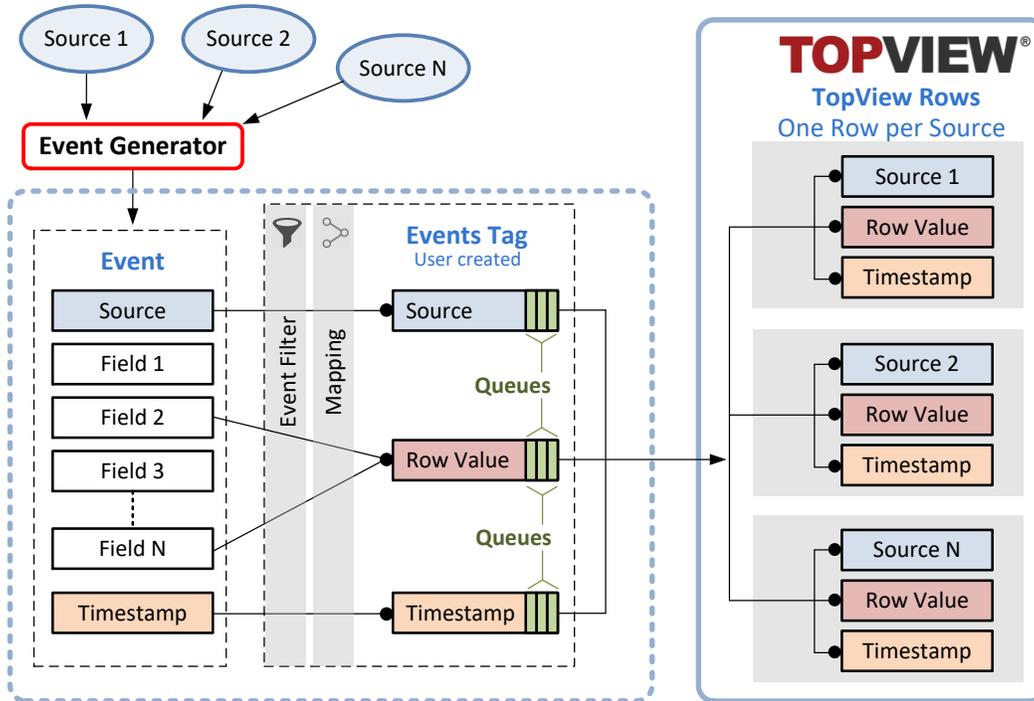
We also have a "Getting started" video available on our web site which gives an overview of TopView Events for OPC A&E configuration and a demonstration using a sample facility.

Database Configuration (TopView SQL Events)

Overview

TopView for SQL Events allows users to configure continuous monitoring, filtering, analytics, and notification of event records stored in one or more SQL-based relational databases.

Unlike TopView data sources that already contain points or tags, TopView for SQL Events requires that the user configure the events that will be monitored. This involves the configuration of SQL queries and Events Tags.



The details of this configuration along with configuration examples are contained in a separate document named TopViewEvents.pdf and help file TopViewEvents.chm. Both files are installed with TopView and are available in the TopView installation folder and the Help menu of the TopView Configurator.

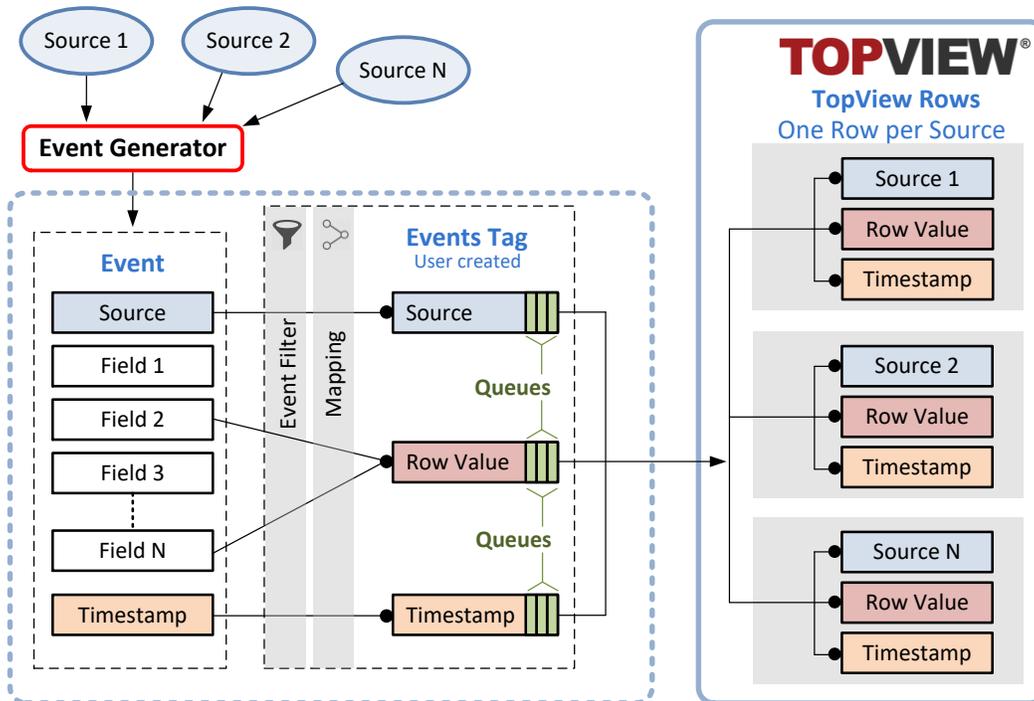
We also have a "Getting started" video available on our web site which gives an overview of TopView for SQL Events E configuration and a demonstration using a sample database.

MQTT Broker (TopView Events for MQTT)

Overview

TopView Events for MQTT supports real-time monitoring of MQTT messages from MQTT brokers.

Unlike TopView data sources that already contain points or tags, TopView MQTT requires that the user configure the events/messages that will be monitored. This involves the configuration of MQTT subscriptions and Events Tags.



The details of this configuration along with configuration examples are contained in a separate document named TopViewEvents.pdf and help file TopViewEvents.chm. Both files are installed with TopView and are available in the TopView installation folder and the Help menu of the TopView Configurator.

PI Server Configuration (TopView PI)

Overview

PI allows access to current and historical PI tag data. TopView PI uses the PI-SDK to retrieve the current value of the configured tags.

Defining the PI Server(s)

The user can call the PI-SDK Server Connection dialog from the TopView Configurator. This is the same Connection dialog that might be seen in other PI-SDK based applications.

Run the TopView Configurator:

- Start...Programs...Exele TopView...TopView Config
- Select the PI data source (dropdown in upper right corner)
- Select **Tags and Limits** from the left menu. Click the button to the right of the server name to open the Server Connection dialog.



How does TopView connect to PI?

The default connection behavior is as follows:

Instance of the TopView Engine (non-Service)

Perform a PI Login connection. The user may be prompted for a username and password.

Instance of the TopView Engine (Service)

Connect to the PI Server using the Server "open" command. Will not prompt for a username or password. May require proper PI-Trust configuration.

Changing the default behavior:

The user can change the default connection behavior. See **Global Options: PI** for more information.

How does TopView retrieve PI tag values?

Each TopView configuration file specifies a refresh interval. At this interval, TopView retrieves the current value of each PI tag.

The default behavior of TopView is to use PI-SDK event-pipes for the value updates. Using event-pipes, TopView is notified of any new tag values and does not need to retrieve the current value for every PI tag in use. This mechanism is very efficient and is recommended.

If necessary, the user can change the default behavior so that TopView will retrieve the current value of each PI tag during each refresh (event-pipes are not used). See **Global Options: PI** on page 483 for more information.

There are two options for EventPipe usage in TopView: PointList or Per Point. Per Point creates an EventPipe for each monitored PI tag. PointList create a single EventPipe for the entire list of PI tags. The default option is PointList. When monitoring a large number of tags TopView starts faster using PointList EventPipes.

TopView uses the current value for alarm limit comparison - only the current value is retrieved and used in TopView. If multiple values occur between TopView scans (the refresh interval), these values will not be seen by TopView. The user can decrease the refresh interval if necessary.

TopView Admin Tools contains a "Performance" screen which will display the number of milliseconds required to poll all tag values during the most recent update.

PI/AF Configuration (TopView PIAF)

Overview

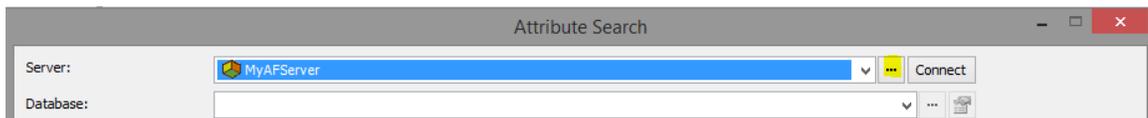
PIAF allows access to current PI tag data and AF element attributes. TopView PIAF uses the AF-SDK to retrieve the current value of the configured tags and attributes.

Defining AF Servers and Databases

If installed on the TopView machine, the PI System Explorer from OSIsoft can be used to configure AF Servers and databases.

To configure AF Servers and Databases within TopView:

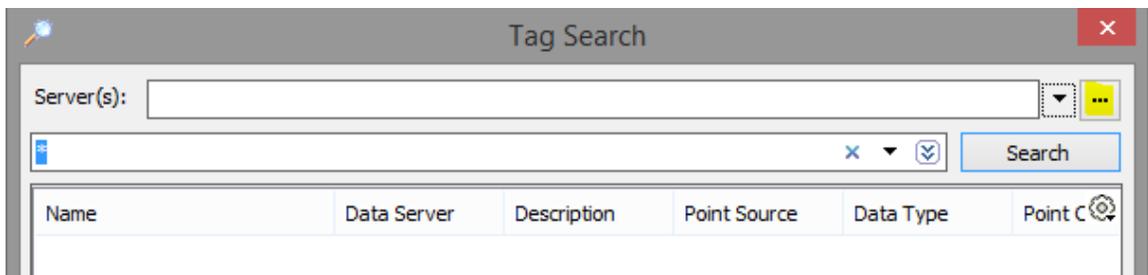
- Run the TopView Configurator and select PIAF as the data source (upper right corner)
- Select "Tags and Limits" from the left menu
- Click the [Tag Search] button to bring up the PI tag and AF attribute search dialog
- Click [Add AF attribute] to display the attribute search dialog
- Click [...] to the right of the Server dropdown



Defining PI Servers

To configure PI Servers and Databases within TopView:

- Run the TopView Configurator and select PIAF as the data source (upper right corner)
- Select "Tags and Limits" from the left menu
- Click the [Tag Search] button to bring up the PI tag and AF attribute search dialog
- Click [Add PI Tag] to display the tag search dialog
- Click [...] to the right of the Server dropdown



Configuring AF data retrieval

TopView PIAF allows the user to select the desired data retrieval method.

To configure the data retrieval method

3. Click [...] to the right of the Server text box on the Tags and Limits Screen
4. Configure the data retrieval in Global Options. See **Global Options: PIAF** on page 484.

Data Retrieval options

Details for the data retrieval options are located in the **Global Options: PIAF** on page 484

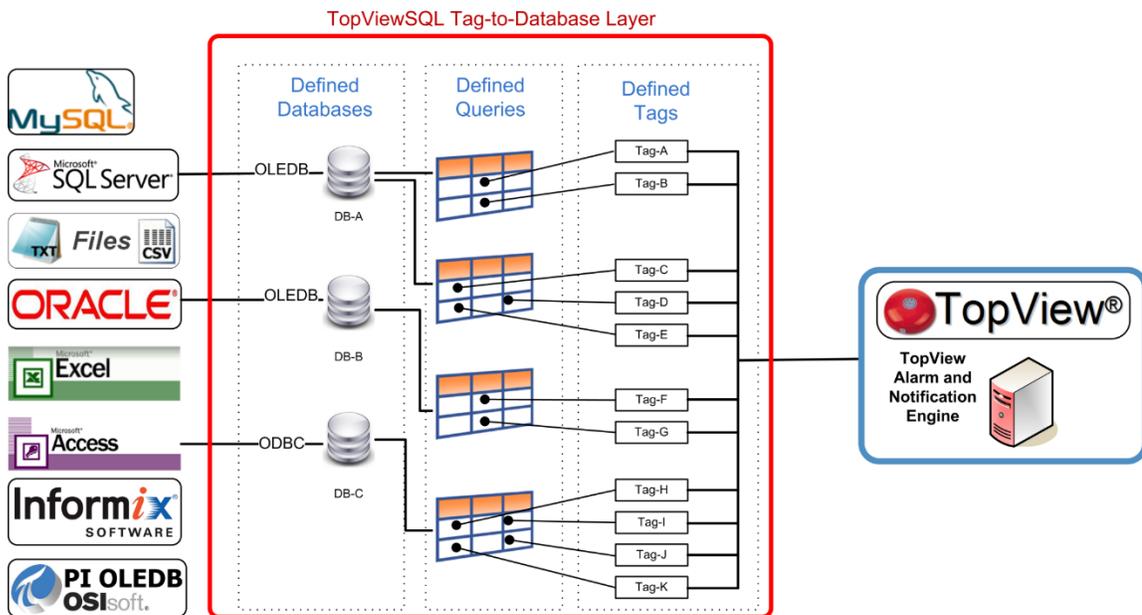
SQL Database Configuration (TopView SQL Lookup)

Overview

TopView SQL Lookup supports real-time monitoring of data from ODBC and OLEDB databases.

TopView SQL Lookup is designed for monitoring values that can be queried in a lookup table. For example, a SQL table of device names with their current measurement values and timestamps is an ideal candidate for TopView SQL Lookup.

Unlike the other TopView data sources that already contain points or tags, TopView SQL Lookup requires that the user configure the data points that will be monitored. This involves the configuration of the databases to access, the queries to retrieve data from the database, and the query results that will be monitored by TopView SQL.



The details of these configuration steps, along with configuration examples, are contained in a separate document named TopViewSQL.pdf and help file TopViewSQL.chm.

Both files are installed with TopView and are available in the TopView installation folder.

How does TopView retrieve SQL tag values?

Based on the list of monitored SQL tags, TopView creates a unique list of the queries used by each tag. Since multiple tags can use the same query, the number of queries may vary based on the monitored tag list.

Each TopView configuration file specifies a refresh interval. At this interval, TopView checks the connection to the database and executes each SQL query. Each query can define a minimum execution interval. If the TopView refresh rate is less than the minimum query interval, the previous query result will be returned.

Each tag is assigned its value from the query results. If the query fails or the tag value cannot be located in the query result, the status of the tag is set to bad.

TopView Admin Tools contains a "Performance" screen which will display the number of milliseconds required to poll all SQL tag values during the most recent update.

Canary Labs (TopView CanaryLabs)

Overview

TopView CanaryLabs monitors current tag data from one or more Canary Labs Enterprise Historians. See <http://www.canarylabs.com/> for more information on Canary Labs.

Defining the default Canary Labs Historian

Before you can search for tags, you must define the default Canary Labs historian. This is a reference to the computer/machine running the Canary Labs web service.

Run the TopView Configurator:

If this is the first time you are running the TopView Configurator, you will be prompted for the default Canary Labs machine name used for Tag Search.

To change this name: Start...Programs...Exele TopView...TopView Config
Select **Tags and Limits** from the left menu. Click the button to the right of the Server name to open the Server Connection dialog.



How does TopView connect to the Canary Labs Historian?

TopView connects to the Canary Labs Enterprise Historian through the Canary Labs web service.

How does TopView retrieve Canary Labs tag values?

Within the TopView Engine, the current values of each Canary Labs tag are being updated to an internal cache.

Each TopView configuration file specifies a refresh interval. At this interval, the TopView Engine retrieves the current value of each tag that exists in the internal cache.

TopView uses the current value for alarm limit comparison - only the current value is retrieved and used in TopView. If multiple values occur between TopView scans (the refresh interval), these values will not be seen by TopView. The user can decrease the refresh interval if necessary.

TopView Admin Tools contains a "Performance" screen which will display the number of milliseconds required to poll all tag values from the cache during the most recent update.

PerfMon (TopView PerfMon)

Overview

TopView PerfMon monitors system performance information from local and remote Microsoft Windows computers (Windows Performance Counters) as well as ping response time between TopView and any computer or IP address (PingTime counter). The monitored items are called counters.

Windows Performance counters return information such as:

- CPU usage information
- Free disk space and disk I/O rates
- Available memory and memory statistics
- Process resource usage (CPU and memory usage per process)
- Database and other application details (applications can create their own performance counters)
- Network adapter I/O rates

The PingTime counter returns

- The ping response time (msec) between TopView and the remote computer. PingTime is not a standard Windows Performance Counter.

Microsoft includes a PerfMon application for viewing available performance counters. TopView PerfMon accesses the same performance information as PerfMon, plus an additional PingTime counter for any networked computer or IP address.

“Tag” = Counter

TopView uses the term “tag” to refer to a piece of data that is read and monitored. For TopView PerfMon, a “tag” is a Windows Performance Counter (value) or PingTime counter. For example, the CPU usage (%) on a computer is a number from 0 to 100.

How does TopView retrieve PerfMon tag values?

For each computer accessed by TopView PerfMon, TopView will launch a separate background thread that is responsible for reading and updating the performance counters and monitoring ping response time.

When the TopView Engine updates (at the configured refresh rate), the most recently retrieved counter value from each server thread is returned and displayed. The timestamp for each counter value is the time at which the thread retrieved the value. Counters from different computers may show slightly different timestamps in TopView based on the retrieval times of the server threads.

“Read tag values” duration

The Performance screen in TopView Admin Tools displays the time it takes to “read tag values”. The displayed time is the total time to read all performance counters used by an instance of TopView.

TopView PerfMon runs a separate thread for each computer and counter type (performance vs. ping). Each thread is responsible for retrieving the counters at the specified TopView refresh rate. The time displayed is the total time to read counters across all threads. Since these threads run separately from the main TopView Engine functions, TopView performance is not heavily impacted by these retrieval times.

Connecting to remote and local computers

PingTime counter

The PingTime counter does not need to connect to a remote computer. The PingTime test is performed over the network using the entered host name or IP address.

Computer heartbeat counter for Windows Performance Counters

For Windows Performance Counters, TopView PerfMon continuously checks and verifies each performance counter computer to make sure that its performance counters are available. Part of this verification process involves reading a heartbeat counter from each computer.

The default heartbeat counter is (category, counter, instance):

`Processor, Processor time, Total`

If this counter cannot be read, TopView assumes that the computer is not available.

To change the default heartbeat counter used by TopView:
See **Global Options: PerfMon** for more information.

Required Permissions

TopView requires permission to read Windows Performance Counters.

If TopView PerfMon runs interactively (not as a Service), TopView runs as the current logged on user. If TopView PerfMon runs as a Service, make sure the service is using a LogOn account with proper permission.

On the computer being accessed for Windows Performance Counters:

- Make sure that there is not a firewall running. Ports 135 and 445 TCP are used for performance counter monitoring.
- Verify that the Remote Registry and Remote Procedure Call (RPC) Service is running
- Make sure that the Windows User for TopView is a member of 'Administrators' and 'Performance Monitor Users' groups
- Registry key: You should also verify that TopView has read permission for the following registry key
HKLM\SYSTEM\CurrentControlSet\Control\SecurePipeServers\winreg
Right-click winreg, select permissions, and add the users or groups for the TopView applications.
- Workaround if you still cannot access the remote performance counters:
Edit HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Perflib
 - Right click on Perflib key and select permissions
 - Click Add and add Local Service with full control
 - Save and exit
 - Restart the Remote Registry Service or reboot

If the user configures TopView PerfMon to run as a Service, TopView Admin Tools should be used to verify TopView's connection to the remote computer Performance Counters.

PingTime Tags and Alarm Configuration

Each PingTime counter is specified as in TopView as

- Server: the computer name, host name, or IP address to ping
- Tag name: PingTime

Value and Status

When the TopView Engine is running, the value of each PingTime tag will be

- the ping response time in milliseconds if the ping succeeds
- -1 if the ping fails (host or IP address in unavailable)

The status of the PingTime tag will always be good. Therefore, the user cannot use the bad status alarm condition to recognize inaccessible computers.

Alarm conditions for PingTime tags

To configure alarm conditions for PingTime tags, the user can configure

- PingTime alarm condition “= -1” to alarm on a missing computer or IP address.
- PingTime alarm condition “> X” to alarm on ping response times greater than X msec

Performance Counters and Alarm Configuration

The following section describes the details of missing or unavailable Windows Performance Counter information. This does not include the PingTime counter. For PingTime, see **PingTime Tags and Alarm Configuration**.

There are a few reasons why TopView may fail to read a performance counter:

- Computer is not available on the network
- Failure to read performance counters (e.g., permission issue)
- Counter, category, or instance is not valid

Counter value and status

If TopView is unable to read a performance counter tag, the status of tag will be bad unless latching the last good value. See **Latch last good value** on page 93 for details

If the status is bad, the default value of the tag is a string that describes the reason for the failure. Alternately the user can display a value “0” instead of the string description of the error. See “Global Options: PerfMon”.

“Bad server connection” for performance counters

Unlike most TopView data sources, PerfMon will not generate a “bad server connection” if the computer is not accessible. A bad server state will be reflected in the value and status of the counter from this computer. Therefore any “bad server connection” setting in TopView will not be valid. Example: “suspend on bad server connection” will not suspend TopView PerfMon.

If a computer monitored by TopView PerfMon becomes unavailable, the recognition of this lost connection may take longer than the refresh interval in TopView. This is due to a timeout that occurs when retrieving counters from a computer that is no longer on the network. During this timeout, the counters from this computer will not change and the timestamp for each counter will reflect the time of the last successful read of the counter. This may give the impression that the values have flat-lined until the connection timeout occurs.

Once a missing computer is available, the counters will resume displaying the counter values and the status of these counters will be set to good.

Missing Performance Counters

Unlike most data source tags, a Windows Performance Counter may not exist when TopView starts or may disappear after TopView starts. For example, a performance counter that returns information about a process will not exist if the process is not running.

TopView PerfMon allows missing tags/counters for the monitored tags in TopView, but not for tags used as limit conditions for monitored tags. TopView PerfMon will set the status of missing counters/tags to bad status. The user can use this status to configure a bad status alarm for a counter.

If a counter is missing at startup, TopView will check for it to reappear.

Missing Categories

Although a performance counter can be missing, the category that the counter belongs to should not be missing. For example, the Process category will exist on each computer. In most cases, the categories are static and do not disappear.

Alarm conditions for counters

Performance Counters are integer numbers ≥ 0 .

For valid counter values, the status is good and the user can set the alarm condition based on the numeric value.

If TopView cannot read a counter, the status will be bad. The alarm condition “status not good” can recognize this condition.

Key Windows Performance Counters

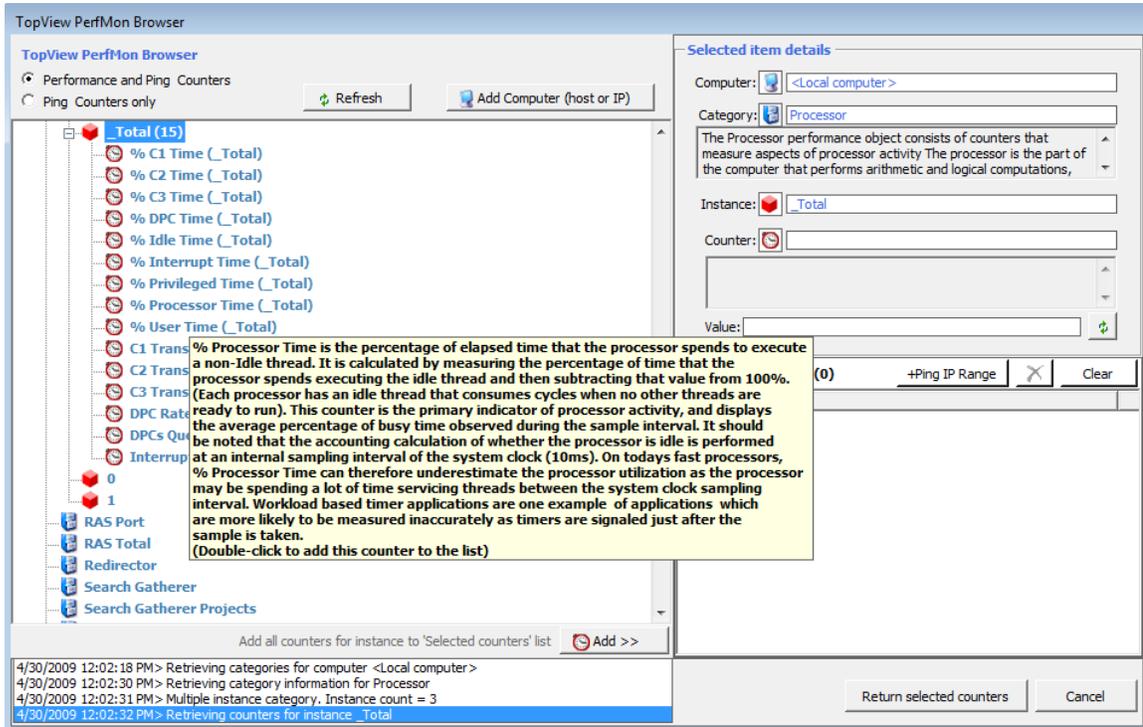
The following is a list of key Windows Performance Counters that can be monitored with TopView PerfMon. Use the Tag Search button in the TopView Configurator to view all available Windows Performance Counters.

Category and Counter information	Counter Description
<p>Logical Disk Instance = a logical disk or Total (all disks) The Logical Disk performance object consists of counters that monitor logical partitions of a hard or fixed disk drive</p>	
% Free Space (instance)	The percentage of total usable space on the selected logical disk drive that was free.
<p>Memory Category The Memory performance object consists of counters that describe the behavior of physical and virtual memory on the compute</p>	
Available MBytes	Amount of physical memory available (in Megabytes)
Pages/sec	The rate at which pages are read from or written to disk to resolve hard page faults. This counter is a primary indicator of the kinds of faults that cause system-wide delays
<p>Network Interface Instance = Network adapter The Network Interface performance object consists of counters that measure the rates at which bytes and packets are sent and received over a TCP/IP network connection</p>	
Bytes total/sec (instance)	The rate at which bytes are sent and received over each network adapter, including framing characters. Network Interface\Bytes Total/sec is a sum of Network Interface\Bytes Received/sec and Network Interface\Bytes Sent/sec.
Bytes send/sec (instance)	The rate at which bytes are sent over each network adapter

Bytes received/sec (instance)	The rate at which bytes are received over each network adapter
Process Category Instance = a process or Total (all processes) The Process performance object consists of counters that monitor running application program and system processes	
Elapsed Time (instance)	How long that particular process has been running on the machine
% Processor Time (instance)	The percentage of elapsed time that all of the process's threads used the processor to execution instructions
% Processor Time (_Total)	Measures the utilization of the processor by all running processes
Working Set (instance)	Working Set is the current size, in bytes, of the Working Set (memory) of this process
System Category The System performance object consists of counters that apply to more than one instance of a component processors on the computer	
Processes	The number of processes in the computer at the time of data collection
System Up Time	How many seconds it's been since the computer last rebooted

Browsing for Counters in TopView

The TopView Configurator contains a [Tag Search] button. In TopView PerfMon, the tag search tool allows the user to browse local and remote computers for the available Windows Performance and Ping counters.

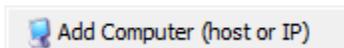


Browse options

- Performance and Ping Counters
- Ping Counters only

When the user selects a computer, host, or IP Address in the tree, the PerfMon Browser will display the Ping counter (fast) or the Ping and Windows Performance Counters (slower).

If the user is browsing non-Windows computers or are only interested in Ping counters, select "Ping counters only" for better browsing performance.



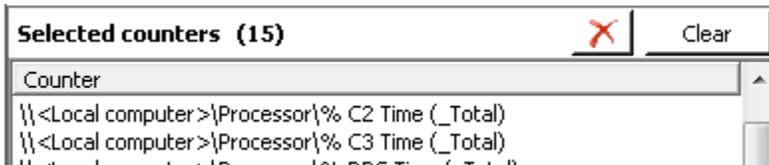
If a computer or network device cannot be found by browsing the network, you can add it by host name or IP address.

Returning counters to the TopView Configurator

The "Selected counters" list contains the counters that will be returned to the TopView Configurator when the user clicks [Return selected counters].

To add a counter to the "Selected counters" list

- Double-click the counter in the tree
- Click the [Add] button  Add >>



The list of selected counters will be returned to TopView when you click

 Return selected counters

TopView Configurator

The TopView Configurator allows the user to create TopView configuration files (*.cfg). Each configuration file defines the tags, operations (calculations), alarm conditions and alarm notification settings for one instance of the TopView Engine.

In addition, the Configurator can be used for other tasks such as:

- Launching an instance of the TopView Engine and creating shortcuts
- Installing and controlling TopView Services
- Configuring Remote dial-in and Remote Viewer connections
- Creating Alarm and Configuration reports

The screenshot displays the TOPVIEW Configurator application window. The interface includes a menu bar (File, Tools, Help), a toolbar with buttons for Save, Launch, and a status bar showing the current configuration file (unit.cfg). A left-hand navigation pane lists various configuration settings such as Tags and Limits, Tag Groups, Output Points, General, Options and Settings, View and Columns, Logging, Notification, Remote Access, Reports, Outputs, & Feeds, and Launching TopView Engine. The main workspace is titled 'Tags and Limits' and features a section for 'Add tags to the monitored tag list' with fields for Server (MyKServer), Tag name (TopView.Dev1.OutletTemp), and checkboxes for Alternate OPC Tag Search and Insert tags after selected tag. Below this is a 'Current tag list (monitored points)' table with columns for Row, Limits, Tag, Server, Occur, Description, and Primary Group. The table contains 19 rows of data. At the bottom of the table, it shows 'Displayed: 19/19' and 'Disabled count: 0'. To the right of the table is a 'Selected tag settings' panel for the tag 'TopView.Dev1.OutletTemp', showing details like Tag Group (Unit1|Temperature), RowUID (outtemp), Description (Outlet temperature), Format (0.00), Units (Deg F), and various alarm options like 'Disable alarms', 'Latch last good value', 'Display value', 'Hide this tag (row)', and 'Deliver value events to EventHooks'.

Row	Limits	Tag	Server	Occur	Description	Primary Group
1	X	TopView.Dev1.OutletTemp	MyKServer	1	Outlet temperature	Unit1 Tempe
2	X	TopView.Dev1.OutletTemp	MyKServer	2	Avg outlet temp	Unit1 Tempe
3	X	TopView.Dev1.Level_Ind_1	MyKServer	1	Level 1 indicator	Unit1 LevelI
4	X	TopView.Dev1.Level_Ind_2	MyKServer	1	Level 2 indicator	Unit1 LevelI
5		TopView.Dev1.Discharge_Pump_1	MyKServer	1	Discharge Pump 1	Unit1 Pump
6	X	TopView.Dev1.Discharge_Pump_2	MyKServer	1	Discharge Pump 2	Unit2 Pump
7		TopView.Dev1.Outlet_Press_4	MyKServer	1	Outlet 4 pressure	Pressure
8		TopView.Dev1.Outlet_Press_5	MyKServer	1	Outlet 5 pressure	Pressure
9		TopView.Dev1.Outlet_Temp_4	MyKServer	1	Outlet 4 temperature	Unit1 Tempe
10		TopView.Dev1.Outlet_Temp_5	MyKServer	1	Outlet 5 temperature	Unit1 Tempe
11	X	TopView.Dev1.Station_Status_4	MyKServer	1	Station 4 status	Station Statu
12	I	TopView.Dev1.Station_Status_5	MyKServer	1	Station 5 status	Station Statu
13	I	TopView.Dev1.Station_Status_6	MyKServer	1	Station 6 status	Station Statu
14	X	TopView.Dev1.NoX_Unit1	MyKServer	1	Unit 1 NOx	NOx
15		TopView.Dev1.NoX_Unit2	MyKServer	1	Unit 2 NOx	NOx
16	X	TopView.Dev1.Power_Unit_1	MyKServer	1	Unit 1 power	Power
17	X	TopView.Dev1.Power_Unit_2	MyKServer	1	Unit 2 power	Power
18	X	user_tag_OperationRunning	MyKServer	1	Operation running	OperationSta
19		user_tag_TotalNox	MyKServer	1		(none)

Configuration Files

The Configuration Files screen allows the user to

- View the current configuration file's full path
- Add, edit, and view descriptions of configuration files
- Turn on/off notification of changes to the current configuration file
- Start a new configuration
- Open an existing configuration file
- Upgrade one or more configuration files to the latest TopView version

Current Configuration File

Notify me if current configuration is changed...

If this option is checked (default), the user will receive a message if any changes occur to selects the current configuration outside of the user's Configurator instance.

File

The path and file name for the current configuration file.

Description

A user-entered description for the current configuration file

Save description

Saves the user-entered description for the current configuration file.

Start a new configuration

Clears all configuration items so the user can begin to create a new configuration file.

Open an existing Configuration file

The list of recent files shows the last three configuration files accessed by the TopView Configurator. Click on a recent file to open the configuration file.

The list of "Other configuration files" shows the TopView configuration files in the configuration file directory (default = DataPath\Config\) specified in the **Current storage location** field.

The user can change path for the listed configuration files:

- [Set to default] Set to the default path (DataPath\Config)
- [Edit...]
- [Browse...]

The user can select an existing configuration file from the list and open it using the [Open] button or by double-clicking the item in the list box.

If the user would like to open a TopView file which does not exist in the default directory, the [Browse] button can be used to browse to the location of the configuration file.

Upgrading one or more Configuration files

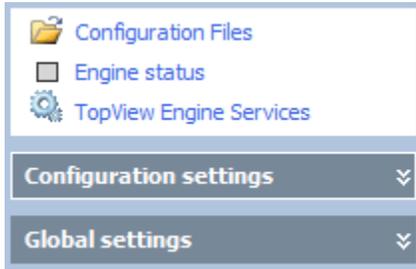
During a TopView upgrade, each existing configuration file must be opened and saved in the new version of the Configurator.

There are two methods for upgrading TopView Configuration files

- Individually: open each Configuration file in the Configurator and click [Save]
- Multiple:
 - Select multiple files from the list of Configuration files using [Ctrl] or [Shift]
 - Click the [Upgrade] button again

Left Menu

The left menu contains the main navigation items for the Configurator.



Configuration settings

The **Configuration settings** section contains items that are stored as part of a single configuration file that is open in the Configurator.

The name of many items in the **Configuration settings** section is preceded by a filled or empty blue circle. A filled circle indicates that this setting category has been enabled or changed from its default value.



In the above example, the configuration

- Has Email-SMS Notification enabled
- Does not have Audible Alarms enabled

Global Settings

Global settings are common to all configuration files. This includes items such as Notification Message Templates and Global Notification Groups.

Engine Status

The Engine Status screen displays the selects status for the current/open configuration as well as a summary of all running TopView Engines.

TopView Engine for this configuration

If the TopView Engine is running for the current configuration, the status of the Engine is summarized.

- Operating state: running, stopped, suspended
- Configuration: the root name of the configuration file
- Is Service: True if the Engine is running as a Windows Service
- Engine start time: the start time of the TopView Engine process
- Run time: how long the Engine has been running
- Restart on changes: True if the configuration will restart on changes. See **Apply configuration changes while running** on page 217
- Last full restart time: the last time a full restart occurred (all items reinitialized)
- Last tag/limit change: the last time a configuration change occurred that did not require a restart. See **Apply configuration changes while running** on page 217
- Configuration usage: lets the user know if the Engine is using the current configuration settings or not.
- Pending disable/enable persist: if True, there are recent runtime disable/enable actions that have not been written to the configuration file. "Pending actions" requires that the user has configured TopView to write runtime disable actions back to the configuration file.
- [Reload configuration] button: Instructs the Engine to reload the configuration. The Engine will perform an internal/soft restart.

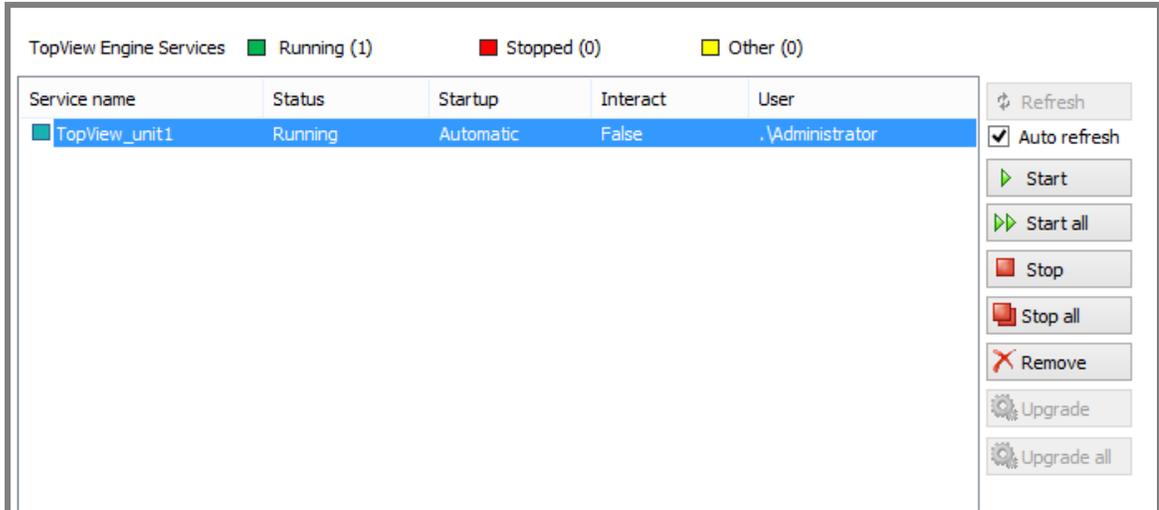
Running TopView Engine Summary

This section gives an overview of all running TopView Engines

- Total point count per data source: for each running TopView Engine data source, the total number of points/tags in use (monitored)
- Running TopView Engine count: the total number of running TopView Engines
- Summary: a summary of each running TopView Engine
 - Name: the name of the TopView Engine instance (the configuration file)
 - State: Startup, Running, or Suspended (if reconnecting to Server(s))
 - Points: the number of points in the TopView Engine instance (used to compute total points for license)
 - Rows: the number of rows/tags being monitored
 - Alarms: the current number of active alarms
 - Bad status: number of monitored points where the current value status is not good
 - Last refresh: the time of the last refresh
 - Source: OPC, Events, PI, SQL, CanaryLabs, or PerfMon
 - Service: True if the TopView Engine instance is running as a Windows Service

TopView Engine Services

Each TopView configuration can run interactively or as a TopView Engine Service (Windows Service). This section describes the management of installed TopView Engine Services. For information on installing TopView Engine Services, see **Configure Services** on page 444.



If **Auto refresh** is checked, the status and details for each TopView Service are updated every 2 seconds. If unchecked, use the **[Refresh]** button to manually refresh the TopView Service information.

Use the **[Remove]** button to remove the selected TopView Service.

Use the **[Upgrade]** button to upgrade an installed/selected TopView Service to the current TopView version. The [Upgrade] button is only enabled if the selected TopView Service version is different than the current version of TopView.

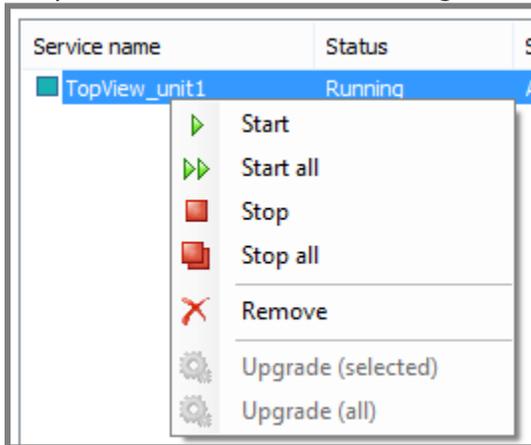
Use the **[Upgrade all]** button to upgrade all installed TopView Services to the current TopView version.

Note: performing an upgrade of a TopView Service will preserve the existing Service settings.

Starting and Stopping a TopView Service

- Press **[Start]** to start the selected TopView Service.
- Press **[Start all]** to start all TopView Services
- Press **[Stop]** to stop the selected TopView Service.
- Press **[Stop all]** to stop all TopView Services

Right-clicking the list of Services will display a context menu that allows the user to perform many of the functions available through the buttons.

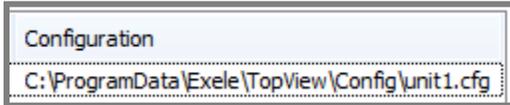


The user can use the Windows Services Administrator tool to start and stop TopView Services, as well as the "net start" and "net stop" commands.

Changing the configuration file location for a TopView Service

The user can install or re-install a TopView Service for the configuration file that is currently open in the TopView Configurator. When a TopView Service is installed or re-installed, TopView stores the path to the current configuration file so the Service can use this path to load the configuration when it starts.

Each listed TopView Service displays the location of the configuration file that is used by each TopView Service. By default, the configuration files are stored in DataPath\Config



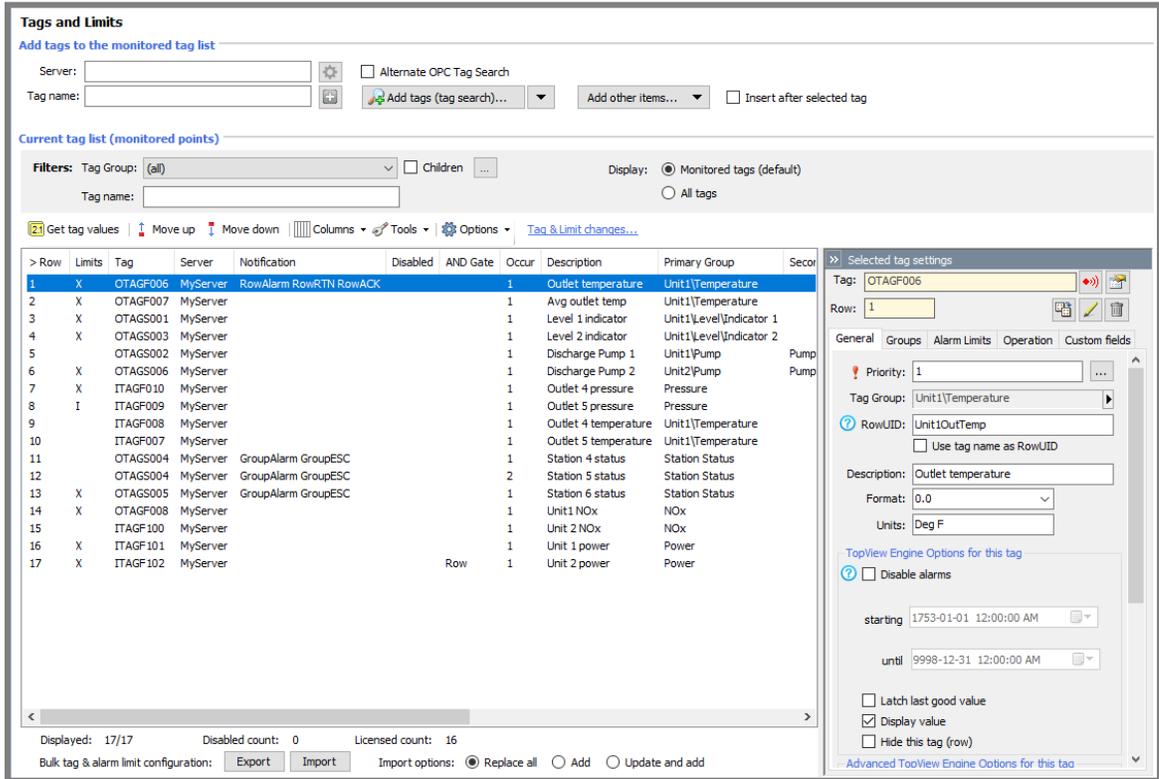
To change the location of the configuration file used by a TopView Service:

- Stop the TopView Service
- Open the configuration file from the new location/path.
- On the Configure Services screen, click the [Re-install] button
- Verify that the new path is listed in the TopView Engine Services list
- Restart the TopView Service

Tags and Limits

The **Tags and Limits** screen is used to configure the tags to be monitored along with all tag-related settings and alarm limit conditions. Each tag defined on the Tags and Limits screen becomes a row in the instance of the TopView Engine for this configuration.

The [Export] and [Import] buttons allow bulk configuration of tags.



Tags and Limits

Add tags to the monitored tag list

Server: Alternate OPC Tag Search

Tag name: Insert after selected tag

Current tag list (monitored points)

Filters: Tag Group: (all) Children ... Display: Monitored tags (default) All tags

Tag name:

Get tag values | Move up | Move down | Columns | Tools | Options | Tag & Limit changes...

> Row	Limits	Tag	Server	Notification	Disabled	AND Gate	Occur	Description	Primary Group	Secord
1	X	OTAGF006	MyServer	RowAlarm RowRTN RowACK			1	Outlet temperature	Unit1\Temperature	
2	X	OTAGF007	MyServer				1	Avg outlet temp	Unit1\Temperature	
3	X	OTAGS001	MyServer				1	Level 1 indicator	Unit1\LevelIndicator 1	
4	X	OTAGS003	MyServer				1	Level 2 indicator	Unit1\LevelIndicator 2	
5		OTAGS002	MyServer				1	Discharge Pump 1	Unit1\Pump	Pump
6	X	OTAGS006	MyServer				1	Discharge Pump 2	Unit2\Pump	Pump
7	X	ITAGF010	MyServer				1	Outlet 4 pressure	Pressure	
8	I	ITAGF009	MyServer				1	Outlet 5 pressure	Pressure	
9		ITAGF008	MyServer				1	Outlet 4 temperature	Unit1\Temperature	
10		ITAGF007	MyServer				1	Outlet 5 temperature	Unit1\Temperature	
11		OTAGS004	MyServer	GroupAlarm GroupESC			1	Station 4 status	Station Status	
12		OTAGS004	MyServer	GroupAlarm GroupESC			2	Station 5 status	Station Status	
13	X	OTAGS005	MyServer	GroupAlarm GroupESC			1	Station 6 status	Station Status	
14	X	OTAGF008	MyServer				1	Unit 1 NOx	NOx	
15		ITAGF100	MyServer				1	Unit 2 NOx	NOx	
16	X	ITAGF101	MyServer				1	Unit 1 power	Power	
17	X	ITAGF102	MyServer				1	Unit 2 power	Power	

Displayed: 17/17 Disabled count: 0 Licensed count: 16

Bulk tag & alarm limit configuration: Import options: Replace all Add Update and add

Selected tag settings

Tag: OTAGF006

Row: 1

General Groups Alarm Limits Operation Custom fields

Priority: 1

Tag Group: Unit1\Temperature

RowUID: Unit1OutTemp Use tag name as RowUID

Description: Outlet temperature

Format: 0.0

Units: Deg F

TopView Engine Options for this tag

Disable alarms

starting: 1753-01-01 12:00:00 AM

until: 9998-12-31 12:00:00 AM

Latch last good value

Display value

Hide this tag (row)

Advanced TopView Engine Options for this tag

Add tags

Add tags from the data source to the current tag list.

This can be done by manually entering tag names or using the [Tag Search] button.

By default, new tags are added to the end of the tag list. You can also insert new tags into the list by checking "Insert tags after selected tag"

Insert tags after selected tag

Server

The name of the server for the current tag. The button to the right of the server field allows the user to define the data servers.

Tagname

The name of a tag on the server.

Click the  button to add the entered tag and server to the list.

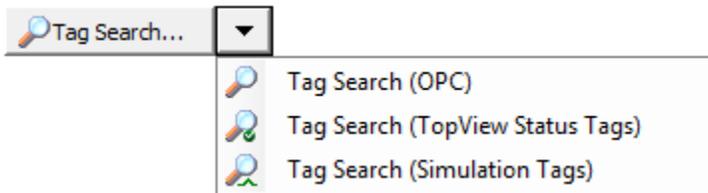
Use the [Tag Search] button to search for and select tags from the data source.

Tag Search

This button will display the Tag Search dialog box for the data source. The user can select one or more tags from the dialog box to return them to the Configurator's tag list.

Clicking the dropdown button will allow the user to perform one of the 3 supported searches:

5. Search the data source (OPC, Events, PI, SQL, Canary Labs, PerfMon)
6. Search for a TopView status tag (see **TopView Status Tags** on page 46)
7. Search for a simulation tag (see **Simulation Server** on page 43). The tag values are then retrieved from the query results.



TopView OPC: There are 2 separate Tag Search dialogs available for OPC Servers. If the OPC Server does not support DA2.0 or later, the user may need to check the "Use alternate OPC Tag Search" checkbox. Otherwise, the user should leave this box unchecked.

TopView SQL: Tag Search allows the user to browse the TopView SQL tags created during the TopView SQL Configuration step. See **SQL Database Configuration (TopView SQL Lookup)** on page 59 for more information.

TopView PerfMon: Tag Search allows the user to browse performance counters on local and remote computers.

Add other items...

Use this drop-down menu to add items to the monitored tag list other than tags from the data source. These additional items can be monitored along with data source tags and have values that can be used to configure alarms and notifications.

User tag, Active Alarm Counts, Total Alarm Counts, and PI Expression Result will create a user tag for a specific operation (see below).

TopView Status Tag and TopView Simulation Tag will show the list of TopView status tags and simulations tags, allowing the user to select one or more of these tags for the monitored tag list.

Items in the drop-down:

User tag: User tag with no operation. See **User Tags** on page 86

Active Alarm Count: User tag with operation ACTG or ACTGN.
See **Operation** on page 99 (operations ACTGA, ACTGN)

Total Alarm Count: User tag with operation ATROW, ATTGA, or ATTGN
See **Operation** on page 99 (operations ATROW, ATTGA, ATTGN)

PI Expression Result: User tag with operation PIEXP.
See **Operation** on page 99 (operation PIEXP)

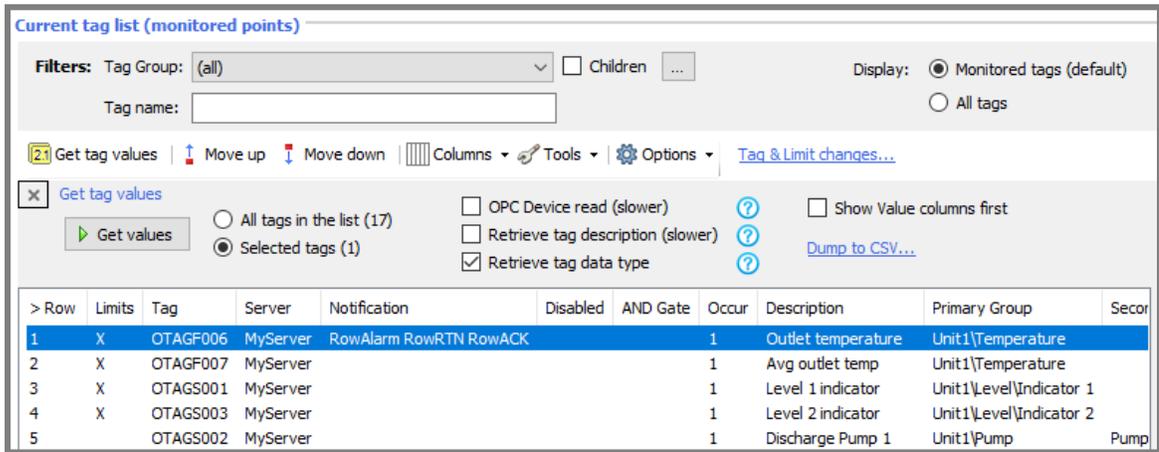
AF Expression Result: User tag with operation AFEXP.
See **Operation** on page 99 (operation AFEXP)

TopView Status Tag: see **TopView Status Tags** on page 46

TopView Simulation Tag: see **Simulation Server** on page 43

Current tag List

The tag list displays the list of tags that TopView will monitor.



The screenshot shows the 'Current tag list (monitored points)' window. At the top, there are filters for 'Tag Group' (set to '(all)') and 'Children' (unchecked). A 'Tag name' search box is present. The 'Display' section has 'Monitored tags (default)' selected. Below the filters are buttons for 'Get tag values', 'Move up', 'Move down', 'Columns', 'Tools', 'Options', and 'Tag & Limit changes...'. A secondary 'Get tag values' dialog is open, showing 'All tags in the list (17)' and 'Selected tags (1)' radio buttons, and checkboxes for 'OPC Device read (slower)', 'Retrieve tag description (slower)', 'Retrieve tag data type', and 'Show Value columns first'. A 'Dump to CSV...' link is also visible. The main table below has the following data:

> Row	Limits	Tag	Server	Notification	Disabled	AND Gate	Occur	Description	Primary Group	Secor
1	X	OTAGF006	MyServer	RowAlarm RowRTN RowACK			1	Outlet temperature	Unit1\Temperature	
2	X	OTAGF007	MyServer				1	Avg outlet temp	Unit1\Temperature	
3	X	OTAGS001	MyServer				1	Level 1 indicator	Unit1\Level\Indicator 1	
4	X	OTAGS003	MyServer				1	Level 2 indicator	Unit1\Level\Indicator 2	
5		OTAGS002	MyServer				1	Discharge Pump 1	Unit1\Pump	Pump

Filters

Tag Group filter

Select the Tag Group to view. The tags displayed in the tag list will be those with a primary or secondary Tag Group equal to the selected Tag Group. To show tags matching the selected Tag Group and child Tag Groups, check the Children checkbox.

Tag Groups can be created using the [...] button to the right of the dropdown. For more information, see **Tag Groups** on page 196.

Tag name filter

Enter text to filter the tag list to those rows that contain the entered text within their tag name. The filter is not case sensitive.

Display Monitored tags or All tags

By default, the list of tags is the list of monitored tags.

If the user selects "Display: All tags", the list of tags will include

- Monitored tags
- Event and health Output Points
- Output tags
- Tags with values retrieved with placeholders (Operations, Custom Values)
- Acknowledge input and output tags
- Priority tags
- Alarm limit condition tags

When displaying all tags, many of the features of the Configurator will be disabled including:

- Tag settings
- The left menu
- Adding/removing tags

One benefit of displaying all tags is that the user can retrieve the current value of all tags to verify tags used as part of the current configuration. See **Get Values** on page 87.

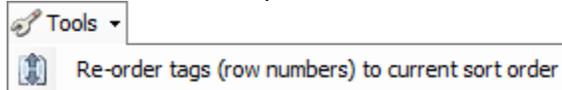
The Tag List

Although there is no set maximum number of tags allowed per configuration, we suggest limiting the list to about 10000 tags. The tag value retrieval time in the TopView Engine can be monitored using TopView Admin Tools. See Admin Tools **Performance** screen on page 564 for more information.

Tag Order

The order of the tags in the list (row number) will be the initial order of the tags in the instance of the TopView Engine. To move a tag within the list, select the tag and press the  or  button to the left of the tag list. If the Move buttons are not enabled, make sure that the Tag Group filter = (all) and that the tags are sorted ascending by row number.

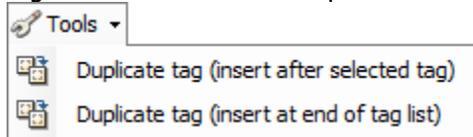
You can resort the tags by any column (click the column header to sort). Once you have sorted, you can re-order the tags by the current sort order using Tag List Tools...Re-order tags. Note: this menu item is only enabled if all tags are displayed (no Tag Group filter) and the sort order is not by row number.



The same tag can appear multiple times in one configuration. This may be required to include all desired alarm limits for a tag in one configuration. The number listed in the Occur column indicates the occurrence of the tag in this configuration.

Duplicate tag

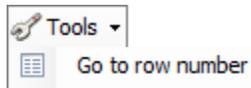
To duplicate a tag in the list (including all alarm limit and notification settings), right-click the tag or select the desired duplicate function from the Tag list Tools menu item.



Go to row

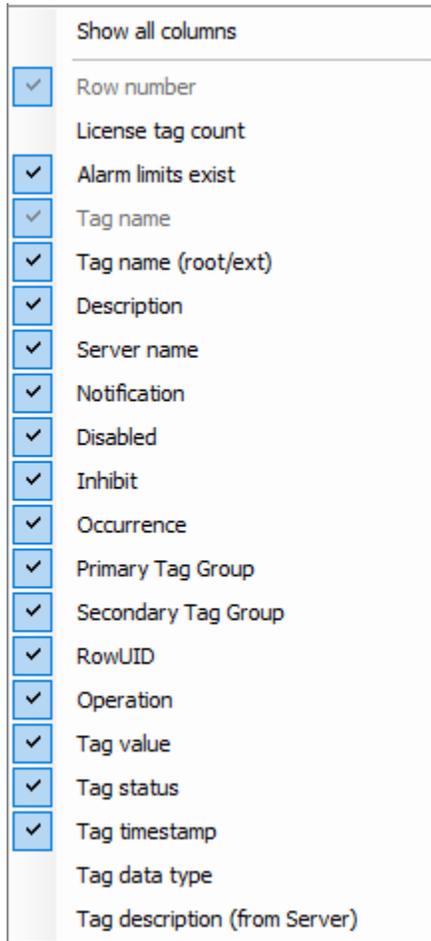
Each tag has an assigned row number displayed in the first column of the tag list.

The TopView application logs may reference the row number of a tag as part of the log message. The user can quickly jump to a tag in the list by entering the row number. From the Tag List Tools menu item, select Go to row number



Show/Hide columns in Tag List

The Tag List contains a set number of columns per tag/row. By default, most columns are visible. To hide one or more columns, select  Options ▾ ...Columns for Tag List...



Limits column (X or I)

The Limits column lets the user know if alarm limits have been configured for each tag. The value of the limits column can be

- blank no alarm limits configured
- X the tag has configured alarm limits
- I the tag has alarm limits that are inherited from another tag

Root tag and extensions

One of the optional columns in the monitored tag list is
Tag name (root/ext)

The root and extension columns are informational only and based on parsing of the monitored tag name.

The parsing of a tag name into the root and extension/property is used for specific features in TopView where tags related to the monitored tag can be specified by extension/property only.

For more information see the specific features that support tag specification by extension:

- Acknowledge Tag on page 176

[View/edit the list of tag extensions](#)

A link above the monitored tag list allows the user to view the list of built-in tag extensions and to add custom tag extensions.

[Tag name extensions...](#)

User Tags

User Tags (previously called NoTags or Placeholder tags) can be added to the tag list when a monitored point from the underlying data source is not required. Normally, this is based on specific alarm conditions or operations that do not require a source tag for the current row.

Examples:

1. The alarm condition "Another row is unacknowledged" will put the current row into alarm if another tag/row is unacknowledged. This alarm condition does not require a tag for the current row. Although the user can enter an existing tag for this row, a User Tag allows the user to explicitly state that the current row does not require a source tag.
2. The operation **ACTGA taggroupname** returns a count of the number of active alarms in the Tag Group *taggroupname*. A User Tag can be added to the list, and the operation for the User Tag can be set to ACTGA *taggroupname*. The value of this User Tag will be the alarm count and the user can set alarm conditions based on this count (e.g., > 0 to recognize any new alarms in this Tag Group).

Defining User Tags and entering a custom name

A User Tag item is defined by an item in the TopView tag list that starts with `user_tag`

If a User Tag is entered as "user_tag", the displayed tag name in TopView will be blank.

If there is additional text following "user_tag", the additional text defines a custom name that will be used as the displayed tag name. If the additional text starts with an underscore character (`_`), the underscore character will be removed from the custom tag name before it is displayed.

User Tag examples:

- `user_tag`
User Tag; displayed tag name in TopView is blank
- `user_tag_TempAlarmUnack5Min`
User Tag, displayed name in TopView is TempAlarmUnack5Min
- `user_tag TempAlarmUnack5Min`
User Tag, displayed name in TopView is TempAlarmUnack5Min

Adding a User Tag item to the tag list

Click the [Add other items...] dropdown button (next to the Tag Search button) and select "User tag". The user will be prompted for the optional custom name.

Note: some of the other items in the [Add] dropdown will create User Tags for specific operations (e.g., Tag Group alarm count). These items are meant to speed the creation of User tags for specific operations.

Displayed value for a User Tag:

Each User Tag will display a value of zero (0.0) for the current row unless an operation is configured.

Get Values

The user can retrieve the current value, status, timestamp, datatype, and description of one or more tags.

By default, the tag list displays the monitored tag list but the user can display all tags by changing the tag list filter. See "Display Monitored tags or All tags" on page 82.

Note: For tags with a defined operation, this function retrieves the current tag value and not the result of the operation.

Above the tag list, select [Get tag values] to display the Get tag values panel.

Gate	Occur	Description	Primary Group	Secondary Group	Row UID	Operation	Tag Value	Status	Timestamp
1		Outlet temperature	Unit1\Temperature		Unit1OutTemp	DIV 1000	6	Good	7/10/2018 3:24:41 PM
1		Avg outlet temp	Unit1\Temperature				7	Good	7/10/2018 3:24:41 PM

Retrieval options

- All tags or selected tags: retrieve the current value for all tags in the list or only the selected tags
- OPC Device Read: For TopView OPC/SCADA, TopView can read current values using the OPC Server CACHE or it can ask the OPC Server to go out and get the current value (DEVICE read). Most users should leave this unchecked.
Note: OPC device reads are usually slower than cache reads because they retrieve the value from the source. Cache reads are faster but the initial read may be bad. If you are not performing a device read and see bad values, get the values a second time.
- Retrieve tag description: if checked, the tag description is retrieved and displayed with the tag values. The retrieved description is the tag description as stored in the tag definition on the server, not the optional tag description that the user can specify for each tag in the monitored tag list. Most users should leave this unchecked.
Note: some OPC Servers may respond slowly to this request
- Retrieve tag data type: the tag data type is retrieved from the server and displayed with the tag values.

Retrieve the values

Click [Get values] to retrieve the current value of the tags.

The results of the tag value retrieval are displayed in the Tag value, Status, Timestamp, Tag Type, and Tag Desc columns of the tag list.

By default, these columns are displayed as the right-most columns of the tag list and you may need to scroll right to see them.

Operation	Tag Value	Status	Timestamp	Tag type
DIV 1000	6	Good	7/10/2018 4:21:40 PM	Float32
	7	Good	7/10/2018 4:21:40 PM	Float32
	First tag is less	Good	9/5/2018 3:24:40 PM	String
	1	Bad	7/13/2018 7:53:30 AM	String

Show Value columns first

You can move the tag value columns to the left-most columns (near the tag name) by checking the "Show value columns first" checkbox.

Note: this setting is not persisted once the Configurator is restarted.

Get tag values | Move up | Move down | Columns | Tools | Options | Tag & Limit changes...

Get tag values
Get values
All tags in the list (17)
Selected tags (0)
OPC Device read (slower)
Retrieve tag description (slower)
Retrieve tag data type
Show Value columns first
Dump to CSV...

Tag value results
Total tags: 17
Good status: 11
Bad status: 6
Errors: 0
Clear values

Tag Value	Status	Timestamp	Data type	> Row	Limits	Tag	Server	Notification	Disable
6	Good	7/10/2018 4:21:40 PM	Float32	1	X	OTAGF006	MyServer	RowAlarm RowRTN RowACK	
7	Good	7/10/2018 4:21:40 PM	Float32	2	X	OTAGF007	MyServer		
First tag is less	Good	9/5/2018 3:37:50 PM	String	3	X	OTAGS001	MyServer		
1	Bad	7/13/2018 7:53:30 AM	String	4	X	OTAGS003	MyServer		

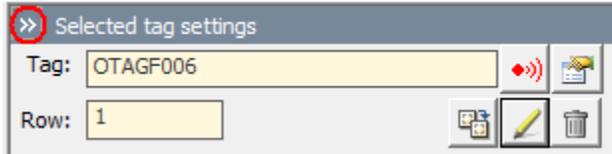
Export the displayed tag information to CSV

The displayed tags and columns (including the tag value columns) can be exported to a CSV file. In the Get tag values panel, select "Dump to CSV..."

Selected tag settings

Settings for the tag selected in the tag list.

Note: the selected tag settings panel can be collapsed using the right arrow button in the panel header.



Tag

The name of the selected tag

Row

Displays the row number for the selected tag (1...n)

Configure alarm limits and notification settings



Open the Alarm & Notification settings screen

Tag properties



Displays the attributes of the selected tag

Duplicate tag



Duplicates the selected tag including all alarm limit settings. The new tag is inserted after the selected tag. To duplicate a tag to the end of the tag list, use "Duplicate to end" by right-clicking the tag or selecting Tools from the Tag List toolbar.

Edit tag name



This button allows the user to change the name of the selected tag. If you are filtering the monitored tag list by Tag Group this button is disabled.

Remove



This button will remove the selected tags from the tag list

General

The screenshot shows a configuration window with five tabs: 'General', 'Groups', 'Alarm Limits', 'Operation', and 'Custom fields'. The 'General' tab is active. It contains the following fields and options:

- Priority:** A numeric spinner set to 1.
- Tag Group:** A dropdown menu showing 'Unit1\Temperature'.
- Tag ID:** An empty text input field.
- Description:** A text input field containing 'Avg outlet temp'.
- Format:** A dropdown menu set to '0.0'.
- Units:** A text input field containing 'Deg F'.
- TopView Engine Options for this tag:** A section with four checkboxes:
 - Hide this tag (row)
 - Display value
 - Latch last good value
 - Disable alarms

Priority

The priority assigned to this tag. The priority can be assigned here or on the Edit Limits screen. See **Priority** on page 130 for more information on this setting.

Tag Group

Displays the name of the assigned primary Tag Group.

A dropdown menu showing 'Unit1\Temperature' with a right-pointing arrow button.

Primary and secondary Tag Groups can be assigned to the current tag on the Groups tab. Click the  button to switch to the Groups tab.

For more information, see **Tag Groups** on page 196.

Description

The description is a user-entered description which, if entered, will be displayed in place of a retrieved tag description. If a description is not entered, TopView will display the retrieved tag description if available. The

Engine Settings: screen allows the user to display the “Tag description” as a column in the TopView Engine.

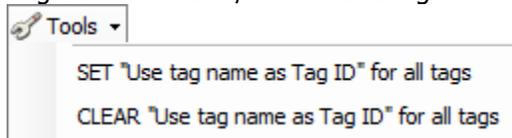
Row UID

A user-given identifier for this monitored tag and settings. Although the same tag can be entered multiple times, the entered Row UID must be unique with the configuration. The Row UID uniquely identifies this point in TopView and can be used for tag/row references in alarm conditions, inhibit, operations, placeholders, inheritance, and information requests.

If "use tag name as Row UID" is selected

- The Row UID is set to the name of the tag. Any characters in the tag name that are not valid for Row UID are replaced.
- This option cannot be enabled for the same tag multiple times in the monitored tag list (duplicate Row UID s are not supported)

To set or clear "use tag as Row UID" for all tags in the monitored tag list, select Tag List Tools...SET/CLEAR "Use tag name as Row UID" for all tags



Events Tags and Row UID

A Row UID is designed to uniquely identify a row in the TopView Engine.

In TopView Events an Events Tag may monitor multiple sources, resulting in multiple rows (one per source) in the TopView Engine. The Rows are assigned new sources as new events arrive. In the TopView Engine the tag name for each row is EventsTag:X where X is the source index 2...maximum number of sources.

If a Row UID is entered for an Events Tag, the TopView Engine will append the index (X) to the Row UID for each row. If the Row UID is set to use the tag name, the TopView Engine will use the tag name including the index (X).

Format

Allows the user to format the value of the current tag/row for use in TopView. The format setting affects how the value is displayed, as well as the value that is used for alarm limit comparison.

For String and Digital (PI) tags, the user can format the maximum number of characters displayed using the format #C, where # is the number of characters. For numeric values, the following formatting rules apply:

- (0) Digit placeholder. Display a digit or a zero
- (#) Digit placeholder. Display a digit or nothing
- (.) Decimal placeholder
- (,) Thousands placeholder

Default format: if no format string is entered, numeric tag values are formatted using 0.000 (3 decimal places). Non-numeric tags are not formatted.

Example formats:

- 0.00
(numeric) Show 1 digit to the left of the decimal, 2 digits to the right
- 10c
(string) display 10 characters

Note: TopView performs value comparison for alarms based on the displayed (formatted) tag value, not the retrieved tag value.

Example: if a tag's value is 10.5 and the user sets the format to "0", the value used for this tag in the TopView Engine is "10". If the alarm condition for this tag is set to "=10", the alarm will occur because the displayed value matches the alarm condition value.

Units

User-entered engineering units for each tag. If this field is empty, TopView will revert to the tag's engineering units retrieved from the server. Otherwise, the user-entered engineering units will be displayed.

Hide this tag (row)

If checked, the tag/row will not be displayed in the interactive TopView Engine window. Hidden tags can be temporarily displayed using the context menu on the TopView Engine window.

Latch last good value

The TopView Engine reads the current value of each tag during each update (refresh interval). There are many situations that can result in the TopView Engine processing a current tag value that is not "good". For example, the following conditions result in value that is "not good":

- Connection error to the OPC/PI/SQL/PerfMon Server, database, or computer (see below for exceptions)
- Access error reading the current tag value. TopView displays value as %err%
- TopView OPC: Tag quality is "bad" or "uncertain"
- TopView PI: Tag value is a system digital state (e.g., "I/O timeout")
- TopView SQL Tag: query error or query result not found
- TopView Canary Labs: Tag quality is not good
- TopView PerfMon: Counter cannot be read or may not exist

The "Latch last good value" setting allows the user to latch the last good value scanned by TopView and ignore any newly scanned current tag values if the value is not good.

Note on bad server connections:

If the setting "Suspend on bad Server connection" is used, latching does not occur for disconnected Servers. See Settings, **Suspend** on bad Server connection on page 216 for more information on this setting. See **Bad Server Connections** on page 584 for more information on TopView behavior during bad or lost Server connections.

Note for TopView OPC users:

The default behavior of TopView is "good value" = "good OPC quality". The user can also include tags whose OPC quality is "uncertain". See **Global Options: OPC** on page 485 for more information.

How TopView latches the last good value

During each refresh of the TopView Engine, TopView will retrieve the current value of each tag.

If the value is "good", TopView will cache the value and timestamp. If the value is "not good" and "latch last good value" is selected for the current row, TopView will use the cached value/timestamp and set the status to 0 (good). The value and timestamp used and displayed by TopView will be the cached value and timestamp.

How will I know if TopView is latching?

If the user has configured the interactive TopView Engine to display the value and timestamp (see

Engine Settings: on page 230) one might notice that the value and timestamp for the tag are not changing as expected. Check the current value of the tag (see **Tag properties** on page 89) to see if the tag value is "not good".

Operation results during latching

Operations will continue to execute using the last good tag value. PI Expression operations (TopView PI) are independent of the tag value for the current row. When latching is set for a PI Expression operation row, a failed PI Expression result will use the last good PI expression result for the row.

See **Operation** on page 99 for more information.

Display value

If unchecked, the tag value for this tag/row will not be displayed in the TopView Engine window. This setting may be used with User Tags.

Disable alarms

If checked, disables the alarms for this tag/row. This can also be set on the Alarm Limits and Notification Settings screen.

See **Disabled alarms: settings and behavior** on page 164 for more information.

In the tag list on the Tags and Limits screen of the Configurator, tags with "disable alarms" set will display a line through the item.

> Row	Tag	Server	Occur	Tag Group
1	TopView.Dev1.OutletTemp	MyKServer	1	Unit1\Temperatu
2	TopView.Dev1.OutletTemp	MyKServer	2	Unit1\Temperatu
3	TopView.Dev1.Level_Ind_1	MyKServer	1	Unit1\Level\Indic
4	TopView.Dev1.Level_Ind_2	MyKServer	1	Unit1\Level\Indic
5	TopView.Dev1.Discharge Pump 1	MyKServer	1	Unit1\Pump

Disable expiration time

If "Disable alarms" is set, the "Disable expiration" is the date/time at which a disabled alarm will be automatically enabled. The behavior of "Disable expiration" is the same as an alarm snooze/shelve where a disabled alarm is only disabled for a period of time.

The default "Disable expiration" date is year 9998 which means that a disabled alarm does not expire.

If "Disable expiration" is set to a valid future date, the tag/row alarms will be initially disabled in a snooze state (at the disable start time) and will be automatically enabled once the current date/time reaches the expiration date/time.

Disable start time

If "Disable alarms" is set, the "Disable start" is the date/time at which an alarm will be disabled. This allows for the configuration of a future disable. The behavior of "Disable start" is the same as an alarm snooze/shelve with a future start time.

Deliver value events to EventHooks

TopView EventHooks are user-written plug-in modules that can receive events from TopView including alarm events, log message events, report events, tag value updates, and notification events.

If "Deliver values events to EventHooks" is enabled, this tag/row will deliver the current value, timestamp, and status to EventHooks who have requested to receive tag value events. The frequency of delivery of this current tag value is the refresh rate of the TopView configuration (see **Refresh rate**).

For information on Eventhook events and for details on creating EventHooks, see the EventHook documentation and help files located in DataPath\EventHooks\.

User values

TopView placeholders expose the properties of each monitored alarm tag to alarm messages, notification messages, and logic functions arguments. For example, the placeholder %tag% returns the name of the monitored tag for the alarm, and %tagvalue% returns the value of the tag.

The five user values fields allow the user to configure additional tag-specific information which is then available as placeholders. The value of each field can be alphanumeric or numeric, and the use of each field value is up to the user.

User values can be accessed through the placeholders %uservalue1% ... %uservalue5%. The user value placeholders are resolved before all other placeholders. Therefore, they can be embedded within other placeholders.

Example:

TopView is monitoring/alarming the temperature tag for multiple units. Each temperature tag has an associated pressure tag whose value should be included in the notification message. All tags exist on a server named PLANTSERVER.

For UnitA, the temperature tag is named tempertureA. This tag is configured with the following user values:

User value 1: Joe Smith at x198

User value 2: pressureA

User value 1 is the person who configured the alarm. User value 2 is the name of the pressure tag for the same unit as the temperature tag. The temperature tags for the other units are configured in a similar manner.

A single notification message template is created for all unit temperature tag alarms. The notification message should include (1) the name and extension of the person who configured the temperature tag alarm and (2) the value of the pressure tag for the same unit.

Note: to retrieve the value of any tag, use the placeholder

<%tagvalue||servername||tagname%>

For pressureA, the placeholder would be <%tagvalue||PLANTSERVER||pressureA%>

The following lines are added to the notification message template:

This alarm was configured by **%uservalue1%**

The pressure for this unit is <%tagvalue||PLANTSERVER||%uservalue2%>

HTML Encoding

If a user value placeholder is used within an HTML Notification Message Template, TopView will [encode](#) the user value so it appears properly in the resulting HTML message. If you want to suppress HTML encoding of the user value, use the %uservalueX_html% placeholder instead of %uservalueX%.

Groups

The primary and secondary Tag Groups for the tag. For more information, see **Tag Groups** on page 196.

The screenshot shows the 'Groups' tab of a configuration window. At the top, there are tabs for 'General', 'Groups', 'Alarm Limits', 'Operation', and 'Custom fields'. The 'Tag Group (primary)' dropdown menu is set to 'Unit1\Pump'. Below this, the 'Secondary Tag Groups' section is titled 'Count=1' and contains a list box with 'Pumps' selected. Below the list box is a checklist with the following items: 'NOx' (unchecked), 'Power' (unchecked), 'Pressure' (unchecked), 'Pumps' (checked), and 'Station Status' (unchecked).

Primary: use the "Tag Group (primary)" dropdown to select a primary Tag Group.

This is a close-up of the 'Tag Group (primary)' dropdown menu. The text 'Unit1\Pump' is visible in the dropdown box, and a small '...' button is located to the right of the dropdown arrow.

Click the [...] button to edit the available Tag Groups.

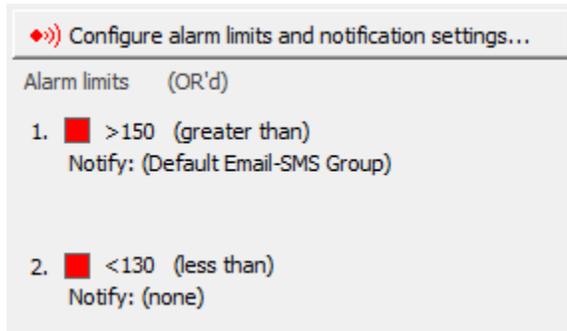
Secondary:

This is a close-up of the 'Secondary Tag Groups' section. The list box is titled 'Count=1' and contains 'Pumps'. Below the list box is a checklist with the following items: 'NOx' (unchecked), 'Power' (unchecked), 'Pressure' (unchecked), 'Pumps' (checked), and 'Station Status' (unchecked).

The secondary Tag Groups are listed. To add or remove secondary Tag Groups, check/uncheck the name in the list.

For more information, see **Tag Groups** on page 196.

Alarm limits



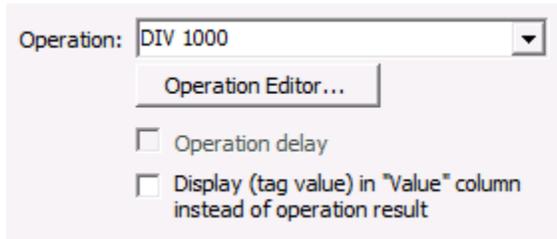
The alarm limits and notification for the selected tag are displayed. Click the [Configure alarm limits and notification settings] button to configure alarm conditions, notification, return to normal, acknowledge settings, and other alarm related settings for the tags.

The displayed information for each alarm limit includes:

1. Limit number (1...n)
2. Limit condition (ex: > 10)
3. Description of the limit condition (ex: greater than)
4. Notification setting (ex: Default Email-SMS Group)
5. Delay In (DI), Delay out (DO), dead band (DB), expiration (EX), and blackout (DL) setting (ex: DI=10s)

See **Configure Alarm Limits** on page 125 for more information.

Operation



Operation: DIV 1000

Operation Editor...

Operation delay

Display (tag value) in "Value" column instead of operation result

Operations allow the user to

- Perform basic calculations, logic and mathematical operations on a monitored tag's value
- Call user-written calculations, logic, and mathematical operations on multiple tag values (see FCN operation and **Logic Functions** on page 454 for more information)
- Compare multiple values in TopView (e.g., delta)
- Count the number of alarms occurring for another tag/row over a time period
- Count the number of active alarms in a Tag Group
- Total the number of alarms over a period of time (alarm frequency/flooding)

The result of the operation is displayed in the TopView Engine window and is used for comparison to the row's alarm limits *in place of the tag's current value*.

Examples:

- If the user is reading a raw temperature tag, he/she can create an operation for this tag that calculates a 5-minute average temperature value. The operation result (the average value) is then used in place of the raw temperature value in TopView.
- The user creates a Logic Function operation to monitor the square root of the average of five tag values. See **Logic Functions** on page 454 for more information.
- If a Tag Group named "Unit1" exists in TopView, the user can create a count of the active number of alarms for all tags in the "Unit1" Tag Group (tags with Unit1 as an assigned primary or secondary Tag Group). Since there is no raw tag required for this operation, a User Tag can be created for this operation result. The operation result (the active alarm count of all tags in Tag Group "Unit1") is then displayed as the User Tag value in TopView.

Value History: operations requiring value history retrieve the history of values from the previously scanned values within TopView. The rate at which scanned values are retrieved by TopView is chosen by the user (see **Refresh rate**).

Operation Delay: Some operations allow the user to specify a time range (e.g., AVG 5m). TopView creates the operation result using the list of good values that it has scanned for the tag over the operation's time range. When the TopView Engine is started, it has no value history. Until the TopView Engine instance has been running for the operation's time range, the operation result will only use the history of scanned values since the TopView Engine was started.

For example: a 5-minute average value calculated 3 minutes after TopView starts will only be a 3-minute average value.

The "delay" checkbox allows the user to delay displaying an operation result value until the TopView Engine has values for the entire time range. No alarms will occur for this row during the delay period.

Display (tag value) in "Value" column: If an operation is entered, the default TopView behavior is to display the result of the operation as the value field in the interactive TopView Engine window, Remote Viewer and HTML Snapshot Reports.

If this option is selected, TopView will display the tag value instead of the operation result in the Value column for this tag. The tag value is displayed within parentheses to signal the user that the displayed value is not the one used for comparison to the alarm limits.

Note: this setting only affects the display of the value field in the interactive TopView Engine window, Remote Viewer, and HTML Snapshot Reports. It does not affect the behavior of any value-based placeholders.

Value History, Memory Usage: If a tag/row in TopView has a configured operation requiring value history, TopView will collect and store in memory the tag's scanned values for the duration of the operation's entered time range. This means that if the user configures hundreds of operation tags in TopView for long operation periods, TopView will require a significant amount of memory. Once TopView is running for the maximum entered operation duration of all configured tags, the memory usage of the TopView Engine will stabilize.

Operation Editor

If the operation is too long to easily view or edit in the supplied text box, click [Operation Editor] to open the Operation Editor dialog. This Editor allows the user to view and edit the operation string. For the FCN operation, the dialog assists in the creation of the FCN arguments by providing quick links to tag value placeholders.

Operation Editor

Operation Editor

Logic Function

Function name: AVG3
Arguments: tagval1, tagval2, tagval3

Get FCN argument values

Copy to clipboard for pasting into FCN arguments. Press CTRL-V to paste result into the operation below.

Tag value: <%tagvalue||server||tag%> Show all placeholders (click a name to copy)

Edit the Operation Note: this editor supports multiple lines to assist in the editing of long operation strings

```
FCN AVG3 <%tagvalue||MyServer||ITAGF100%>, <%tagvalue||MyServer||ITAGF101%>, <%tagvalue||MyServer||ITAGF102%>
```

Operation String Multiple lines in the above editor are preserved in the stored operation string with the %n% placeholder
The TopView Engine will remove %n% before parsing the operation string

Stored:
FCN AVG3 <%tagvalue||MyServer||ITAGF100%>, <%tagvalue||MyServer||ITAGF101%>, %n%<%tagvalue||MyServer||ITAGF102%>
Used by TopView Engine:
FCN AVG3 <%tagvalue||MyServer||ITAGF100%>, <%tagvalue||MyServer||ITAGF101%>, <%tagvalue||MyServer||ITAGF102%>

OK Cancel

Operation Arguments

The operation may or may not support an argument.

The syntax used below for most of the operation arguments:

- **i** Numeric integer argument
- **d** duration of time. The format of this duration should be an integer number followed by "s", "m" or "h" (seconds, minutes, hours).
- **n** Number
- **r** Row designation. Specifies another row in the TopView configuration.

Syntax for specifying another row:

- RX (X specifies another row by row number)
- R+X (X rows after the current row)
- R-X (X rows before the current row)
- R:rowuid (rowuid specifies the Row UID of another row)

Warning: do not enter any spaces before or after the plus (+) or minus (-) symbols in the 'rows after' and 'rows before' syntax.

- **taggroup** All tag groups, a single Tag Group, a Tag Group and child Tag Groups, or combination of multiple Tag Groups.

- To specify all Tag Groups (all rows), enter *
Note: this includes rows with no assigned Tag Group
- To specify a single Tag Group, enter the name
- To specify a Tag Group and all child Tag Groups, enter the name followed by *
- To specify multiple Tag Groups, separate them with ;

- Examples:

Unit1	Tag Group Unit1
Unit1;Unit2	Tag Groups Unit1 and Unit2
Unit1*	Tag Group Unit1 and all Unit1 child Tag Groups
Unit1*;Unit2	Tag Groups Unit1 with children and Unit2
Unit1\Temperature	Tag Group Unit1\Temperature
*	All Tag Groups (all rows in the configuration)

Operations that require a source tag

The following operations should be entered for a monitored source tag (not a User Tag)

Operation	Description
AND i	<p>Bitwise AND of integer tag value and integer number i The tag's integer value will be AND'd with the entered integer number xi. The operation result will be an integer number.</p> <p><u>Example:</u> Operation = AND 4 Tag Value is 5 (binary 0101). 4 binary is 0100 5 and 4 = 0101 AND 0100 = 0100 = 4 Operation result = 4</p>
BIT i	<p>The bit value (0 or 1) of an integer tag value for bit position i. i: bit position 1-32 where 1 is the right-most, least significant bit. Note: BIT operation is 1-based position, BITZ is 0-based position</p> <p><u>Example:</u> Operation = BIT 3 Tag Value is 4 (binary 0100) Operation result = 1</p>
BITZ i	<p>The bit value (0 or 1) of an integer tag value for bit position i. i: bit position 0-31 where 0 is the right-most, least significant bit. Note: BIT operation is 1-based position, BITZ is 0-based position</p> <p><u>Example:</u> Operation = BITZ 2 Tag Value is 4 (binary 0100) Operation result = 1</p>
ARRAY i	<p>For an OPC array tag, return array element i (0....n-1)</p> <p><u>Example:</u> Operation = ARRAY 1 Tag Value is 1^3^7^2 (integer array of 4 values 1, 3, 7, 2) Array element 1 is the second element (0-based indexing) Operation result = 3</p> <p>Note: The default separator for array tags is ^ although the user can override this character. ARRAY will use the current separator character when parsing the elements.</p> <p>For more information, see Support for OPC array tags on page 51.</p>
AVG d	<p>Average value of the numeric tag value over the duration Operation result is the average value of all scanned values of the tag over the entered duration.</p> <p><u>Example:</u> AVG 5m Average value of the tag over the past 5 minutes</p>
MIN d	<p>Minimum value of the numeric tag value over the duration Operation result is the minimum value of all scanned values of the tag over the entered duration.</p> <p><u>Example:</u> MIN 150s Minimum value of the tag over the past 150 seconds</p>

Operation	Description
MAX d	<p>Maximum value of the numeric tag value over the duration Operation result is the maximum value of all scanned values of the tag over the entered duration.</p> <p><u>Example:</u> MAX 10m Maximum value of the tag over the past 10 minutes</p>
RNG d	<p>Range of value of the numeric tag value over the duration Operation result is the maximum value of all scanned values of the tag over the entered duration minus the minimum value of all scanned values of the tag over the entered duration. The result is ≥ 0.</p> <p><u>Example:</u> RNG 5m Range of value of the tag over the past 5 minutes</p>

ROC d	<p>Rate of change in value of the numeric tag over the duration Operation result is the current tag value minus the value of the tag at "current time – duration" divided by the number of minutes in the duration. Result is expressed in units "value/minute" and can be positive or negative.</p> <p><u>Example:</u> ROC 10m (Current tag value – value 10 minutes ago) / 10 Note: difference divided by 10 so that the resulting ROC is "value/minute"</p>
STD d	<p>Standard deviation of the numeric tag value over the duration Operation result is the standard deviation of all scanned values of the tag over the entered duration.</p> $\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i = \frac{x_1 + x_2 + \dots + x_n}{N}$ <p>Mean:</p> $\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^2}$ <p>Standard deviation:</p> <p><u>Example:</u> STD 90s Standard deviation of the tag over the last 90 seconds</p>
CON x	<p>Tag value contains X X can be 1 or more characters including spaces (e.g., "the pump"). Operation will return 1 if the tag's value contains X; otherwise, returns 0. Numeric and text comparisons supported; text comparisons are not case sensitive. The operation result will be an integer number 1 or 0.</p> <p><u>Example:</u> Operation = CON OFF Tag Value is BATCHISOFFANDWAITING Operation result = 1</p> <p><u>Example:</u> Operation = CON 15 Tag Value is 160.158 Operation result = 1</p>
MID start len	<p>Returns partial string value Start is the starting position (1, 2, 3...) and len is the number of characters to return. For string and character tag values, this function can be used to return a substring within the string value.</p> <p><u>Example:</u> Operation = MID 6 2 Tag Value is BATCHISOFFANDWAITING Operation result = IS</p>
ADD n	<p>Add n to the tag's current value Operation result is the current value of the tag plus n</p> <p><u>Example:</u> ADD 5.6 Add 5.6 to the current value of the tag</p>

ADD r	<p>Add the value of another row to the tag's current value Operation result is the current value of the tag plus the value displayed in another row (which may be the result of an operation)</p> <p><u>Example:</u> ADD R+1 Add the value displayed in the next row to the current value of the tag</p>
SUB n	<p>Subtract n from the tag's current value Operation result is the current value of the tag minus n</p> <p><u>Example:</u> SUB 5.6 Subtract 5.6 from the current value of the tag</p>
SUB r	<p>Subtract the value of another row from the tag's current value Operation result is the current value of the tag minus the value displayed in another row (which may be the result of an operation)</p> <p><u>Example:</u> SUB R7 Subtract the value displayed in Row 7 from the current value of the tag</p>
MUL n	<p>Multiply the tag's current value by n Operation result is the current value of the tag times n</p> <p><u>Example:</u> MUL 5.6 Multiply the current tag value of the tag by 5.6</p>
MUL r	<p>Multiply the tag's current value by the value of another row Operation result is the current value of the tag times the value displayed in another row (which may be the result of an operation)</p> <p><u>Example:</u> MUL R-1 Multiply the current tag value by the value displayed in the previous row</p>
DIV n	<p>Divide the tag's current value by n Operation result is the current value of the tag divided by n</p> <p><u>Example:</u> DIV 5.6 Divide the current value of the tag by 5.6</p>
DIV r	<p>Divide the tag's current value by the value of another row Operation result is the current value of the tag divided by the value displayed in another row (which may be the result of an operation)</p> <p><u>Example:</u> DIV R7 Divide the current tag value by the value displayed in Row 7</p>
DLT n	<p>Delta between the tag's current value and n Operation result is the absolute value of the difference between the tag's current value and n. Result is equivalent to ABS(SUB n)</p> <p><u>Example:</u> DLT 5.6 Absolute value of (the current value of the tag - 5.6)</p>

DLT r	<p>Delta between the tag's current value and the value of another row Operation result is the absolute value of the difference between the tag's current value and the value displayed in another row. Result is equivalent to ABS(SUB r)</p> <p><u>Example:</u> DLT R-1 ABS(the current value of the tag - the value displayed in the previous row)</p>
DLTP n	<p>Delta between the tag's current value and n as a percentage of n Operation result is 100 times (the absolute value of the difference between the tag's current value and n, divided by n)</p> <p><u>Example:</u> DLTP 5.6 100 * ABS((the current value of the tag - 5.6)/ 5.6)</p>
DLTP r	<p>Delta between the tag's current value and the value of another row as a percentage of the value of the other row Operation result is 100 times (the absolute value of the difference between the tag's current value and the value displayed in another row, divided by the value displayed in the other row).</p> <p><u>Example:</u> DLT R-1 100 * ABS((the current value of the tag - the value displayed in the previous row) / value displayed in the previous row)</p>
ABS	<p>Absolute value of the tag's current value Operation result is the absolute value of the tag's current value</p> <p><u>Example:</u> ABS Absolute value of the tag's current value</p>
SQR	<p>Square root of the tag's current value Operation result is the square root of the tag's current value</p> <p><u>Example:</u> SQR Square root of the tag's current value</p>
LOG	<p>Natural log of the tag's current value Operation result is the natural log of the tag's current value</p> <p><u>Example:</u> LOG Natural log of the tag's current value</p>
LOG10	<p>Base-10 log of the tag's current value Operation result is the base-10 log of the tag's current value</p> <p><u>Example:</u> LOG10 Base-10 log of the tag's current value</p>

Operations for that do not require a source tag

The following operations should be entered for User Tags since the result of the operation is based completely on other monitored TopView tags.

Operation	Description
<p>ATROW r d</p> <p>Alarm Total ROW</p>	<p>Total number of alarms (transition from "no alarm" to "alarm") for the specified row over the duration Operation result is the total count over the entered duration.</p> <p><u>Example:</u> ATROW R-1 5m Total number of alarms for the previous row over the past 5 minutes</p>
<p>ATTGA taggroup d</p> <p>Alarm Total TagGroup All tags</p>	<p>Total number of alarms (transition from "no alarm" to "alarm") for the specified Tag Group(s) or all tags over the duration. Result will include trigger tags. Operation result is the total new alarms over the entered duration.</p> <p><u>More information:</u> Triggers: See Trigger row on page 183 taggroup syntax: See Operation Arguments on page 101</p> <p><u>Example:</u> ATTGA Unit1 5m Total number of alarms for Tag Group Unit1 over the last 5 minutes</p> <p>ATTGA Unit1* 10m Total number of alarms for Tag Group Unit1 and all child Tag Groups over the last 10 minutes</p> <p>ATTGA * 30m Total number of alarms for all tags over the last 30 minutes</p>
<p>ATTGN taggroup d</p> <p>Alarm Total TagGroup No Triggers</p>	<p>Total number of alarms (transition from "no alarm" to "alarm") for the specified Tag Group(s) or all tags over the duration. Result will not include trigger tags. Operation result is the total new alarms over the entered duration.</p> <p><u>More information:</u> Triggers: See Trigger row on page 183 taggroup syntax: See Operation Arguments on page 101</p> <p><u>Example:</u> ATTGN Unit1 5m Total number of alarms for Tag Group Unit1 over the last 5 minutes (no trigger tags counted)</p> <p>ATTGN Unit1* 10m Total number of alarms for Tag Group Unit1 and all child Tag Groups over the last 10 minutes (no trigger tags counted)</p> <p>ATTGN * 30m Total number of alarms for all tags over the last 30 minutes (no trigger tags counted)</p>
<p>ACTGA taggroup</p>	<p>Alarm count Tag Group, All tags Returns an integer number of tags in the entered taggroup that</p>

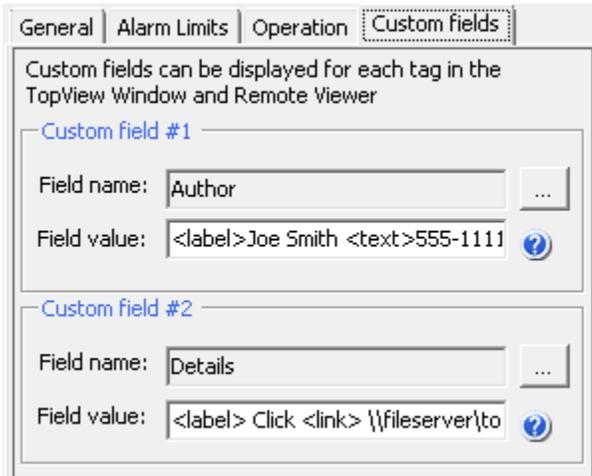
Operation	Description
Alarm Count TagGroup All tags	<p>are currently in alarm. This operation includes trigger tags. <u>More information:</u> Triggers: See Trigger row on page 183 taggroup syntax: See Operation Arguments on page 101</p> <p><u>Examples:</u> ACTGA Unit1 ACTGA Unit1* (tag group Unit1 and all child Tag Groups) ACTGA Unit1\Temperatures ACTGA * (all rows in the configuration)</p>
ACTGN taggroup Alarm Count TagGroup No Triggers	<p>Alarm count Tag Group, No trigger rows Returns an integer number of tags in the entered taggroup that are currently in alarm. This operation does not include trigger rows.</p> <p><u>More information:</u> Triggers: See Trigger row on page 183 taggroup syntax: See Operation Arguments on page 101</p> <p><u>Examples:</u> ACTGN Unit1 ACTGN Unit1* (tag group Unit1 and all child Tag Groups) ACTGN Unit1\Temperatures ACTGN * (all rows in the configuration, no trigger rows)</p>
FCN	<p>Return the result of a user-written Logic Function FCN <i>functionname arg1, arg2, ...</i></p> <p><u>Examples:</u> FCN SQUARE <%tagvalue myserver tag01%></p> <p>See Logic Functions on page 454 for more information.</p>
PIEXP	<p>PI Expression (TopView PI Only)</p> <p>PI Performance Equation syntax. PI Expressions do not depend on or use the tag specified for the current row. The user may want to use the User Tag for this operation.</p> <p><u>Examples:</u> PIEXP 'sinusoid' + 'LT401' PIEXP TagAvg('LT401', '*-30m', '*') + 5.9 PIEXP If ('sinusoid' > 'LT401') then 1 else -1 PIEXP TimeGT('sinusoid', '*-1d', '*', 50)</p>

<p>AFEXP</p>	<p>AF Expression (TopView PIAF Only)</p> <p>AF Expression syntax follows PI Performance Equation syntax.</p> <ul style="list-style-type: none"> • Expression variables are references to Attributes or PI Points and may use full path syntax or relative path syntax to the AF attribute or PI tag. See path information below. • Variables (tags/attributes) must be enclosed in single quotes. • Expressions are limited to Attributes or PI Points which originate from a single PI Data Archive. • Attributes which resolve to a static value (no data reference configured), are also acceptable. <p><u>Path (PI Tags):</u></p> <ul style="list-style-type: none"> • Full: \\PIservername\tagname Example: \\myPIserver\sinusoid • Partial: tagname tagname must exist on the PI server defined for the current row/tag Example: sinuoid <p><u>Path (AF Attributes):</u></p> <ul style="list-style-type: none"> • Full: \\AFServer\Database\Element\Element atname Example: \\myAFServer\myDB\myElement myAttribute • Partial: <ul style="list-style-type: none"> ○ Database\Element\Element atname attribute must exist on the AF Server defined for the current row/tag. Example: myDB\myElement myAttribute ○ period (.) the attribute (tag) for the current row/tag Example: ○ childAttributeName a child attribute of the attribute for the current row/tag Example: MyChildAttName ○ .. SiblingAttribute a sibling to the attribute for the current row/tag Example: .. MySiblingAttName <p><u>Examples (PI tags):</u></p> <p>Full path: sum of 2 PI tags: AFEXP '\\myPIserver\sinusoid' + '\\ myPIserver\LT401'</p> <p>Partial path: sum of 2 PI tags: AFEXP 'sinusoid' + 'LT401' (use PI server for current row/tag)</p> <p>Full path: 30 minute average of tag plus 5.9: AFEXP TagAvg('\\myPIserver \LT401', '*-30m', '*') + 5.9</p>
---------------------	--

	<p><u>Examples (AF attributes):</u> Full path: If attribute is > 56.4 return 1 otherwise return -1 AFEXP If ('\\myAFServer\myDB\myElement\myAttribute' > 56.4) then 1 else -1</p> <p>Partial path: If attribute is > 56.4 return 1 otherwise return -1 AFEXP If ('.' > 56.4) then 1 else -1 (use attribute for current row/tag)</p>

Custom fields

Custom fields provide a mechanism to display custom information and/or external links for each monitored TopView point. The custom fields can be displayed in the running TopView Engine window as well as the Remote Viewer.



Custom fields displayed in the interactive TopView Engine window:

Value	Units	Description	Time in alarm	Group	Priority	Author	Details
0.0	Deg F	Outlet temperature		Unit1\Temperature	1	Joe Smith	Click
0.1	Deg F	Avg outlet temp		Unit1\Temperature	1		
Second tag is less -		Level 1 indicator		Unit1\Level\Indicator 1	1		\\fileserver\topview\doc1a.pdf
-		Level 2 indicator		Unit1\Level\Indicator 2	1		
-		Diachrona Pump 2		Unit2\Pump	1		

Custom fields can contain

- Text: provide additional information for each monitored item as text.
- Link:
 - provide a link to a file or web page that can be opened when the user clicks the custom field in the TopView Engine window or Remote Viewer
 - provide the link to an application or script (batch file) that can be launched when the user clicks the custom field in the TopView Engine window or Remote Viewer
- Arguments: provide arguments for an application link to pass information about the current tag and alarm to the application.

Custom fields can be defined using a combination of text and placeholders. Placeholders will put dynamic information (tag names, alarm start time, etc.) into the custom field value.

You must configure the interactive TopView Engine window and Remote Viewer to display the custom fields.

- Displaying custom fields in the interactive TopView Engine window:
You must configure TopView to display the custom fields. See “Engine Settings: Display”
- Displaying custom fields in the TopView Remote Viewer:
See Configure Columns in the Remote Viewer documentation.

Field name

Each TopView Configuration can contain three custom fields. The custom field name describes the information for the custom field value and is displayed as the column header text in the interactive TopView Engine window and Remote Viewer. You can set the Field name using the [...] button to the right of the Field name text box.

Note: the Field name is the same for each tag/row in this TopView Configuration.

Field value

The value of the custom field for this tag/row.

The field value is a text string with or without placeholders and special formatting characters.

Field value formatting

- **<label>**
Specifies the label (text) to display for this custom field value.
<label> should appear at the start of the field value and should be used with <text> or <link>
- **<text>**
If the field value is text information, <text> specifies the text associated with the <label> and is displayed, in a pop-up tooltip, if the user hovers the mouse over the field in the TopView Engine or Remote Viewer. Clicking on the field will create and open a text file containing the text.
Use %n% to specify a new line within the text (see example below)
- **<link>**
If the field value is a link to a file or web page, <link> specifies the details of this link (the file or web page). If the user clicks the field in the interactive TopView Engine window or Remote Viewer, the file or web page will be opened.
If the field value is a link to an application or batch file, <link> specifies the path to the application executable or batch file. If the user clicks the field in the TopView Engine or Remote Viewer, the application or batch file will be launched.
- **<arg>**
If the <link> is an application or batch file, <arg> specifies the command-line arguments to pass to the application or batch file.
- **<format>**
If <format> entered, it must appear as the last item in the task.
Optional setting to apply a custom format string to any date/time placeholders in the custom field. If not entered, the default date/time format string for custom fields is used (see **Custom field date/time format** on page 476).

Field Value Examples (no placeholders)

- Text
This alarm configured by Joe Smith
- Text with label
<label> Configured by <text> Joe Smith %n% 555-1111
- File link
<label> Operator instructions <link> \\filesrv\topview\operator1a.pdf
- Web site link
<label> Exele <link> http://www.exele.com
- Application link
<label> Trend <link> c:\myapp\trend.exe
- Application link passing "ABC" as command line argument to application
<label> Trend <link> c:\myapp\trend.exe <arg> ABC

Custom Field Value Placeholders

Within any of the fields value sections (<label>, <text>, <link>, <arg>), the user can enter text and placeholders. TopView will replace the placeholders with the value of the item for the current tag/row that the placeholder represents.

Placeholder	Description	Example
%value%	Current row value	This row value is %value%
%pvalue%	Previous row value; value of %value% during previous refresh	This row previous value is %pvalue%
%status%	Current row status (Good, Bad, Uncertain)	This row status is %status%
%tagvalue%	The value of the tag for this row regardless of operation. If no operation, equal to %value%	The tag value is %tagvalue%
<%tagvalue servername tagname%>	The value of tag 'tagname' on server 'servername'	Value = <%tagvalue myserver mytag%>
%ptagvalue%	The previous value of the tag for this row regardless of operation. If no operation, equal to %pvalue%; value of %tagvalue% during the previous refresh	The previous tag value is %ptagvalue%
%alarmmsg%	The most recent alarm message for this row.	The last alarm was %alarmmsg%
%alarmlabel%	The custom alarm label of the most recent alarm. Available while the alarm is active.	The alarm label is %alarmlabel%
%alarmvalue%	The row value at the time that the last alarm occurred	This row value is now %value%. The last alarm was caused by %alarmvalue%
%alarmstatus%	The row status at the time that the last alarm occurred	This row status is now %status% but at the start of the last alarm the status was %alarmstatus%

%alarmvaluemax%	The maximum row value while the alarm is/was active	The maximum value during the alarm is %alarmvaluemax%
%alarmvaluemin%	The minimum row value while the alarm is/was active	The minimum value during the alarm is %alarmvaluemin%
%alarmtagvalue%	The row tag value at the time that the last alarm occurred, regardless of operation. If no operation, equal to %alarmvalue%	The last alarm was caused by tag value %alarmtagvalue%
%alarmtagvaluemax%	The maximum row tag value while the alarm is active, regardless of operation. If no operation, equal to %alarmvaluemax%	The maximum tag value during the alarm was %alarmtagvaluemax%
%alarmtagvaluemin%	The minimum row tag value while the alarm is active, regardless of operation. If no operation, equal to %alarmvaluemin%	The minimum tag value during the alarm was %alarmvaluemin%
%tag%	The tag name for the current row	%tag% is the tag name
%tagroot%	The root tag name root (without extension/property) of %tag% for the current row	%tagroot% is the root tag name
%tagext%	The tag name extension/property of %tag%	%tagext% is the tag name extension
%server%	The server name for the current row	Tag %tag% on %server%
%desc%	The current row's tag description	Tag description is %desc%
%eu%	The engineering units for the current row	Value is %value% %eu%
%ack%	Is the most recent alarm	Acknowledged: %ack%

	acknowledged? True/False	
%ackuser%	The user who acknowledged the most recent alarm	Acknowledged by: %ackuser%
%ackdevice%	The device or computer of the user who acknowledged the most recent alarm	Acknowledged from: %ackdevice%
%ackurl%	URL to the acknowledge page for this row/alarm (must enable web server for Mobile)	Acknowledge: %ackurl%
%uservalueX%	User value, x=1,2,3,4,5	%uservalue3% See "User values" on page 96
%uservalueX_html%	User value, x=1,2,3,4,5 without HTML Encoding	%uservalue3_html% See "User values" on page 96

Field Value Date/Time Placeholders

Date/Time placeholders return a day and time (timestamp) associated with the current tag/row. The user can customize the date/time format of the date/time placeholders (per custom field using <format>, or globally – see **Custom field date/time format** on page 476).

Each date/time placeholder returns an absolute day and time. The user can offset the returned timestamp by a number of seconds, minutes, hours, or days, resulting in a new time that will be used as the result of the placeholder.

Date/Time Placeholder	Description
%time_current%	The TopView computer date/time
%time_rtn%	The most recent alarm return to normal date/time If there have not been any alarm RTN events, returns the current time (%time_current%) This RTN time may be before the most recent alarm start time if the most recent alarm is still active
%time_rtn_b%	The most recent alarm return to normal date/time If there have not been any alarm RTN events, returns blank (empty string) This RTN time may be before the most recent alarm start time if the most recent alarm is still active

%time_alarm_start%	The most recent alarm start date/time If there have not been any alarms, returns the current time (%time_current%)
%time_alarm_start_b%	The most recent alarm start date/time If there have not been any alarms, returns blank (empty string)
%time_alarm_end%	The most recent alarm end date/time If there have not been any alarms or the most recent alarm is still active, returns the current time (%time_current%)
%time_alarm_end_b%	The most recent alarm end date/time If there have not been any alarms or the most recent alarm is still active, returns blank (empty string)
%time_ack%	The most recent alarm acknowledge date/time If the most recent alarm has not been acknowledged, returns the current time (%time_current%)
%time_ack_b%	The most recent alarm acknowledge date/time If the most recent alarm has not been acknowledged, returns blank (empty string)

Offsetting date/time placeholders

The user can provide a time offset for any date/time placeholder to add or subtract time from the result of the placeholder.

The offset must appear just before the last percent % of the placeholder name

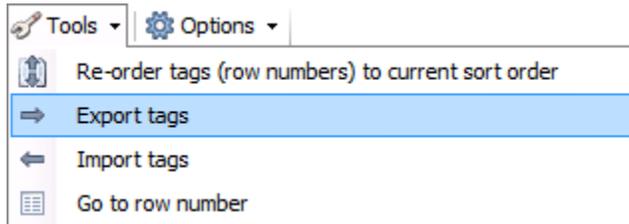
- **Format of offset: +/- N d|h|m|s**
First character: + (add time) or – (subtract time)
Next character(s): N integer number of time units
Last character: time units for N = d (days), h (hours), m (minutes) or s (seconds)
- Example date/time placeholders with offset:
%time_current-12h% 12 hours before current time
%time_alarm_start+10m% 10 minutes after the alarm start time

Field Value Examples (with placeholders)

- File link with label showing current tag name
<label> Operator instructions for %tag% <link> \\fileserver\topview\operator1a.pdf
- Application link passing tag name as command line argument to application
<label> Trend <link> c:\myapp\trend.exe <arg> %tag%
- Application link passing alarm start time (minus 10 minutes) and alarm end time
<label> Trend <link> c:\myapp\trend.exe <arg> %time_alarm_start-10m%
%time_alarm_end%
- Application link passing alarm start time (minus 10 minutes) and alarm end time with custom format for the 2 date/time placeholders:
<label> Trend <link> c:\myapp\trend.exe <arg> %time_alarm_start-10m%
%time_alarm_end% <format> dd-MMM-yyyy HH:mm:ss

Bulk tag configuration

Export/Import is supported through the [Export] and [Import] buttons below the tag list or using the Export and Import menu items under the Tag List [Tools] dropdown button.



The current list of tags can be exported to a comma delimited file (CSV) for bulk configuration using an external tool (e.g., Microsoft Excel). The exported file can be edited, allowing the user to create, delete, or edit multiple tags. Once the edits have been saved, the user can import the changes back into the Configurator.

If the user has already configured some points and alarm conditions in the TopView Configurator, they should easily see this information in the exported file along with the entered values. For details of the columns in the CSV see "CSV file field values for Export/Import file".

Notes for exported values:

- Each field value in the exported file is enclosed in square brackets.
Example: tag name is tagABC
In the exported file, the tag name will be [tagABC]
- Since a comma in the CSV file may be interpreted as a new field, any field values that contain commas are converted to a ` (backtick) in the CSV file.
Example: custom alarm message is "The value, %value%, is too high"
In the exported file this field is [The value ` %value ` is too high]
To change the comma replacement character see "Replacement character for commas"
- Double quotes (") are converted to ^^ in the exported file, and changed back to double quotes during an import.
- Upon import: if any specified primary or secondary Tag Groups in the import file do not currently exist in this TopView configuration, the user will be notified. They will then have the option to allow TopView to create the missing Tag Groups during the import process.

Import options

There are 4 options when importing a CSV file

- **Replace all:** Import the CSV tags and replace all existing tags
- **Add to end of list:** add the imported CSV tags to the end of the current tag list
- **Update and add:** if any of the imported CSV tags match existing tags (by tag and server name), update the existing tag with the fields contained in the CSV file for the imported tag. Otherwise add the imported tag to the end of the current tag list. This option requires that the existing and imported tags are unique (tag and server name).
- **Update:** if any of the imported CSV tags match existing tags (by tag and server name), update the existing tag with the fields contained in the CSV file for the imported tag. Otherwise add the imported tag is ignored. This option requires that the existing and imported tags are unique (tag and server name).

Note: When updating existing tags, the CSV file must contain the tag name and server name field plus one or more additional fields/properties. Only the fields/properties contained in the CSV file are updated in the existing tags.

CSV file field values for Export/Import file

Field name	Description	Value	From Configurator screen
Server	Name of the Server	text	Tags and Limits
Tag	Name of the tag	text	Tags and Limits
InheritFrom	The tag/row that this tag will inherit from	text	Alarm limits/Inherit
InheritItems	List of items that will be inherited	text	Alarm limits/Inherit
Description	Custom tag description	text	Tags and Limits
Units	Custom engineering unit	text	Tags and Limits
UserValue1	User value #1	text	Tags and Limits
UserValue2	User value #1	text	Tags and Limits
UserValue3	User value #1	text	Tags and Limits
UserValue4	User value #1	text	Tags and Limits
UserValue5	User value #1	text	Tags and Limits
Group	Primary Tag Group	text	Tags and Limits
Groups	Secondary Tag Groups	text	Tags and Limits
RowUID	Optional Row UID for this tag/row	text	Tags and Limits
Format	Custom format for value	text	Tags and Limits
Operation	Operation string	text	Tags and Limits
OperationDelay	Operation delay	true/false	Tags and Limits
OperationShowTagVal	Show (tagvalue) instead of operation result	true/false	Tags and Limits
DisplayValue	Display the tag/row value	true/false	Tags and Limits
Hide	Hide this tag/row	true/false	Tags and Limits
Latch	Latch last good value	true/false	Tags and Limits
EventHookValue	Deliver current value to EventHooks	true/false	Tags and Limits
CustomValue1	Custom field value #1	text	Tags and Limits
CustomValue2	Custom field value #2	text	Tags and Limits
CustomValue3	Custom field value #3	text	Tags and Limits
AndLimits	Limit conditions AND'd	true/false	Alarm limits/Alarm limits
Priority	Priority	1...999	Tags and Limits
CheckForGoodStatus	Check for good status before processing alarms	true/false	Tags and Limits
Disabled	Alarms for Tag/row are disabled	true/false	Alarm limits/Alarm limits
DisabledExpirationUTC	Alarms for Tag/row are disabled until this time (snooze/shelve end time)	date	Alarm limits/Alarm limits
DisabledStartUTC	Alarms for Tag/row will be disabled at this time (snooze/shelve start time)	date	Alarm limits/Alarm limits
Comment	Comment for limit conditions	text	Tags and Limits
UpdatePlaceholders	Update placeholders in alarm message	true/false	Alarm limits/Options
NoGroupNotify	Suppress Tag Group notification setting	true/false	Alarm limits/Options

Field name	Description	Value	From Configurator screen
NoStartupAlarm	Suppress alarm notification at startup	true/false	Alarm limits/Options
StartupSec	Suppress alarm notification at startup time (seconds)	integer	Alarm limits/Options
NoAudioTTS	Suppress text-to-speech audible alarms	true/false	Alarm limits/Options
NoBalloon	Suppress showing new alarms in pop-up balloon	true/false	Alarm limits/Options
TriggerRow	Tag/row is a trigger row	true/false	Alarm limits/Options
RepeatTTS	Repeat audible TTS alarm message	true/false	Alarm limits/Options
RepeatTTSSec	Repeat audible TTS alarm message interval seconds	Integer	Alarm limits/Options
CommentInit	Initial value of alarm comment field	Text	Alarm limits/Options
NoAck	No acknowledge required	true/false	Alarm limits/Acknowledge
NoUnackCount	Do not count in unacknowledged summary	true/false	Alarm limits/Acknowledge
AckOnRTN	Acknowledge on return-to-normal	true/false	Alarm limits/Acknowledge
AckComment	Prompt for comment upon acknowledge	true/false	Alarm limits/Acknowledge
AckNoNewAlarmsIfUnack	No new alarms will occur if item is unacknowledged	true/false	Alarm limits/Acknowledge

The following items are repeated for each of the possible 4 alarm conditions per tag/row. The X is replaced with 1,2,3,4			
Color-X	Font color for alarm condition X	integer	Alarm limits/Alarm limits
Alarmlabel-X	Optional substitute display text for "Alarm"	integer	Alarm limits/Alarm limits
Limit-X	Alarm condition	string	Alarm limits/Alarm limits
Deadband-X	Deadband	number	Alarm limits/Alarm limits
DelaySec-X	Delay IN seconds	integer	Alarm limits/Alarm limits
DelaySecOut-X	Delay OUT seconds	integer	Alarm limits/Alarm limits
ExpirSec-X	Expiration seconds	integer	Alarm limits/Alarm limits
BlackoutSec-X	Blackout seconds	integer	Alarm limits/Alarm limits
Priority-X	Optional alarm limit priority	integer	Alarm limits/Alarm limits
SendToA-X	First notification group	string	Alarm limits/Alarm limits
SendToB-X	Second notification group	string	Alarm limits/Alarm limits
SendToC-X	Third notification group	string	Alarm limits/Alarm limits
CustomList-X	Custom email/modem/voice notification list	string	Alarm limits/Alarm limits
WAV-X	WAV file for WAV file Voice Notification	string	Alarm limits/Alarm limits
NotifMsgTemplate-X	Notification message template	string	Alarm limits/Alarm limits
Subject-X	Custom email subject	string	Alarm limits/Alarm limits
Attach-X	File attachment #1 for email notification	string	Alarm limits/Alarm limits
Attach2-X	File attachment #2 for email notification	string	Alarm limits/Alarm limits
CustomMsg-X	Custom alarm message	string	Alarm limits/Alarm limits
CustomOnly-X	Show only custom alarm message	true/false	Alarm limits/Alarm limits
ResendSec-X	Resend notification seconds	integer	Alarm limits/Alarm limits
ResendUpdated-X	Update in resend message	true/false	Alarm limits/Alarm limits
Schedule-X	Schedule for alarm condition	string	Alarm limits/Alarm limits
EscalationTemplate	Escalation template name	string	Alarm limits/Escalation template
RTN-SendTo	Notification Group	string	Alarm limits/Return to normal
RTN-CustomList	Custom email/modem/voice notification list for RTN	string	Alarm limits/Return to normal
RTN-Msg	Custom return to normal message	string	Alarm limits/Return to normal
RTN-MsgOnly	Show only custom return to normal message	true/false	Alarm limits/Return to normal
RTN-Subject	Custom return to normal email subject	string	Alarm limits/Return to normal
RTN-Attach	File attachment for return to normal email notification	string	Alarm limits/Return to normal
CustomInRun	Run string - into alarm	string	Alarm limits/Custom Actions

CustomInLine	Run string arguments - into alarm	string	Alarm limits/Custom Actions
CustomOutRun	Run string - return to normal	string	Alarm limits/Custom Actions
CustomOutLine	Run string arguments - return to normal	string	Alarm limits/Custom Actions
EngineService-Name	Engine Service to start/stop based on alarm active/inactive	string	Alarm limits/Custom Actions
EngineService-RunOnAlarm	True if EngineService-Name should be running if the alarm is active.	true/false	Alarm limits/Custom Actions
OutputPointAlarm	Output point name - into alarm	String	Alarm limits/Output points
OutputPointRTN	Output point name - return to normal	String	Alarm limits/Output points
OutputPointAck	Output point name - acknowledge	string	Alarm limits/Output points
AcknowledgeTags-Fullname	Acknowledge input/output tags specified using full tag name	True/False	Alarm limits/Acknowledge
AcknowledgeTag-NameIN	Acknowledge input tag	string	Alarm limits/Acknowledge
AcknowledgeTag-ValueIN	Acknowledge input value	string	Alarm limits/Acknowledge
AcknowledgeTag - DelaySecIN	Acknowledge input delay	string	Alarm limits/Acknowledge
AcknowledgeTag-NameOUT	Acknowledge output tag	string	Alarm limits/Acknowledge
AcknowledgeTag-ValueOUT	Acknowledge output value	string	Alarm limits/Acknowledge
AcknowledgeRow	Row acknowledge row trigger	string	Alarm limits/Acknowledge
AcknowledgeGroup	Acknowledge group name	string	Alarm limits/Acknowledge
GateRow	Gate row number or offset	string	Alarm limits/Inhibit/Gate
GateRowInAlarm	Gate row will allow when "in alarm"	True/False	Alarm limits/Inhibit/Gate
GateTag	Gate tag name	string	Alarm limits/Inhibit/Gate
GateTagValue	Gate tag values that will inhibit/block	string	Alarm limits/Inhibit/Gate
snmpEnabled	SNMP Trap enabled	True/False	Alarm limits/SNMP Trap
snmpCommand	SNMP Trap Command String	string	Alarm limits/SNMP Trap
mqttCommand	MQTT settings	String/False	Alarm limits/MQTT
mqttUseDefault	MQTT should use default setting for configuration	True/False	Alarm limits/MQTT
EOR	End of record	Empty string	

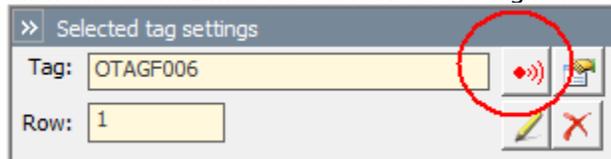
Configure Alarm Limits and Notification

The Alarm Limits and Notification Settings screen allows the user to configure the alarm limits, notification settings, and related items for each tag in the monitored tag list.

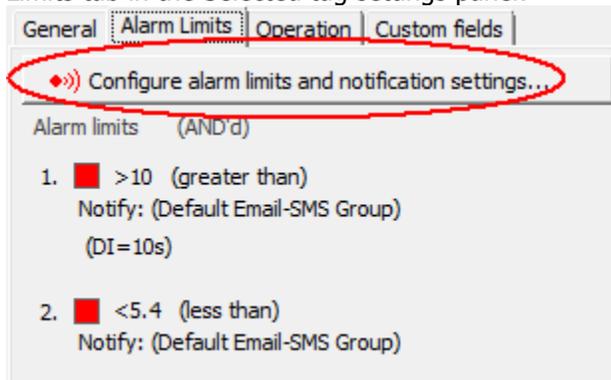
Note: a tag/row that performs an operation on the tag (e.g., AVG 5m) will use the result of the operation (e.g., the 5 minute average of the tag) for all value comparison alarm conditions. See **Operation** on page 90 for more information on configuring operations.

To open the Alarm Limits and Notification settings screen:

1. Double-click a tag in the monitored tag list
2. Click the Alarm Limits button next to the tag name in the Selected tag settings panel:



3. Click the [Configure alarm limits and notification settings...] button on the Alarm Limits tab in the Selected tag settings panel:



Select a tag/row

The settings on the "Alarm Limits and Notification Settings" window are for a single tag/row. This tag/row can be selected at the top of the window or from the tag list along the left side.

The "Current tag" dropdown provides a list of tags in the current configuration. Note that all tags are displayed in the dropdown (Tag Group filter from Tag list is not used).

Current Tag: 1. 'OTAGF006' on 'MyServer' TagID=Unit1OutTemp	Row: 1	Primary Tag Group: Unit1\Temperature
--	---------------	---

Along the left side of the "Alarm Limits and Notification Settings" window is a tag list. Initially, the tag list contains all tags although the user can filter the tag list by Tag Group.

Selecting a tag from the list will also select the tag from the "Current tag" dropdown.

Row		Tag	Server	Description
1	X	OTAGF006	MyServer	Outlet tem
2	X	OTAGF007	MyServer	Avg outlet
3	X	OTAGS001	MyServer	Level 1 indi
4	X	OTAGS003	MyServer	Level 2 indi
5		OTAGS002	MyServer	Discharge f
6	X	OTAGS006	MyServer	Discharge f
7	X	ITAGF010	MyServer	Outlet 4 pr
8	I	ITAGF009	MyServer	Outlet 5 pr
9		ITAGF008	MyServer	Outlet 4 te
10		ITAGF007	MyServer	Outlet 5 te
11		OTAGS004	MyServer	Station 4 s
12		OTAGS004	MyServer	Station 5 s
13	X	OTAGS005	MyServer	Station 6 s
14	X	OTAGF008	MyServer	Unit1 NOx
15		ITAGF100	MyServer	Unit 2 NOx
16	X	ITAGF101	MyServer	Unit 1 pow
17	X	ITAGF102	MyServer	Unit 2 pow

Inherit

The alarm limit and notification settings are normally stored for each monitored tag.

If a set of tags share alarm limit and notification settings, you can define the settings for one tag and use (inherit) these settings for the other tags.

Inherit the setting of another tag as the settings for this tag

Copy inherit settings Paste inherit settings

* Recommended: use RowUID to reference the tag/row you want to inherit from

Inherit settings from the following tag/row: BaseTag (blank = no inheritance)

Use this dropdown to select the other row: 2. 'IN1.Float.ITAGF0001' on 'MyServer' RowUID=BaseTag Go to this tag

Items to inherit

- Alarm limits and notification Information on the 'Alarm limits' tab, not including the alarm disabled setting
- Escalation Information on the 'Advanced Notification...Escalation' tab (the Escalation Template)
- Return to normal notification Information on the 'Advanced Notification...Return to Normal Notification' tab
- Acknowledge notification Information on the 'Advanced Notification...Acknowledge Notification' tab
- Acknowledge options Information on the 'Acknowledge Settings' tab
- AND gate Information on the 'AND Gate' tab
- Options Information on the 'Options' tab
- Custom Response Information on the 'Custom Response' tab
- Outputs Information on the 'Outputs' tab
- SNMP Trap Information on the 'SNMP Trap' tab
- MQTT Information on the 'MQTT' tab

To inherit the alarm limits and notification settings of another tag:

1. Create a "template tag"
For one of the tags in the set of related tags, configure the alarm limits and notification settings. We will refer to this tag as the template tag.
2. Assign a RowUID to the template tag
Although this is not required, it is recommended since the other tags can then reference the template tag through the RowUID name.
For more information, see **Row UID** on page 91.
3. For each tag that should inherit the settings of the template tag, on the Inherit screen
 - a. Select the RowUID of the template tag
 - b. Select/check the items to inherit

Inherit settings from the following tag/row

The row reference or RowUID of the tag/row whose settings should be inherited (the template tag).

Items to inherit

Select/check the items to inherit. Each item corresponds to a tab/screen of the Alarm Limits and Notification Settings dialog.

Copy and Paste settings

The Copy and Paste buttons allow the user to copy the inherit setting between tags.

Special notes about inheritance

Multi-level inheritance not supported

The template tag needs to define the items inherited by other tags. Multi-level inheritance (template tag inherits from another tag) is not currently supported.

Row references in template tag (use RowUID!)

When a tag inherits from a template tag, it is getting an exact copy of the settings of the template tag.

Some of the inherited items may contain row references to other tags. For example, you can inherit the Inhibit/Gate settings of a template tag; the Inhibit/Gate of the template tag contains a reference to another row. If the Inhibit/Gate row reference of the template tag is "-1" (the row before me), tags which inherit this setting will inherit the value "-1" (the row before me) and not the row number resolved by the template tag.

For this reason, we suggest that most row references in TopView be specified using RowUID and not row number or row offsets. For more information, see **Row UID** on page 91.

Alarm limits Screen

Enter up to 4 limits per tag row

The user may enter the same tag name multiple times if more than 4 limits are needed for a single tag.

Alarm Limits Enter up to 4 alarm conditions for this tag/row

Disable alarms Check for good status Comment The temperature should be between 5.4 and 10

starting 1753-01-01 12:00:00 AM until 9998-12-31 12:00:00 AM Priority 1

Alarm limits Entered limits should be OR'd AND'd More

	Limit #1	Limit #2	Limit #3	Limit #4
Condition	> greater than	< less than		
Value	10 Add...	5.4 Add...	Add...	Add...
Deadband	units of value	units of value	units of value	units of value
Delay IN	10 secs (condition TRUE)	0 secs (condition TRUE)	0 secs (condition TRUE)	0 secs (condition TRUE)
Delay OUT	0 secs (condition FALSE)	0 secs (condition FALSE)	0 secs (condition FALSE)	0 secs (condition FALSE)
Expiration	0 secs (0=no expiration)	0 secs (0=no expiration)	0 secs (0=no expiration)	0 secs (0=no expiration)
Blackout	0 secs (0=no blackout)	0 secs (0=no blackout)	0 secs (0=no blackout)	0 secs (0=no blackout)
Schedule	Always	Always	Always	Always
Custom alarm message	Temperature %value% is too high	Temperature is too low		
Color	Red			
"Alarm" label	Warning			
Priority	3			
Notify	(Default Email-SMS Group)	(none)	(none)	(none)
Notification message	<Use Alarm Message>			
Resend	0 secs <input type="checkbox"/> Update msg			
Attach #1				
Attach #2				

Disable alarms

This setting will disable alarms for the current tag/row at startup or after a restart.

This setting can also be enabled on the Tags and Limits screen.

See **Disabled alarms: settings and behavior** on page 164 for more information.

Check for good status

Each tag/row in TopView has a value and associated status. The status can be Good, Bad, or Uncertain (uncertain is only available for TopView OPC).

If enabled, the alarm conditions for this tag/row will only be processed if the status is Good.

If TopView is suppressing alarm processing due to this setting, the State column in the TopView Engine Window and Remote Viewer will be displayed as "StatusBlock".

Priority (tag/row)

Enter the default priority for this tag/row and its alarm limit(s). Each alarm limit will use this priority value unless the limit specifies its own priority.

The priority is a number from 1..999 that signifies the importance of the monitored point and alarm.

- 1 = Highest priority
- 999 = Lowest priority

The entered priority can be a number (1-999) or a tag whose value holds a priority value from 1-999. Use the [...] button to search for the priority tag name. If a tag name is specified the name must appear within single quotes/apostrophes: 'tagname' and must exist on the same data server as the current tag/row.

The priority number:

1. Can be displayed as a column in the interactive TopView Engine window and the Remote Viewer
2. Can be used for filtering the displayed items in the interactive TopView Engine window and Remote Viewer
3. Affects the processing of outgoing messages in the Notification queues (Email, Modem, Voice notification, ...); items with higher priority (a lower priority number) are processed before items with a lower priority (a higher priority number). See **Priorities and Notification Message Queues** on page 586 for more information.
4. Can be used to filter Tag Group Notification. See Tag Group **Priority filter** on page 204 for more information.

Comment

Enter any text to explain the alarm limits that have been entered for this tag/row.

Entered limits should be Or'd/And'd

By default, the entered limits are OR'd so that if any of the entered limits are in violation, it will cause the tag/row to be "in alarm". ANDing the limits will set the tag in alarm only if all entered limits are in violation.

Entered limits should be OR'd AND'd

Warning: OR'd limits conditions should be mutually exclusive if the user is configuring different notification recipients for each limit.

Example:

Limit#1: > 50, Notify Managers
OR
Limit#2: = 55, Notify Engineers

These 2 OR's limit conditions are not mutually exclusive. If the row value is 55, both Limit#1 and Limit#2 are true. Managers and Engineers may not both receive notification in this example. This tag/row should be configured as 2 separate rows in TopView, each with one of the above limit conditions. TopView allows the user to enter the same tag for multiple rows.

Inhibit/Gate

You can add a final Inhibit/Gate condition to the current tag/row alarm limits using the Inhibit/Gate setting. The Inhibit/Gate setting allows you to configure state-based alarming – e.g., "only alarm if the unit is running" or "only alarm if the shelved tag is not True". See **Inhibit/Gate** on page 180 for more information.

Condition

Select the alarm condition for each limit from the drop-down.

** Some alarm conditions have optional behaviors or specific functions.

See **Alarm Condition Notes** on page 143 for details.

Condition	"Value" units	Description
!	Value	"not equal to"
<	Value	** "less than"
<=	Value	"less than or equal to"
L	Value	** LO "less than", suppresses notification if transitioning from LL
LL	Value	** LOLO "less than" supersedes LO and "<"
>	Value	** "greater than"
>=	Value	"greater than or equal to"
H	Value	** HI "greater than", suppresses notification if transitioning from HH
HH	Value	** HIHI "greater than" supersedes HI and ">"
=	Value	"equal to"
TU	Seconds	** Value trending up
TD	Seconds	** Value trending down
#	Seconds	timestamp of tag older than X seconds
%		** timestamp has changed
@	Seconds	** value flat-line for more than X seconds
+		tag value has changed
?		tag has bad status
*		tag has good status
Q	0 (false) or 1 (true)	Value of tag has (1) /does not have (0) a questionable bit set (PI) or uncertain quality (OPC)
R	Row	** Another tag row is in alarm
N	Row	** Another tag row is not in alarm
A	Row	** Another row is acknowledged
U	Row	** Another row is unacknowledged
E		New Event passed the event filter for the Events Tag (TopView Events only)

over the "Value" in the TopView Configurator Alarm Limits screen will display the resolved timestamp in a pop-up tooltip. This enables the user to verify that the entered syntax is correct.

Row specification:

The conditions "R", "N", "A" and "U" require that the user specify a row number or relative row position. The following row specification syntax is supported:

Row	Description	Example
X	Absolute row number	2
+X	Number of rows past current row	+5
-X	Number of rows before current row	-1
rowuid	The Row UID of another row	Unit1OutTemp

Deadband

Use the deadband to change the "return-to-normal" value for comparison limit conditions. Deadbands are valid for the following alarm conditions: >, HH, <, LL

The deadband should be entered as a positive number, a delta in units of the value.

Once the limit value is violated, the value must move outside the bounds of the limit value +/- the deadband value in order to return to normal.

Example:

- Condition: >, Value: 50, Deadband: 5
The condition will be TRUE when the value is > 50, but it must then move below 45 to be FALSE
- Condition: <, Value: -20, Deadband: 3
The condition will be TRUE when the value is < -20, but it must then move above -17 to be FALSE

Delays and Expiration

Delay IN seconds: The amount of time that the limit condition must be true before this tag/row goes "into alarm".

Delay OUT seconds: The amount of time that the limit condition must be false before the tag/row can return to normal from an alarm.

Expiration seconds: The amount of time after the limit condition is true when this tag/row will return to normal. A value of "0" means "no expiration".

Note: the purpose of expiration is to force a return-to-normal without the condition becoming false. Once an expiration occurs the alarm will not re-trigger until the alarm condition has gone false then true again.

Examples:

Alarm condition: >, Value: 156.0, Delay IN: 10, Expiration: 60

At 10:00:00, tag/row value changes from 150.0 to 159.4

At 10:00:10, this row will go "into alarm"

At 10:01:00, this row will return to normal due to the expiration, even though the condition is still true. This row will not go into alarm again until the value goes below 156, and then above 156 for 10 seconds.

Alarm condition: >, Value: 156.0, Delay IN: 10, Delay OUT: 20

At 10:00:00, tag/row value changes from 150.0 to 159.4

At 10:00:10, this row will go "into alarm"
At 10:30:00, tag/row value changes from 159.4 to 150.0
At 10:30:20, this row will return to normal.

Blackout

The blackout period allows you to enforce a minimum frequency at which the alarm condition can become TRUE. Once the condition transitions from FALSE to TRUE, TopView will not recognize another transition from FALSE to TRUE for this condition within the blackout period; a new transition (FALSE to TRUE) must occur at a time that is greater than last transition time plus the blackout in order to set the result of this alarm condition to TRUE

Example:

Alarm condition: >, Value: 156.0

Time	Tag Value	Result blackout=0	Result blackout=60	Comment for blackout=60
10:00:00	150	FALSE	FALSE	
10:00:20	160	TRUE	TRUE	New base time for blackout
10:00:45	150	FALSE	FALSE	
10:01:00	160	TRUE	FALSE	40 seconds after last base time Not > 60 seconds after base time
10:01:15	150	FALSE	FALSE	
10:01:30	160	TRUE	TRUE	70 seconds after last base time New base time for blackout
10:02:00	150	FALSE	FALSE	
10:02:15	160	TRUE	FALSE	45 seconds after last base time Not > 60 seconds after base time
10:03:15	150	FALSE	FALSE	
10:04:00	160	TRUE	TRUE	150 seconds after last base time New base time for blackout

Schedule

Select the Schedule for the alarm limit condition. The alarm limit condition can only be violated if the selected Schedule is also active.

User can create new Schedules using the  button next to the Schedule drop-down. See **Schedules** on page 342 for more information on creating new Schedules.

Alarm Limit Schedules allow the user to configure alarm conditions that are only valid during certain days or time-of-day.

Alarm Limit Schedule Example:

Limit#1: > 100, Schedule = Weekdays
OR
Limit#2: > 105, Schedule = Weekends

If the same alarm limit condition (>, <) is used multiple times for the same tag/row, the Schedules assigned to each limit condition should be mutually exclusive. In the above example, ">" is used two times, but the Schedules "Weekdays" and "Weekends" do not occur at the same time.

Alarm message and Custom message

When an alarm occurs for the current tag/row, TopView creates an alarm message consisting of the tag/row value and alarm condition violated.

Example: `tag401' (123.4) > 110.0

This field allows user to add custom instructions or messages in addition to the alarm condition message created by TopView.

If a **Custom alarm message** is entered, the custom message text will be included as a prefix to the TopView-generated alarm message. The alarm message is displayed in the interactive TopView Engine window and Remote Viewer, is used for Text-to-speech Audible Alarms, and is also the default notification message sent to users (email, SMS, voice callout ...).

If **"Only use custom alarm message"** is selected, a custom message will be the entire alarm message. The TopView-generated alarm message describing the violation (e.g., `t401' > 110.0) will not be included in the alarm message.

Placeholders

The custom alarm message supports the use of placeholders to embed dynamic information in the message. See **Placeholders for messages, text** on page 149 for more information.

Notes:

- By default, the custom message is prefixed to the TopView-generated alarm message. The user can switch the order so that the TopView-generated alarm message appears before the custom message. This is a global setting and will apply to all TopView alarm messages. See Global Options, **Change order of TopView alarm message and custom alarm message** on page 471 for more information.
- The TopView-generated alarm message can display the tag name or the tag description. See Global Options, **Default TopView alarm message should display...** on page 471 for more information.

Color

Set the color of this item if this tag/row violates the limit condition (TopView Engine Window and Remote Viewer client).



“Alarm” label

Allows the user to set alternate label (text) for the word “Alarm” displayed in the first column of the TopView Engine Window and Remote Viewer. If blank, the word “Alarm” will be displayed.

Alarms View		Selected Tag Group	
		Time in alarm	Al
Warning	●	000:01:21	H
Alarm	●	000:01:21	I

Priority (alarm limit)

An alarm limit can specify a priority to override the priority of the current tag/row. If left blank or equal to 0, the alarm limit priority will be set to the priority of the tag/row.

If entered the priority should be a value from 1-999 or a tag whose value is the desired priority. See **Priority (tag/row)** on page 130 for more information on entering a priority value.

Notification settings

The notification settings determine the optional notification that is sent when the alarm limit condition becomes true.

Note

- The current tag/row may also send alarm notification if it is part of a Tag Group with configured notification. See **Tag Groups** on page 196.
- You can configure additional notification after the alarm transitions (see **Advanced Notification...Escalation** on page 168), notification when the alarm returns to normal (see **Advanced Notification...Return to Normal Notification** on page 170), and notification upon alarm acknowledge (see **Advanced Notification...Acknowledge Notification** on page 172).

Notify

Each alarm condition contains 3 separate Notify fields. This allows up to three different notification groups to be notified for the current alarm active condition.

Each Notify field contains a notification group or custom recipient list (email, SMS, voice callout...) that will receive notification when the alarm becomes active. The list includes recipients for the types of notification that are enabled for this configuration file.

For more information, see **Selecting the Notify recipients** on page 499.

For escalation after the alarm transition, see **How to configure escalation of alarms and additional notification** on page 148.

WAV file (Voice Notification only)

The WAV file to play for this alarm (when the recipient is the default voice group or a global voice group and voice notification is configured to use WAV files and not text-to-speech). These WAV files exist in DataPath\Voice\

Notification message

The default notification message is the alarm message (<Use Alarm Message>).

The user can also create more detailed notification messages (multi-line, etc.) by creating Notification Message Templates and assigning a Notification Message Template to an alarm by selecting it from the Notification message dropdown:



To create/edit Notification Message Templates, click [...]

For more information see **Notification Message Templates** on page 353.

Resend

If an alarm occurs and is still "in alarm" after the entered resend seconds (resend seconds > 0), the notification is resent to the same recipients as selected from the "Notify" field of the alarm limit. The resend will then occur at each resend interval as long as the alarm condition is still true. For more advanced resending, see delay settings within Global Notification Groups or "Advanced Notification...Escalation".

Update msg:

If Notification message is set to <Use Alarm Message>, the original alarm message, including the tag value that triggered the alarm, is resent. If "Update msg" checkbox is selected, any tag value in the alarm message or custom subject (%value% placeholder) as well as time in alarm (%tia% placeholder) will be updated with the most recent value. This allows the "resent" notifications to inform the user of any changes in tag value and time in alarm since the alarm occurred.

If Notification message is set to a Notification Message Template, placeholders in the message template are always updated at the time that the message is resent. Therefore, the setting for "Update msg" is ignored and it is assumed to be true.

Enter 0 for no resend.

Note: when using Email-SMS Notification, the resent message subject and message text will, by default, contain the text string "(resend)". The user can override this text with a custom text string. See Global Settings,

Footer: Suppress "<Sent by TopView>" at the end of the message

If enabled will suppress the email and SMS message footer.

Note: this option is only valid for non-expiring, purchased TopView licenses.

Return to normal (RTN) notification

An RTN notification message can include a prefix in the subject (email) and message body to inform the recipient that the notification message was generated from an RTN event and not a new active alarm event.

The RTN prefix string can be changed from the default value "(RTN)" and the user can decide to include or exclude the RTN prefix when a Notification Message Template is used for the notification message body.

Overview of RTN prefix usage:

- If the RTN does not have a custom email subject, the RTN subject is the same as the alarm message and the prefix is added
- If the RTN has a custom email subject, the prefix is not used and the custom subject should inform that the RTN has occurred
- If the RTN does not have a custom message, the prefix is added to the message
- If the RTN has a custom message (not a template), the prefix is not used and the custom message should inform that the RTN has occurred
- If the RTN message is a notification template, the prefix is added based on the Global Option to include or exclude the RTN prefix.

See **Advanced Notification...Return to Normal Notification** on page 170 for more information on RTN Notification.

Resend on page 492 or more information.

Custom subject (email notification only)

This field is used if the selected Notify field for the alarm limit is an email recipient (the default email-SMS group, custom email-SMS list, or global email-SMS group).

The default email "Subject" field for outgoing email notification messages is configured in the Outgoing Email Setting screen (see **Email message settings** on page 262).

For each alarm condition, the user can enter a custom email subject that will override the default email Subject specified in the Outgoing Email Setting screen. If the custom subject is blank, the default email subject will be used. If the custom subject field is not blank, the entered text will be used as the email subject for this alarm limit.

The user can enter a custom email subject (with placeholders) using the same format supported by the alarm custom message. See **Placeholders for messages, text** on page 149 for more information.

Attach (email notification only)

This field is used if the selected Notify field for the alarm limit includes email recipients (the default email-SMS group, custom email-SMS list, or global email-SMS group).

This field specifies the full path to a file that should be attached to email notification messages that are sent when the alarm condition is violated. If TopView is creating HTML Snapshot Report files for this configuration, the output HTML file can be attached by specifying the full path to the HTML file here.

Alarm Condition Notes

LO/LOLO and HI/HIHI alarm conditions

TopView contain alarm conditions:

- less than (<), LO (L), LOLO (LL)
- greater than (>), HI (H), and HIHI (HH)

When used as alarm limits for the same point in TopView, a LOLO alarm will supersede a "<" or LO alarm (assuming the LOLO limit is lower than the "<" or LO limit) and a HIHI alarm will supersede a ">" or HI alarm (assuming the HIHI limit is greater than the ">" or HI limit).

For alarming, "<" is equivalent to LO and ">" is equivalent to "HI". For example, "< 50" and "LO 50" will both alarm when the value is less than 50. The only difference is how TopView handles notifications for improving conditions. The LO and HI condition will suppress alarm notification if the condition is coming from a LOLO or HIHI condition. Suppressed notifications include notification for alarm limit, Tag Group, and Escalations.

Let's look at an example:

We want to create an alarm when the value exceeds 50 and another alarm when the value exceeds 100.

- Limit #1: value greater than 50
- Limit #2: value greater than 100 (suppress limit #1)

Here are the values over time: 25, 55, 75, 110, 105, 95

Solution#1:

- Alarm Limits:
 - Limit#1: **>50**, notify Group1
 - Limit#2: HH 100, notify Group 2
- Behavior of TopView
 - Value 25 to 55: Alarm for limit#1 and notify Group1
 - Value 75 to 110: Alarm for limit#2 and notify Group2
 - Value 105 to 95: Alarm for limit#1 and **notify Group1**

Solution#2:

- Alarm Limits:
 - Limit#1: **H 50**, notify Group1
 - Limit#2: HH 100, notify Group 2
- Behavior of TopView
 - Value 25 to 55: Alarm for limit#1 and notify Group1
 - Value 75 to 110: Alarm for limit#2 and notify Group2
 - Value 105 to 95: Alarm for limit#1, **do not notify Group1** because we transitioned from HIHI to HI.

Value change alarms

A value change alarm (condition "+") will occur when the tag value changes. Subsequent changes will cause addition alarms and will trigger any configured notifications. If the user wants TopView to alarm for specific value changes, they must "and" the value change alarm with a second limit for the row.

Example: Tag value can be "OFF", "ON". If the user desires to set the row into alarm when the value changes to "OFF", set two limits as follows:

Limit 1: + (value change alarm)

Limit 2: = OFF (value equals OFF)

Make sure to set the option to "and" the two limit conditions

Continuous value change alarm condition

A row with a single value change alarm condition will transition into alarm at the first value change, and will continue to appear "in alarm" since each subsequent change in value will cause a new alarm condition. In other words, a value change alarm does not "return to normal".

There are two methods you can use to make a value change alarm return to normal

1. Enter an expiration for the alarm condition (see **Delays and Expiration** on page 135)
2. Acknowledge the row

Note that the next value change will transition the row into alarm.

Timestamp change alarms

A timestamp change alarm (condition "%") will occur when the tag's current timestamp changes. Subsequent changes will cause addition alarms and will trigger any configured notifications. If the user only wants TopView to alarm for specific changes, the user must "and" the timestamp change alarm with a second limit for the row.

Continuous timestamp change alarm condition

A row with a single timestamp change alarm condition will transition into alarm at the first timestamp change, and will continue to appear "in alarm" since each subsequent change in value will cause a new alarm condition. In other words, a timestamp change alarm does not "return to normal".

There are two methods you can use to make a timestamp change alarm return to normal

1. Enter an expiration for the alarm condition (see **Delays and Expiration** on page 135)
2. Acknowledge the row

Note that the next timestamp change will transition the row into alarm.

Calculating flat-line alarms

A value flat-line alarm in TopView allows user to recognize that a tag's value has not changed for a period of time. Every "tag value" is composed of a value and a timestamp. Flat-line alarms only look at the value portion of the "tag value". Flat-lining can signal a frozen instrument or interface failure.

When configuring a flat-line alarm condition, the user enters "@N" where N is the number of flat-line seconds to cause an alarm condition.

TopView is only concerned with a flat-line in the displayed value. Since the user can format the value displayed/used by the TopView Engine (e.g., 0.0), the displayed value must remain constant for a flat-line alarm.

Example:

Value: 1.109	Time: 13:59:50	TopView Format: 0.0	Displayed: 1.1
Value: 1.004	Time: 14:00:00	TopView Format: 0.0	Displayed: 1.0
Value: 1.016	Time: 14:00:08	TopView Format: 0.0	Displayed: 1.0
Value: 1.000	Time: 14:00:20	TopView Format: 0.0	Displayed: 1.0

Since the displayed value (1.0) has not changed since 14:00:00, TopView will consider this a value flat-line.

Calculating flat-line duration

The default method for computing flat-line alarms uses the UTC time of local machine to determine how long it has been since TopView saw a change in value. Although this method works well for most users, the downside of this approach is that TopView must be running for N seconds before it will recognize a flatline alarm "@N".

The user can change the default calculation method for flat-line alarming. The second method, "server flat-line calculation", compares the timestamp when the value last changed to the current time of the Server (OPC or PI).

"Time of the Server" for TopView PerfMon and TopView SQL users

PerfMon tag (performance counter) timestamps for local and remote performance counters reflect the time that the TopView computer retrieved the value. The remote computer time is not used. "Time of the Server" is the TopView computer time.

SQL tag timestamps reflect the TopView computer time of the query OR, based on tag configuration, a timestamp retrieved in the query. The database computer time is not used. "Time of the Server" is the TopView computer time.

This method works well as long as the timestamp for the incoming data is synchronized with the time of the Server. Sometimes the incoming data (tag) is time-stamped by a source (control system, PLC, etc.) which is lagging the time of the Server. In this case, there is always a difference between the timestamp of a new value and the current time of the Server. If this difference is greater than the flat-line alarm duration N, TopView may report a flat-line alarm even though new values are arriving.

To change the flat-line calculation method, see **Global Options: General** on page 468.

Trend UP and Trend DOWN alarms

The trend up and trend down alarms allow the user to recognize a condition where the value is consistently rising or falling over a period of time. The user configures the time period (trend interval) as part of the alarm condition. Delay IN should not be used as part of a trend up or trend down alarm condition.

Which values are considered for trend alarms?

Each TopView configuration has a refresh interval. At the refresh interval, TopView retrieves the current value of each monitored tag. For tags with a configured trend up/down alarm condition, TopView will cache all scanned values over the last X seconds (X=trend interval) to determine if a trend up or trend down condition exists.

Note: Every "tag value" is composed of a value and a timestamp. Trend up/down alarms only look at the value portion of the "tag value".

Determining trend UP alarm:

For the cached values within the trend period:

- At least 2 values must exist in the cache
- Looking at the values in the cache from oldest to newest, each value must remain the same or be greater than the previous value
- There must be at least 2 different values in the cache (value is not flatlined)

Determining trend DOWN alarm:

For the cached values within the trend period:

- At least 2 values must exist in the cache
- Looking at the values in the cache from oldest to newest, each value must remain the same or be less than the previous value
- There must be at least 2 different values in the cache (value is not flatlined)

PI Questionable bit or OPC uncertain quality

The Q alarm condition allows the user to check for

- PI: the questionable attribute of a tag value to be set or not
- OPC: the tag value quality to be uncertain or not

The "value" field for the Q alarm condition is entered as a 0 (false) or 1 (true)

- PI: each tag value has a questionable attribute. This attribute signals that the value has been identified as irregular in some way by an application.
 - Value=1: the questionable attribute of the tag value is True
 - Value=0: the questionable attribute of the tag value is False
- OPC: each OPC tag value has a quality of good, bad, or uncertain.
 - Value=1: the tag value quality is 'uncertain'
 - Value=0: the tag value quality is not 'uncertain'

Row reference conditions

Some alarm conditions allow you to reference the alarm or acknowledged state of another row in TopView:

R = another row is in alarm

N = another row is not in alarm

A = another row is acknowledged

U = another row is unacknowledged

When TopView evaluates the alarm condition of each tag/row in TopView during each refresh, it does so in the order in which the tags appear in the tag list (row 1 ... row n).

Therefore, during a refresh, an alarm condition for row X which looks at the alarm state or unacknowledged state of another row Y (condition R, N, A, or U) may be looking at the state of the other row during the current pass (if the reference row number Y is < X) or from the previous pass (if the referenced row number Y is > X).

How to configure escalation of alarms and additional notification

TopView can escalate unacknowledged or persistent alarms. TopView can also send additional notification at the time of the alarm or at a time after the alarm.

TopView provides two methods for escalation and additional notification:

Method 1: Escalation Templates

Most escalation needs can be addressed through Escalation Templates. Each template provides up to 50 escalation and notification steps with configurable conditions, delays, and recipients. Once created, a template can be assigned to any existing tag/row in TopView. See **Advanced Notification...Escalation** on page 168.

Method 2: Escalation with User Tags

For more complex needs beyond Escalation Templates, the user can configure additional User Tags in TopView to perform escalation and additional notification.

Example:

To escalate the condition: TAG01 alarm is unacknowledged for 60 seconds and TAG02 is still in alarm after 60 seconds, the user can create an alarm condition for the unacknowledged TAG01 row using the "U" alarm condition, and the in-alarm TAG02 row using the "R" alarm condition. The user can then set the delay to the amount of time at which the alarm gets escalated.

Row1: TAG01, Alarm condition: >0, delay 0 seconds

Row2: TAG02, Alarm condition: >0, delay 0 seconds

Row3: user_tag, Alarm condition: U1, delay 60 second AND R1, delay 60 seconds

In this example, TAG01 value is displayed for the first row and TAG02 is displayed for the second row. The third row uses User Tag since the alarm conditions are based on other rows in TopView and not the current row's tag.

The first row will go into alarm when the value of TAG01 is greater than zero. The second row will go into alarm when the value of TAG02 is greater than zero. The third row will go into alarm if the first row remains unacknowledged for 60 seconds and the second row is in alarm for 60 seconds. On the Edit Limits screen, the user can assign different recipients for each alarm condition, allowing him/her to notify different people for the initial alarm conditions and the User Tag alarm condition.

Acknowledging multiple tags/rows with a single acknowledge

Since multiple tags/rows may be involved in the escalation configuration, the user may want to group the tags/rows together such that the acknowledgement of one tag/row will acknowledge the other tags/rows that are part of the escalation. See **Acknowledge Group** for more information.

Placeholders for messages, text, and Logic Function arguments

Placeholders allow the user to embed dynamic information (e.g., the tag value that violated an alarm condition) into an otherwise static message or text string. At runtime, TopView will replace the placeholders with the value of the placeholder.

Placeholder example:

Custom message: The temperature is %value% on %timestamp%

Actual message: The temperature is 50.6 on July 1st, 2005 at 8:05 AM

Placeholder notes:

- Placeholders are supported by the custom alarm message, custom email subject, RTN message, RTN subject, Ack Message, Ack Subject, Ack output tag values, Notification Message Templates, RSS Feeds, Logic Function arguments, and SNMP Trap messages.
Custom fields have a separate list of placeholders.
- Placeholders are case-sensitive and should be entered in lower case.
- %alarmmsg%, %alarmlabel%
Not supported in the custom alarm message
- %inalarm%, %ack%, %ackuser%, %ackdevice%, %unack%, %uid%
These placeholders are only supported within Notification Message Templates, Acknowledge Notification, Acknowledge output tag value, RSS Feeds, and Logic Function arguments.
- %recip_list%, %recip_list_cr%, %inc:templatexyz%
These placeholders are only supported within Notification Message Templates and RSS Feeds.
- Date/Time placeholders
(%acktime %%, %currenttime %%, %timestamp %%, %toa %%, %tor%%)
TopView will provide a default format to date/time placeholders. The user can override this default format globally or per-placeholder
 - The user can provide a global custom format string for the date/time placeholders. See Global Options, **Timestamp format for display** on page 476 for more information.
 - An individual date/time placeholder can specify a custom format string for this instance of the placeholder using %placeholder:format%.
Example: %timestamp:M/d/yy HH:mm%
See **Custom date formats** on page 598 for details on the date/time format string
- %tia%
Time in alarm is the total time the tag/row has been "in alarm" when the message is generated. If used as the custom alarm message: when the alarm occurs, the alarm message is generated and %tia% will be 00:00:00. Since the alarm message is created once at the time of transition, the displayed alarm message will remain with time in alarm equal to 00:00:00.
If you enable resending notification (see **Resend** on page 141) and enable "Update msg" for the resend, or if you have configured a return-to-normal notification (custom RTN message or template using %tia%), the message will contain an updated %tia% value.
- %alarmvaluemax% and %alarmvaluemin%
Max/min value is the max/min value of the row while the alarm was active at the

time that the message is generated. If used as the custom alarm message: when the alarm occurs, the alarm message is generated and these placeholders will have a single value (the value that put the row into alarm) and are equal to %value%. Since the alarm message is created once at the time of transition, the displayed alarm message will remain constant without updating the max/min values. If you enable resending notification (see **Resend** on page 141) and enable "Update msg" for the resend, or if you have configured a custom return-to-normal notification message, the message will contain an updated max/min values.

- `<%attvalue||name%>`
For the PIAF data source, this placeholder returns the value of the attribute named "name" that exists at the same element path as the current tag/attribute.

Example:

Elements Units\Unit1 and Units\Unit2 exist with attributes level and temperature
Current attribute is \Units\Unit1|level at element path \Units\Unit1
Current element temperature value (\Units\Unit1|temperature):
`<%attvalue||temperature%>`

AF path syntax allows relative references from the current element path.

Example:

Elements Units\Unit1 and Units\Unit2 exist with attributes level and temperature
Current attribute is \Units\Unit1|level at element path \Units\Unit1
Level of Unit2 (\Units\Unit2|level):
`<%attvalue||..\Unit2|level%>`

Placeholders - General

Placeholder	Description	Example
%cfg%	Name of the TopView configuration file	Message generated by %cfg%
%currenttime% %currenttime:format%	Date and time of the TopView computer, local time zone. See note above regarding Date/Time placeholders.	Message generated at %currenttime%
%currenttime_atz% %currenttime_atz:format%	Date and time of the TopView computer, alarm time zone. See note above regarding Date/Time placeholders.	Message generated at %currenttime_atz%
%atz%	The name of the alarm time zone	The time zone of this alarm is %atz%
%ltz%	The name of the local time zone	The TopView computer time zone is %ltz%
%recip_list%	List of recipients for this notification message. See note above regarding %recip_list%	Recipients: %recip_list%
%recip_list_cr%	List of recipients for this notification message separated by carriage return. See note above regarding %recip_list%	Recipients: %recip_list_cr%
%inc:templatexyz%	Include the contents of Notification Message Template "templatexyz" in the current template. The entered template name (templatexyz) must be entered lowercase.	%inc:header% The temperature is too high %inc:footer%
%n%	New line	My first line %n% My second line
%empty%	Empty string	Use to specify an empty string instead of leaving the field empty

Placeholders – Current tag/row information

Placeholder	Description	Example
%value%	Current row value	This row value is %value%
%pvalue%	Previous row value; value of %value% during previous refresh	This row previous value is %pvalue%
%status%	Current row status (Good, Bad, Uncertain)	This row status is %status%
%tagvalue%	Current row tag value. The value of the tag for this row regardless of operation. If no operation, equal to %value%	The tag value is %tagvalue%
%ptagvalue%	The previous value of the tag for this row regardless of operation. If no operation, equal to %pvalue%; value of %tagvalue% during the previous refresh	The previous tag value is %ptagvalue%
%tag%	The tag name for the current row	Tag %tag% is in alarm
%tagroot%	The root tag name root (without extension/property) of %tag% for the current row	%tagroot% is the root tag name
%tagext%	The tag name extension/property of %tag%	%tagext% is the tag name extension
%server%	The server name for the current row	Tag %tag% on %server% is in alarm
%timestamp% %timestamp:format%	The timestamp of the tag for the current row, local time zone. See note above regarding Date/Time placeholders.	Timestamp age alarm. Time is %timestamp%
%timestamp_atz% %timestamp_atz:format%	The timestamp of the tag for the current row, alarm time zone. See note above regarding Date/Time placeholders.	Timestamp age alarm. Time is %timestamp_atz%
%desc%	The current row's tag description	Alarm occurred for %desc%

%eu%	The engineering units for the current row	Value is %value% %eu%
%taggroup%	The name of the primary Tag Group assigned to the current row	Alarm point category is %taggroup%

<code>%rowuid%</code>	The Row UID of the current row	This Row UID is <code>%rowuid%</code>
<code>%rownum%</code>	The row number (1...n) of the current row	This tag's row number is <code>%rownum%</code>
<code>%elementpath%</code>	The element path for the current row AF attribute (tag) (PIAF only)	This attribute's element path is <code>%elementpath%</code>
<code>%elementname%</code>	The element name for the current row AF attribute (tag) (PIAF only)	This attribute's element name is <code>%elementname%</code>
<code><%attvalue name%></code>	The current value of attribute named 'name' which exists at the same element path as the current tag/attribute (PIAF only). See note above regarding <code><%attvalue name%></code> placeholder.	This level value of this element is <code><%attvalue level%></code>
<code><%attvalue name format%></code>	The formatted current value of attribute named 'name' which exists at the same element path as the current tag/attribute (PIAF only). See note above regarding <code><%attvalue name%></code> placeholder.	This level value of this element is <code><%attvalue level 0.00%></code>
<code>%attname%</code>	The attribute name for the current row AF attribute (tag) (PIAF only). Note: <code>%tag%</code> contains the full attribute path, <code>%attname%</code> is the attribute name only	This row's attribute name is <code>%attname%</code> . The full attribute path is <code>%tag%</code> .
<code>%alarmvalue%</code>	The row value at the time that the last alarm occurred (useful for the RTN custom message)	This row value is now <code>%value%</code> . The last alarm was caused by <code>%alarmvalue%</code>
<code>%alarmstatus%</code>	The row status at the time that the last alarm occurred (useful for the RTN custom message)	This row status is now <code>%status%</code> . The status at the start of the last alarm was <code>%alarmstatus%</code>

%alarmvaluemax%	The maximum row value while the alarm is active (useful for the RTN custom message)	The maximum value during the alarm was %alarmvaluemax%
%alarmvaluemin%	The minimum row value while the alarm is active (useful for the RTN custom message)	The minimum value during the alarm was %alarmvaluemin%
%alarmtagvalue%	The row tag value at the time that the last alarm occurred, regardless of operation. If no operation, equal to %alarmvalue%	The last alarm was caused by tag value %alarmtagvalue%
%alarmtagvaluemax%	The maximum row tag value while the alarm is active, regardless of operation. If no operation, equal to %alarmvaluemax%	The maximum tag value during the alarm was %alarmtagvaluemax%
%alarmtagvaluemin%	The minimum row tag value while the alarm is active, regardless of operation. If no operation, equal to %alarmvaluemin%	The minimum tag value during the alarm was %alarmvaluemin%
%inalarm%	Is the current tag/row in alarm? True/False See note above regarding %inalarm%	Alarm active: %inalarm%
%unack%	Is the current tag/row unacknowledged? True/False See note above regarding %unack%	Last alarm unacknowledged: %unack%
%ack%	Is the current tag/row acknowledged? True/False See note above regarding %ack%	Last alarm acknowledged: %ack%
%acktime% %acktime:format%	The acknowledge time of the most recent alarm, local time zone. See note above regarding Date/Time placeholders.	Last alarm acknowledged at: %acktime%

<code>%acktime_atz%</code> <code>%acktime_atz:format%</code>	The acknowledge time of the most recent alarm, alarm time zone. See note above regarding Date/Time placeholders.	Last alarm acknowledged at: <code>%acktime%</code>
<code>%ackuser%</code>	The user who acknowledged the most recent alarm. See note above regarding <code>%ackuser%</code>	Last alarm acknowledged by: <code>%ackuser%</code>
<code>%ackdevice%</code>	The device or computer of the user who acknowledged the most recent alarm. See note above regarding <code>%ackdevice%</code>	Last alarm acknowledged from: <code>%ackdevice%</code>
<code>%alarmmsg%</code>	The alarm message of the current row. See note above regarding <code>%alarmmsg%</code>	Warning: <code>%alarmmsg%</code>
<code>%alarmlabel%</code>	The custom alarm label of the most recent alarm. Available while the alarm is active.	The alarm label is <code>%alarmlabel%</code>
<code>%disabled%</code>	The current tag/row is disabled/shelved/snoozed (True/False)	Alarm disabled: <code>%disabled%</code>
<code>%uid%</code>	The alarm unique ID for the alarm of the current row. See note above regarding <code>%uid%</code>	Alarm ID is <code>%uid%</code>
<code>%tia%</code>	The time in alarm as hh:mm:ss. See note above regarding <code>%tia%</code>	In alarm for <code>%tia%</code>
<code>%toa%</code> <code>%toa:format%</code>	The date/time that the alarm occurred, local time zone. See note above regarding Date/Time placeholders.	High temp alarm occurred <code>%toa%</code>
<code>%toa_atz%</code> <code>%toa_atz:format%</code>	The date/time that the alarm occurred, alarm time zone. See note above regarding Date/Time placeholders.	High temp alarm occurred <code>%toa_atz%</code>

%tor% %tor:format%	The date/time that the alarm returned to normal, local time zone. See note above regarding Date/Time placeholders.	High temp alarm ended %tor%
%tor_atz% %tor_atz:format%	The date/time that the alarm returned to normal, alarm time zone. See note above regarding Date/Time placeholders.	High temp alarm ended %tor_atz%
%ackurl%	URL to the acknowledge page for this row/alarm (must enable web server for Mobile)	Acknowledge: %ackurl%
%priority%	The assigned alarm priority number (1-999)	Priority is %priority%
%uservalueX%	User value, x=1,2,3,4,5	%uservalue3% See User values on page 96
%uservalueX_html%	User value, x=1,2,3,4,5 without HTML Encoding	%uservalue3_html% See User values on page 96
%customfield_x_label% %customfield_x_link% %customfield_x_text%	Custom field label, link, and text value, x=1,2,3	%customfield_1_label% See Custom fields on page 111
%customfield_x_html%	The full custom field definition, not HTML Encoded , x=1,2,3	%customfield_1_label% See Custom fields on page 111
TopView Events (placeholders specific to TopView Events)		
%source%	Source name assigned to row	This source name is %value%
%event_queue_count%	Number of queued events for the current row's assigned source	There are %event_queue_count% events in the queue
{ <i>fieldname</i> }	The value of the event fieldname	The area is {area}

Placeholders – Other tag/row information

Referencing other rows in TopView

%row... placeholders include an argument for the row that is being referenced for information. This reference can be:

1. The row number: Example %rowvalueX% is the value of row number X
2. The row X before the current row: Example %rowvalue-X% is the value of the row that is X rows before the current row
3. The row X after the current row: Example %rowvalue+X% is the value of the row that is X rows after the current row
4. The row with Row UID =abc: Example %rowvalue:pressure% is the value of the row with Row UID = pressure

* Row UID is the recommended method for row referencing since it is independent of row position.

ARG in the %row placeholders below can be X, +X, -X, or :RowUID

Placeholder	Description	Example
%rowvalueARG%	Value of row (%value% for the row)	This row value is %value%, but the value of row 3 is %rowvalue3%
%rowpvalueARG%	Previous row value of another row during previous refresh. (%pvalue% of the row)	The previous row value of row 3 is %prowvalue3%
%rowstatusARG%	Status of another row (%status% for the row)	This row status is %status%, but the status of the row with RowUID=abc is %rowstatus:abc%
%rowtagvalueARG%	Tag value of another row (%tagvalue% for the row)	This row tag value (before operation) is %tagvalue% but the row tag value for the row before me is %rowtagvalue-1%
%rowptagvalueARG%	Previous tag value of another row during previous refresh. (%ptagvalue% for the row)	The previous tag value for the row before me is %rowptagvalue-1%
%rowalarmvalueARG%	Value of the row when alarm occurred (%alarmvalue% for the row)	This row alarm value is %alarmvalue% but the row alarm value for the row after me is %rowalarmvalue+1%
%rowalarmstatusARG%	Status of the row when alarm occurred (%alarmstatus% for the row)	

Placeholder	Description	Example
%rowalarmtagvalueARG%	tag value of the row when alarm occurred (%alarmtagvalue% for the row)	
%rowinalarmARG%	row in alarm (%inalarm% for the row)	
%rowunackARG%	row unacknowledged (%unack% for the row)	
%rowacktimeARG%	row acknowledge time (%acktime% for the row)	
%rowackuserARG%	row acknowledge user (%ackuser% for the row)	
%rowackdeviceARG%	row acknowledge device (%ackdevice% for the row)	
%rowdisabledARG%	row is disabled (%disabled% for the row)	
%rowalarmmsgARG%	row alarm message (%alarmmsg% for the row)	
%rowtiaARG%	row time in alarm (%tia% for the row)	
%rowtoaARG%	row time of alarm (%toa% for the row)	
%rowtorARG%	row time of return to normal (%tor% for the row)	
%rowtimestampARG%	row timestamp (%timestamp% for the row)	
%rowtagARG%	row tag name (%tag% for the row)	
%rowserverARG%	row server name (%servername% for the row)	
%rowdescARG%	row description (%desc% for the row)	

Placeholder	Description	Example
%rowtaggroupARG%	row tag group (%taggroup% for the row)	
%rowrowuidARG%	row RowUID (%rowuid% for the row)	
%roweuARG%	row eng units (%eu% for the row)	
* rowalarmmsg is the most recent alarm message of a row, even if the row is no longer in alarm.		

Placeholders – Information about any tag

Placeholder	Description
<code><%tagvalue servername tagname%></code>	Value of tag 'tagname' on server 'servername'
Example: <code><%tagvalue myserver tt401%></code>	
<code><%tagvalue servername tagname format%></code>	Value of tag 'tagname' on server 'servername' with numeric format
Example: <code><%tagvalue myserver tt401 0.00%></code> For valid numeric format strings, see Format on page 91. If the tag value is a date or time, you can format the value using date/time formatting - see Custom date formats on page 598.	

Disabled alarms: settings and behavior

This section discusses the details of disabled alarms and persistence of disabled alarms through restarts of the TopView Engine.

It is assumed that you are familiar with the following items:

1. Disabling alarms in the TopView configuration file
See **Disable alarms** on page 94
2. Setting: **Apply configuration changes while running** on page 217
3. Setting: **Write run-time alarm disable and snooze actions back to this configuration file** on page 218.
4. Setting: **Persist alarm, acknowledge, and disable state during internal restart (Engine remains running)** on page 219

Overview of “Disable alarms”

Each TopView configuration file controls the behavior of an instance of the TopView Engine. Multiple configurations and TopView Engine instances can run side-by-side on the same machine.

Each monitored tag/row in a TopView configuration has a “Disable alarms” setting. A tag/row that is disabled will not perform alarming or notification tasks. This setting is used to suspend a tag’s alarm and notification settings.

When a TopView Engine starts it reads the configuration file. The “Disable alarms” setting for each tag/row is initialized to the setting stored in the configuration file.

While TopView is running, the user can disable and enable alarms. This run-time disable action can be performed from the interactive TopView Engine Window (TopView Engine not running as a Service) through the Remote Viewer desktop client, the Mobile Web App, and various notification channels. A run-time disable action will change the disable state of the alarm within the TopView Engine. This run-time action may or may not be stored back to the configuration file.

While the TopView Engine is running it may perform an internal “soft restart”. During a soft restart the TopView Engine process remains running but the configuration is re-read and state is re-initialized. The disabled state of a tag/row may or may not persist through a soft restart.

Hard restart: persistence of "Disable alarms"

A hard restart is a restart where the TopView Engine process is stopped and restarted.

If the TopView Engine is running interactively (not as a Service), a hard restart is when the user closes the TopView Engine Window, allows the TopView Engine to end, then restarts a new instance of the interactive TopView Engine.

If the TopView Engine is running as Windows Service, a hard restart is when the TopView Engine Service is stopped and restarted.

When the TopView Engine performs a hard restart, the "Disable alarms" setting for each tag/row is set to the value stored in the configuration file. The value stored in the configuration file is either

1. The last value set by a user in the TopView Configurator
2. The last run-time disable action if "Write run-time alarm disable and snooze actions back to this configuration file" is enabled for the configuration

Soft restart: persistence of "Disable alarms"

A soft restart is a restart when the TopView Engine process remains running but reloads the configuration and reinitializes state.

During a soft restart there are two possible behaviors for persisting disable state: default and modified. The default behavior will execute unless the option **Persist alarm, acknowledge, and disable state during internal restart (Engine remains running)** is selected.

Default behavior

TopView attempts to persist the disable state of each tag/row during the soft restart. The following steps occur and may result in none, all, or partial persistence of disable states:

1. TopView caches the tag names and disabled alarm state for each tag/row in the current TopView Engine (before restart)
2. The latest version of the configuration file is read and the "Disable alarms" state for each tag/row is initialized to the value stored in the configuration file.
3. The cached tag names and disable alarm states are compared to the tag names and disable states just read from the configuration file. A "match" occurs if a row (number) contains the same tag name before and after the soft restart. If a match is not made, the disable state from the configuration file will be used. If a match is made, TopView may persist the cached (pre-restart) disable state for a tag/row by following these rules:
 - If the tag/row configuration file alarm disable state is "disabled" it remains disabled. Therefore, an enable before the restart is lost (not persisted).
 - If the tag/row configuration file alarm disable state is "enabled" (not disabled) and the cached state is enabled, the tag/row remains enabled
 - If the tag/row configuration alarm disable state is "enabled" (not disabled) and the cached state is disabled, TopView will attempt to persist the 'disable alarms' setting.
 - If the *previous* configuration file setting (the restart before this restart) was enabled, then this tag/row is disabled (**TopView will persist the pre-restart run-time state**).
 - If the *previous* configuration file setting (before this restart) was disabled then this tag/row is set to the current configuration file setting (enabled) and TopView does not persist the pre-restart disable state.

This allows the configuration file to enable a tag/row that was previously disabled in the configuration file.

Table: Default behavior for persisting run-time alarm disable state during a soft restart

The following table shows the default behavior for persisting alarm disable state during a soft restart when TopView matches the same tag in the same row (number) before and after the soft restart.

Previous configuration file setting before restart	Run-time state before restart	Current configuration file setting (after restart)	State after restart
Any	Any	Disabled	Disabled
Any	Enabled	Enabled	Enabled
Enabled	Disabled	Enabled	Disabled (run-time state persisted!)
Disabled	Disabled	Enabled	Enabled

Modified behavior

The modified behavior for persisting disable state occurs if the option **Persist alarm, acknowledge, and disable state during internal restart (Engine remains running)** is selected.

TopView attempts to persist the disable state of each tag/row during the soft restart. The following steps occur and may result in none, all, or partial persistence of disable states:

1. TopView caches the full list of row/tag information from the current TopView Engine (before restart)
2. The latest version of the configuration file is read and the "Disable alarms" state for each tag/row is initialized to the value stored in the configuration file.
3. For each row/tag in the latest configuration file, TopView will attempt to find the matching row/tag in the cached row/tag information so that it can persist the state. A "match" occurs if
 - o Both lists contain unique tag names and the current tag name exists in the cached list (before restart)
OR
 - o Both lists contain Row UIDs for all tags and the current tag Row UID exists in the cached list (before restart).
4. If a match is not made, the disable state from the configuration file will be used.
5. If a match is made, TopView will persist the cached (pre-restart) disable state for the tag/row.

Table: Modified behavior for persisting run-time alarm disable state during a soft restart

The following table shows the modified behavior for persisting alarm disable state during a soft restart when TopView matches a tag/row before and after the soft restart.

Previous configuration file setting before restart	Run-time state before restart	Current configuration file setting (after restart)	State after restart
Any	Disabled	Any	Disabled (run-time state persisted!)
Any	Enabled	Any	Enabled (run-time state persisted!)

Advanced Notification...Escalation

The Notify setting for each alarm condition sends notification at the time that the alarm occurs.

Escalation allows the user to assign additional notification for the current tag/row after the initial notification is sent based on the current alarm or acknowledge state.

The escalation behavior is configured as a series of steps, and named a "Global Escalation Template". Each template is global, meaning it is visible to all TopView configurations.

Each step contains a condition (unacknowledged, in alarm...), a delay from the alarm start time, and a list of notification recipients. The steps can be repeated a finite number of times.

To create Escalation Templates, click the [Edit templates...] button. For more information on Global Escalation Templates, see **Escalation Templates** on page 362.

Escalation Templates

Once escalation templates have been created, the user can assign a template to the current tag/row using the template dropdown list.

Escalation and Advanced Notification

The "Notify" setting for each alarm limit (on the Alarm limits screen) sends notification at the time that the alarm occurs (transitions into alarm).

Escalation and Advanced Notification allow the assignment of up to 50 additional notification steps to the current tag/row. Each step can evaluate the alarm and acknowledge state of the current tag/row at a specified time after the alarm occurs (0...n seconds) and send notification (Email-SMS, Modem, or Voice Notification) to a configurable list of recipients if the condition is TRUE.

Escalation and Advanced Notification steps are defined through "templates". Each template defines the 1..n steps, conditions, and notifications. The templates are global (visible to all TopView configurations).

* Tag Groups can also define Notification and Escalation. If this tag is part of a Tag Group that defines notification and/or escalation, it may inherit these settings unless suppressed (on Options tab)

Escalation and Advanced Notification Template:

Repeat count: 1

Step	Condition	Delay from alarm start	Notify	Notification msg	Recipients
1	Unacknowledged	120	(Custom Email-SMS List)	<Same as Alarm>	John Simpson\emailWork
2	Unacknowledged AND InAlarm	300	(Custom Email-SMS List)	<Same as Alarm>	Lead Engineer\emailWork

Warning: the type of notification assigned to each step (Email-SMS, Modem, Voice) must be enabled and configured in order for this step to properly notify.

In the above example, the escalation template named "Operations escalation" has been assigned to the current tag/row. This template consists of 2 steps, which will repeat once (repeat count = 1). The first step will notify John Simpson using his work email address if the current row alarm is unacknowledged after 2 minutes. The second step will notify the lead engineer using his/her work email address if the current row alarm is unacknowledged *and* in alarm after 5 minutes. The escalation will then repeat once: John Simpson will be notified 7 minutes after the alarm if it still unacknowledged (2 minutes after the last step). The lead engineer will be notified 10 minutes after the alarm if it is unacknowledged and in alarm (5 minutes after the last step).

For more information, see **Escalation Templates** on page 362.

Advanced Notification...Return to Normal Notification

Return-to-normal notification is sent when a tag/row changes from "in alarm" to "not in alarm".

Return to Normal (RTN) Notification

"Return to normal" occurs when this tag/row transitions from "in alarm" (based on the alarm limits) to "not in alarm"

Return to normal notification settings

Send notification to: (Default Email-SMS Group) [v] [...]

RTN Message
The default RTN message is the alarm message.
If a custom RTN message is entered, the RTN message will be the custom message with or without the alarm message (based on 'Only use custom msg')

Custom RTN message: The temperature alarm is no longer active. The temperature is now %value% [v] Only use custom msg

RTN Notification Message
If a Notification message template is selected, the template will be used for notification. Excluded recipients will receive the RTN message.

RTN Notification message: <Use RTN Message> [v] [...]

RTN Notification message will be: (RTN Message): Custom RTN message (The temperature alarm is no longer active. The temperature is now %value%)

Custom subject: Temperature alarm not active (for email recipients)

Attach file: [v] (for email recipients)

Send notification to

The user can select notification recipients to receive notification when the tag/row returns to normal (no alarm) from an alarm condition. For more information, see **Selecting the Notify recipients** on page 499.

RTN Message

Each RTN event creates an RTN message. By default, the RTN message will be the original alarm message.

Custom RTN message

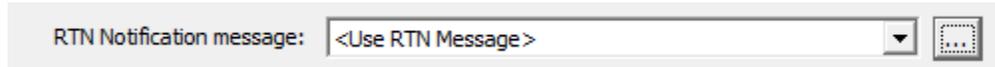
The user can enter a custom RTN message (with placeholders) using the same format supported by the custom alarm message. See **Placeholders for messages, text** on page 149 for more information.

If a custom notification message is entered, the RTN message will be

1. The custom RTN message if "Only use custom msg" is selected
2. The custom RTN message AND the original alarm message if "Only use custom msg" is not selected

RTN Notification Message

By default, the RTN notification message will be the RTN message described above.



RTN Notification message: <Use RTN Message > 

Notification message template

The user can create a more detailed RTN notification message (multi-line, etc.) by creating Notification Message Templates and assigning a Notification Message Template to the RTN event.



RTN Notification message: ReturnToNrml 

If a recipient is excluded from receiving the template (defined in the template details), they will receive the RTN Message as the RTN notification message.

To create/edit Notification Message Templates, click [...]

For more information see **Notification Message Templates** on page 353.

Custom RTN subject

The user can enter a custom subject (with placeholders) for the RTN notification if the recipient is an email recipient. The custom RTN subject supports the same placeholders as the alarm custom message. See **Placeholders for messages, text** on page 149 for more information.

Attach file

This field is used if the selected "Send notification to" field for the return-to-normal condition includes email recipients (default email-SMS group, custom email-SMS list, or global email-SMS group).

This field specifies the full path to a file that should be attached to email notification messages that are sent when the tag/row returns-to-normal. If TopView is creating HTML Snapshot Reports for this configuration, the user may wish to attach one of these files by specifying the full path to the HTML file here.

Acknowledge Notification Message

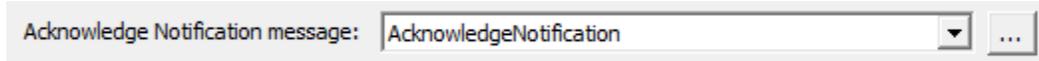
By default, the ACK notification message will be the Acknowledge message described above.



A screenshot of a configuration field labeled "Acknowledge Notification message:". The field is a dropdown menu with the text "<Use ACK Message >" selected. To the right of the dropdown is a small square button with three dots inside.

Notification message template

The user can create a more detailed ACK notification message (multi-line, etc.) by creating Notification Message Templates and assigning a Notification Message Template to the ACK event.



A screenshot of a configuration field labeled "Acknowledge Notification message:". The field is a dropdown menu with the text "AcknowledgeNotification" selected. To the right of the dropdown is a small square button with three dots inside.

If a recipient is excluded from receiving the template (defined in the template details), they will receive the Acknowledge Message as the Acknowledge notification message.

To create/edit Notification Message Templates, click [...]

For more information see **Notification Message Templates** on page 353.

Custom ACK subject

The user can enter a custom subject (with placeholders) for the ACK notification if the recipient is an email recipient. The custom ACK subject supports placeholders. See **Placeholders for messages, text** on page 149 for more information.

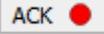
Attach file

This field is used if the selected "Send notification to" field for the return-to-normal condition includes email recipients (default email-SMS group, custom email-SMS list, or global email-SMS group).

This field specifies the full path to a file that should be attached to notification messages sent when the alarm is acknowledged. If TopView is creating HTML Snapshot Reports for this configuration, the user may wish to attach one of these files by specifying the full path to the HTML file here.

Acknowledge Settings

When the alarm limits for a tag/row are violated, the tag/row is considered "in alarm". By default, the transition into alarm will cause the tag/row to be unacknowledged.

Note: An unacknowledged row in the interactive TopView Engine window is preceded by an ACK button 

See **Acknowledging alarms** on page 536 for more information.

Alarm Acknowledge Settings  Unacknowledged rows in TopView display an ACK button at the start of the row

Acknowledge options

- No Acknowledge required (this tag/row does not become unacknowledged upon alarm)
By default, a tag/row that goes into alarm will become "unacknowledged".
- Do not add to "unacknowledged" counts in TopView
If this tag/row is unacknowledged, do not count it in any TopView summaries that show the number of unacknowledged items. Usually used with hidden rows.
- Prompt for alarm annotation/comment on acknowledge
Requires alarm logging to SQL Server. Users at the interactive TopView Engine window and Remote Viewer will be prompted for an annotation/comment when an alarm is acknowledged.
- Acknowledge on return-to-normal
The current tag/row will be automatically acknowledged when it returns to normal from an alarm state. This setting is also available for Tag Groups.
- Suppress new alarms if unacknowledged **Please read the help/doc for details and warnings about enabling this feature**
If this tag/row is unacknowledged, no new alarms will occur until it is acknowledged. This setting also appears on the Options tab.

Acknowledge Tag

Input: an alarm for the current tag/row can be acknowledged when a tag on the server has a specific value
Output: acknowledgement of an alarm for the current tag/row can write a value to a tag on the server

Input Acknowledge tag

Acknowledge current tag/row when the tag

has a current value = at or more seconds after the time of the alarm
To allow multiple values separate them with ; (semicolon)

Output Acknowledge tag

Write the value

to tag

when the alarm is acknowledged. If output acknowledge tag is blank, will use the input acknowledge tag.

Summary of acknowledge output settings: Upon acknowledge, output value '1' to tag 'Level3Alarm.Ack'

Acknowledge Row

An alarm for the current tag/row can be acknowledged when another row goes "into alarm"

Acknowledge current tag/row when the following row enters "alarm":

Use this dropdown to select another row:

Acknowledge Group

Tags/rows which are part of an Acknowledge Group will be acknowledged when any tag/row in the group gets acknowledged. This setting is often used for multiple tag/row escalation configurations.

This tag/row is part of the follow Acknowledge Group:

No Acknowledge required

If set, the tag/row will not become "unacknowledged" when an alarm occurs. All alarm-related behavior and notification settings for the tag/row (including alarm output points, custom alarm response...) will still be executed.

Do not add to “unacknowledged” counts

Both the interactive TopView Engine window and Remote Viewer will display the number of alarms, number of unacknowledged items, etc.

If set and this row is currently unacknowledged, it will not be counted in any summary of “number of unacknowledged items” in the TopView Engine window or Remote Viewer. If the row is visible, it will appear as an unacknowledged row (contains ACK button ) but will not be counted. Therefore, this setting is often set in conjunction with “**Hide this tag (row)**”

Prompt for alarm comment/annotation on acknowledge

If set and this configuration is logging alarms to SQL Server, interactive users (TopView Engine and Remote Viewer) will be prompted to enter an annotation for the alarm event.

Acknowledge on return-to-normal

If set, the tag/row will be automatically acknowledged when the tag/row transitions from “in alarm” to “not in alarm”. This can occur if (1) the alarm returns-to-normal because the alarm is no longer active or (2) if the tag/row is in alarm and then disabled.

Suppress new alarms if unacknowledged

If the current item is unacknowledged, TopView will suppress any new alarms for this item. This setting also appears on the Options screen.

Warning: this setting can suppress alarms.

Default behavior: An item becomes unacknowledged when an alarm becomes active. If the alarm returns to normal the item can remain unacknowledged. If the alarm returns to normal, new alarms can occur.

If you enable this setting, TopView will suppress new alarms until the item is acknowledged. Failure to acknowledge the alarm will prevent future alarms. This setting should only be used when an individual is given the responsibility of acknowledging the alarm.

Acknowledge Tag

The current tag/row can be acknowledged when the value of a tag from the data source has a specific value. TopView can also write a value to a tag when an alarm for the current tag/row is acknowledged in TopView.

Acknowledge tag syntax

Each tag in the TopView monitored tag list contains a server and tag name. With many systems the tag name contains a root tag and extension/property.

Example: MyTag.InAlarm where MyTag is the root tag name and .InAlarm is the extension/property that indicates if the alarm is active or not.

The acknowledge tag name is often the root alarm tag name with an extension/property for the acknowledge state.

Example: MyTag.InAlarm has acknowledge tag MyTag.Ack

TopView allows the acknowledge input and output tag to be specified as the full tag name or as the extension to the root tag name of the monitored alarm tag.

To view and edit the list of tag extensions click the "Tag name extensions..." link

[Tag name extensions...](#)

If possible, we recommend specifying the acknowledge tags by extension. It allows the user to avoid repeating the root tag name if the monitored alarm tag name is changed the user will not need to also change the name of the acknowledge tag(s).

Input acknowledge tag

Define the tag (full name or extension) and tag value that TopView should monitor to perform an acknowledgement of an alarm for the current tag/row. The tag must exist on the same data server as the current tag/row.

- Input acknowledge tag name
The full tag name or extension. Use [Tag Search] to browse for the full tag name.
- Current value =
The value of the input tag that will acknowledge an alarm for the current row.
To define multiple values, separate the values with semicolons.
Example: to perform acknowledge for values 0, 1 or 2 enter 0;1;2
TopView will perform a numeric or case-insensitive string comparison to the tag value. Use [Get current value] to see the current tag value.
- At X or more seconds after the time of the alarm
With the default behavior (0 seconds after the time of the alarm) TopView will evaluate the acknowledge input tag at the time of the alarm and forward in time. With some systems the acknowledge input tag in the data server may be reset after the alarm occurs. Therefore, if TopView evaluates the tag at the time of the alarm it may not have the correct value (it may have the acknowledge state from the previous alarm). The delay will instruct TopView to wait X seconds after the alarm before evaluating the acknowledge input tag and allowing it to acknowledge the TopView alarm.

Output acknowledge tag

Define the value and tag (full or extension) that TopView should write to when an alarm for the current tag/row is acknowledged. The output acknowledge tag can be the input acknowledge tag or a different tag.

- **Write value**
If not blank, the output value to write to the tag. Enter a value that will be accepted by the tag data type of the output tag. Use the [Test output] button to test writing values to the tag. Leave this field blank to disable the output acknowledge tag. Placeholders are supported in the acknowledge output tag value.
- **Output acknowledge tag name**
If an output value is specified and this field is blank, TopView will write the output value to the input acknowledge tag. Otherwise, this field specifies the full output acknowledge tag name or extension. Use [Tag Search] to browse for a full tag name.

Acknowledge Row

The current tag/row can be acknowledged by when another row in the TopView Engine enters an alarm state. This option may be used if the Acknowledge Tag option cannot be used due to complexity of the acknowledge logic.

Acknowledge Group

Acknowledge Group

Tags/rows which are part of an Acknowledge Group will be acknowledged when any tag/row in the group gets acknowledged. This setting is often used for multiple tag/row escalation configurations.

This tag/row is part of the follow Acknowledge Group:

An Acknowledge Group enables the acknowledgement of multiple tags/rows when any tag/row in the Acknowledge Group is acknowledged. Acknowledge Groups are typically used in escalation configurations where multiple tags/rows are used to provide flexible escalation logic. See **How to configure escalation of alarms** on page 148 for more information.

Click the button to create the list of Acknowledge Groups.

Manage Acknowledge Groups

The purpose of an acknowledge group is to provide acknowledgement to all tags/rows contained in the same Acknowledge Group whenever a tag within the Group is acknowledged.

Acknowledge Groups are typically used in Escalation configurations where multiple tags/rows are used to provide flexible escalation of an alarm condition. See the documentation for more information on Escalation configuration.

Acknowledge Groups (one per line, copy and paste supported)

```
PressureAckGroup
TempAckGroup
```

OK

Inhibit/Gate

The Inhibit/Gate is used to allow or suppress alarm limit violations for the current tag/row.

There are two options for inhibiting alarms:

1. Look at the "in alarm" state of another tag/row in this Configuration
2. Look for a specific value of another tag

You can configure one or both of these options. If either one is inhibiting/blocking then the current row's alarms will be blocked.

The Inhibit/Gate is typically used to enable state-based alarming – enabling or disabling alarms based on the state of process, equipment, shelved tag, etc. Example: only alarm if the unit is running.

Notes:

- You may be able to accomplish an "Inhibit/Gate" by ANDing a new alarm limit of R (another row is in alarm) or N (another row is not in alarm). But for state-based or equipment-based alarm enable/suppression we recommend using the Inhibit/Gate.
- Tag Group Inhibit/Gate: Inhibit rows can also be defined within a Tag Group for all tags belonging to the Tag Group. If multiple tags/rows will have the same Inhibit row you should consider using the Tag Group Inhibit instead of this tag/row-based Inhibit. If a tag/row has both a tag/row-based Inhibit settings and one or more Tag Group Inhibit settings, all will be applied. Most users should specify one or the other. See "Tag Groups" for more information.
- Warning: improper use of the Inhibit/Gate can prevent TopView from recognizing alarm conditions and sending notification.

Inhibit/Gate

Inhibit is used to allow or suppress alarm limit violations for the current tag/row by looking at (1) the "in alarm" state of another tag/row or (2) another tag value

Example #1: you want TopView to process alarms for the current tag/row only if a piece of equipment is running. The 'equipment running' state is known by looking at the "in alarm" state of another tag/row in TopView that monitors the equipment state tag.

Example #2: the system you are monitoring has separate 'alarm shelved' tag that will be True if this alarm should be blocked. You can monitor the 'alarm shelved' tag for a value of True to block alarms for this tag.

Note: Inhibit row can also be configured for Tag Groups. If you have multiple tags that will use the same Inhibit row, it may be easier to create a Tag Group with the desired Inhibit

Note: when the current row's Inhibit settings are blocking, a Values View of this Configuration (visible in the TopView Engine Window, Remote Viewer, and HTML Snapshot Reports) will display the word "GateBlock" for the current row. "GateBlock" is therefore a visible cue that the row's Inhibit condition is in blocking mode. It does not signal that the Inhibit is suppressing an alarm condition that would occur if not blocked.

Inhibit row

The Inhibit row is another row in this TopView Configuration whose alarm state will allow or prevent the current row from transitioning into alarm. The Inhibit row may be referenced by absolute row number (X), offset from the current row (+X), or RowUID of the Inhibit row.

Inhibit row: (blank = no inhibit row)

Use this dropdown to select another row:

Inhibit condition: allow alarms for the current row if the inhibit row is "In Alarm" Not "In Alarm"

Inhibit tag

Block alarms for the current row based on the value of another tag (e.g. alarm disabled or shelved tag)

Inhibit tag

Block alarms for the current row

when the tag Tag Search... Get current value...

has a current value =

To allow multiple values separate them with ; (semicolon)

Inhibit Row

With this option, alarms for the current tag/row can be blocked when another row in TopView is either "in alarm" or not "in alarm".

Inhibit row

The inhibit row can be entered as an absolute row number (X), relative to the current row (+/- X), or the Row UID of another row. If this field is empty, there is no inhibit row setting. We recommend creating a ROWUID for the inhibit row and referencing the row using the ROWUID. See **Row UID** for more information.

Inhibit condition

The inhibit condition determines the alarm state of the inhibit row that will allow alarms for the current tag/row to occur.

Inhibit tag

With this option, alarms for the current tag/row can be blocked when another tag from the same data server has a specific value or range of values.

Inhibit tag

Enter the name of the inhibit tag. Use the [Tag Search...] button to browse for and return the tag name.

Inhibit tag value

The current value of the inhibit tag will be compared to this value/values to determine if alarms should be blocked.

- Separate multiple values with a semicolon. If any of the values pass the comparison, the block will occur.
- If non-numeric values, TopView will match case-insensitive.

The allowed comparisons are

- = Equal to
- != Not equal to
- < Less than
- <= Less than or equal to
- > Greater than
- >= Greater than or equal to

Note: entering multiple values (separated with semicolon) for certain comparison operators will not add additional functionality. For example, "< 25;30" is functionally the same as "< 30". Multiple values are most useful for "=" and "!=" operators.

Options Screen

Options

General

- Update value of placeholders in alarm message while alarm is active (if unchecked, placeholder values are only set at time of alarm)
- Trigger Row (do not add to alarm counts)
This tag/row is a "trigger row" used to cause events and alarms for other tags/rows in TopView and should not be counted in any alarm count summaries. Trigger rows can be excluded from the output of Scheduled Alarm Reports. You may also want to set "No Acknowledge" on the Acknowledge screen.
- Override Configuration time zone for this row (DEFAULT - TopView machine) [Eastern Standard Time] ▼
Configuration time zone is: (DEFAULT - TopView machine) [Eastern Standard Time]

Audible Text-to-speech Alarms for this tag/row

- Suppress Audible Text-To-Speech (TTS) of alarm messages for this tag/row
Do not speak this alarm message through the computer's speakers (Audible alarms, text-to-speech must be enabled).
- Repeat Audible Text-To-Speech of alarm message every 0 seconds while alarm is active and unacknowledged
Alarm must be active and unacknowledged. (Audible alarms, text-to-speech must be enabled and not suppressed for this tag/row)

Suppress

- Suppress Tag Group notification and escalation
If this tag/row is part of a Tag Group, the Tag Group may have notification and escalation settings which are, by default, inherited by each tag in the Tag Group. This setting will suppress the inherited Tag Group notification/escalation settings if this tag/row enters an alarm condition.
- Suppress Alarm at startup and for the first 0 seconds after TopView starts
If this tag/row transitions into alarm when the TopView Engine starts or within the first X seconds after startup, the row will not perform audible alarms or notification including SNMP Traps. The tag/row will still be displayed in the alarm color but will behave like an acknowledged alarm. Note: If an alarm limit condition for this tag/row has a non-0 delay, it can be suppressed at startup by properly setting the "first X seconds". See the documentation for more information.
- Suppress alarm messages in icon balloon
Do not show new alarm messages for this tag/row in a pop-up balloon on the TopView Information Icon or the Remote Viewer icon.
- Suppress new alarms if unacknowledged **Please read the help/doc for details and warnings about enabling this feature**
If this tag/row is unacknowledged, no new alarms will occur until it is acknowledged. This setting also appears on the Acknowledge tab.

Alarm annotation/comment

If you are logging the alarms to SQL Server, TopView allows you to enter a comment for each alarm. By default, this comment field is blank. You can initialize the alarm comment value for this tag/row to make it easier to find specific alarms in the alarm history that require comments.

On new alarm, initialize the comment to:

Update value of placeholders...

When a TopView alarm occurs, an alarm message is generated. This alarm message may include a custom alarm message entered by the user which contains placeholders.

Example alarm limit and custom alarm message:

Alarm limit: > 10

Custom alarm message: The value %value% is too high

In this example, if the value changes from 9.2 to 11.4, the custom alarm message will be "The value 11.4 is too high"

The default behavior of TopView is to generate the alarm message once at the time of the alarm. All placeholders are updated with their values at the time of the alarm and the alarm message remains static.

If "Update value of placeholders..." is selected, TopView will update the placeholders in the custom alarm message *after* the alarm occurs. All references to the alarm message after the start of the alarm (Alarms View in the Remote Viewer, %alarmmsg% in escalation notifications, ...) will contain updated values for any placeholder values.

Override Configuration time zone for this row

If enabled the alarm time zone for this row/alarm can be different than the default time zone for the current configuration. See **Time Zone settings** on page 225 for information on the default Configuration time zone.

How is alarm time zone used?

Alarm message and notification message content can include date/time information through the user of placeholders. For example, %toa% returns the "time of alarm" in the time zone of the local (TopView) machine while %toa_atz% returns the "time of alarm" in the alarm time zone.

Trigger row

A tag/row designated as a "trigger" will not be included in any alarm count summaries. Optionally, trigger rows can be excluded from Scheduled Alarm Reports.

The purpose of this setting is to allow use of a tag/row to execute other logic (e.g., Row Acknowledge, "row in alarm" alarm condition) without including the tag/row in alarm summaries and alarm reports. All alarm-related settings of the tag/row (notification, output points, custom alarm response...) will still be executed.

Note: For trigger rows, user may want to:

- Set the alarm color to black so that this tag/row does not appear as "in alarm" if visible.
- Hide the row
- Set the "No Acknowledge" property on the **Acknowledge** screen

Suppress Audible Text-To-Speech (TTS) of alarm messages

If text-to-speech Audible Alarms are enabled for this configuration and the tag/row enters an alarm state, this setting will prevent annunciation of the alarm message over the computer's speakers. See **Notification:** Audible Alarms on page 239 for more information.

Repeat Audible Text-To-Speech (TTS) every X seconds

If text-to-speech Audible Alarms are enabled for this tag/row, TopView will, by default, speak the alarm message once at the time that the alarm occurs (transitions into alarm). If the Repeat option is enabled, TopView will re-speak the alarm message at the entered interval *while the alarm is active and unacknowledged*.

Suppress Tag Group notification and escalation

If the tag/row belongs to a Tag Group (primary or secondary) and the Tag Group has a configured notification or escalation, the user can suppress inheriting this notification/escalation setting for the current tag. See **Tag Groups** on page 196 for more information.

Suppress alarm notification at startup and for the first X seconds...

If enabled, this per-tag setting will suppress notifications for new alarms that occur during startup of the TopView Engine. Please read "About suppression of startup alarm notification" for a full discussion of alarm notification suppression at startup.

Note: you can also set a configuration-wide 'startup alarm notification suppression' instead or, or in addition to, this per-tag setting (see "Suppress notifications for all alarms that go active within X seconds...")

Suppression duration

If the suppression time is set to zero seconds, TopView will suppress notifications for alarms that occur during the first processing of tag values after startup.

Some alarms cannot occur during the first processing of tag value after startup. For example, if the user has configured a non-zero "Delay In" for the alarm limits of the tag/row, the tag/row cannot be in alarm until the "Delay In" period has expired. To suppress startup alarms for a tag/row with a non-zero "Delay In" settings, the user can configure the suppression "and for the first X seconds". The user should ensure that the "first X seconds" includes the alarm limit "Delay In" time, the refresh interval, plus the time it takes to retrieve tag values and process the alarms. See example below.

Example:

- Tag limit: > 5 with Delay In = 10 sec (tag must be > 5 for 10 seconds)
- TopView refresh interval = 5 seconds
- Time it takes to retrieve tag values and process the alarms: ~ 1 second
- When TopView starts, the value of the tag may be > 5. If the value remains above 5, an alarm will occur after the configured delay (10 seconds).
- To suppress this initial active alarm, set X to at least 10 sec (Delay In) + 5 sec (TopView refresh) + 1 sec = 16 seconds
Just to be safe, set X=20 seconds.
- With the setting "Suppress alarm notification at startup and for the first 20 seconds", TopView will suppress notifications for alarms that occurs within 20 seconds after TopView startup.

Acknowledge state for startup alarms with suppressed notifications

Startup alarms with suppressed notifications can be displayed as "acknowledged" or "unacknowledged". See "Do not set alarms with suppressed notifications to "unacknowledged"" for more information.

Suppress alarm messages in icon balloon

If new alarms occur for this tag/row, the TopView Information Icon and the Remote Viewer icon will not display the alarm message in a pop-up balloon in the System notification area.

Suppress new alarms if unacknowledged

This setting also appears on the Acknowledge screen.

See **Suppress new alarms if unacknowledged** on page 175 for details.

Initial Alarm comment value

If this TopView configuration is logging alarms to SQL Server, the user can enter comments/annotations for each alarm event (interactive TopView Engine window or Remote Viewer).

Upon a new alarm, this field will set the initial comment value to the entered text string. This feature can be used to locate comments/annotations that need to be modified because they still contain this initial value.

Custom Actions Screen

Custom Application Alarm Response

These settings instruct the TopView Engine to launch an external application in response to this tag/row entering an alarm condition or returning from an alarm condition. This allows the user to perform custom, external alarm functions in addition to those provided by TopView.

Custom Application Alarm Response

TopView can launch an external application in response to this tag/row entering an alarm condition or returning from an alarm condition. You can use this setting to launch your own application, batch file, operation instructions, etc.

Settings

Run string (exe, bat, ...)	Command line argument(s)
This tag/row into alarm: <input type="text" value="notepad.exe"/> ...	<input type="text" value="c:\instructions.txt"/> ... <input type="button" value="Test"/>
Run string (exe, bat, ...)	Command line argument(s)
This tag/row return to normal: <input type="text"/> ...	<input type="text"/> ... <input type="button" value="Test"/>

Start/Stop a TopView Engine Service

Note: this setting is used when configuring TopView redundancy's Watchdog Engine on the secondary TopView machine.

This setting allows the alarm state of the current tag/row to control the state (running or stopped) of another TopView Engine on this machine.

If the selected Engine Service is not empty, TopView will ensure the Engine is in the selected state based on the alarm state of the current tag/row.

[Refresh list of Engine Services](#)

The TopView Engine Service: should be RUNNING on this machine

if the current tag/row is In Alarm Not in alarm

Otherwise the TopView Engine on this machine should be STOPPED

Outputs

Each tag/row in TopView can optionally write values to tags in the monitored data source (if outputs are supported by the data source).

Outputs include

- Output tag: send the current value of this row to a tag
- Event Output Points: write a value/values to a tag when this row goes into alarm, returns to normal, or is acknowledged

Output tag

Send row value to output tag

TopView can write the current value of this row to an output tag

This feature can be implemented for rows that are not monitoring tags from the underlying data source. For example, the row may be a TopView Status Tag or the result of an operation or logic function that does not already exist in the monitored data source.

Write the row value to tag

Most of the monitored items in TopView are tags from the monitored data source (e.g., OPC Server or SCADA System, PI System, ...). Exceptions include items with operations/logic functions and TopView status tags.

For items that are not tags in the underlying system, the output tag can be used to write the current value of the item out to a tag so that users or the other system have access to this item's value.

Example: A TopView user is using TopView to monitor alarms in their SCADA System. TopView is also monitoring the TopView Status Tag that counts the number of email notifications sent and would like to write this value "number of failed mail notifications sent " to a tag on their SCADA system so it can be displayed on the HMI.

Use [Tag Search] to select the tag to write to. The format of the output tag is ||server||tagname.

Use [Test output] to send a test value to the output tag.

Use [Get current value...] to retrieve the current value of the output tag.

Event Output Points

Event Output Points for this tag/row

TopView can send values to tags (output points) when certain events occur for this tag/row.

The output value of an Output Point can be a fixed numeric value, a pulse, or a character string message of the event (for string/character output point tags). A string message, sent to a string/character output tag, can be the alarm message, return to normal message, or acknowledge message.

Use the [Edit Output Points] button to create Event Output Points. Then, assign the Output Points to events for this tag/row.

	Output Point
"Into alarm" event:	<input type="text" value="MyAlarmOutput"/>
"Return to normal" event:	<input type="text" value="(none)"/>
"Alarm Acknowledged" event:	<input type="text" value="MyAckOutput"/>

Event Output Points instruct TopView to **set** the value of tags in response to this tag/row entering an alarm condition, returning from an alarm, or being acknowledged.

Write-to-Server notification

The output value of an Output Point can be a fixed numeric value, a pulse, or a character string message of the event (for string/character output point tags). A string message, sent to a string/character output tag, can be the alarm message, return to normal message, or acknowledge message. See "Output Points" on page 207 for more information.

Use the [Edit Output Points] button to create Event Output Points.

Once Event Output Points have been created, assign the Output Point to the events for which the user would like to send an output.

- "Into alarm" event: outputs when this tag/row transitions into alarm (based on the alarm conditions for this tag/row)
- "Return to normal" event: outputs when this tag/row transitions out of alarm

"Alarm Acknowledged" event: occurs when this tag/row is acknowledged.

Note: the recommended and easier method for outputting a value upon alarm acknowledge is to assign an acknowledge output tag. See "

- Output acknowledge tag" on page 177.

SNMP Trap – Tag Settings

Configure an SNMP Trap message when this tag/row enters alarm.

Before the user can configure SNMP Trap messages for alarms, SNMP Traps must be enabled for this configuration. See **Notification: SNMP Trap** on page 335 for more information.

Overview of SNMP and Terminology

The documentation/help section SNMP Trap settings for the current configuration contains an overview of SNMP as well as terminology used in TopView. See “Notification: SNMP Trap” on page 335 for more information.

SNMP Trap

TopView can send an SNMP Trap message when alarm events occur for this tag/row.

SNMP Trap enabled for this configuration? True This must be enabled on the SNMP Trap screen of the Configurator.

SNMP Manager settings for this Configuration (from the SNMP Trap screen of the Configurator)

SNMP trap version: SNMP Manager: Port: Community:

Enable or disable SNMP Traps for this tag/row

Enable SNMP Trap messages for this tag/row

Alarm SNMP Trap Message Details (when an alarm occurs for this tag/row)

Press ESC to see the full list of supported placeholders Exele TopView Object ID is 1.3.6.1.4.1.44921.0

Version 1 settings (ignored for Version 2)

Generic trap code: Integer (or placeholder)

Specific trap code: Integer (or placeholder)

Enterprise OID: Object ID for message (or placeholder)

Version 2 settings (ignored for Version 1)

SNMP TrapOID.0: Object ID (or placeholder)

Tells the Manager what kind of event has occurred

Trap Messages (Variable list)

	Message OID (Object ID or placeholder)	Message value type	Message value (or placeholder)
Clear	Message #1: 1.3.6.1.2.1.1.1.1	OctetString	%alarmmsg%
Clear	Message #2:	OctetString	

TopView Alarm SNMP Trap Message Command String for this tag/row:

```
/snmp_V1_genericTrapCode:0 /snmp_V1_specificTrapCode:0 /snmp_V1_enterpriseOID:0 /snmp_V2_TrapOID_0:1.3.6.1.4.1.44921.0 /snmp_VAR:1.3.6.1.2.1.1.1.<>OctetString<>.>%alarmmsg%
```

Settings vs. Command String

On this screen are various SNMP settings to define the SNMP Trap Message that will be sent upon an alarm of this tag/row.

The settings are presented both individually and as a single command string (at the bottom of the screen).

As the user makes changes to the individual settings, the command string is updated with these changes. If the user makes changes to the command string, the changes are not reflected in the settings fields until the [Set fields] button is pressed.

SNMP Trap enabled for this configuration

True if SNMP is enabled for this configuration. To change this setting, see **Notification: SNMP Trap** on page 335.

SNMP Manager settings for this configuration

Contains a copy of the SNMP Manager settings for this configuration. To change these settings, see **Notification: SNMP Trap** on page 335.

Alarm SNMP Trap Message when an alarm occurs for this tag/row

This section defines the details of the SNMP Trap message that will be sent when an alarm occurs for this tag/row.

Use Placeholders for dynamic information

All SNMP fields in this section support TopView placeholders. Placeholders will place dynamic information into the SNMP Trap field upon a TopView alarm SNMP Trap message. Press the ESC key to see a list of supported placeholders. See **Placeholders for messages, text, and Logic Function arguments** on page 149 for more information.

Version 1 vs Version 2

When the SNMP Manager settings were entered, the SNMP Trap version was selected. This value is displayed in the SNMP Manager Settings.

Both Version 1 and Version 2 settings are displayed. The user can enter both settings, but only the settings for the selected version will be used when an SNMP Trap Message is sent.

Version 1 Settings

- Generic Trap Code: used to send a notification about a limited number of predefined events.
 - 0, coldStart
 - 1, warmStart
 - 2, linkDown
 - 3, linkup
 - 4, authenticationFailure
 - 5, egpNeighborLoss
 - 6, enterpriseSpecific
- Specific Trap Code: If the Generic Trap Code is 6 (enterpriseSpecific), the Specific Trap Code specifies vendor specific error codes.
- Enterprise OID: Identifies the type of managed object generating the trap (OID). This should be unique for the vendor (e.g., Exele TopView). The TopView OID is 1.3.6.1.4.1.44921.0

Version 2 Settings

- SNMP TrapOID.0: an OID value that tells the Manager what kind of event has occurred. The TopView OID is 1.3.6.1.4.1.44921.0

Trap Messages (variable list)

Both Version 1 and Version 2 SNMP Trap messages contain a variable list. TopView supports 2 variables per SNMP Trap Message.

Three fields are used to define each variable: OID, value type, and value. The OID and value can be static text or a placeholder. See **Placeholders for messages, text, and Logic Function arguments** on page 149 for more information.

- **Message OID:** Object ID that identifies the variable or sender. The TopView OID is 1.3.6.1.4.1.44921.0
- **Message value type:** identifies the type of data contained in the message value field. Available values are
 - OctetString: byte array used to store both binary data and text strings. In TopView this is used to identify a string value (e.g., the alarm message or %alarmmsg% placeholder)
 - Integer32: signed 32-bit integer
 - Counter32: same as Integer32, signed 32-bit integer
 - Counter64: signed 64-bit integer (only valid for version 2)
 - ObjectId: An Object ID entered as a string of integer.integer... (e.g., 1.3.6.1.4.1.44921.0)
 - Null: empty or no value
- **Message value:** The variable value. TopView will convert the value to the value type. For example, if value type is Integer32 and entered value is 45 (or a placeholder whose value is 45), TopView will convert the "45" to an integer value. If the value cannot be converted an error will be logged and the message will not be sent.

Command String

All SNMP Trap Alarm settings for a tag are stored in the Command String.

As the user makes changes to the individual settings, the command string is updated with these changes. If the user makes changes to the command string, the changes are not reflected in the settings fields until the [Set fields] button is pressed.

The command string is stored and restored when the user creates, edits, and saves the SNMP Trap settings for this tag.

To copy the SNMP settings from one tag to another, use the [Copy] and [Paste] buttons to copy and paste the Command String. After a Paste operation, click [Set Fields] to show the individual SNMP settings contained in the Command String.

Sending test SNMP Trap Messages

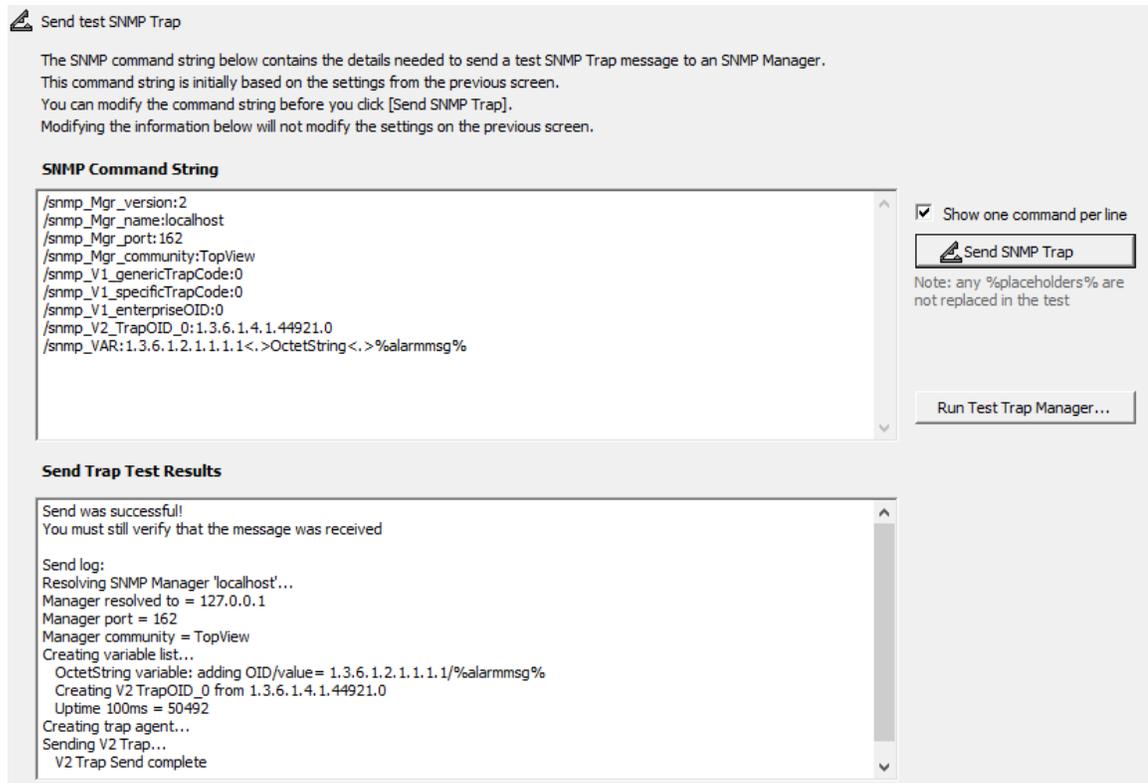
You can send test SNMP trap messages to test the current SNMP Trap Message settings.

Use the TopView SNMP Trap Manager for testing

If you cannot test against your own SNMP Manager, you can launch the TopView Test Trap Manager using the [Run Test Trap Manager...] button.

Sending test Trap Messages

Click the [Send test Trap...] button to display the "Send test SNMP Trap" screen



Send test SNMP Trap

The SNMP command string below contains the details needed to send a test SNMP Trap message to an SNMP Manager. This command string is initially based on the settings from the previous screen. You can modify the command string before you click [Send SNMP Trap]. Modifying the information below will not modify the settings on the previous screen.

SNMP Command String

```
/snmp_Mgr_version:2
/snmpr_Mgr_name:localhost
/snmpr_Mgr_port:162
/snmpr_Mgr_community:TopView
/snmpr_V1_genericTrapCode:0
/snmpr_V1_specificTrapCode:0
/snmpr_V1_enterpriseOID:0
/snmpr_V2_TrapOID_0:1.3.6.1.4.1.44921.0
/snmpr_VAR:1.3.6.1.2.1.1.1.1.<.>OctetString<.>%alarmmsg%
```

Show one command per line

Send SNMP Trap

Note: any %placeholders% are not replaced in the test

Run Test Trap Manager...

Send Trap Test Results

```
Send was successful!
You must still verify that the message was received

Send log:
Resolving SNMP Manager 'localhost'...
Manager resolved to = 127.0.0.1
Manager port = 162
Manager community = TopView
Creating variable list...
  OctetString variable: adding OID/value= 1.3.6.1.2.1.1.1.1/%alarmmsg%
  Creating V2 TrapOID_0 from 1.3.6.1.4.1.44921.0
  Uptime 100ms = 50492
Creating trap agent...
Sending V2 Trap...
  V2 Trap Send complete
```

The initial SNMP Command String is based on the SNMP Trap settings for the current tag. It also includes information about the SNMP manager.

The user can modify the test command string without affecting the SNMP settings of the current configuration or tag.

Click [Send SNMP Trap] to send an SNMP Trap message based on the displayed SNMP command string.

MQTT Publish – Tag Settings

Overview of TopView MQTT Publish and Terminology

The documentation/help section MQTT Publish for the current configuration contains an overview of MQTT as well as terminology used in TopView. See “Notification: MQTT Publish” for more information.

MQTT Publishing

TopView can publish MQTT messages for events of this tag/row.

MQTT Publish enabled for this configuration? True This must be enabled on the MQTT Publish screen of the Configurator.

Broker Alias: Broker Address:

Enable or disable MQTT Publishing for this tag/row

Define the events, MQTT topics, and MQTT message content to publish for this tag

Use default settings for this configuration?

Use settings below Use default settings for this configuration (from the MQTT Publish screen of the Configurator)

MQTT events, topics, and message content for this tag

MQTT Topics and Payload (messages content) can contain placeholders Press ESC to see the full list of supported placeholders

ALARM: enable MQTT publishing for this tag/row upon alarm

Topic: Payload:

```
{
  "Event": "alarm",
  "Tag": "%tag%",
  "Timestamp": "%currenttime%"
}
```

QoS: 0, 1 or 2 (default=0)

ACK: enable MQTT publishing for this tag/row upon alarm acknowledge

Topic: Payload:

```
{
  "Event": "ack",
  "Tag": "%tag%",
  "Timestamp": "%currenttime%"
}
```

QoS: 0, 1 or 2 (default=0)

RTN: enable MQTT publishing for this tag/row upon alarm return-to-normal

Topic: Payload:

```
{
  "Event": "rtn",
  "Tag": "%tag%",
  "Timestamp": "%currenttime%"
}
```

QoS: 0, 1 or 2 (default=0)

REFRESH: enable MQTT publishing for this tag/row upon each refresh of the TopView Engine (5 seconds)

Topic: Payload:

```
{
  "Event": "refresh",
  "Tag": "%tag%",
  "Value": "%value%"
}
```

QoS: 0, 1 or 2 (default=0)

Enable MQTT Publish for this tag

Before you can publish MQTT messages for the current tag, MQTT publish must be enabled for the current configuration. See "MQTT Publish – TopView Configuration Settings".

Use default settings for this configuration?

A tag can either specify the MQTT publish settings for each supported event or it can use the default settings for the configuration.

If "Use settings below" is selected the user will be able to configure the MQTT Publish details for the current tag. Otherwise, the default settings for the configuration will be used.

MQTT events, topics, and message content

TopView can publish MQTT messages for the following TopView events:

- Alarm: when the alarm for a monitored tag/row becomes active. Use this event to publish new alarm information.
- Acknowledge: when the alarm for a monitored tag/row is acknowledged. Use this event to publish alarm acknowledge information.
- Return-to-normal: when the alarm for a monitored tag/row becomes inactive. Use this event to publish end-of-alarm acknowledge information.
- Refresh: during each refresh of the TopView Engine (see "Refresh rate"). Use this event to publish information about the tag/row including the tag/row value, status, timestamp, alarm state, acknowledge state, ...

Each event requires the user to configure the message topic, QoS, and payload. TopView placeholders are supported in the topic and payload to allow dynamic content.

The screenshot shows a configuration window for the "REFRESH" event. It includes a checked checkbox for "enable MQTT publishing for this tag/row upon each refresh of the TopView Engine (5 seconds)". The "Topic" field contains "exeletopview/%tag%/value". The "QoS" dropdown is set to "At most once (0)". The "Payload" field, labeled "(msg content)", contains a JSON object: {"Event": "refresh", "Tag": "%tag%", "Value": "%value%", "Timestamp": "%timestamp%", "AlarmState": "%alarmState%", "AcknowledgeState": "%acknowledgeState%"}.

- Topic: The topic for this event
- QoS: The Quality-of-Service level between TopView and the broker. A higher QoS level brings a higher guarantee of message delivery but will also affect the number of messages that can be processed (lower QoS = more messages).
 - 0: at most once (best-effort delivery)
 - 1: at least once (message is delivered at least one time)
 - 2: exactly once (each message is received only once)
For more information on QoS see HIVE MQ Essentials: QoS
- Payload (message content): the message content for this event. TopView does not enforce a format for the payload. The format of the payload is defined between the publisher (TopView) and any subscribers of this content.

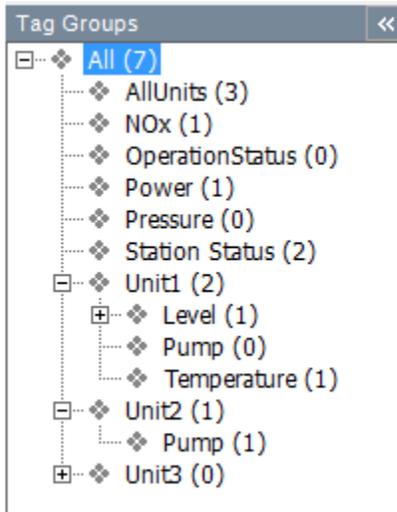
Tag Groups

Tag Groups allow the user to categorize each tag/row/alarm by optionally assigning each monitored tag to one or more Tag Groups. Many users can think of these as “alarm groups”.

There are many uses for Tag Groups in TopView

- Display
 - The interactive TopView Engine window and Remote Viewer will display the Tag Group names for the user to select when viewing tag and alarm information.
 - The Remote Viewer user’s view of TopView can be limited to one or more Tag Groups
 - The Mobile Web App can filter tag values and alarms by Tag Group
- Notification
 - Each Tag Group has notification and escalation settings that can be inherited by tags belonging to the Tag Group
- Reports and Feeds
 - Alarm Reports and HTML Snapshot Reports can include/exclude alarms and values by Tag Group
 - RSS Alarm Feeds can be created for specific Tag Groups
- Operations
 - The number of alarms per Tag Group can be monitored/alarmed (using the ACTGA or ACTGN **Operation**). This allows alarming and notification for alarm behavior within a Tag Group.
- Inhibit/Gate row
 - Alarms for tags within a Tag Group can be suppressed based on the signal an Inhibit row in TopView (e.g., suppress alarms when equipment is not running)

As shown below, Tag Groups can be multi-level (hierarchical) with parent/child relationships to define the Tag Group.



Primary and Secondary

Each tag can be assigned to one or more Tag Groups. A tag has both a primary Tag Group, plus one or more Secondary Tag Groups.

The entire list of Tag Groups assigned to a tag (combination of both primary and secondary) is used for all Tag Group based actions (e.g., filter for Alarm Reports, Tag Group tree in the Remote Viewer).

In the TopView Alarm Engine (interactive window) and Remote Viewer, the primary Tag Group and secondary Tag Groups can be displayed as two separate columns. Because the secondary Tag Group may be a list of multiple groups, it will be easier to sort displayed items by primary Tag Group.

You cannot assign secondary Tag Groups without assigning a primary Tag Group.

Example (Primary/Secondary)

TopView is monitoring 8 tags. The temperature and water level of two rivers and two lakes (RiverA, RiverB, LakeC, LakeD).

The 4 river tags are RiverA_temp, RiverA_level, RiverB_temp, RiverB_level.

The 4 lake tags are LakeC_temp, LakeC_level, LakeD_temp, LakeD_level.

For display and reporting, the user would like to group the tags by locations type (river or lake), location (river or lake name), and measurement type (temperature and level).

8 Tag Groups are created: River, RiverA, RiverB, Lake, LakeA, LakeB, WaterTemperatures, WaterLevels.

The Tag Groups are assigned as follows:

Tag name	Primary Tag Group	Secondary Tag Groups
RiverA_temp	RiverA	River,WaterTemperatures
RiverA_level	RiverA	River,WaterLevels
RiverB_temp	RiverB	River,WaterTemperatures
RiverB_level	RiverB	River,WaterLevels
LakeC_temp	LakeC	Lake,WaterTemperatures
LakeC_level	LakeC	Lake,WaterLevels
LakeD_temp	LakeD	Lake,WaterTemperatures
LakeD_level	LakeD	Lake,WaterLevels

For reporting and display, the user can select any of the 8 Tag Groups.

As examples:

- **LakeC** group contains tags LakeC_temp, LakeC_level
- **River** group contains tags RiverA_temp, RiverA_level, RiverB_temp, RiverB_level
- **WaterTemperatures** group contains tags RiverA_temp, RiverB_temp, LakeC_temp, LakeD_temp

Assigning Tag Groups to tags

Tag Groups are assigned to each tag on the "Tags and Limits" screen. Select a tag in the list, then select the Groups tab in the right panel.

Available Tag Groups

- Check/uncheck to add/remove the tag from the Tag Group
- Options > Set Primary to set the selected Tag Group as the Primary Tag Group

The screenshot shows the 'Groups' tab in a software interface. At the top, there are tabs for 'General', 'Groups', 'Alarm Limits', 'Operation', and 'Custom fields'. Below the tabs, there is a section titled 'Tag Groups' with a link 'View/Add/Edit Tag Groups...'. This section contains a list of tag groups: 'Pumps' and 'Unit1\Pump (primary)'. Below this is a section titled 'Available Tag Groups' with an 'Options' dropdown menu. This section contains a table with two columns: 'Tag Group' and 'Primary'. The table lists various tag groups with checkboxes in the 'Tag Group' column and 'X' in the 'Primary' column for 'Unit1\Pump'.

Tag Group	Primary
<input type="checkbox"/> NOx	
<input type="checkbox"/> Power	
<input type="checkbox"/> Pressure	
<input checked="" type="checkbox"/> Pumps	
<input type="checkbox"/> Station Status	
<input type="checkbox"/> Unit1	
<input type="checkbox"/> Unit1\Level	
<input type="checkbox"/> Unit1\Level\Indicator 1	
<input type="checkbox"/> Unit1\Level\Indicator 2	
<input checked="" type="checkbox"/> Unit1\Pump	X
<input type="checkbox"/> Unit1\Temperature	
<input type="checkbox"/> Unit2	
<input type="checkbox"/> Unit2\Pump	

Tag Groups Configuration Screen

Manage Tag Groups

You can create Tag Groups to categorize your tags for display and filtering. Each tag can be assigned a primary Tag Group plus one or more secondary Tag Groups (on the 'Tags and Limits' screen). Each Tag Group has a name and optional Notification recipient.

By default, a tag assigned to a Tag Group inherits the notification settings of the Tag Group in addition to its own Notification settings (chosen on the Edit Limits screen). If you need a tag to suppress its Tag Group Notification settings, you can do so on the Edit Limits screen.

Multi-level Tag Groups: use backslash character (Name1\Name2\...)

You can organize your Tag Groups into multiple levels (parent/child Tag Groups). For example, a Tag Group entered as NAME is a level 1 Tag Group; a Tag Group entered as NAME1\NAME2 is a level 2 Tag Group named NAME2 with a parent Tag Group NAME1. You can create a maximum of 10 levels in a single Tag Group.

Existing Tag Groups	Notify	Notify upon	Priority filter	Escalation Template
NOx			1-999	(none)
Power			1-999	(none)
Pressure			1-999	(none)
Pumps			1-999	(none)
Station Status	(Custom Email-SMS List)	Alarm	1-999	MachineDownEscalation
Unit1			1-999	(none)
Unit1\Level			1-999	(none)
Unit1\Level\Indicator 1			1-999	(none)
Unit1\Level\Indicator 2			1-999	(none)
Unit1\Pump			1-999	(none)
Unit1\Temperature			1-999	(none)
Unit2			1-999	(none)
Unit2\Pump			1-999	(none)

Selected Tag Group settings

Name: Station Status

Notification Options AND Gate

Tag Group notification

Priority filter: 1 to 999 valid range is 1-999

Notify: (Custom Email-SMS List) (none) (none)

Into Alarm send message: (none)

Return to normal message: (none)

Acknowledge message: (none)

Escalation template: MachineDownEscalation

Export Import OK

The user can create new Tag Groups using the [Add new] button.

The Tag Group name defines the level:

- "Name" is a level 1 Tag Group
- "Name1\Name2" is a level 2 Tag Group. Name2 is a child of Name1
- "Name1\Name2\Name3" is a level 3 Tag Group. Name3 is a child of Name2, and Name2 is a child of Name1
- Up to 10 levels are supported in a single Tag Group

When defining a multi-level Tag Group, the user does not need to define the parent Tag Group unless they want like to assign tags to the parent Tag Group. For example, the user can create a Tag Group named "Unit1\Pressure" and assign pressure tags for Unit1 to this Tag Group. The user does not need to separately define a "Unit1" Tag Group unless they would like to assign one or more tags to the "Unit1" Tag Group.

Options

Acknowledge alarms on RTN (return-to-normal)

Any unacknowledged alarms in the Tag Group will be acknowledged when the alarm transitions from 'active' to 'inactive'.

Note: this setting is also available per-tag/row. See **Prompt for alarm** comment/annotation on acknowledge

If set and this configuration is logging alarms to SQL Server, interactive users (TopView Engine and Remote Viewer) will be prompted to enter an annotation for the alarm event.

Acknowledge on return-to-normal on page 175 for more information.

Show by default in clients

The Remote Viewer is the TopView desktop client application. The Mobile Web App (MWA) is the TopView mobile client.

Remote Viewer

Each Remote Viewer has the option to view a subset of the tags and alarms by showing or hiding the desired Tag Groups.

By default, each Tag Group is initially displayed to the Remote Viewer user. The Remote Viewer user can then decide to hide/filter one or more Tag Groups (see Remote Viewer documentation/help for more information).

In some instances, Tag Groups should be listed to the Remote Viewer user but should not be displayed by default. The Remote Viewer user must then "unhide" the Tag Group in order to see the tag and alarms within the Tag Group.

Mobile Web App

The Mobile Web App allows the user to filter the display by Tag Group.

In some instances, you want to hide some Tag Groups from the Mobile Web App.

Checked "Show by default in clients"

By default, the Remote Viewer user will see this Tag Group and will need to hide/filter the Tag Group to remove the Tag Group tags and alarms from view.

The Tag Group will be visible in the Mobile Web App.

Unchecked "Show by default in clients"

By default, the Remote Viewer user will not see this Tag Group and will need to unhide the Tag Group in order to see the Tag Group tags and alarms.

The Tag Group will be hidden in the Mobile Web App.

Update sub-groups to match

Sets "Show by default in clients" of child Tag Groups to match the current Tag Group.

If you decide to hide a Tag Group by default, and this Tag Group has child Tag Groups, you should also hide the children. If you do not configure this correctly, the Remote Viewer will automatically hide children of a hidden Tag Group. The Mobile Web App will display visible children of a hidden parent Tag Group.

Notification

Once the Tag Group is created, it can be assigned to a tag as a primary or secondary Tag Group.

To simplify notification and escalation, each tag belonging to a Tag Group (primary or secondary) can inherit the Tag Group's notification recipients and escalation template. When a tag belonging to the Tag Group enters an alarm condition or returns to normal, a notification message can be sent to the Tag Group Notification Recipients unless suppressed (see below). If the alarm or unacknowledged state persists, notification can be sent based on the defined escalation.

Tag Group notification

Priority filter: 1 to 999 valid range is 1-999

Notify: (Custom Email-SMS List) ...

(none) ...

(none) ...

Into Alarm send message: ...

Return to normal message: ...

Acknowledge message: ...

Escalation template

MachineDownEscalation ...

Priority filter

The priority filter enables Tag Group notification if the priority of the alarm is within the defined range. The priority of an alarm is a value from 1-999 and the default priority filter includes all possible priority values.

See **Priority (tag/row)** and **Priority (alarm limit)** for more information.

Notify

Up to 3 separate notification groups can be assigned to each Tag Group. The Notification Recipient dropdown contains notification recipient groups for each type or notification (Email-SMS, Voice callout ...) that is enabled for this configuration file. The user can then select the notification events to send the selected recipients (transition into alarm, transition from alarm to normal, or acknowledge).

Notification Events: Send message

For each enabled notification event the user can select the notification message to send. The selected message can be the alarm message, RTN message, or Acknowledge message for the tag/row or an existing [notification message template](#).

Escalation template

The Escalation template dropdown contains a list of existing escalation templates. If an escalation template is selected, tags that belong to this Tag Group will inherit the escalation.

Suppression of Tag Group Notification and Escalation: the **Configure Alarm Limits** screen allows user to assign notification per tag, per alarm limit (using the "Notify" drop-down) and to assign escalation per tag (using the Escalation screen). The Tag Group Notification and Escalation will be used in addition to the per-tag notification and escalation unless the "Suppress Tag Group notification and escalation" checkbox is selected for the tag on the Options Screen.

Example:

- Two Global Email-SMS Groups (notification recipients) created:
"Engineer" will email engineer@mycompany.com
"Manager" will email manager@mycompany.com
- Tag Group "Compressor 4" created
Tag Group alarm notification recipient for "Compressor 4" = "Manager"
- Tag1 and Tag2 both belong to Tag Group "Compressor 4"
- Edit Limits screen:
Tag 1 alarm condition: > 50, Notify: Engineer
Tag 2 alarm condition: > 55, Notify: None

Both tags enter alarm. Because both tags are part of the Tag Group "Compressor 4", they inherit the notification recipient "Manager" in addition to their own notification recipient.

Tag 1 alarm message is sent to Engineer and Manager

Tag 2 alarm message is sent to Manager

Inhibit/Gate

In TopView, an Inhibit row is used to allow or suppress alarm limit violations by looking at the "in alarm" state of another tag/row in this Configuration.

The Inhibit row is typically used to enable state-based alarming – enabling or disabling alarms based on the state of process, equipment, etc. Example: only alarm if the unit is running.

When configuring Inhibit rows in TopView you have the option to specify the Inhibit row per monitored tag/row (see tag/row-based **Inhibit/Gate** on page 180) or here as part of a Tag Group. If specified as part of a Tag Group, each tag belonging to the Tag Group will inherit the Inhibit row setting in addition to any tag/row-based Inhibit/Gate setting. Most users should implement either Tag Group-based or tag/row-based Inhibit/Gate.

Inhibit row

The inhibit row can be entered as an absolute row number (X) or the Row UID of another row. If this field is empty, there is no Inhibit row setting.

We recommend creating a ROWUID for the Inhibit row and referencing the row using the ROWUID. See **Row UID** for more information.

Inhibit condition

The inhibit condition determines the alarm state of the gate row that will allow alarms for the current tag/row to occur.

Bulk Configuration

Use the [Export] and [Import] buttons to perform a bulk configuration of Tag Groups.

[Export] will store the current settings in a CSV file. This file can then be modified (add, remove, edit Tag Groups). After the changes have been saved to the CSV file, use [Import] to import the changes back into the Tag Groups screen.

Output Points

Output Points are tags on the Server that can receive signals/values from TopView.

Output points are tags on the Server that can receive values from TopView

Event points: Receive one or more output values when a particular event occurs (alarm, return-to-normal, acknowledgement)
Configured per-tag on the Alarm Limits and Notification Settings screen

Health points: Continuously receive values while TopView is running as long as the health of the monitored item is good. Example: Heartbeat output. Configured on the Health screen.

Existing Output Points

Name	Output tag (server tag)	Signal type	Disabled	Current Usage
HeartBeat to ServerA	myserver otagf023	Health		Health output
MyAckOutput	myserver otagf100	Event	*	Tag ACK Event (Row: 1)
MyAlarmOutput	myserver otagf100	Event		Tag Alarm Event (Row: 1)

Add new Output Point

Remove Output Point

Remove usage when removed

Selected Output point

Name: **HeartBeat to ServerA**

Output Tag: ||server||tag

Disable this Output Point

Output signal type

Health output: Pulse (alternating 0-1-0-1....)

Health output: Sawtooth Cycle the sawtooth every minutes from to

Health output frequency: seconds. If blank or <1 will output at the TopView Engine refresh interval (5 secs)

Event output: On startup, output value
Startup value cannot be blank or empty

Event vs. Health Output Points

There are two types of Output Points available in TopView

- **Event points (Write to Server Notification)** receive an output value (or values) when an event occurs in the TopView Engine. Event Output Points are assigned to a monitored point's alarm events on the Alarm Limits, **Outputs** screen.

Possible events include:

- Tag/Row enters an alarm condition
- Tag/Row returns to normal from an alarm condition
- User acknowledges an alarm condition

TopView can output to both numeric and string tags. For string tags, a special syntax for the event output string instructs TopView to output the alarm message, return to normal message, or acknowledge message. See **Health Signal Type**

In order to assign an Output Point to a health item (e.g., Heartbeat), the user must configure the Output Point's signal type as "health".

Health output: Pulse (alternating 0-1-0-1...)

Health output: Sawtooth Cycle the sawtooth every minutes from to

Health output frequency: seconds. If blank or <1 will output at the TopView Engine refresh interval (5 secs)

There are 2 choices for the health signal type:

- **Pulse**
During each output of the health signal an alternating 0 or 1 is written to the tag. The result will be an integer pulse signal 0-1-0-1...
- **Sawtooth**
The user may set the cycle time of the sawtooth signal (how long it takes to go from min to max to min), the sawtooth start value and sawtooth end value. During each output of the health signal TopView will determine the sawtooth output value to be sent. Integer output tags can still be used but will not display the fractional portion of the sawtooth value. String tags can be used and will display the float value as a string ("5.6").

Health output frequency

The health output frequency allows the user to configure how often the health value will be written.

If the health output frequency is blank (default value) the output frequency will be the configured refresh rate of the TopView Engine.

If the user would like to reduce the frequency of outputs, the frequency can be set to the desired number of seconds. The TopView Engine will only write the health output value during each refresh of the Engine so the output frequency should be set to a multiple of the Engine refresh rate.

Example:

- TopView Engine refresh rate: 5 seconds
- Health output frequency: 60 seconds

TopView will consider the output every 5 seconds but will only write the value every 60 seconds.

Event Signal Type below for more information.

- **Health points** continuously receive an output value while the health of the monitored item is good. The Heartbeat output is an example of a health output point.

Existing Output Points

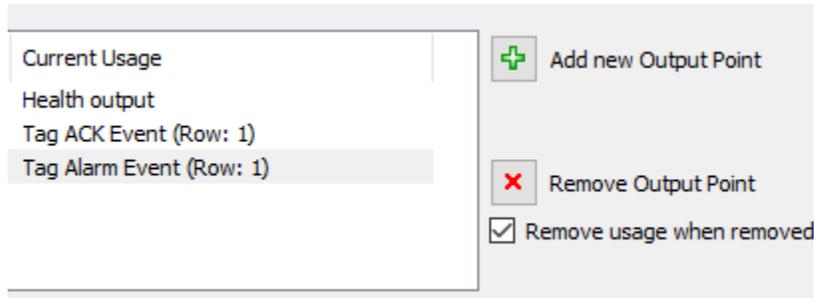
This list displays the existing Output Points. An Output Point consist of

- User-given name for the Output Point
- Output tag and server name
- Signal Type (event/health)
- Signal details

Usage

The list of existing output points includes usage information that details the use of each Output Point in the configuration.

When removing an Output Point, the Configurator will, by default, remove any usage of the Output Point in the Configuration. This behavior can be changed by unchecking "Remove usage when removed" checkbox before clicking the Remove button.



Output Tag

The name of the output server and tag. Make sure that TopView has permission to write to this tag. Each output value is sent to the output tag as a new current value.

TopView supports integer, float, string and boolean output tags. Some tag types may not work with the chosen signal type – For example, do not configure a Sawtooth health output for a boolean output tag.

The tag name syntax is ||server||tagname

- Use the **[Search]** button to browse for tags.
- Use the **[Test output]** button to send a single value to the output tag. This button will also allow user to read the current value from the output tag so he/she can verify that the test value was properly written.
- Use the **[Tag Properties]** button to view the properties of the entered tag.

Disable this Output Point

If selected, the TopView Engine will ignore any configured use of the Output Point. The tag and data server will not be verified.

Health Signal Type

In order to assign an Output Point to a health item (e.g., Heartbeat), the user must configure the Output Point's signal type as "health".

Health output: Pulse (alternating 0-1-0-1...)

Health output: Sawtooth Cycle the sawtooth every minutes from to

Health output frequency: seconds. If blank or <1 will output at the TopView Engine refresh interval (5 secs)

There are 2 choices for the health signal type:

- **Pulse**
During each output of the health signal an alternating 0 or 1 is written to the tag. The result will be an integer pulse signal 0-1-0-1...
- **Sawtooth**
The user may set the cycle time of the sawtooth signal (how long it takes to go from min to max to min), the sawtooth start value and sawtooth end value. During each output of the health signal TopView will determine the sawtooth output value to be sent. Integer output tags can still be used but will not display the fractional portion of the sawtooth value. String tags can be used and will display the float value as a string ("5.6").

Health output frequency

The health output frequency allows the user to configure how often the health value will be written.

If the health output frequency is blank (default value) the output frequency will be the configured refresh rate of the TopView Engine.

If the user would like to reduce the frequency of outputs, the frequency can be set to the desired number of seconds. The TopView Engine will only write the health output value during each refresh of the Engine so the output frequency should be set to a multiple of the Engine refresh rate.

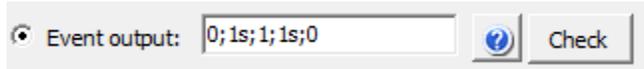
Example:

- TopView Engine refresh rate: 5 seconds
- Health output frequency: 60 seconds

TopView will consider the output every 5 seconds but will only write the value every 60 seconds.

Event Signal Type

In order to assign an Output Point to an event (e.g., alarm occurred), the user must configure the Output Point's signal type as "event output". The Output Point must then be assigned to an event of a monitored tag (see **Outputs** on page 187 for information on assigning Output Points to alarm, return-to-normal, and acknowledge events for a monitored point in TopView).



The **Event output string** defines the value(s) that will be sent to the tag.

Event Output Points supports single and multiple value outputs when the event occurs. For example, when an alarm is acknowledged, TopView can output a single value or a 2 second pulse.

The event output string consists of one or more values and delays separated by semicolons. The delay syntax is **Xs** where **X** is the number of seconds for the delay

The "value" can be a numeric value, a text string, or the %msg% placeholder value.

%msg%

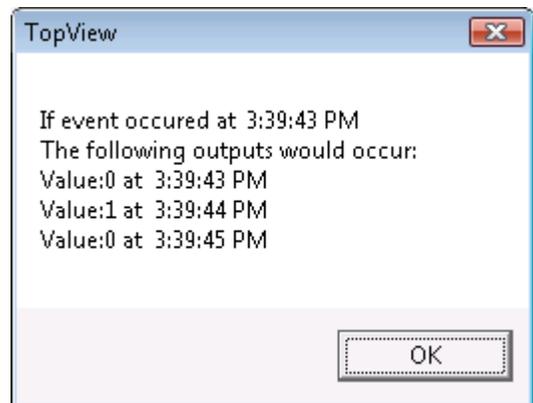
If the output value is specified as %msg%, the message for the event is written to the string/character tag assigned to the Output Point. The text string that is sent to the tag will be based on monitored point and event that this Output Point is assigned to:

- "Into alarm" event for a monitored point: output the alarm message. This is the TopView alarm message and/or custom alarm message configured by the user. See **Alarm message and Custom message** on page 138 for more information.
- "Return to normal" event for a monitored point: output the return-to-normal message. This is the TopView return-to-normal message and/or the custom return-to-normal message. See **Advanced Notification...Return to Normal Notification** on page 170 for more information.
- "Acknowledge" event for a monitored point: output a message stating that "Row X has been acknowledged. Tag = tagname"

Use the  button to for information on entering the output string.

Example event output string	When the event occurs...
1	Output 1 (numeric output tag)
True	Output True (Boolean output tag)
%msg%	Output a message for the event (alarm message, return to normal message, or acknowledge message). Requires a string or character output tag.
0;1s;1;2s;0	Output 0, Wait 1 second, output 1, wait 2 seconds, output 0
1s;True;1s;False	Wait 1 second, output True, wait 1 second, output False

The [Check] button will parse the entered event output string and display details of the output values. For example, performing a check on the event output string "0;1s;1;1s;0" displays the following information:



Startup value is a single value that will be sent to the output tag when the TopView Engine instance launches. Use this field to initialize the output tag.

%msg% is not supported for the startup value.

On startup, output value
Startup value cannot be blank or empty

Handling Multiple Output Points Events

Care must be taken during the configuration of Event Output Points.

Note that

- the same output point may be configured for multiple tags/events
- the user may configure a waveform for the output

Therefore, the length (time) of an event output waveform may cross over into another event using the same output point. For example, an event output of "1,15s,0" will output a 15-second pulse waveform. If this same Output Point is used for multiple alarm events that occur 5 seconds apart, part of the two waveform outputs will occur at the same time.

To minimize the impact of multiple outputs, TopView will combine multiple outputs into a single output if the events occur at the same time.

- **"Alarm" and "Return to normal" outputs:** TopView retrieves tag values and checks for alarm conditions during each user-configured refresh interval. If, during this refresh, multiple alarms (or return to normal) events occur that are configured to output to the same Event Output Point, these multiple outputs will be combined into a single output.
- **"Acknowledge" outputs:** the user has the ability to acknowledge multiple alarm conditions simultaneously using the TopView Engine window toolbar or the Remote Viewer. If, during a multiple-tag acknowledge event, multiple acknowledge outputs occur for the same Event Output Point, these will be combined into a single output.

Engine Settings: General

The Options and Settings Screen controls settings for the current TopView configuration file.

Refresh rate

Sets the update interval (in seconds) for the TopView Engine. This determines how often the current values for the tags will be retrieved and alarm conditions will be evaluated. Maximum value is 300 seconds.

Behavior of TopView Engine

Startup delay

When the instance of the TopView Engine starts, it will wait for the "startup delay" before it connects to any Servers and retrieves tag values. If TopView is configured to launch at machine startup, this delay can allow time for the local Server to begin before TopView attempts to connect and retrieve information.

Suspend on bad Server connection

If selected, TopView will suspend alarm processing and notification if it cannot connect to one or more of the Servers/Databases for the monitored tags. If multiple Servers are accessed, one bad Server connection will suspend TopView.

Note: this setting does not apply to TopView Perfmon.

If "Suspend on bad Server connection" is not selected:

- TopView will set the tag value (from bad Servers) to "Error connecting to ..." and the tag status to "not good" unless "latch last good value" is used (see **Latch last good value** on page 93).
- TopView will continue to process alarm conditions and perform notification.
- For tags from the bad server:
 - If "Latch last good value" is set for the tag, the alarm conditions for the tag will be processed.
 - If "Latch last good value" is not set for the tag, the "bad status" alarm condition will be the only condition processed. All other alarm conditions for the tag will be suppressed (not true).

See **Bad Server Connections** on page 584 for more information on TopView behavior with bad Server connections.

Note: Use TopView Admin Tools to monitor the current operating state. See **TopView Summary** on page 548 for more information.

Apply configuration changes while running

If enabled, the TopView Engine will watch for changes to the configuration. Some changes may force the Engine to restart (internally) while other changes can be applied without disruption to the current state of the Engine.

Changes that do not require an internal restart

Most changes made to the existing monitored tag list will not require an internal restart. This includes tag attributes (description, units, format), alarm disabled, alarm limits, and notification settings for each tag.

Changes that require an internal restart

- Adding or removing tags from the monitored tag list
- Changing the order of tags in the monitored tag list
- Adding a new limit tag (using a new tag value as an alarm limit)
- Changing the operation of an existing tag
- Modification of any non-tag configuration setting (e.g., the email server)

What happens if the Engine internally restarts?

By default, TopView does not save existing alarm state during an internal restart unless you enable the option to persist state. See **Persist alarm, acknowledge, and disable state during internal restart (Engine remains running)** on page 219.

Without this option, if one or more items are "in alarm" before the restart, and the same items are "in alarm" after the restart, these items will be handled as new alarms and can result in new notifications. To suppress sending alarms at startup and after a restart, see "Suppress alarm notification at startup and for the first X seconds" on page 184.

How do I know if my change will require an internal restart?

If "Apply configuration changes while running" is enabled for the running TopView Engine, the TopView Configurator will warn the user if the current Save will require an internal restart. The user will have the option to cancel the save and prevent the internal restart.

Write run-time alarm disable and snooze actions back to this configuration file

Each tag/row in TopView has a "Disable alarms" setting as part of its configuration. See **Disable alarms** on page 94 for more information.

The "Disable alarms" setting of each tag/row in the configuration determines the initial disabled state of the tag/row when the TopView Engine starts.

Users of the interactive (non-Service) TopView Engine and Remote Viewer have the ability to disable and snooze/shelve alarms while the TopView Engine is running. This is called a "run-time disable action".

By default, a user's run-time disable action does not change the "Disable alarms" setting of the tag/row in the configuration file. Therefore, if you stop and restart the TopView Engine process, the disabled state of each tag/row will be the setting from the configuration file which may be different than the last run-time disable action.

If "Write run-time alarm disable and snooze actions back to this configuration file" is selected, the run-time disable actions by users will be written back to the configuration file; the TopView Engine will update the "Disable alarms" setting of the tag/row in the configuration file. Enabling this setting will synchronize the configuration file's "Disable alarms" setting with the run-time disable actions therefore allowing run-time disable actions of users to persist through a stop/start of the TopView Engine process.

Notes about this setting:

- This setting can only be used if one of the following is true:
There is a unique list of tag names in the monitored tag list
OR
A Row UID is entered for all tags in the monitored tag list
- The running TopView Engine must have the necessary permission to write to the configuration file
- There is a delay between the last disable/enable action and a write-back to the configuration file. The time between the last enable/disable action and the write to the configuration file is named "pending disable actions". See Global Options, **TopView Engine should wait X seconds after last disable/enable change before persisting changes to the configuration file** on page 469 to change the default delay.
- If a user is editing a configuration and attempts to save the file while pending disable actions exist, the save attempt will be prevented.
- If a user is editing a configuration in the TopView Configurator and a run-time disable action is written back to the configuration file, the user will be informed that the configuration has changed if **Notify me if current configuration is changed...** is enabled

Persist alarm, acknowledge, and disable state during internal restart (Engine remains running)

An internal restart of a TopView Engine occurs when the TopView Engine process remains running but reloads the configuration and resumes monitoring and alarming.

There are multiple reasons for a TopView Engine to perform an internal restart and include:

- Data Server lost connection/reconnection
- Changes to a configuration file (see **Apply configuration changes while running**)
- Forced restart (see **TopView Engine for this configuration**)

During an internal restart, the default behavior of TopView is to reset all alarm and acknowledged states and to "start over" as if the TopView Engine process restarting. This default behavior can result in re-alarming previous alarms and loss of acknowledged alarms.

If "Persist alarm, acknowledge, and disable state during internal restart" is selected, TopView will attempt to preserve the current alarm, acknowledge, and disable state for all tag/rows that existed before and after the internal restart.

Persisted items include:

- Alarm state (active/inactive) and alarm start time
- The state of any "delay in" settings
- Alarm message
- Alarm comment/annotation
- Alarm acknowledged state and time
- Any existing notification escalation steps
- Alarm disabled and snooze/shelve state.
See **Disabled alarms: settings and behavior** on page 164 for more information.

Notes about this setting:

- This setting can only be used if one of the following is true:
There is a unique list of tag names in the monitored tag list
OR
A Row UID is entered for all tags in the monitored tag list
- In the TopView alarm log, persisted active alarms will be ended at the restart time and restarted immediately after the restart time, resulting in 2 alarm entries for the active alarm, one before and one after the restart. The persisted alarm log entry (after restart) will display a modified alarm message that is prefixed with "(persisted alarm)". Even though the alarm log will show two separate alarms entries, the runtime TopView Engine will display an uninterrupted alarm state to users.

How do I know if my saved configuration change/restart will persist alarms?

If "Apply configuration changes while running" is enabled for the running TopView Engine, the TopView Configurator will warn the user if the current Save will require an internal restart. The details of alarm persistence will be presented to the user in an alarm persistence report. The user will have the option to cancel the save and prevent the internal restart.

Reasons for "Can't persist"

For tag/rows that exist before and after the internal restart, there are a few changes to the tag/row settings that will prevent persisting alarm, acknowledge, and disable state.

These changes include:

- Tag limits changed
- Disabled setting changed

The details for "can't persist" tag/rows are included in the alarm persistence report presented to the Configurator user before an internal restart occurs.

Suppress notification of alarms at startup

About suppression of startup alarm notification

TopView Engine "startup" is defined as:

- The initial startup of the TopView Engine process
- An internal/soft restart of the Engine due to changes in the configuration file for the Engine if configuration changes are applied
- A restored connection to a Server after a bad or lost connection where an internal/soft restart is required.

Alarm notification suppression: after startup, if the tag/row enters an active alarm state during the suppression period the tag/row will

- Suppress flashing of the alarm state (if flashing is configured)
- Suppress audible alarms
- Suppress notifications for the alarm (Email, SMS, Voice callout,)
- Suppress notifications from Escalation Templates configured for the alarm
- Suppress sending SMTP Trap or MQTT messages for the alarm

Suppression period

- The General screen of the Configurator contains a suppression period that applies to all tags in the current configuration.
- Each tag has an optional 'startup notification suppression' setting that can be specified on the "Alarm Limits >Options" screen for the tag.
- The suppression period for each tag is a combination 'all tags' and the 'per-tag' suppression period. The longer of the two suppression periods will be the suppression period.
- Note: alarms configured with a 'Delay In' > 0 seconds cannot be in alarm after startup until the 'Delay In' period has expired, even if the alarm condition is violated. If the alarm notification suppression period is less than the alarm's 'Delay In' setting, TopView will never suppress startup notifications for this tag.

When the notifications for a startup alarm are suppressed:

- The tag/row will still be in an active alarm state and will display the configured active alarm color.
- The alarm event will be logged to the TopView alarm logs and the event will be visible in TopView Alarm History and Alarm Reports.
- Optionally, the alarm can be displayed as "acknowledged". See "Do not set alarms with suppressed notifications to "unacknowledged""
- Any other notifications configured for alarm (e.g., return-to-normal) will still occur. One exception is an acknowledge or return-to-normal notification configured as part of an Escalation Template since Escalation Templates are suppressed.

Suppress notifications for all alarms that go active within X seconds...

If X is >0, defines the startup alarm notification suppression period for all tags in the current configuration.

This configuration-wide setting (all tags) has the same effect as the per-tag setting to suppress startup alarm notifications. For details on the per-tag setting see "Suppress alarm notification at startup and for the first X seconds".

Please read "About suppression of startup alarm notification" for a full discussion of alarm notification suppression

Do not set alarms with suppressed notifications to "unacknowledged"

The default behavior for a new TopView alarm is that it becomes "unacknowledged".

If this option is selected, TopView will not set the startup alarms with suppressed notifications to "unacknowledged".

Note that if this setting is enabled the alarm is not being acknowledged, it is only prevented from entering the unacknowledged state. Therefore, any actions tied to the alarm being acknowledged will not occur (e.g., acknowledge output, acknowledge notification, ...)

***This setting applies to both the configuration-wide and tag-based startup alarm notification suppression settings.**

Please read "About suppression of startup alarm notification" for a full discussion of alarm notification suppression

Testing Options – Disable features

During testing of a configuration, the user may want to temporarily disable some TopView features to prevent unwanted notifications and outputs.

Disable notifications (Email-SMS, Voice, Modem)

If enabled, the TopView Engine will process and log all attempts at Email, SMS, Voice, and Modem/TAP notification but will not send the notification.

Since the attempt details are logged the user can view the application log (using TopView Admin Tools) to verify alarm and notification logic.

Disable Outputs

If enabled, TopView will not write any configured outputs including Output Points, output tags, or acknowledge output tags.

Alarm Priority Ranges

Each alarm in TopView is displayed in an alarm color and optional alarm label (the alarm label replaces the word "Alarm" as the state of the alarm).

The alarm color and alarm label can be set for each alarm limit condition. See **Color** and **"Alarm" label** for more information.

Priority Ranges provides an alternate method for setting alarm color and alarm label. Instead of the per-alarm condition settings, the color and label are set based on the alarm priority value (1-999).

Set alarm color or alarm label by priority

There are options for setting alarm color and/or alarm label by priority. At least one of these options must be enabled before the priority ranges can be edited.

Set alarm color based on priority range color

The alarm color will be determined by the color of the priority range that matches the alarm priority. If enabled the selection of alarm color on the alarm limits screen will be hidden.

Set alarm label based on priority range description

The alarm label will be determined by the description of the priority range that matches the alarm priority. If enabled the alarm label field on the alarm limits screen will be hidden.

Priority ranges

The user must configure one or more priority ranges that include all possible priority values from 1 to 999. Each priority range defines a start value, end value, color, and description.

Priority ranges

	Start	End	Color	Description
▶	1	249	Severe	Severe
	250	499	Major	Major
	500	749	Minor	Minor
	750	999	Warning	Warning

[Add row to end](#)

[Insert row before selected](#)

[Insert row after selected](#)

[Delete selected row](#)

[Reset to default](#)

The values of priority range start, end, and description can be edited directly in the list.

To change a color, click on the colored cell in the list to display a color selector dialog.

Time Zone settings

Default time zone for this configuration

Each configuration can specify an alarm time zone. The configuration alarm time zone will initially be the local TopView machine time zone.

Each row/alarm has a defined alarm time zone. By default, the row/alarm time zone is the configuration alarm time zone set here. Each row/alarm can override its alarm time zone if not equal to the configuration alarm time zone (see **Override Configuration time zone for this row** on page 183)

How is alarm time zone used?

Alarm message and notification message content can include date/time information through the user of placeholders. For example, %toa% returns the "time of alarm" in the time zone of the local (TopView) machine while %toa_atz% returns the "time of alarm" in the alarm time zone.

TopView Information Icon

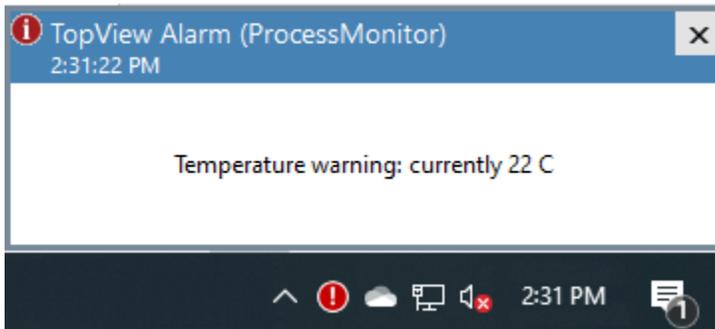
The TopView Information Icon runs in the system tray of the TopView computer.



By default, the TopView Information Icon is started when the user logs into Windows. See **TopView Information Icon** on page 540 for more information.

Show alarms in System tray pop-up window

If selected, the TopView Information Icon will display new alarm messages in a pop-up window.



Alarm History screen – Custom tasks

The Alarm History screen in the interactive TopView Engine window and Remote Viewer contains a “Custom tasks” dropdown button above the displayed alarm events.

The display text and function of the two tasks are controlled by the user through the two custom tasks fields:

Alarm History screen - Custom Tasks

Custom tasks on the Alarm History screen allow the user to launch a custom application or link based on the information of a selected alarm event (alarm start/end time, ...).

Custom task #1:

Custom task #2:

For a selected alarm event, a custom task can launch a separate application or open an external link (web page, document). The custom task can include information about the selected alarm event including alarm start time, end time, acknowledge time, acknowledge user, etc.

Task formatting

- **<label>**
Specifies the label (text) to display for this task in the dropdown.
<label> should appear at the start of the task value and should be used with <link>
- **<link>**
If the field value is a link to a file or web page, <link> specifies the details of this link (the file or web page). If the user selects the task, the file or web page will be opened. If the task value is a link to an application or batch file, <link> specifies the path to the application executable or batch file. If the user selects the task, the application or batch file will be launched.
- **<arg>**
If the <link> is an application or batch file, <arg> specifies the command-line arguments to pass to the application or batch file.
- **<format>**
Optional setting to apply a custom format string to any date/time placeholders.
If <format> entered, it must appear as the last item in the task.
For valid format strings, see **Custom date formats** on page 598.

Task Placeholders

Within any of the task value sections (<label>, <link>, <arg>), the user can enter text and placeholders. TopView will replace the placeholders with the value of the item for the selected alarm event.

Placeholders for the selected alarm event

Placeholder	Description
%uid%	UID for the alarm event
%tag%	The tag name
%taggroup%	The primary tag group name
%desc%	The tag description
%server%	The server name for tag
%alarmmsg%	The alarm message
%ackuser%	The name of the user that acknowledge the alarm
%ackdevice%	The device or computer name that initiated the acknowledge the alarm
%comment%	The alarm comment/annotation
%commentcomputer%	The computer name that initiated the comment
%commentuser%	The name of the user that entered the comment
%customfield1% %customfield2% %customfield3%	<p>This placeholder will reference the custom field 1, 2, or 3 for the alarm point/tag (see Custom fields on page 111). The purpose of this placeholder is to execute different tasks for different points/alarms by executing one of the custom fields defined for the alarm point.</p> <p>NOTE:</p> <p>This placeholder must appear alone as the value of the task. The referenced custom field (1/2/3) should have a <label> and <link> field defined. Any placeholders defined in the referenced custom field must be a valid placeholder for custom tasks.</p>

Task Date/Time Placeholders

Date/Time placeholders return a day and time (timestamp) associated with the alarm event. The user can customize the date/time format of the date/time placeholders.

Each date/time placeholder returns an absolute day and time. The user can offset the returned timestamp by a number of seconds, minutes, hours, or days, resulting in a new time that will be used as the result of the placeholder.

Placeholders for the selected alarm event

Date/Time Placeholder	Description
<code>%time_alarm_start%</code>	The alarm start date/time
<code>%time_alarm_end%</code>	The alarm end date/time If the alarm is still active, returns current time
<code>%time_alarm_ack%</code>	The alarm acknowledge date/time If the alarm is not acknowledged, returns current time

Offsetting date/time placeholders

The user can provide a time offset for any date/time placeholder to add or subtract time from the result of the placeholder.

The offset must appear just before the last percent % of the placeholder name

- **Format of offset: +/- N d|h|m|s**
First character: + (add time) or – (subtract time)
Next character(s): N integer number of time units
Last character: time units for N = d (days), h (hours), m (minutes) or s (seconds)
- Example date/time placeholders with offset:
`%time_alarm_start+10m%` 10 minutes after the alarm start time

Field Value Examples (with placeholders)

- Application link passing alarm start time (minus 10 minutes) and alarm end time with custom format for the 2 date/time placeholders:

```
<label> Trend <link> c:\myapp\trend.exe <arg> %time_alarm_start-10m%  
%time_alarm_end% <format> dd-MMM-yyyy HH:mm:ss
```

Engine Settings: Display

The View and Columns screen allows the user to configure the information displayed in the interactive TopView Engine window for this Configuration.

View and Columns

These settings control the information (columns) displayed for each monitored point in the TopView Engine window for this configuration file. This window is visible when you are running the TopView Engine interactively (not as a Service).
Note: The Remote Viewer can mirror these settings or can display a different set of columns

Initial View

Current Values Current Alarms

'Current Values View' columns

<input checked="" type="checkbox"/> Current Tag/Operation Value	<input type="checkbox"/> Alarm limits	<input type="checkbox"/> Custom field #1
<input checked="" type="checkbox"/> Status of value (good/bad)	<input checked="" type="checkbox"/> Time in alarm (duration)	<input type="checkbox"/> Custom field #2
<input checked="" type="checkbox"/> Tag's measurement units	<input type="checkbox"/> Time of alarm (timestamp)	<input type="checkbox"/> Custom field #3
<input type="checkbox"/> Event Generator	<input type="checkbox"/> Primary Tag Group	
<input checked="" type="checkbox"/> Tag name	<input type="checkbox"/> Secondary Tag Groups	<input checked="" type="checkbox"/> Source
<input checked="" type="checkbox"/> Current timestamp	<input type="checkbox"/> Priority	
<input type="checkbox"/> Tag description		

'Current Alarms View' columns

<input type="checkbox"/> Priority	<input type="checkbox"/> Primary Tag Group	<input type="checkbox"/> Alarm comment
<input checked="" type="checkbox"/> Time in alarm (duration)	<input type="checkbox"/> Secondary Tag Groups	<input type="checkbox"/> Alarm comment User
<input type="checkbox"/> Time of alarm (timestamp)	<input type="checkbox"/> Custom field #1	<input type="checkbox"/> Alarm comment Time
<input checked="" type="checkbox"/> Alarm Message	<input type="checkbox"/> Custom field #2	
<input type="checkbox"/> Alarm limits	<input type="checkbox"/> Custom field #3	<input checked="" type="checkbox"/> Source

Initial View

The interactive TopView Engine window can display both a Values View and Alarms View of the monitored points. Select the desired initial view.

Values View columns

For the Values View, select the columns of data that should be displayed for the monitored points.

'Time in alarm' vs. 'Time of alarm': The 'Time in alarm' column displays the duration of active alarms as hours:minutes:seconds. The 'Time of alarm' column will display the timestamp (date and time) that the alarm occurred based on the time of the TopView computer.

Tag description: TopView will use the user-entered description for a tag/row (if entered on the "Tags and Limits" screen) or the tag description if the user-entered description is blank.

Alarm limits: displays the alarm limit condition(s) and settings including delay in, delay out, dead band, expiration, and blackout.

Status of value: displays the status of the row value as good, bad, or uncertain (uncertain is available for TopView OPC only).

Tag Quality Marker (TopView OPC): The quality of the OPC value can be displayed next to each value in the interactive TopView Engine window. The quality will be displayed as Good (*), Bad (!) or Uncertain (?). You can also display Tag Status.

Custom field #1 and Custom field #2: See **Custom fields** on page 111

Source: only available for TopView Events

Alarms View columns

For Alarms View in the interactive TopView Engine window, select the columns of data that should be displayed for the monitored points.

'Time in alarm' vs. 'Time of alarm': The 'Time in alarm' column displays the duration of active alarms as hours:minutes:seconds. The 'Time of alarm' column will display the timestamp (date and time) that the alarm occurred based on the time of the TopView computer.

Alarm limits: displays the alarm limit condition(s) and settings including delay in, delay out, dead band, expiration, and blackout.

Custom field #1 and Custom field #2: See **Custom fields** on page 111

Alarm comment/annotation: alarm comments/annotations may be entered by the interactive user (TopView Engine and Remote Viewer). This feature requires alarm logging to SQL Server. See **Log alarms to SQL Server** on page 236 for more information.

Source: only available for TopView Events

Settings of the TopView Engine window (interactive)

These settings take effect when the TopView Engine is first launched interactively, yet the user may be allowed to toggle the setting based on permissions.

Show items with priority <=

When the TopView Engine starts, it will display items with a priority number less than or equal to the selected value

Start Window Minimized

If selected, the interactive TopView Engine window is started minimized to the Taskbar.

Show Event Viewer (TopView Events)

If selected, the interactive TopView Engine window will display an Event Viewer window for each Event Generator. The Event Viewer will display all events sent to TopView by the Event Generator.

Show minimized Window on new alarm

If selected, the interactive TopView Engine window will reappear on the user's screen if it is minimized when alarm occurs. Note that a "trigger row" will not cause the minimized window to appear (see **Trigger** row on page 183 for more information).

Only show tags (rows) in alarm (Values view)

If selected, the TopView Engine window (Current Values View) will initially display only the tags which are currently in alarm. All other rows will be hidden.

Flash alarm rows

If selected, the interactive TopView Engine window will flash tags/rows that are in alarm.

Window on-top of other applications

If selected, the interactive TopView Engine window will remain on top of other visible applications.

Hide bottom status pane

If selected, the interactive TopView Engine window will not display the status pane that appears at the bottom of the TopView Engine window.

Hide column headers

If selected, the interactive TopView Engine window will hide the column headers for the displayed tags/rows (value, timestamp, ...).

Show top toolbar

If selected, the interactive TopView Engine window toolbar will be displayed.

Font for TopView Engine window



If the user does not select an initial font, the interactive TopView Engine window will be shown with the default font and size. If the user selects an initial font, the TopView Engine window will initially be set to the chosen font name and size. The user can change the font size of a running TopView Engine window, although the chosen font size will not be saved.

User Permissions for TopView Engine window

These settings apply when the TopView Engine is launched interactively.

User can show/hide top toolbar

If selected, the user is permitted to show or hide the TopView Engine window toolbar.

User can toggle on-top setting

If selected, the user can toggle the initial on-top setting.

User can toggle 'disable alarms' for each row

If selected, the user can toggle the 'disable alarms' setting for each row. A row with 'disable alarms' set will not perform alarming or notification. This permission applies to interactive users (on the same computer as TopView) as well as globally to all Remote Viewer users. If not set, you can enable Remote Viewer security to allow/disallow this setting for Remote Viewer users.

3rd Party Application path

Allows another application to be launched from the TopView Engine window. This application is not launched as the result of an alarm condition. If the user would like to launch applications in response to alarms, see **Configure Alarm Limits** on page 119.

Caption

Enter the caption that will be displayed in the TopView Engine window for the 3rd party application.

Path

Enter the run-string for the 3rd party application.

Engine Settings: Logging

Each TopView configuration creates multiple log files after the TopView Engine instance is launched. These log files include the application log, alarm log, alarm actions log, and notification logs. In addition to the file-based alarm log, TopView can optionally log alarms to SQL Server.

Logging

Each running TopView configuration will output multiple levels of logging information [View log files in Admin Tools...](#)

Daily logs

Application logs:
Daily log of all application information, warning, and error messages.
Maximum file size: MB Purge after days (0=no purging)
 Create a log file each day, even if no application log messages occur during the day

Alarm logs:
Daily log of Alarm-related log messages (alarms, return to normal, ...). Subset of messages included in the daily Application logs and the source for TopView Alarm Reports.
Maximum file size: MB Purge after days (0=no purging)
Note: purge setting applies to alarm log files and SQL Server

Alarm actions logs:
A log file of all application messages pertaining to each alarm, including alarm events (InAlarm, Ack, RTN) and notifications related to an alarm. This is a single source reporting all TopView actions for an alarm.
Maximum file size: MB Purge after days (0=no purging)

SQL Server alarm logging (optional)

Alarms can be logged to SQL Server in addition to the daily alarm log file

Log alarms to SQL Server [Configure SQL Server...](#) [Sync SQL Server...](#)

Transaction logs

Notification logs: Each attempt to perform notification will log the transaction details.

Email-SMS notification: Purge after days (0=no purging)
Modem notification: Purge after days (0=no purging)
Voice notification: Purge after days (0=no purging)
SNMP Trap: Purge after days (0=no purging)

Incoming Messages: Each retrieved POP3 mail message and SMS message is stored.

POP3 stored msgs: Purge after days (0=no purging)
Incoming SMS stored msgs: Purge after days (0=no purging)

Remote Dial-in logs: Each remote dial-in session contains a detailed log file of the dial-in session.

Remote Dial-in: Purge after days (0=no purging)

Maximum file size

Application and Alarm logs are daily log files. Alarm Actions Logs are log files per alarm. The user can control the maximum size of each log file through the "Maximum file size" setting.

Transaction logs contain details for a specific notification message or remote dial-in session. Their size is based on the transaction.

Create a log file each day

The daily application log file is only created if messages are written to it. This setting instructs TopView to add an entry each day, even if no application messages are written to the application log.

Log alarms to SQL Server

In addition to file-based alarm logging, TopView can log alarms to SQL Server.

If logging to SQL Server is enabled, alarms are also logged to the default alarm log files. When users create Alarm Reports or query Alarm History, they will be able to select the source of the alarm logs for the report (log files or SQL Server).

Advantages of logging Alarms to SQL Server include:

- Ability to add alarm annotations/comments (TopView Engine window and Remote Viewer)
- More robust and accurate Alarm Reports, especially for alarms that span an entire alarm report period
- Access to TopView alarms from other applications through standard database access tools

Limitations of file-based alarm logs include:

- You cannot query for spanning alarms (start before query start time, end after query end time)
- If alarm end time is more than 24 hours past the report period, Alarm Reports and Alarm History may show the alarm end time as "active".

If you enable logging alarms to SQL Server, you must ensure that SQL Server access has been configured for TopView. Click [Configure SQL Server...] to configure the SQL Server instance that should be used by TopView. See **Global Options: SQL Server** on page 478 for more information.

For more tips and installation information for SQL Server and TopView, see **SQL Server Information, Installation and Tips** on page 606.

Sync SQL Server

If the user decides to log TopView alarms to SQL Server, it is possible that SQL Server history does not match the alarm history stored in the alarm log files.

The reason for the mismatch can include

- SQL Server logging not enabled initially but later enabled
- TopView SQL Server transaction queue becoming full because SQL Server is unavailable for a long period of time

The screenshot shows the 'Sync SQL Server Alarm Log' utility window. It has a title bar 'Sync SQL Server' and a subtitle 'Sync SQL Server Alarm Log'. The main text explains that the utility compares alarm history in SQL Server to TopView alarm log files. Below this is a 'Search criteria' section with three checked checkboxes: 'Check for missing alarm record in SQL Server', 'Check for missing alarm end time (return to normal) in SQL Server alarm record', and 'Check for missing alarm acknowledge in SQL Server alarm record'. There are date pickers for 'From' (2010-03-29 12:00 AM) and 'To' (2010-03-31 12:00 AM). The 'Find and Fix' section includes a 'Find problems' button, 'Records searched: 2', and 'Problems found: 1'. A table lists the found problem:

UID	Row	Alarm message	Error type	Error description
<input checked="" type="checkbox"/> 20100330-140644-16	16	Unit 1 power alarm (201 MW)	Alarm record missing	Alarm event for row=16 UID=20100330-140644-16

On the right side of the table, there are buttons for 'Fix problems', 'Check selected', 'Uncheck selected', 'Check all', and 'Uncheck all'. An 'OK' button is at the bottom center.

After setting the search criteria for the types of missing items to find and the date range, click [Find problems]. The details of each missing item will be listed.

By default, all missing items are listed and selected (checkbox is checked).

Verify the items to fix by checking the checkbox before each item.

Click [Fix problems] to update SQL Server with the missing information for the selected items.

Event logs (TopView Events)

TopView Events can create a log of all incoming events that arrive from Event Generators. These logs can be viewed in TopView Admin Tools.

Purging

Each type of logging contains a “purge after X days” setting.

If the “X” value is greater than 0, TopView will purge records that are older than the entered X number of days. Note that purging occurs for both log files and SQL Server records.

Note: Each TopView Engine instance/configuration has its own set of log files and log entries in SQL Server. A running TopView Engine instance will only purge its own log files and records. The purge settings are specific to each TopView configuration file.

View log files in Admin Tools

[View log files in Admin Tools...](#)

Launches **TopView Admin Tools** in “log file view” mode.
See **TopView Admin Tools** on page 544 for more information.

Notification: Audible Alarms

The Audible Alarms screen allows the user to configure Audible Alarms for the current TopView Configuration.

Audible Alarms

Played through the Windows Default Audio Device (speakers) on your computer. System Beep and WAV sounds play continuously if there are any unacknowledged alarms. Text-to-Speech messages are played once when an alarm occurs.

Enable or disable Audible Alarms

Enable Audible Alarms Mute locally at startup

If checked, Audible alarms are enabled but will not be heard until the user disables speaker mute from the top toolbar

Select sound type

* Sounds that are streamed to Remote Viewer desktop connections

System beep

* WAV file ...

* Text-To-Speech of the alarm message

Voice: ▾

Audio format: ▾

Rate: -10 (slower) to 10 (faster)

Prefix each audible text-to-speech alarm message

Prefix words:

Prefix sound: ...

Sample message:

Audio test



Listen now

If you cannot hear the spoken words, the selected voice may not be compatible with selected the audio format

How to play local Audible Alarms

Play local Audible Alarms through TopView Information icon in the Notify Area (System Tray)

Audible Alarms can be played by the running TopView Engine or the TopView Information icon

Vista and later operating systems should check this box if running TopView as a Service. Otherwise, you will not be able to hear Audible Alarms.

The audio stream is played through the default Windows Audio Device which is typically the computer's sound card and speakers. Audible Alarms can also be streamed to the Remote Viewer and Mobile Web App.

An alarm occurs when one of the defined limits for a tag has been violated. When an alarm occurs and becomes unacknowledged, TopView can play

1. **System beep:** beep sound played continuously if any row is in alarm and unacknowledged
2. **WAV file:** WAV file is played continuously if any row is in alarm and unacknowledged
3. **Text-to-speech of the alarm message:** When an alarm occurs (transitions into alarm), the alarm message text is converted to spoken words. Unlike the Beep and WAV audible alarms, the message is spoken once for an alarm transition. See below for more information on this text.

When will you hear audible alarms?

The continuous Audible alarms (System beep and WAV file) will be played as long as there are any unacknowledged alarms in the running TopView Engine that are not trigger tags. Single instance Audible alarms (Text-to-speech) will be played when the row transitions into alarm unless the "Suppress audio TTS of alarm" property on the Edit Limits screen is checked for the tag/row.

Mute locally at startup

The user can enable Audible Alarms, yet mute the playing of Audible Alarms locally when TopView starts. The user can un-mute local Audible Alarms using the "toggle sound" button on the interactive TopView Engine window's top menu.

"Mute locally" allows the TopView Engine to send Audible Alarms to the Remote Viewer without playing the sounds locally.

Sending Audible Alarms to the Remote Viewer

The Remote Viewer can hear Audible Alarms if it is connected to an instance of the TopView Engine that has enabled Audible Alarms (WAV and Text-to-speech).

Regardless of the "mute locally at startup" setting on this screen, Audible Alarms will be sent to Remote Viewer clients.

Text-to-speech alarms

Text-to-speech alarms convert the current alarm message to spoken words.

See **Alarm message and Custom message** on page 138 for more information on the text included in each alarm message.

Voice: There are a few free voices which are installed with TopView. You may want to purchase higher quality voices which are compatible with SAPI 5.0. Please see the release notes and Exele forum for the latest information on voices.

Audio format: Choose a format which is compatible with the Voice and the output device. If you cannot hear the sample message when you press [Listen now], you may need to select a different audio format.

Rate: enter a value to slow down or speed up the generated speech. A rate of zero will generate speech at the default speed. Valid rate values are from -10 to +10.

Prefix each audible text-to-speech alarm message: if checked, will prefix the text-to-speech message with spoken words and/or a WAV sound. The prefix can be used to “get attention” before playing the audible alarm message.

Prefix words: if not blank, will be spoken before the alarm message

Prefix sound: if not blank, will be played before the prefix words and alarm message

Sample message: Text to convert to speech when the user presses



[Listen now]

Play through TopView Information Icon

When an Audible Alarm should be played locally, the TopView Engine can play the Audible Alarm sound or send the Audible alarm sound to the TopView Information Icon to play.

If you are **not** running TopView as a Service:

The TopView Engine should not have any problems playing Audible Alarms. The TopView Engine process is an interactive process and sounds played by this process will be heard. The user does not need to play Audible Alarms through the TopView Information Icon.

If you are running TopView as a Service:

The TopView Engine is not an interactive process (running as the logged-on user). On some operating systems, sounds played by a Service will not be heard locally. To hear local Audible Alarms, user will need to send these sounds to the TopView Information Icon. The TopView Information Icon runs under the logged-in user account and will be able to play the sounds.

Global Contact List

TopView's notification methods (email, SMS, voice callout ...) allow the user to specify a recipient. The required recipient information is different for each type of notification:

- Email Notification: email address (john@mycompany.com)
- SMS Notification: cellular phone number (5554449876)
- Modem Notification: pager or cellular ID (4512344)
- Voice Notification: phone number (9,3334444)
- EventHook: Any field value

The Contact List allows the user to organize the email addresses, phone numbers, pager ID, and SMS phone number of TopView recipients as 'Contacts'. When configuring a notification recipient in TopView, the user can select a Contact person and field (email, phone, pager ID, SMS, custom) instead of entering a static email address, phone number, or pager ID, etc.

Contact details (email, phone, ...) can be created and stored completely within TopView (local contact) or can be linked to Active Directory users.

Unlike notification recipients entered as static values, a notification recipient entered as a Contact field is retrieved when the alarm occurs and notification is sent. If the TopView Engine is running, changes can be made to a Contact's field values (email address, phone number ...) and these changes will be used when the next notification occurs.

The Contact List is "global" and visible to all TopView Configurations.

How to View/Edit the Global Contact List

1. From the TopView Configurator, click [Contacts...] in the Global Settings section of the left menu.
2. You can also access the Contact list through a [Contacts] button that appears on the screens where you assign recipients to notifications.

Contacts

Contacts are recipients with defined contact fields (name, email addresses, phone numbers ...). Use this screen to add, remove, or edit Contacts.

 Global Contact List for TopView notification recipients

A TopView Notification recipient requires an email address, phone number, or pager ID. The Contact List allows you to organize the email addresses, phone numbers, and pager ID of TopView recipients as 'Contacts'. When configuring a notification recipient in TopView, you can select a Contact person and field (email, phone, pager ID) instead of entering an email address, phone number, or pager ID.

Contacts are dynamic
Unlike notification recipients entered as an email address, phone number, or pager ID, a notification recipient entered as a Contact field is retrieved when the alarm occurs and notification is sent. If TopView is running, you can make changes to a Contact's field values (email, phone, pager ID) and the changes will take effect when the next notification occurs.

Contacts Contact Aliases Contact Groups

Contact name: Albert Cook New... Add from Active Directory... Rename... ✕ Remove

The Contact name is any name that describes the recipient. This can be the person's name (Joe Smith) or a job position (Shift 2 Supervisor). The Contact name is the key identifier for this contact and should not change once a contact is created and used for notification.

Contact details (all fields are optional)

Active Directory

Link Contact to Active Directory (AD) user 

AD User:

Manage

Disable all notifications to this contact

[View group memberships](#)

General

First name:

Last name:

Company:

Title:

Comments:

SMS Phone number (for cellular modem SMS notification)

SMS #:

Email addresses (user@domain)

Work email:   Sched delay

Mobile email:   Sched delay

Home email:   Sched delay

Other email:   Sched delay

Phone numbers (include all characters required to dial recipient)

Work phone:  

Mobile phone:  

Home phone:  

Other phone:  

Custom field (any value you want)

Custom:  

Pager ID (for Modem Notification and TAP)

Pager ID:  

[Apply changes](#)

[Export Contacts](#) [Import Contacts](#) [OK](#) [Cancel](#)

Contact name

The Contact name identifies the Contact. The Contact name is the key identifier for a Contact and should not change once a Contact is created and used for notification.

Contact details

The Contact details are optional fields for the Contact name.

The following Contact fields can be used for notification:

- Email Notification: EmailWork, EmailMobile, EmailHome, EmailOther
- Schedule delay: instructs TopView to delay notification sent to the recipient if their schedule is not active.
See **How does a recipient's schedule affect notification?** for more information.
- SMS text Notification: SMS #
- Modem Notification: Pager ID
- Voice Notification: Work phone #, Mobile phone #, Home phone #, Other phone #
- EventHook: any of the above fields plus the custom field

Linking Contacts to Active Directory users

Each contact is created and stored locally, but certain contact fields can link to an Active Directory user. If a contact is linked to an Active Directory user, the following Contact fields are retrieved from the Active Directory user information:

TopView Contact field	Active Directory user attribute	Active Directory Users Dialog location
First name	Given-Name	General > First name
Last name	Surname	General > Last name
Company	Company	Organization > Company
Work email	E-mail-addresses	General > E-mail
Work phone	Telephone-number	General > Telephone number
Mobile phone	Phone-Mobile-Primary	Telephones > Mobile
Home phone	Phone-Home-Primary	Telephones > Home
Other phone	Phone-Office-Other	General > Telephone number > Other
SMS (mapped to mobile)	Phone-Mobile-Primary	Telephones > Mobile
Pager	Phone-Pager-Primary	Telephones > Pager

Manage

You can disable a contact to suspend all notifications to the contact.

[View Group Membership] will display the notification groups to which the user belongs.

How to link a Contact to an Active Directory User

1. If the Contact already exists:
 - a. Check "Link Contact to Active Directory (AD) user"
 - b. Click [...] next to the AD User box to search for an AD user
2. If the Contact does not yet exist
 - a. Click [New Contact(s) from Active Directory] to search for one or more AD users.

Active Directory User Search

TopView's AD user search dialog displays a list of users from Active Directory.

The default folder for searching is /Users

Name	Work Email	Work Phone	Mobile Phone	SMS Number	Location
Aida Prue	Aida.Prue@mycompany.com	123-456-4432	987-654-4432	987-654-4432	/Users
Akiko Hart	Akiko.Hart@mycompany.com	123-456-4295	987-654-4295	987-654-4295	/Users
Alan Batton	Alan.Batton@mycompany.com	123-456-0700	987-654-0700	987-654-0700	/Users
Alan Combs	Alan.Combs@mycompany.com	123-456-2498	987-654-2498	987-654-2498	/Users
Alan Deaton	Alan.Deaton@mycompany.com	123-456-2510	987-654-2510	987-654-2510	/Users
Alan Fricke	Alan.Fricke@mycompany.com	123-456-4288	987-654-4288	987-654-4288	/Users
Alan Hargrave	Alan.Hargrave@mycompany.com	123-456-4155	987-654-4155	987-654-4155	/Users
Alan Jackson	Alan.Jackson@mycompany.com	123-456-3517	987-654-3517	987-654-3517	/Users
Alan Moten	Alan.Moten@mycompany.com	123-456-0796	987-654-0796	987-654-0796	/Users
Alan Valliere	Alan.Valliere@mycompany.com	123-456-4215	987-654-4215	987-654-4215	/Users
Alba Armstrong	Alba.Armstrong@mycompany.com	123-456-1814	987-654-1814	987-654-1814	/Users
Alba Shearer	Alba.Shearer@mycompany.com	123-456-1820	987-654-1820	987-654-1820	/Users
Albert Champine	Albert.Champine@mycompany.com	123-456-3753	987-654-3753	987-654-3753	/Users
Albert Davila	Albert.Davila@mycompany.com	123-456-1068	987-654-1068	987-654-1068	/Users
Albert Dixon	Albert.Dixon@mycompany.com	123-456-1977	987-654-1977	987-654-1977	/Users
Albert Dunn	Albert.Dunn@mycompany.com	123-456-3382	987-654-3382	987-654-3382	/Users
Albert Jackson	Albert.Jackson@mycompany.com	123-456-1327	987-654-1327	987-654-1327	/Users
Albert Masuda	Albert.Masuda@mycompany.com	123-456-0547	987-654-0547	987-654-0547	/Users
Albert Morrell	Albert.Morrell@mycompany.com	123-456-2790	987-654-2790	987-654-2790	/Users
Albert Partridge	Albert.Partridge@mycompany.com	123-456-3844	987-654-3844	987-654-3844	/Users

Name starts with: enter the starting characters of the name then press [Refresh AD Users]

Search in: displays the search domain and folder. To change the search domain or folder, click the [Change] button to display Domain Settings.

Domain settings:

Domain Settings Apply Cancel

TopView's support for Active Directory Users allows a single Domain to be specified for all linked contact information. The default Domain is the Domain of the TopView computer but you can override this default with a different Domain.

Domain

Use the Domain of the TopView computer mycompany.com Connection timeout: 15

Use this Domain: Other.Domain.Name

Starting context for user searches

Search within: corp.mycompany.com/Users Change...

- Domain: the default Domain used by TopView is the computer domain. To change the default domain, select "Use this domain" and enter the domain name
- Starting context for user searches: the default context (folder) for user search is /Users. To selecting a different folder, click the [Change] button and select a new context folder.

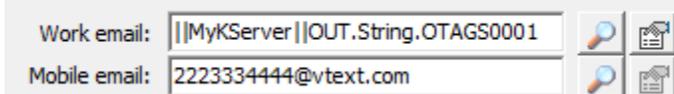
Using Tag values as Contact field values

Many of the contact fields are followed by two buttons: Tag Search and Tag Properties



These fields support two types of entries: static or dynamic (tag value).

For example, the following shows the work and mobile email addresses of a contact:



The work email (dynamic) is specified as a tag ("OUT.String.OTAGS0001" on server MyKServer) and the mobile email is specified as an email address (static).

When TopView attempts to send an email to this contact's work email address, it will read the value of the tag OUT.String.OTAGS0001. The value of this string tag should be a valid email address (e.g. user@domain.com). TopView will use the value of the tag as the current work email address. Upon the next email to this work address, TopView will again read the tag value for a valid address. If it has changed, the new address will be used.

To assign a tag to a contact field, click the Tag Search button next to the field: 
If you would like to manually enter a tag, the format must be ||server||tag.

To view the properties a tag, click the Tag Properties button next to the field: 
This button is only enabled if the format of the field value is ||server||tag.

Notes and warnings when using tag values as contact fields

- The tags used as contact fields should be string tags whose value is valid for the contact field. For example, the value of an email field tag should be valid email address, and the value of a phone number field should be a valid phone number.
- If TopView loses connected to the server, the value of the tag cannot be read and the notification cannot be sent. Therefore, if sending TopView errors to the Default Email-SMS Group (see Outgoing Email-SMS, **Other outgoing** email settings on page 265), the members of the Default Email-SMS Group should not include contact fields defined as tag values.
- Tags are specific per TopView data source. If you have multiple TopView licenses (data sources) in use on a single TopView installation, the tags used for contact fields may only exist for one of the data sources. Using the same contact (with tag values as contact fields) across data sources will not work unless the same server and tag exists on all licensed data sources.

Contact Aliases

A Contact Alias "points to" an existing Contact. Once a Contact Alias is created, it can be used like a Contact to designate a notification recipient. When TopView is running and needs to notify a recipient that has been specified using a Contact Alias name, the Alias will be resolved to the Contact that it is currently assigned to and the appropriate field of the assigned Contact (email address, phone number...) will be used.

Contact Aliases can be used in situations where recipients may change and you would like to minimize the configuration changes that are required to handle these changes. If you specify notification recipients using Contact Aliases instead of Contacts, you will only need to reassign the Contact Alias to the new Contact when the recipient changes.

Contact Alias

The Contact Alias is the name that can be used in place of a Contact name.

Assigned Contact

The Contact that this alias is currently "pointing to".

A Contact Alias "points to" an existing Contact. Contact Aliases can be used in place of a Contact. At runtime, the Contact Alias will be resolved to the Contact that it is currently assigned to. Contact Aliases can be used in situations where recipients are changing frequently; you can re-point the Contact Alias as the recipients change.

Manage Contact Aliases

Existing Contact Aliases

Contact Alias	Assigned to Contact	Warnings
OnCall	Albert Cook	
Overnight	Zandi Newberry	

New Contact Alias...

✖ Delete Contact Alias

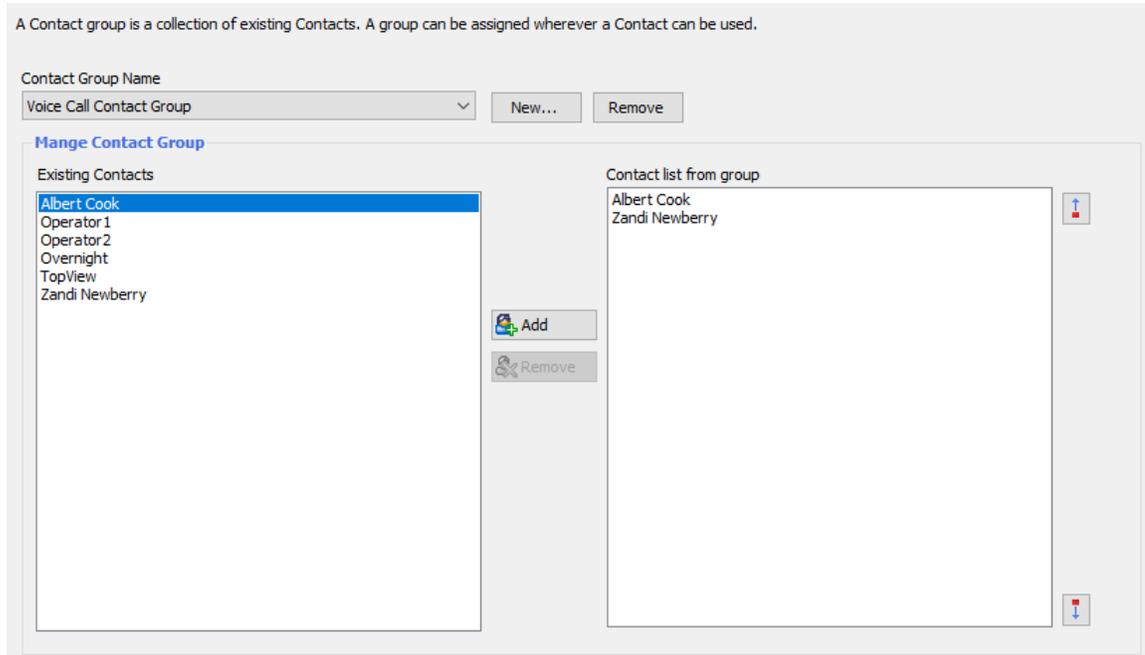
Selected Contact Alias details

Contact Alias
OnCall

Assigned contact
By contact name
Albert Cook

Contact Groups

A Contact Group is a single name that represents multiple contacts, similar to a [distribution list used in Microsoft Outlook](#).



Contact Groups are available for use wherever a Contact can be selected (e.g., Notification Groups).

Adding a Contact Group to a Notification Group is the equivalent of adding the individual people contained in the Contact Group in the same order in which they appear in the group. If delays are configured within the Notification Group (notify over time) the delay will be added between the Contacts within the Contact Group.

Import/Export Contacts

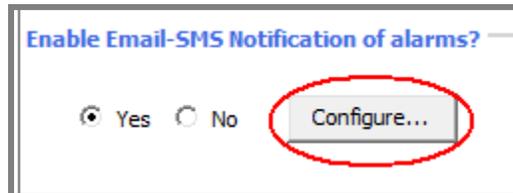
The list of Contacts and Contact Aliases can be exported to a file using the [Export Contacts] button. The exported file is comma-delimited and can be edited using Microsoft Excel. Once you have edited the file, you can import the changes back into TopView using the [Import Contacts] button.

Using a Contact as a notification recipient

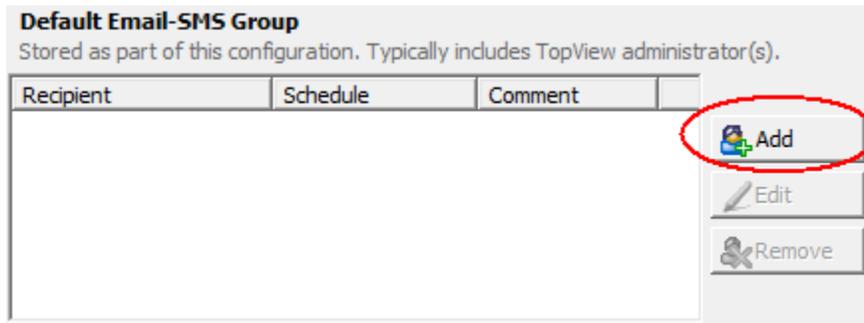
When the user adds a recipient to a notification group, they can enter the required information (email address, phone number ...) or select a Contact field. Both Contacts and Contact Aliases will be available.

Example: Adding a recipient to the Default Email Group

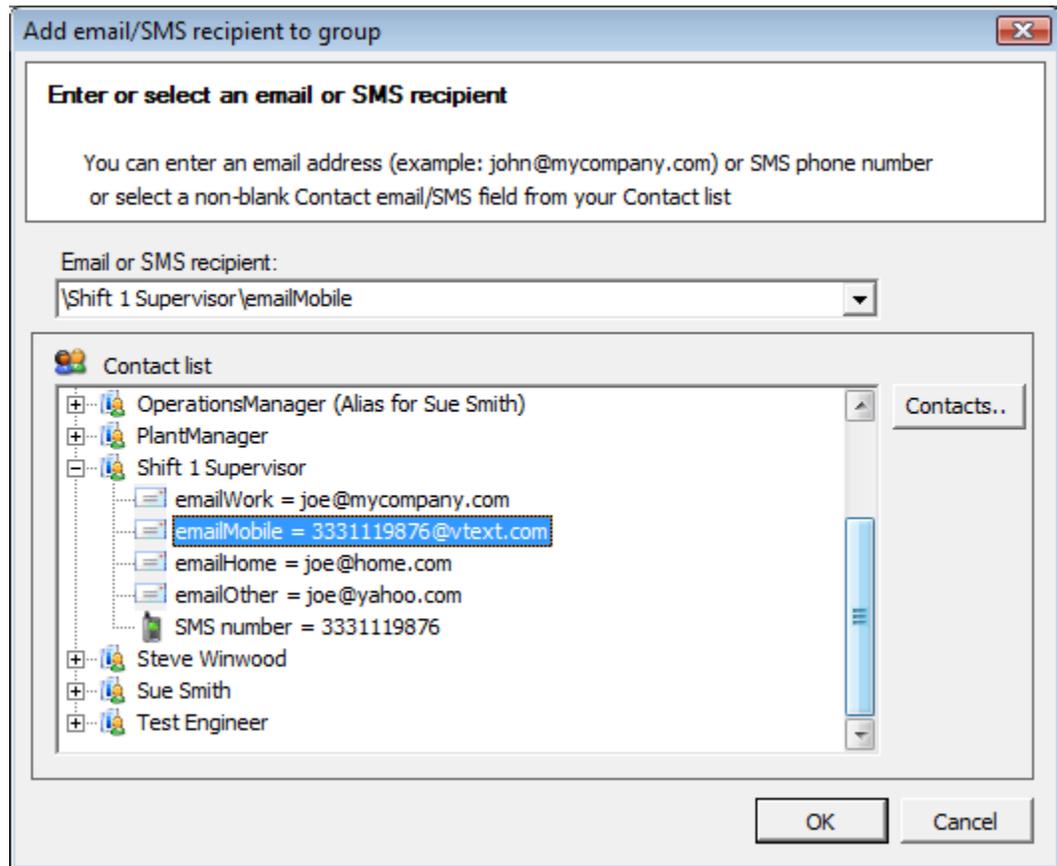
1. From the Configurator main screen, click "Email-SMS Notification" from the left menu. Select "Yes" to enable Email-SMS notification of alarms and click [Configure]



2. On the "General" tab, click [Add] to add a recipient to the Default Email-SMS Group



3. The following screen appears:

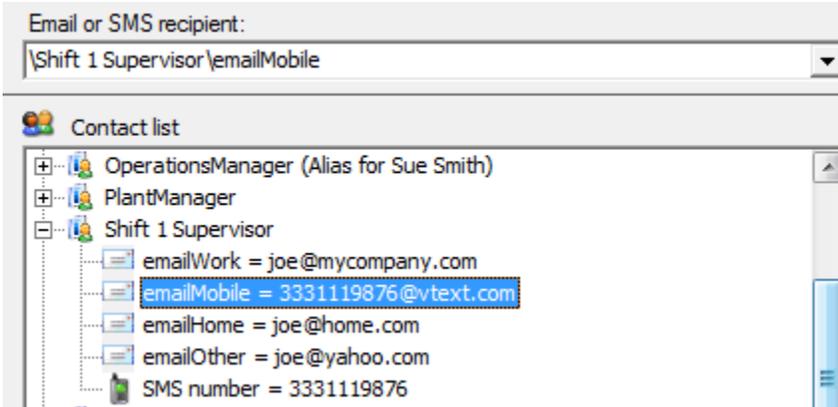


For the "Email recipient", the user can enter an email address



Email recipient:
myboss@mycompany.com

or select an email Contact field from the Contact list:



Email or SMS recipient:
\Shift 1 Supervisor\emailMobile

Contact list

- OperationsManager (Alias for Sue Smith)
- PlantManager
- Shift 1 Supervisor
 - emailWork = joe@mycompany.com
 - emailMobile = 3331119876@vtext.com
 - emailHome = joe@home.com
 - emailOther = joe@yahoo.com
 - SMS number = 3331119876

If the user selects an email Contact field for the recipient, the email address will be resolved by TopView when the notification is sent. Therefore, changes can be made an existing Contact, or reassign the Contact for a Contact Alias, and the change will be used for the next notification.

Notification: Email-SMS Notification

TopView can send and receive email and SMS text notification messages.

To enable this feature: select "Email-SMS Notification" from the left menu of the Configurator's main screen, check **Enable Voice Notification** and click **[Configure]** to configure the Email-SMS notification settings.

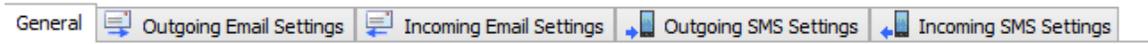
The screenshot shows the 'Email-SMS Notification' configuration screen. At the top, there is a section titled 'Email-SMS Notification' with a sub-section 'Enable or disable Email-SMS Notification of alarms'. This section contains a checked checkbox for 'Enable Email-SMS Notification', a 'Configure...' button, a 'Global Email-SMS Groups' dropdown menu, and a button for 'Global Email-SMS Groups...'. A note on the right states 'You can temporarily disable all notifications...'. Below this is an 'Email-SMS Notification Overview' section. It explains that Email-SMS Notification includes both email and SMS recipients. It details 'Delivery' methods: Email Notification requires a network connection and an SMTP mail server or direct recipient domain; SMS Notification requires a cellular modem or an SMS provider like Twilio. It also notes that recipients can be assigned to individual alarm conditions or Tag Groups, with links for more information. The 'Incoming email (POP3) and SMS (cellular modem)' section states that TopView can process incoming messages to acknowledge alarms. The 'Receiving Devices' section lists three options: using an email client, a cell phone (with a note that many providers support sending text messages via email), and a pager (with a note that many companies allow alphanumeric page messages via email).

Email-SMS recipients can be email addresses and/or SMS phone numbers (cellular phones for text messaging). TopView will send each notification message using the entered outgoing Email or outgoing SMS settings based on the recipient (email address or phone number). The user can implement email, SMS, or both email and SMS notification.

Once configured, Email-SMS Notification recipients can be assigned to individual tag alarm conditions (see **Configure Alarm Limits** on page 125) or to a Tag Group (See **Tag Groups** on page 196)

Email-SMS Notification Settings screen

The Email-SMS Notification Settings screen contains 5 tabs



- **General:** configure general Email-SMS settings, the Default Email-SMS Recipient Group, links to the Email and SMS settings screens.
- **Outgoing Email Settings:** configure the sending of email (mail server, from address, health email)
- **Incoming Email Settings:** configure the receiving of email for alarm acknowledge and information query
- **Outgoing SMS Settings:** configure the cellular modem settings for sending SMS text messages
- **Incoming SMS Settings:** configure the receiving of SMS text messages by the cellular modem for alarm acknowledge and information query.

General Settings

The General Settings screen lets the user configure general Email-SMS settings, the Default Email-SMS Recipient Group, and provides links to the Email and SMS settings screens.

General

Email-SMS notification allows you to send notification messages by Email and/or SMS (cellular modem or SMS provider).

The recipients in each Email-SMS recipient group can be email addresses and/or SMS phone numbers. TopView will correctly send the notification message to each recipient using the entered outgoing email or outgoing SMS settings.

Email
Send email messages, usually through an SMTP mail server. Each recipient is an email address that will receive the message. Some cellular carriers allow you to send an email message that is received as a text (SMS) message on a cellular phone. TopView can send and receive email messages.
[Configure outgoing email settings...](#) [Configure incoming email settings...](#)

SMS
Send text messages to cellular phones using a cellular modem or SMS provider. Each recipient is a cellular phone number. TopView can receive SMS text messages if you are using a cellular modem.
[Configure outgoing SMS settings...](#) [Configure incoming SMS settings...](#)

Email-SMS notification recipients
Recipients can be email addresses and/or SMS phone numbers.

Defined list of Email-SMS recipients. Visible to all TopView configurations.

Default Email-SMS Group
Stored as part of this configuration. Typically includes TopView administrator(s).

Recipient	Schedule	Comment
\Lead Engineer\emailWork	Always	
myboss@mycompany.com	Always	Boss

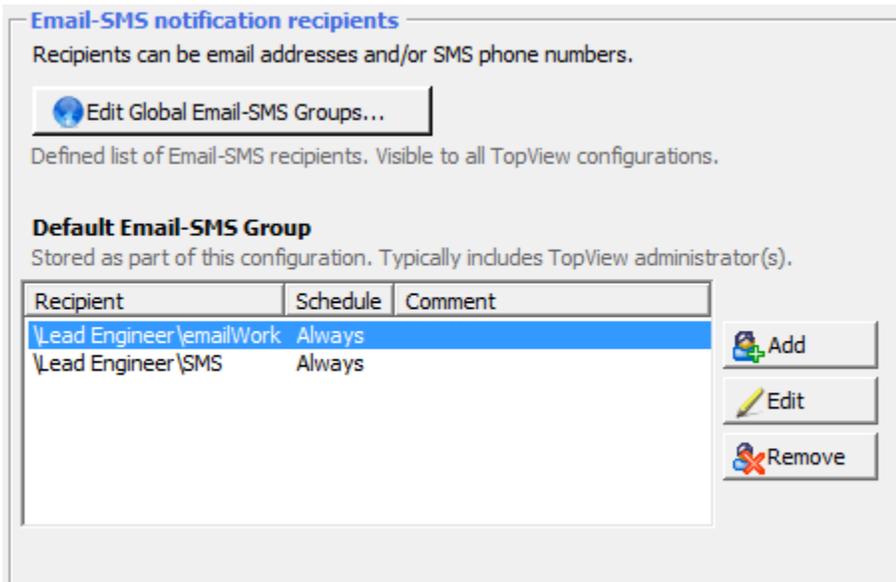
Email-SMS settings

Exele recommends sending errors to the default group!

Send errors to Default Email-SMS Group (lost connections, ...)

Blackout period: seconds
After sending Email-SMS notification for a tag/row, TopView will not send any more Email-SMS notification messages for the same tag/row during the blackout period.

Email-SMS notification recipients



The listed recipients are members of the **Default Email-SMS Group**. The Default Email-SMS Group is stored as part of this configuration and is not visible to other TopView configurations. The Default Email-SMS Group can be selected as the recipient of an alarm condition (see **Configure Alarm Limits**) and can receive messages regarding errors such as disconnected Servers. The Default Email-SMS group typically contains the TopView Administrator(s).

Use the  button to add new recipients to the Default Email-SMS Group

Use the  button to edit the selected recipient, schedule, or comment field. See **Schedules** on page 342 for more information on Schedules.

Use the  button to remove the selected recipient from the Default Email-SMS Group

Use the [Edit Global Email-SMS Groups] button to edit global email-SMS groups. See **Global Email-SMS Notification** Groups on page 296 for more information.

Email-SMS settings

Send errors to Default Email-SMS Group (lost connections ...)

If selected, the following errors will be sent to the Default Email-SMS Group:

- License errors (tag count, invalid license)
- Invalid configuration settings (refresh interval, alarm conditions)
- Duplicate TopView instances
- Errors verifying tag used for output points or tag limits
- Errors verifying monitored tags
- PI PointList EventPipe maximum size reached (TopView PI)
- Text-to-speech engine errors
- SMTP/DNS errors resolving SMTP Servers (MX records)
- Attempted use of invalid/missing Global Notification Groups
- Startup server connection errors
- Lost Server connections
- Errors launching custom application response program
- FTP error for HTML file
- HTML file creation error
- Error writing to application or alarm log file
- Lost/new connection to SQL Server

Blackout period

This allows user to suppress numerous email-SMS notification messages if a tag/row is cycling in and out of alarm.

Once an email-SMS notification alarm message is sent for a tag/row, no other email-SMS notification alarm messages will be sent for this tag/row until the entered number of seconds has passed. Note that this blackout period will also suppress escalation and return-to-normal email-SMS notification messages if the email-SMS notification alarm message was suppressed due to the blackout period.

Outgoing and Incoming Email Usage

TopView supports both outgoing and incoming email. There are 2 separate Email Settings screens to allow configuration of outgoing and incoming email.

Outgoing Email

Outgoing email settings are used for:

- Email notification of alarm and return to normal events
- Health Email
- Email of HTML Snapshot Reports
- Email of Alarm Reports
- Emailing error information
- Responses to incoming email

Incoming Email

Incoming email settings are used to:

- Receive incoming email sent to TopView as an acknowledgment of a received alarm email notification message
- Process email requests for tag/row information via email

Outgoing Email Settings

SMTP Settings

Delivery settings include the configuration of the mail server (SMTP) and authentication settings.

Two approaches are available to configure the email delivery settings:

1. Manually enter the mail server and authentication settings
2. Use OAuth to "Sign in with Google" or "Sign in with Microsoft" for supported Google and Microsoft email servers.

Manually enter SMTP settings

- **SMTP Server:** name or IP address of the SMTP server
The default SMTP port is 25. You can optionally add ":port" to specify a non-default port number.
Example: mymailserver:587
- **Secure connection (SSL):** select if the SMTP Server requires a secure connection. SSL stands for "Secure sockets layer" and may also be referred to as TLS (Transport layer security).
- **Use SMTP Authorization:** select if the SMTP mail server requires authorization. Enter the authorization username and password.

Secondary SMTP Server: Each TopView configuration supports two SMTP Servers: primary and secondary. The primary SMTP Server is the default server. If specific email recipients require the use of a different SMTP Server, the user can configure the Secondary SMTP Server and direct specific email addresses to use the Secondary SMTP Server instead of the Primary (default) SMTP Server.

If an email recipient should use the Secondary SMTP Server, append ":2" to the email address or Contact email field.

Example:

- user@domain.com Use Primary SMTP Server
- user@domain.com:2 Use Secondary SMTP Server

Use OAuth to authenticate (Google/Microsoft)

For Google and Microsoft email servers you can click [Sign in with Google] or [Sign in with Microsoft] to authenticate and allow TopView to access email.

OAuth is more secure than manually entered settings and is recommended by both Google and Microsoft because

1. You are not exposing your password to the application
2. You are narrowly defining the access allowed (send/read email)

Global Email Delivery settings

The Email delivery settings includes the email server and associated logon information.

Each TopView configuration has the option to specify its own Email deliver settings or to use the Global Email Delivery settings.

If "Use Global settings" is checked

- This configuration will use the Global Email Delivery settings
- The Global settings are displayed in the Email delivery settings fields and the settings cannot be edited

If "Use Global settings" is not enabled, the Global settings do not exist. The user must configure the Email delivery settings and click [>> Save to Global] to store the settings to the Global settings file.

[Fill from Global] will fill this configuration's Email delivery settings with the Global settings without enabling the use of the Global settings for this configuration.

Email message settings

From

The "from" address for outgoing email messages. User should enter a value of the form [name@domain.com](#).

If blank, the SMTP username will be used as the "from" address.

Reply-to

Optional "reply-to" address for outgoing email messages. Some email clients support a reply-to address that is different than the sending ("from") address. This setting can be used to support acknowledge of email notification by replying to the received message when the TopView incoming email address (POP3/IMAP) is different than the "From" address above.

Entered value should be of the form [name@domain.com](#).

See **Deprecated/older settings**

Note: These settings are not recommended for new users.

TopView can send email messages directly to each recipient's domain (send directly). Direct email bypasses any delays in user's mail server and is typically faster but may not be allowed by the receiving domain.

Send email directly:

Direct emailing requires a DNS Server to resolve the address of each recipient. The dropdown allows the user to select the DNS Server to use:

- (Default): use the default DNS Server for this computer
- Enter a DNS Server: enter the IP Address or host name of the DNS Server
- Public DNS Servers from [opendns.com](#)
208.67.222.222 and 208.67.220.220 are public DNS Servers that can be used if your computer has access to the Internet

Select a DNS Server or enter a DNS Server address/host name.

Note: the ability to successfully send direct email is often based on the recipient's domain (user@domain.com). Therefore, you should test a recipient from each domain that will receive email from TopView.

Send to local SMTP Server pickup directory

This setting can be selected on a machine which is running an SMTP mail server. The email messages are delivered to the entered pickup directory. From this point, the local SMTP server will process and deliver them. For TopView, this method is more efficient than directly sending through an SMTP Server.

The [Query] button will fill the "Local pickup" textbox with the value of the first SMTP pickup directory for this computer. If this field remains blank, TopView was not able to determine the local pickup directory.

If the user is running Windows 2000 or later, you may be able to use the SMTP Server which is installed with Internet Information Services (IIS).

To administer, start, or stop the local SMTP server, go to Control Panel>Administrative Tools> Internet Information Services.

If the user does not have a local SMTP Server, he/she can choose this delivery method to create email message files in the entered pickup directory.

Incoming Email Settings on page 268 for more information.

Subject

The 'Subject' field for outgoing email messages.

The 'Subject' for email messages will be:

- By default, the entered '**Subject:**' text

Subject:

- If the user checks "Use alarm message as subject", the entered subject text will not be used. Instead, the alarm message text will appear as the email message subject. See **Alarm message and Custom message** on page 138 for more information on configuration of the alarm message for each alarm condition.
- If the user enters a custom subject for an alarm condition (Edit Limits screen), this custom subject setting will override the subject setting on this screen. If the custom subject for an alarm condition is blank, the setting on this screen will be used.

Other outgoing email settings

Group multiple queued emails to same recipient into one email

If checked, TopView will monitor the outgoing email queue for messages addressed to the same recipient. These messages will be combined into one outgoing email message containing the multiple messages in the message text.

Suppress current time in email message text

By default, the email message text will begin with the current time. If checked, the email message text will not include the current time.

Include all tag/row values in email message

If checked, emailed TopView alarm messages will contain a list of all TopView tag values along with an alarm summary report.

Retry failures

When TopView sends an email through an SMTP mail server, it may be aware of a failure to send the message. This may be due to mail server maintenance, temporary mail server problems, or network connection failure to the mail server (more common with wireless networks). In such cases, TopView can attempt to resend the message.

The format of the retry setting is "**Retry X times every Y seconds**".

If the initial email send failure is detected, TopView will attempt to resend the email message an additional X times. Each retry attempt will occur Y seconds after the previous attempt failure. After the final attempt failure, no more attempts will be made. All failures and attempts are logged to the TopView Application Log.

Queue settings for Retry

During a retry attempt, the failed email message is placed back into the outgoing Email/SMS notification message queue with a future send time and new UID. When the future send time occurs, the next attempt will be made.

The email notification message queue has two settings to control the maximum number of messages in the queue: one is for the initial attempt, and the second is for retry attempts. Adding retry messages to the queue does not affect the queue size for initial attempts.

See **Global Options: Memory & Queues** on page 487 for more information.

Health email

Users can configure one or more email addresses to receive a periodic email describing the current conditions of the instance of the TopView Engine.

Send a health email

If checked, will send a health email

Include in health email

Summary: If checked, the health email will include a summary of the TopView Engine (total alarm count, total unacknowledged, TopView start time, last refresh time ...)

All rows: If selected, all TopView rows will be included in the health email

Only rows in alarm: If selected, only TopView rows in alarm will be included in the health email

To

Enter one or more email addresses (user@domain.com) or Contact email fields (\Lead Engineer\emailWork). Use a semicolon to separate multiple addresses.

Subject

Enter a custom subject for the health email, or leave blank for the default health email subject. If you are running multiple instances of the TopView Engine that are configured to send a health email, you can use this field to give unique email subjects to each one.

Interval and offset

Enter the interval and start time for sending the health email.

Example: "every 120 minutes starting at 00:30:00" will send health emails at 12:30 am, 2:30am, 4:30am...

Email "Sent" time UTC offset

TopView provides an option for excluding the UTC offset in the email message "Sent" time. See Global Options, **Suppress UTC Offset in date field of email notification messages** on page 491 for more information.

Send a test email

Use this button to send a test email using the current settings. Use the [View test log] button to review the last test message log file.

Copy/Paste Outgoing Email Settings

The information on the Outgoing Email Settings screen is stored per TopView configuration. For users with multiple configurations, the same settings are commonly used for multiple configurations.

[Copy] will copy all settings on the Outgoing Email Settings screen. Once the user has copied the settings, they can open a different configuration and click [Paste] to fill the settings on this screen with the copied settings.

Deprecated/older settings

Note: These settings are not recommended for new users.

TopView can send email messages directly to each recipient's domain (send directly). Direct email bypasses any delays in user's mail server and is typically faster but may not be allowed by the receiving domain.

Send email directly:

Direct emailing requires a DNS Server to resolve the address of each recipient. The dropdown allows the user to select the DNS Server to use:

- (Default): use the default DNS Server for this computer
- Enter a DNS Server: enter the IP Address or host name of the DNS Server
- Public DNS Servers from opendns.com
208.67.222.222 and 208.67.220.220 are public DNS Servers that can be used if your computer has access to the Internet

Select a DNS Server or enter a DNS Server address/host name.

Note: the ability to successfully send direct email is often based on the recipient's domain (user@domain.com). Therefore, you should test a recipient from each domain that will receive email from TopView.

Send to local SMTP Server pickup directory

This setting can be selected on a machine which is running an SMTP mail server. The email messages are delivered to the entered pickup directory. From this point, the local SMTP server will process and deliver them. For TopView, this method is more efficient than directly sending through an SMTP Server.

The [Query] button will fill the "Local pickup" textbox with the value of the first SMTP pickup directory for this computer. If this field remains blank, TopView was not able to determine the local pickup directory.

If the user is running Windows 2000 or later, you may be able to use the SMTP Server which is installed with Internet Information Services (IIS).

To administer, start, or stop the local SMTP server, go to Control Panel>Administrative Tools> Internet Information Services.

If the user does not have a local SMTP Server, he/she can choose this delivery method to create email message files in the entered pickup directory.

Incoming Email Settings

TopView can receive incoming email messages to

- acknowledge alarms
- return current state information to the email sender

POP/IMAP Settings

Incoming email is received using POP3 or IMAP.

Incoming email is enabled if you select "Reply-to-email Acknowledge" or "Request tag or row information" on the "Incoming Email Features" screen.

TopView and POP3/IMAP

- The POP3 or IMAP mailbox in use by a TopView configuration file should not be used by other TopView configurations, other email applications, or users as a means of retrieving email. TopView will monitor the specified mailbox, process new messages, and delete the messages from the mailbox.
- Each incoming message that is processed by TopView is stored on the TopView computer before it is removed from the mail server. You can view the stored messages using TopView Admin Tools.
- The mailbox is "cleared" when you start or restart TopView. This prevents old incoming messages affecting a new instance of TopView. During this process, TopView will reply to each message stating that no action was taken.
- Checking a POP3/IMAP mailbox will typically take a number of seconds to complete. Therefore, TopView monitors the mailbox on a separate thread from the main TopView processing tasks so that the main TopView functions are not interrupted.

Two approaches are available to configure the incoming email settings:

1. Manually enter the incoming mail server and authentication settings
2. Use OAuth to "Sign in with Google" or "Sign in with Microsoft" for supported Google and Microsoft email servers.

Manually enter POP/IMAP settings

- Protocol: select POP3 or IMAP
- Email Server: the POP3/IMAP host name or IP address and optional port.
If only a name or IP address is specified, TopView will use the default port.
If a different port is required, the server should be entered as: *servername:port* OR *ipaddress:port*
 - POP3: default port = 110 (no SSL) or 995 (SSL)
 - IMAP default port = 143 (no SSL) or 993 (SSL)
- Username: the POP3/IMAP user name to connect to the mailbox.
This may be a single name ("username") or a full email address ("username@domain.com") depending on the server.
Warning: This user name should be unique for each TopView configuration that implements mail retrieval.
- Password: the password for the entered username
- Authentication (POP3 only): the authentication method:
 - **Auto**: Choose automatically.
 - **Plain**: RFC 2595 TLS plaintext authentication.
 - **DigestMD5**: RFC 2831 DIGEST-MD5 authentication.
 - **CramMD5**: RFC 2195 CRAM-MD5 authentication.
 - **Login**: Login authentication.
 - **Ntlm**: NTLM authentication.
- Secure connection (SSL): enable if the mail server requires a secure connection
If enabled, the user should select the type of security required:
 - **Implicit**: (default) usually only accepts SSL connections.
 - **Explicit**: often uses a non-default SSL port and allows the client to connect and then request/initiate an SSL connection. The same port may support non-SSL connections.

Use OAuth to authenticate (Google/Microsoft)

For Google and Microsoft email servers you can click [Sign in with Google] or [Sign in with Microsoft] to authenticate and allow TopView to access email.

OAuth is more secure than manually entered settings and is recommended by both Google and Microsoft because

1. You are not exposing your password to the application
2. You are narrowly defining the access allowed (send/read email)

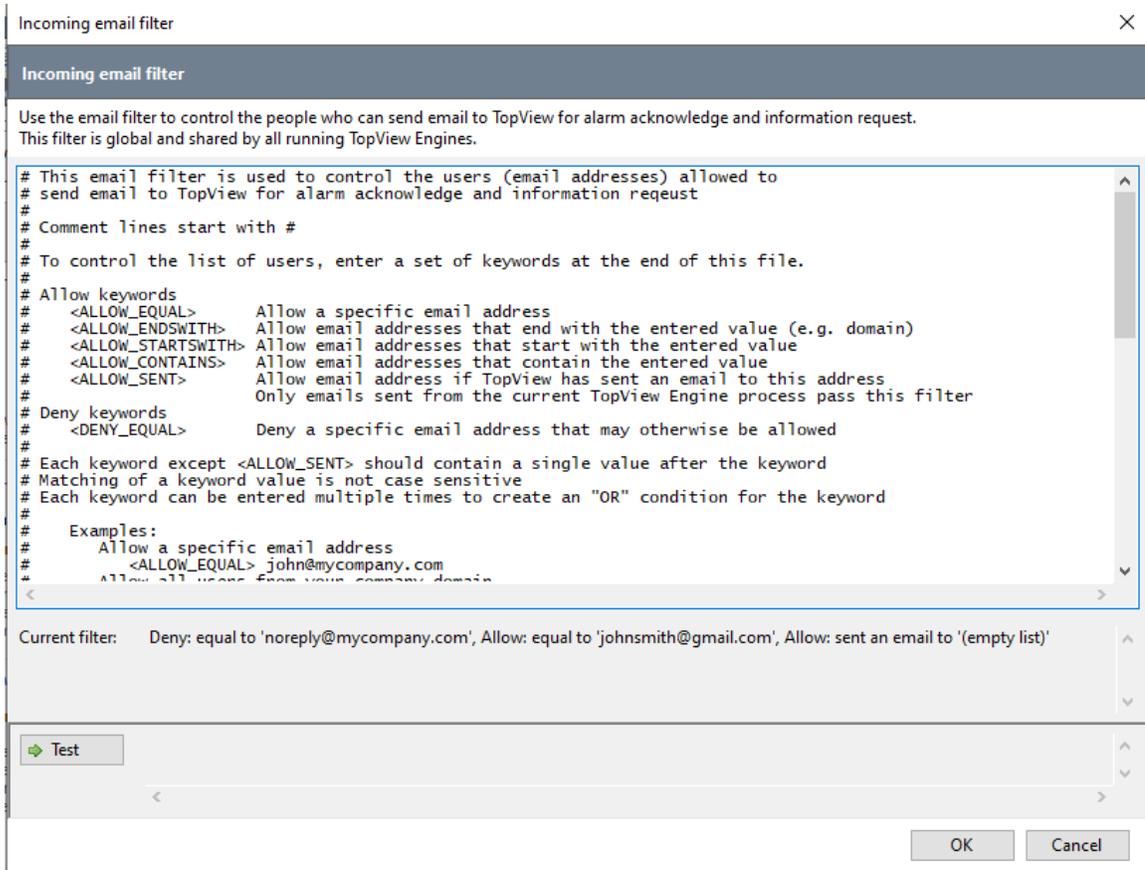
Check the mailbox and wait for X seconds before checking again: The time between checks of the POP3/IMAP mailbox. Example: if X is 5, and it takes 10 seconds to check the mailbox, the time from one check to the next is 15 seconds.

[Test settings] use this button to test the POP3/IMAP settings. The test will attempt to log into the mailbox without removing any messages from the mailbox.

Incoming email filter

You can restrict the users who can send email to TopView by configuring an incoming email filter.

Click the [Configure users who can send email to TopView...] button to configure the filter. The incoming email filter is global to all running TopView Engines.



The default email filter contains comments that explain the supported keywords and details of how the filter processes incoming emails.

The filter keywords include multiple "allow" filters and one "deny" filter.

Allow keywords:

- <ALLOW_EQUAL> Allow a specific email address
- <ALLOW_ENDSWITH> Allow email addresses that end with the entered value (e.g., domain)
- <ALLOW_STARTSWITH> Allow email addresses that start with the entered value
- <ALLOW_CONTAINS> Allow email addresses that contain the entered value
- <ALLOW_SENT> Allow email address if TopView has sent an email to this address

Deny keywords

- <DENY_EQUAL> Deny a specific email address that may otherwise be allowed

Use the [Test] button to test a specific email address against the current filter.

POP3 and Microsoft Exchange

POP3 can be used with Microsoft Exchange, although there are a few things you should be aware of:

- **Make sure the POP3 Service is enabled.**
The POP3 Service may be disabled by default in Exchange. The following steps should enable POP3 in Microsoft Exchange, although you should verify these steps with your mail administrator.

To enable POP3 on Microsoft Exchange:

Click Start, then click Run

Type services.msc

Find the service **Microsoft Exchange POP3** (default startup value is disabled)

Change Startup type to Automatic

Open the Exchange System Manager

Expand the Administrative Groups

Expand the First Administrative Group (or existent group)

Expand the Servers

Expand a <server>

Expand the Protocols

Expand the POP3

Right-click Default POP3 Virtual Server and then click Start

- **Authenticating using a method other than NTLM**
When authenticating using a method other than NTLM to an account whose alias name does not match the logon name, the username of the following form must be used to log in:

domain/logon/alias

Example:

exele/johns/john.smith

- **Authenticating using NTLM**
When authenticating to Microsoft Exchange server using NTLM, it is not possible to specify an alias name, because NTLM does not support this. Therefore, it is not possible to authenticate to accounts whose alias name does not match the logon name. This is a limitation of Exchange, and even Microsoft Outlook Express cannot authenticate in this case. An alias name must be changed to match the logon name to make NTLM authentication possible.

To change the user's alias name:

1) Start 'Active Directory Users and Computers' management console.

2) Open the 'Properties' of the user whose mailbox you want to access using POP3 with NTLM authentication.

3) Determine the user's logon name from the 'User logon name' field in the 'Account' tab.

4) Select the 'Exchange General' tab and make sure the 'Alias' field is set to the same value as the 'User logon name' from the previous step.

Please note that alias name has nothing to do with the user's e-mail addresses, so changing the alias is unlikely to break anything - unless some other applications depend on the former alias name.

“Reply-to-email” Acknowledge

If enabled, each outgoing email notification message for a TopView alarm violation will contain an acknowledge request ID string. The form of the acknowledge request ID is “ARQn”, where n is the row ID of the alarm.

The acknowledge request ID will be included in the email message body. By default, the ID will not be included in the email subject. Although this can be enabled (see **Global Options: Notification** on page 491), inclusion of the ID in the email subject can cause issues with “Out-of-office” reply messages which usually resend the original subject in the reply message, therefore enabling an “Out-of-office” reply message to acknowledge an alarm.

If the user replies to or forwards this notification email to the POP3/IMAP account specified above, TopView can process the incoming message, extract the row information from the acknowledge request ID, and acknowledge the alarm in TopView. This assumes that the reply message contains the original notification message sent by TopView.

If the POP3/IMAP mailbox is not the same account as the “From” address specified for outgoing TopView email messages, the user should set the “Reply-to address” for outgoing email to the incoming email account specified above. Most email clients support a “Reply-to” address that is different than the “From” address. When the user replies to the notification email message, the reply is sent to the “Reply-to” address and not the “From” address. Please verify that reply messages are sent to the POP3/IMAP mailbox address specified above.

For cell phone reply messages: If the user has configured TopView to send email notification message to cellular phones by using an email address provided by your cellular carrier (1112223333@yourcellcompany.com), the reply message (SMS) may not contain the original message sent by TopView. Therefore, the reply message may not contain the acknowledge ID that was sent by TopView. In this case, the user must can

- Copy the received message and paste into the reply (recommended)
OR
- Type the acknowledge request (ARQn) into the message before sending it to TopView.

Including multiple Acknowledge IDs in one reply message: if the incoming message contains multiple acknowledge requests (ARQn), TopView will process each one individually.

Send receipt email: if checked, TopView will send a receipt email to the sender of the incoming message stating the success or failure of the acknowledgement.

- Include: the user can configure the information about the acknowledged alarm to include in the acknowledge receipt email. This information can include static text and placeholders. See **Placeholders for messages, text, and Logic Function arguments** on page 149 for more information.

HTML Snapshot request

- **IRQHSRx HTML Snapshot Report as message body**
Return the latest HTML Snapshot Report (HSR) for the HTML Snapshot Report with unique ID = x. The HTML will be included in the body of the email message. See **Incoming Email Information Request** on page 407 for more information on the unique ID.

Example:

IRQHSRvals HTML Snapshot Report with unique ID = vals

- **IRQAHSRx HTML Snapshot Report as attachment**
Return the latest HTML Snapshot Report (HSR) for the HTML Snapshot Report with unique ID = x. The HTML will be included as an attachment to the email message. See **Incoming Email Information Request** on page 407 for more information on the unique ID.

Example:

IRQAHSRvals HTML Snapshot Report with unique ID = vals

Outgoing and Incoming SMS (text messages)

SMS Notification uses a cellular modem or SMS provider.

Two types of cellular modems are supported:

- A GSM cellular modem connected the TopView View computer (USB/Serial)
- A GSM/CDMA cellular modem available on the network. This modem must support the MultiTech HTTP/HTTPS api (see [MultiConnect rCell 100 series modems](#)). TopView support modem redundancy with these modems.

For new installation we recommend using the networked cellular modem from MultiTech.

The following SMS providers are supported:

- Twilio

SMS recipients are cellular phone numbers and the messages are received as SMS text messages.

If using a cellular modem, TopView supports both outgoing and incoming SMS text messages. For Twilio only outgoing SMS is currently supported.

There are 2 separate SMS Settings screens to allow configuration of both outgoing and incoming SMS text messages.

Outgoing SMS

Outgoing SMS settings are used for:

- Notification of alarm, acknowledge, and return to normal events
- Messages containing TopView error information
- Responses/receipts to incoming SMS messages

Incoming SMS (cellular modems only)

Incoming SMS settings are used to:

- Receive incoming SMS messages sent to TopView as an acknowledgment of a received alarm SMS notification message
- Process SMS message requests for tag/row information via SMS text messaging

Outgoing SMS Settings

Outgoing Method

Select the method for outgoing SMS messages

- **GSM serial modem:** use a GSM modem available through a COM port of the TopView computer.
- **GSM/CDMA modem via HTTP:** use a networked cellular modem that supports the MultiTech HTTP/HTTPS api (recommended modem SMS solution)
- **Twilio:** use the Twilio SMS provider and your Twilio account

GSM Serial Cellular Modem

The port settings that the user enters for the GSM serial modem should exactly match the modem properties. There are two methods for finding the correct modem property values: (1) the modem vendor documentation, (2) modem properties (use the Modem properties link). See example below.

Modem port settings

- **Port:** the COM port for the GSM modem
- **Baud rate:** should match the port speed setting of the modem
- **Data bits:** should match the data bits setting of the modem
- **Parity:** should match the parity setting of the modem
- **Stop bits:** should match the stop bits setting of the modem
- **Flow control:** should match the flow control property of the modem

Test Modem: when the user clicks this button, TopView will attempt a connection to the GSM serial modem using the entered settings. If successful, the modem phone number (from the SIM card) and cellular signal strength will be displayed. Use the [View last modem test log] button to view the details of the test.

Example: Finding the correct serial modem port properties

It is important that the serial modem information entered in TopView matches the values in the Modem Properties dialog.

This includes:

- COM Port
- Baud rate
- Data Bits
- Parity
- Stop Bits
- Flow Control

The best method for locating the correct values is to check the modem user guide or documentation that you received with the modem.

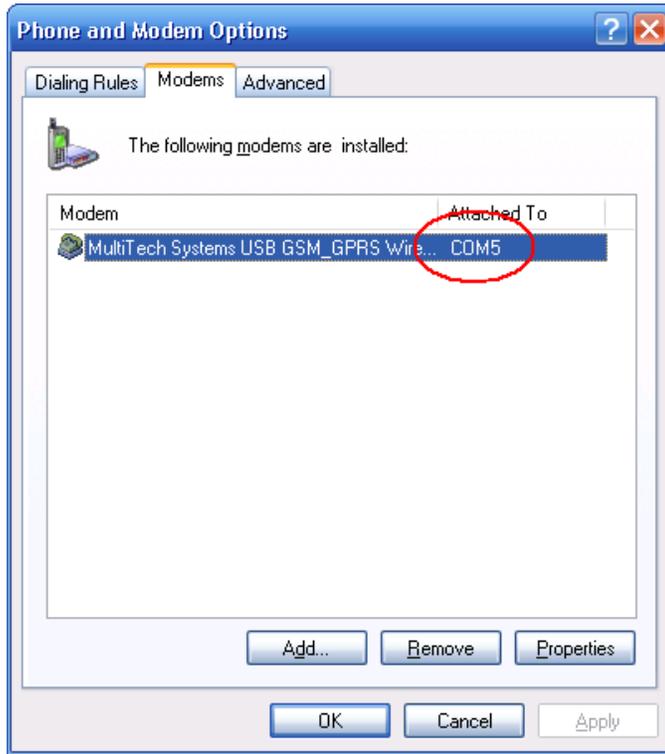
If you cannot locate the information in the modem user guide, the modem driver will usually set the same values in the "Modem properties" dialog.

Modem properties dialog:

Click the "Modem properties" link to open the Modem Properties dialog from Windows Control Panel.

The following example locates the required modem information:

COM Port: COM5

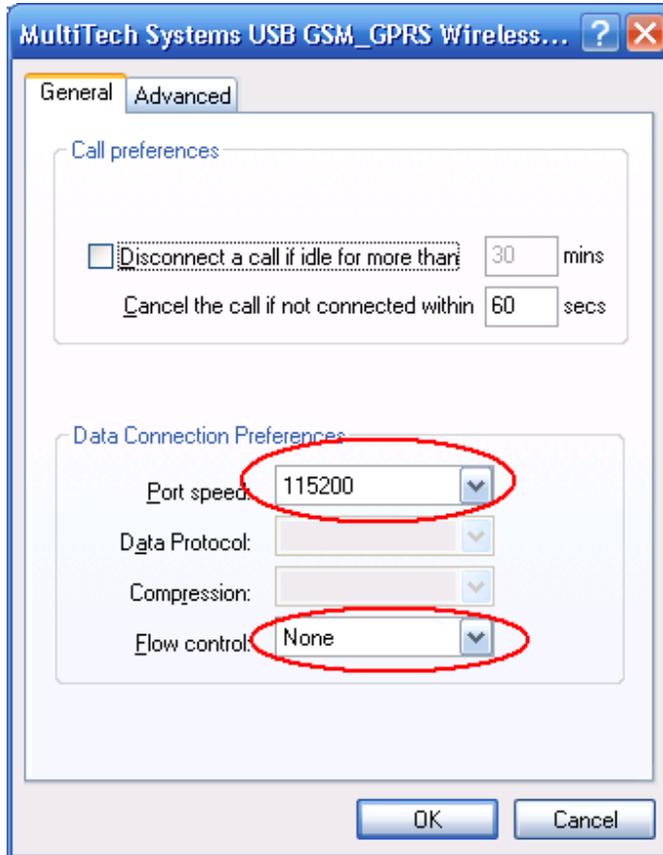


Click [Properties]

Select "Advanced" tab and click [Change Default Preferences]

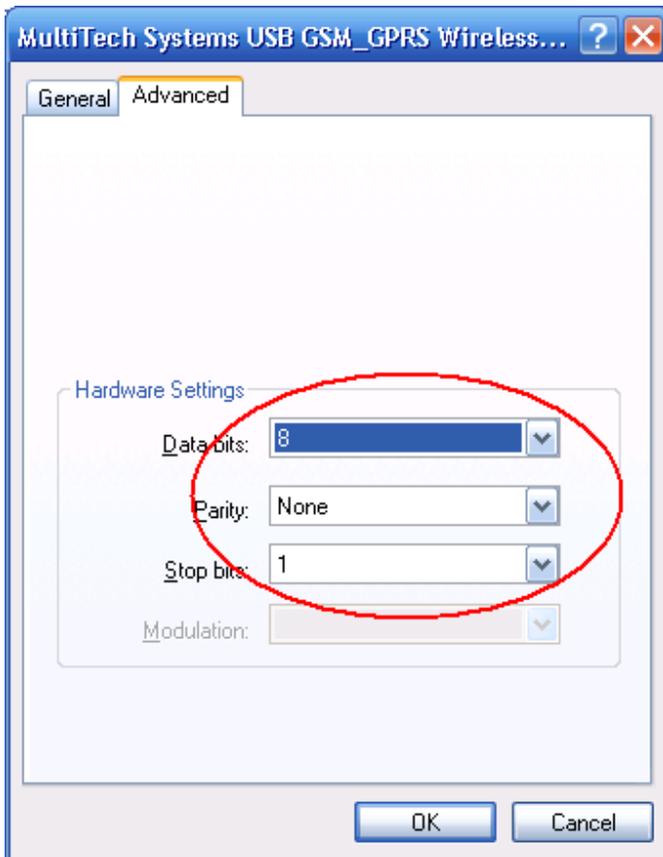
Baud rate (port speed): 115200

Flow control: none



Select "Advanced" tab

Data Bits: 8
Parity: None
Stop Bits: 1



Other serial modem settings

- **Encoding:** The Encoding property gets or sets the type of character encoding to be used for sending text messages. The character encoding can be set to one of the following types:
 - 7-Bit Default GSM Character Encoding (Maximum 160 characters per message)
 - 8-Bit ANSI Character Encoding (Maximum 140 characters per message)
 - 16-Bit Unicode Character Encoding (Maximum 70 characters per message)
- **Modem response timeout:** when TopView is communicating to the modem, it will wait for a response for the entered number of milliseconds before it considers the communication attempt a failure. Valid values 500 to 60000, default = 30000.
- **Read interval timeout:** minimum delay between characters in an incoming SMS message before assuming that there is no more data. Increase if you are receiving errors while reading incoming SMS messages. Valid values 1 to 5000, default = 150
- **PIN:** enter the PIN number if the SIM card in the GSM modem is protected by a PIN number
- **Retry send failures:** the maximum number of retries if there is a failure to send an SMS message. A "send failure" is when TopView successfully passes the message to the GSM modem but the GSM modem fails to send the message on the cellular network (e.g., low signal strength).
- **Minimum time between multiple messages**

TopView will process the outgoing Email-SMS notification queue and wait for a default of 1 second before sending the next message in the queue. You can increase the queue delay – see **Delay between multiple outgoing messages** on page 491.

The queue delay may not be long enough for some cellular networks, so the user can override this setting for the GSM modem by entering a larger delay for outgoing SMS text messages. The user should only change this setting if periodic SMS errors are occurring and they do not want to increase the queue delay setting.

- **Close port after sending**

By default a TopView Engine configuration/instance assumes that it is the only application using a GSM serial modem and keeps the COM port open between sending SMS messages. If "close port after sending" is checked, TopView will close the COM port of the GSM modem after sending an outgoing message. Note that if you enable incoming SMS messages, the port will quickly be reopened so only use this setting if you have disabled incoming SMS messages.

The purpose of this setting is to allow multiple TopView instances/configurations to use the same GSM modem. Since there may be a conflict if two or more instances attempt to use a single GSM modem at the same time, you should set the "Attempt port open X times every Y seconds" for each configuration that is sharing the modem.

*** We recommend using a networked cellular modem for multiple Engine access
- **Attempt port open X times every Y seconds**

If you have configured TopView to close the port after sending, it is possible that the

port is not available at the time of the next outgoing SMS notification. If an attempt to open the port fails, this setting will instruct TopView to make multiple attempts, waiting for Y seconds between each attempt.

Warning: while the open port attempts are occurring, the current outgoing message remains active and the outgoing queue does not empty until success (port opened) or all attempts have expired.

GSM/CDMA Networked Cellular Modem

Prior to use, the MultiTech networked modem must be configured with an IP address and HTTP and/or HTTPS access. Please see TopView's configuration document for the MultiTech modem for details or contact Exele support. A link exists on the modem configuration screen to open the MultiTech modem configuration document (PDF).

Primary and Backup modem

TopView supports redundancy for this modem. If only one modem will be used, only the primary modem information should be entered. If a primary and backup modem will be used both the primary and backup modem information should be entered.

Modem information

- **Host:** select HTTP or HTTPS (based on the access configured for the modem in the configuration steps) then enter the IP address of the modem
- **Username/Password:** enter the username and password for the modem

General information

- **Retry failures:** If TopView encounters an error with the connection or sending of an SMS message it can try to send the message again. Enter the number of retries and the time between each retry. Note that when TopView is attempting to resend a failed SMS message it will not attempt to send any other SMS messages that exist in the outgoing SMS notification queue, therefore the time between retries should be short.
If you have a backup modem and the send to the primary fails, TopView will retry using the backup modem.
See "Retries and failover/redundancy" for more information
- **Engine ID:** optional field that allows the user to provide a unique ID for this TopView Engine/configuration.
You can share the cellular modem(s) between multiple TopView Engines/configurations. Therefore, TopView needs a way to identify the incoming SMS messages that are meant for this Engine/configuration. The ID is used as part of the acknowledge request string (ARQ) and information request string (IRQ) message.
If you enter an ID, be sure that this ID is unique for all TopView Engines. If not entered TopView will assign a new ID when the Engine process is started.

Failover/redundancy health indicators

When using a primary and backup modem, TopView will check the health of each modem when determining which modem should be used for the next SMS message. See "Retries and failover/redundancy" for more information. The default behavior is for TopView to check all health indicators.

This set of options lets the user remove indicators from the modem health check. Indicators may be removed if the indicator is not being properly evaluated by TopView.

- SMS enabled: SMS is enabled in the modem (required for HTTP/HTTPS communication)
- No new failure logged: there are no new logged failures in the modem's log since the last send
- User has send permission: the entered username has permission to send SMS

Retries and failover/redundancy

Retries

When TopView uses a networked modem for sending SMS messages, the message is "handed" off to the modem. The modem puts the message into its internal queue and will soon send the message. If the message cannot be sent, the modem will retry multiple times based on the "Resend Failed SMS" setting in the modem configuration.

This arrangement allows multiple TopView clients/Engines to use the same modem quickly and efficiently. But it also prevents TopView from being aware of a message that was accepted by the modem but later failed to send.

Note: send failures by the modem can be monitored using TopView Status Tags (see "TopView Status Tags") and are also part of the health indicators used for redundant modems (see below).

From TopView's view, a "successful" send is when the Engine successfully hand off the message to the modem. TopView's retry settings (see "General information") only apply to failures to hand off the message to the modem. These handoff failures may be caused by a login failure, an invalid recipient (non-numeric), or a cellular modem that cannot be located on the network.

If a failure occurs and redundant modems are configured, TopView will try the other modem during the next retry. This is explained in the next section under "healthy modem".

Failover/redundancy

If TopView needs to send an SMS message (initial or retry) and a primary and backup modem are configured, TopView needs to determine which modem will be used to send the message.

Part of the logic used to determine the modem to use will check if a modem is healthy. A healthy modem is defined as:

- SMS is enabled in the modem (unless this health indicator is disabled)
- User has send permission (unless this health indicator is disabled)
- No new send failures in the modem log (unless this health indicator is disabled)
- The last send by TopView ("hand off" message to modem) was successful

The logic to determine which modem to use is:

- If first time sending, use the primary modem
- If the last modem used is healthy and we can connect to it, use this modem, otherwise
 - If we can only connect to one modem, use that modem
 - If only one modem is healthy, use that modem
 - Use primary

The SMS notification log will contain details of the modem selection logic results.

Test Modem

When the user clicks this button, TopView will attempt a connection to the networked cellular modem using the entered settings.

If successful, the modem network and SMS status, phone number, clock time, and cellular signal strength will be displayed.

Use the [View last modem test log] button to view the details of the test.

Twilio

[Twilio](#) is a hosted platform for communication and allows software teams and products (like TopView) to use Twilio APIs to add capabilities like voice, video, and messaging to their applications.

TopView allows users with a Twilio account to use the Twilio platform for delivery of SMS notification messages from TopView.

Requirements:

- The customer must have a Twilio account (trial accounts available for free)
- The TopView machine must be able to access the hosted Twilio platform. See [Twilio requirements](#)

TopView does not currently support incoming SMS messages from Twilio.

Twilio phone number format

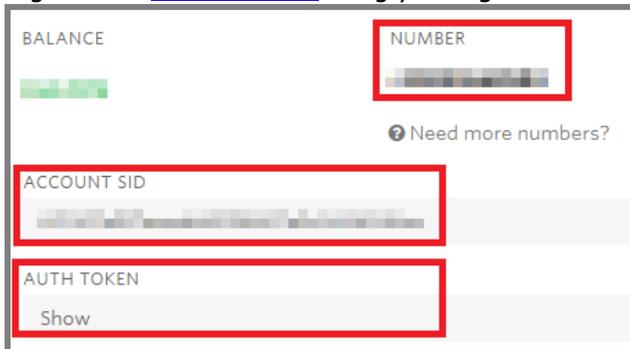
All phone numbers used by TopView to send messages through Twilio (your account phone number and recipient phone numbers) must be entered in E.164 format.

- + (plus sign)
- Country code
- Area code
- Local phone number

Example: +14155552671 for United States, area code 415, number 5552671

Twilio API settings

Log into the [Twilio Console](#) using your login account information to obtain your settings



- Account SID: your unique identification; acts as a user name
- Auth Token: acts as a password for your SID
- Account phone #: the phone number assigned to your account. Be sure to enter the phone number in the Twilio phone number format.

Resend connection failures

If TopView encounters an error with the connection or sending of the Twilio SMS message it can try to send the message again. Enter the number of retries and the time between each retry. Note that when TopView is attempting to resend a failed SMS message it will not attempt to send any other SMS messages that exist in the outgoing SMS notification queue, therefore the time between retries should be short.

Send test SMS message

TopView can send a test SMS text message using the entered serial or networked modem settings. Use the [Send text SMS message] button to send a test message to the entered phone number. The user can view the details of the send test using the [View test log] button.

Incoming SMS Settings

TopView can receive incoming SMS messages to

- acknowledge alarms
- return current state information

Overview and limitations

All cellular modems

- You must enable one of the incoming message features (acknowledge or information request) to enable incoming SMS messages.
- Each incoming SMS message that is processed by TopView is stored on the TopView computer then removed from the modem's inbox. The user can view the stored incoming messages using TopView Admin Tools.

Serial cellular modems

- Incoming SMS can be used for alarm acknowledge and information request
- Incoming SMS for a cellular modem can only be used by one TopView Engine. If you need a single cellular modem to support incoming SMS messages for multiple TopView Engine you should use a networked cellular modem.
- The SMS inbox is "cleared" when TopView starts or is restarted. This prevents old incoming SMS messages from affecting a new instance of TopView. During this process, TopView will reply to each SMS message stating that no action was taken.
- Checking the SMS inbox may take a number of seconds to complete. Therefore, TopView monitors the SMS text message inbox on a separate thread from the main TopView processing tasks so that the main TopView functions are not interrupted.
- Blackout period for invalid incoming messages
 - If an incoming message does not contain a valid request, TopView will reply with a message stating the problem "invalid message" and will blacklist this phone number from receiving future "invalid message" replies for 5 minutes.
 - Reason for blackout: If a message is sent by TopView to an invalid phone number, the cellular carrier may send an error message back to TopView regarding the problem phone number. TopView may flag the message as invalid and send a reply to the sender's phone number (the cellular carrier) with "invalid message", which may in turn send another error message back to TopView resulting in a continuous ping-pong of messages between TopView and the cellular carrier. This blackout period prevents this ping-pong scenario.

Networked cellular modems

- Incoming SMS can be used for alarm acknowledge and information request
- If information request is enabled, an Engine ID must be provided on the Outgoing SMS Settings screen.
- A single cellular modem can be used to acknowledge alarms for multiple TopView Engines. The acknowledge request string will contain the Engine ID.
- Each TopView Engine will clear the inbox of SMS messages that contain a matching Engine ID. All other messages will be left in the inbox and purged once they become too old (see "Clear old SMS messages from the Inbox after X hours")
- Redundant modems are supported. If a primary and backup modem are defined TopView will check for incoming messages on both modems.

Settings

Incoming SMS text messages are received using the serial or networked modem specified on the Outgoing SMS Settings screen.

When users send SMS text messages to TopView, they should send the message to the phone number or the cellular modem. This phone number is displayed when the user tests the modem using the [Test Modem] button

Incoming message storage (Serial modems)

Incoming messages can be read from the SIM card, the phone or modem memory, or both. Most users should set this to SIM.

Check inbox interval

The interval for time-based checks of the cellular modem SMS inbox.

[Check for messages] use this button to test the incoming SMS settings. The test will not remove any messages from the modem SMS inbox

“Reply-to-SMS” Acknowledge

“Reply-to-SMS” Acknowledge

Alarms in TopView can be acknowledged when an SMS notification recipient replies to a received alarm SMS message.

Enable “Reply-to SMS” Acknowledge

If “Reply-to-SMS Acknowledge” is enabled, outgoing SMS messages will contain an acknowledge ID. If the user replies to the SMS message the return message must contain this acknowledge ID in the message body. When replying to a text message from a cellular phone, the user may need to forward the message or enter the acknowledge ID in the reply message since the original message may not be included in the reply message. See TopView help for more information.

Send receipt SMS message upon received and processed message

Include (enter static text and/or placeholders)

Message = %alarmmsg%

Press ESC to see all placeholders

Verify phone number of sender against list of SMS message recipients

If enabled, each outgoing SMS notification message for a TopView alarm will contain an acknowledge request ID string. The acknowledge request ID will be included in the text message body.

Acknowledge request ID

- Serial modem: The form of the acknowledge request ID is “ARQn”, where n is the row ID of the alarm.
- Networked modem: The form of the acknowledge request ID is “TVuid-ARQn” where uid is the Engine ID (an identifier of the TopView Engine) and n is the row ID of the alarm.

If the user replies to this notification text message, or forwards this notification message to the cellular modem phone number, TopView can process the incoming message, extract the row information from the acknowledge request ID, and acknowledge the alarm in TopView. This assumes that the message sent to TopView contains the original notification message sent by TopView. Many SMS reply messages do not contain the original message, but a forwarded message will typically include the original message. The user can also copy/paste the received message and acknowledge code into a new text message sent to TopView.

Including multiple Acknowledge IDs in one reply message: if the incoming message contains multiple acknowledge requests, TopView will process each one individually.

Warning: if using networked cellular modems do not include multiple acknowledge requests for multiple TopView Engines in a single message.

Send receipt message

If checked, TopView will send a receipt text message to the sender of the incoming message stating the success or failure of the acknowledgement.

- Include: the user can configure the information about the acknowledged alarm to include in the acknowledge receipt SMS. This information can include static text and placeholders. See **Placeholders for messages, text, and Logic Function arguments** on page 149 for more information.

Verify phone number of sender

TopView stores a unique list of all SMS numbers that have been sent a TopView alarm notification message. If this option is checked (recommended), TopView will compare the phone number for each incoming acknowledge request SMS message against the list; if the phone number is found in the unique list, TopView will acknowledge the alarm. Otherwise, TopView will not acknowledge the alarm.

Warning: if this option is not checked, a message sent to an invalid phone number may cause the cellular carrier to send an error message back to TopView stating that the phone number is invalid. In some cases, this return error message may contain the original message containing the acknowledge code, therefore acknowledging the alarm.

TopView Information Request

TopView Information Request

Enable "TopView Information Request"

If enabled, users can request row/tag information by sending an SMS to the cellular modem phone number with the request string in the text message body. If using an HTTP modem users must set an Engine ID (on the Outgoing SMS Settings screen) that will be used as a unique identifier for this configuration. The Engine ID must be included in the SMS message in addition to the information request string.

Response to row/tag information request

IRQ SMS

If blank, send a response with these fields:

Row number

In alarm?

Time in alarm

Alarm message

Unacknowledged?

Row/tag information request string

IRQRn = information for row #n

IRQTx = information for RowUID = x

If enabled, users can request tag/row information from TopView. The response to the request will be a text message with the requested information.

To request information, users must send a request text message to the cellular modem's phone number. The message body must contain a request string.

Row/tag information request string: IRQRn

Return information for the monitored point in row#n of TopView. The user can include multiple row information requests in a single text message. Note that the character limit per text message may be exceeded when requesting multiple rows.

Example:

IRQR5 Information for row 5
IRQR3 IRQR4 Information for row 3 and row 4

Row/tag information request string: IRQTx

Return information for the monitored point with Row UID = x. The user can include multiple Row UID information requests in a single text message. Note that the character limit per text message may be exceeded when requesting multiple rows.

Example:

IRQTpressure01 Information for Row UID = Pressure01

Engine ID required for networked cellular modems: TVxxxxx

If using a networked HTTP cellular modem, the information request SMS message must also contain the Engine ID prefixed by "TV".

Example to request information for row 5 of TopView Engine with ID=432:

IRQR5 TV432

The Engine ID is specified on the Outgoing SMS Settings screen.

Response to row/tag information request

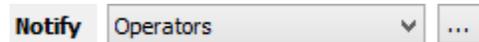
There are two options for the format of the response:

1. Notification Message Template: create/select a Notification Message Template containing the desired information. Only text-based Notification Message Templates should be used. For more information, see "Notification Message Templates"
2. Select desired fields: if the Notification Message Template is empty, the desired fields for the response can be selected. A default message with the selected fields will be sent as the response.

Global Email-SMS Notification Groups

When configuring notification recipients, the user can select an email-SMS group to receive the email and SMS notification messages (see **Selecting the Notify recipients** on page 499 for more information).

Global Email-SMS Groups are named, pre-defined lists of one or more recipients (email addresses or cellular phone numbers) that are common to all TopView Configurations. If Email-SMS Notification is enabled, the Global Email-SMS Groups are added to the list of available recipients for alarm condition and escalation.

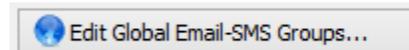


Note: Recipients in the “Default Email-SMS Group” are stored as part of the configuration file and retrieved when TopView starts.

Global Email-SMS Groups are dynamic: the recipients are retrieved at the time of the notification. Global Groups changed while TopView is running will take effect during the next notification.

To edit the Global Email-SMS Groups

Click [Edit Global Email-SMS Groups] located on the Email-SMS Notification Settings screen or the TopView Configurator’s Email-SMS Notification General Settings screen.



Global Email-SMS Groups Dialog

This dialog allows the user to add and remove Global Email-SMS Groups and group recipients. Be careful when removing Global Groups which may be in use by other TopView configuration files.

Global Email-SMS Notification Groups are global to all configurations

Global Email-SMS Notification Groups allow you to group email addresses and/or SMS phone numbers under a single name. You may then send an individual alarm to a Global Email-SMS Notification Group instead of the configuration's Default Email-SMS group. The Schedule allows you to assign an "at work" or "on call" time period to the recipient.

Global Email-SMS Notification Groups are dynamic

Unlike the recipients in the default email-SMS group, recipients in a Global Email-SMS Notification Group are retrieved when an alarm occurs. If TopView is running, you can make changes to the recipients in a Global Email-SMS Notification Group and the changes will take effect when the next alarm occurs.

Global Email-SMS Notification Group Name: Operators

Recipient list for group

Recipient	Schedule	Comment	Is Group?	Group Members
\\Operator1@emailWork	Always		No	
\\Operator2@emailWork	Always		No	

Comment for group

Alarm notification delay

If this Email-SMS Notification Group is used for alarm notification:

Send notifications over time (enable delay) [View Notification Timeline](#)

Wait seconds before sending to the first recipient

then seconds between each recipient

Clear any unsent messages upon

alarm acknowledge alarm RTN (return-to-normal)

Repeat the entire list of recipients times (max=100)

with repeat delay seconds (optional)

'Alarm notification delay' can be used instead of Escalation Templates for simple "alarm notification over time" configurations.

Note: these alarm notification delay settings are only used if this Notification Group is assigned to an alarm limits's Notify field or to a Tag Group's alarm notification. It will not be used for other notifications to this Notification Group (e.g. Escalation Template Steps, acknowledge, return-to-normal, ...)

Configuration usage

Configurations in which this group is utilized:

Export Import OK Cancel

The Global Email-SMS Groups are stored in the file *EmailGroups.config* located in DataPath\Config\

Alarm notification delay

If a TopView alarm is configured to notify this Email-SMS group and multiple recipients exist in the group, the default behavior is to email all recipients at the same time.

In some cases, the user may want to configure a delay between each email or SMS message and optionally cancel unsent messages if the alarm is acknowledged and/or returns-to-normal before the next message is sent. This type of behavior can be configured through Escalation Templates but requires the configuration of multiple steps (one per recipient) including step-based delays and conditions.

Alarm Notification Delay is a simpler solution when the escalation delays and conditions are the same for each recipient.

Alarm Notification Delay in a Global Email-SMS Group allows the user to configure

- An initial delay before sending to the first recipient, configured through "wait X seconds before sending to the first recipient"
- A delay interval between messages sent to each recipient in the group, configured through "then Y seconds between each recipient"
- The cancellation of unsent messages if the alarm is acknowledged and/or returns to normal, configured through the "Clear any unsent messages upon 'alarm acknowledge' and/or 'alarm RTN' " checkboxes.
- Resending to the entire list multiple times

Alarm notification delay notes:

- The alarm notification delay for a Global Email-SMS Group will only be used if the Global Email-SMS Group is selected as the "Notify" recipient of an alarm. This can be configured for an alarm limit or as part of a Tag Group's notification settings.
- The delay will not be used if
 - the group is part of a custom Email-SMS list
 - the group is the recipient of an escalation template step, an acknowledge notification, or a return-to-normal notification

Notification timeline

Click the [Timeline] button to view the timeline that will be used by the TopView Engine to send notifications to this group based on the entered alarm notification delay settings entered.

Configuration Usage

When the dialog is opened a background task will look through the TopView configuration files for use of this Email-SMS notification group. Any configurations using the current notification group will be listed.

Notification: Modem Notification

Note: Modem Notification support has ended and this feature will be removed in a future release

Using Modem Notification, TopView can send

- **TAP:** alphanumeric pager and cellular text alarm messages through a modem using the TAP protocol (Telocator Alphanumeric Protocol). This requires a TAP access number from the user's pager or cellular phone provider
- **Direct:** numeric messages directly to numeric and alphanumeric pagers. This is equivalent to dialing a pager phone number and entering the numeric message using the phone keypad. See **Direct-to-pager function** on page 303 for more information.

To enable modem notification of alarms, check **Enable Modem Notification** and click **[Configure]** to configure the modem settings.

Once configured, Modem Notification recipients can be assigned to individual tag alarm conditions (see **Configure Alarm Limits** on page 125)) or to a Tag Group (See **Tag Groups**).

Modem Notification

Enable or disable Modem Notification of alarms

Enable Modem Notification

Modem Notification Overview

Delivery

Modem Notification requires a modem and phone line. Alarm messages can be sent to pagers and cell phones using the TAP protocol; numeric messages can be sent directly to pagers.

Once you have configured Modem Notification, you may select a modem recipient group to receive notification for any Tag Group or individual alarm limit.

[Click here to assign Modem Notification recipients to individual alarm conditions...](#)

[Click here to assign Modem Notification recipients to Tag Groups...](#)

Receiving Devices

 Pager (TAP). Most paging companies allow you to send alphanumeric pages through a TAP terminal phone number. You will need to ask your paging company for the required TAP information as detailed in the TopView documentation.

Pager (Direct). Numeric messages can be sent directly to alphanumeric and numeric pagers. This is equivalent to dialing a pager phone number and entering the numeric message using the phone keypad.

 Cell phone (TAP). Many cellular phone companies provide a TAP terminal phone number for sending text messages to cellular phones. You will need to ask your cellular phone company for the required TAP information as detailed in the TopView documentation.

Modem Notification Settings Screen

Modem Notification Settings
These settings apply to the current configuration file

Modem settings

Modem COM port:

Modem init string:

Modem also used for Voice Notification

Retry failed pages: times
every seconds

TAP dialing information

Phone # (TAP terminal):

Password:

Max chars per block:

Port baud rate:

Parity, data, stop bits:

Tone/pulse dialing:

Modem notification recipients [Edit Global Modem Groups...](#)

Default Modem Group

Recipient (PagerID)	Schedule	Comment
1122	Always	
1324	Always	

Other settings

Custom message prefix:

Send errors to Default Modem Group (lost connections, ...)

Blayout period: seconds

After sending modem notification for a tag/row, TopView will not send any more modem notification messages for the same tag/row during the blayout period.

Modem settings

Modem COM port

Select the COM port for the modem. The user can check your modem's COM port in the Windows Control Panel.

Modem init string

Blank unless the user cannot page with his/her modem. If the user experiences an error sending a test page, he/she will need to find a modem initialization string that will turn off error correction and data compression. Check with the modem manufacturer for the details.

Modem also used for Voice Notification

Check this item if the modem on this COM port is also used for TAPI Voice Notification. This ensures that the device will not be accessed for both methods of notification at the same time.

Retry failed pages X times every Y seconds

If the page is not successful, TopView can retry at the entered interval.

TAP dialing information

The user may need to contact his/her paging/cellular company for this information. This information is ignored for direct-to-pager messages. See **Direct-to-pager function** on page 303 for more information.

Phone # (TAP terminal)

User's paging company's TAP access number.

Password

TAP password (default=blank)

Max chars per msg block

User's paging company's character block size (default=80)

Port baud rate

TAP access number's baud rate (default=300)

Parity, data bits, stop bits

TAP access number settings (default = E,7,1)

Tone or Pulse dialing

For your phone line (default=Tone)

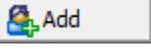
Default Modem Group

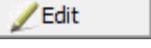
The listed recipients are members of the Default Modem Group.

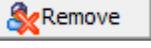
The Default Modem Group can be selected as the recipient of an alarm condition. See **Configure Alarm Limits** on page 125 for more information on configuring alarm notification recipients.

The "recipient" is a PagerID or CellularID for the recipient.

For direct-to-pager messages, the syntax of the pagerID contains information required to send a numeric message directly to the pager using the pager's phone number. See **Direct-to-pager function** on page 303 for more information.

Use the  button to add new recipients to the Default Modem Group

Use the  button to edit the selected recipient, schedule, or comment field. See **Schedules** on page 342 for more information on Schedules.

Use the  button to remove the selected recipient from the Default Modem Group

Use the [Edit Global Modem Groups] button to edit global modem groups. See **Global Modem Notification** Groups on page 306 for more information.

Other settings

Custom message prefix

This text prefix all outgoing modem alarm messages.

Send errors to default modem group

If checked, Server connection and FTP errors will be sent to the Default Modem Group.

Blackout period

This setting allows the user to suppress numerous modem notification messages if a tag/row is cycling in and out of alarm.

Once a modem notification alarm message is sent for a tag/row, no other modem notification alarm messages will be sent for this tag/row until the entered number of seconds has passed. Note that this blackout period will also suppress escalation and return-to-normal modem notification messages if the modem notification alarm message was suppressed due to the blackout period.

Send test page

Use the configured settings to send a test page to one pager/cellular ID. User will be prompted for the ID. Use the [View send log] to review the last test page log file.

Direct-to-pager function

TopView Modem Notification can ignore the entered TAP information and send numeric messages directly to the pager. This is equivalent to dialing a pager phone number and entering the numeric message using the phone keypad.

Direct-to-pager function is configured through the entered pagerID (or pagerID Contact field) of a recipient in a Modem Notification recipient group. See **Default Modem Group** on page 302 and **Global Modem Notification** Groups on page 306 for more information on Modem Notification recipient groups

PagerID = Numeric number

The entered numeric number is a pagerID that should be used with the entered TAP phone number. TopView will call the TAP phone number (hosted by the paging company) and hand off the message with the pagerID to the paging company who will then deliver the message. Messages can be alphanumeric if alphanumeric pagers are in use.

PagerID = Direct-to-pager information

The entered PagerID contains information that instructs TopView to ignore the TAP phone number and, instead, directly dial the phone number of a pager. Using this format, only numeric messages can be delivered since this is equivalent to dialing a pager's phone number and entering a numeric message using your phone keypad.

For direct-to-pager function, the format of the pagerID should be as follows:

beeper-phone:9,12345678-delay:X-term:Y-msg:Z

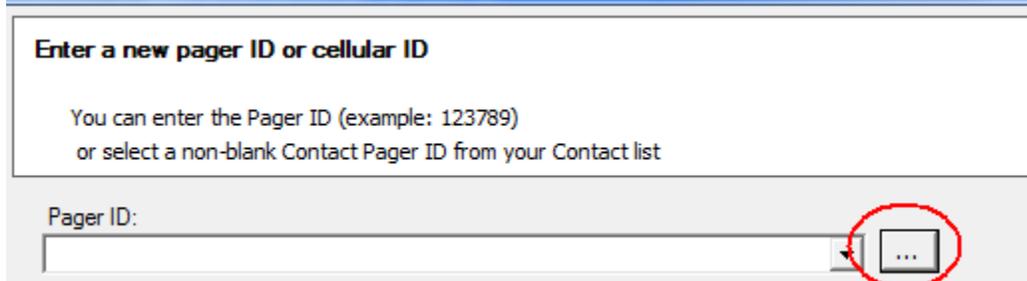
where

- 9,12345678 is the phone number to dial
- X is the delay, in seconds, to wait before entering the numeric message
- Y is the termination string or blank for default termination
Default termination string is #, (# key, wait, hang up)
- Z = numeric message. If blank, the alarm message will be sent. If the alarm message is not numeric, "411" will be sent

Formatting the pagerID for direct-to-pager

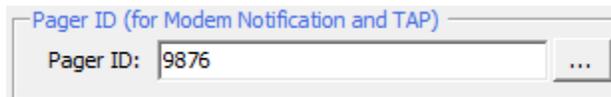
The required pagerID can be formatted by TopView.

1. When adding a recipient (pagerID) to a Modem Notification recipient group, click the [...] button to open the Modem Notification PagerID format screen.



See **Default Modem Group** on page 302 and **Global Modem Notification Groups** on page 306 for more information on Modem Notification recipient groups.

2. When entering the pagerID for a Contact, click the [...] button to open the Modem Notification pagerID format screen. See **Global Contact List** on page 242 for more information on entering contact fields.



The PagerID for Modem Notification supports two formats:

PagerID = Numeric number

The entered numeric number is a pagerID that should be used with the entered TAP phone number. TopView will call the TAP phone number (hosted by the paging company) and hand off the message with the pagerID to the paging company who will then deliver the message. Messages can be alphanumeric if alphanumeric pagers are in use.

PagerID = Direct-to-pager information

The entered PagerID contains information that instructs TopView to ignore the TAP phone number and, instead, directly dial the phone number of a pager. Using this format, only numeric messages can be delivered since this is equivalent to dialing a pager's phone number and entering a numeric message using your phone keypad.

PagerID details

PagerID:

If the PagerID is a reference to a Contact's PagerID field ({Contact}PagerID), you should edit the Contact, not this reference

Direct-to-pager details

Enter the direct-to-pager details and click [Generate PagerID]

Pager phone number:

After dialing the pager, wait for seconds before entering numeric message

After the message, terminate with (blank for default termination)

Always send the following numeric message:

If blank, the alarm message will be sent if numeric. Otherwise, 411 is sent

Enter the recipient's pager phone number, wait period, termination, and message.
Click [Generate PagerID] to create the pagerID string.
Click [Return PagerID] to return the pagerID to the previous screen.

Enter a new pager ID or cellular ID

You can enter the Pager ID (example: 123789)
or select a non-blank Contact Pager ID from your Contact list

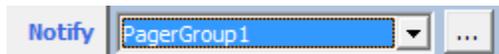
Pager ID:



Global Modem Notification Groups

When configuring alarm limits for tags, user can select a modem group or list to receive the modem notification for a limit violation (see **Selecting the Notify recipients** on page 499 for more information).

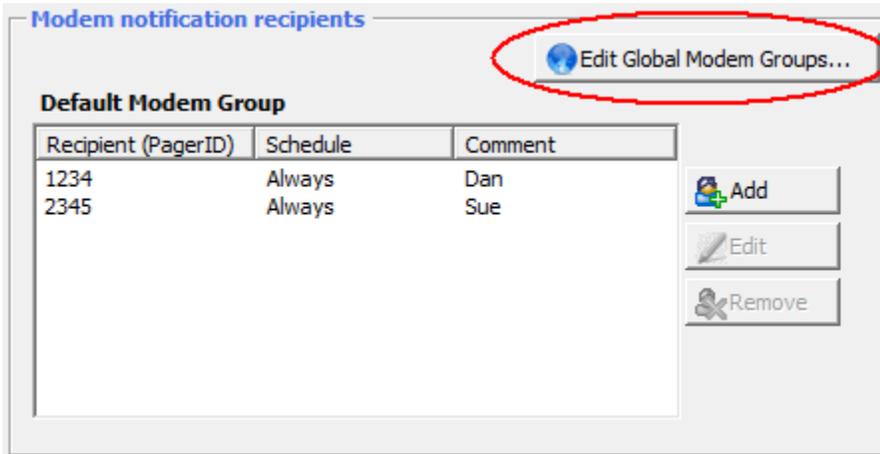
Global Modem Groups are named, pre-defined lists of one or more recipients that are common to all TopView Configurations. If Modem Notification is enabled, the Global Modem Groups are added to the list of available recipients for each alarm condition.



Note: Recipients in the "Default Modem Group" are stored as part of the current configuration file and retrieved when TopView starts.
Global Modem Groups are dynamic: the recipients are retrieved at the time of the alarm.
Global Groups changed while TopView is running will take effect during the next notification.

To edit the Global Modem Groups

Click [Edit Global Modem Groups] located on the Modem Notification Settings screen or the TopView Configurator's Modem Notification screen.



Global Modem Groups Dialog

This dialog allows user to easily add and remove groups and group recipients. Be careful when removing Global Groups which may be in use by other TopView configurations.

Global Modem Groups are global to all configurations

Global Modem Groups allow you to group pager/cellular IDs under a single name. You may then send an individual alarm to a global modem group instead of the configuration's default group.

Global Modem Groups are dynamic
Unlike the recipients in the default modem group, recipients in a Global Modem Group are retrieved when an alarm occurs. If TopView is running, you can make changes to the recipients in a Global Modem Group and the changes will take effect when the next alarm occurs.

Global Modem Group Name
PagerGroup1 [v] [New...] [Remove]

Recipient list for group

Recipient (PagerID)	Schedule	Comment
1234	Always	Peggy

[Add] [Edit] [Remove]

Comment for group
[Change...]

[OK] [Cancel]

The Global Modem Groups are stored in the file *PageGroups.config* located in `DataPath\Config\` directory.

Notification: Voice Notification

The TopView Engine can send voice alarm messages over a phone line (TAPI) or network (VOIP SIP) to one or more recipients.

To enable voice notification of alarms, check **Enable Voice Notification** and click **[Configure]** to configure the current voice settings. To hear voice alarms over the computer's speakers, see **Notification: Audible Alarms** on page 239.

Once configured, Voice Notification recipients can be assigned to individual tag alarm conditions (see **Configure Alarm Limits** on page 125) or to a Tag Group (See **Tag Groups** on page 196)

Voice Notification

Enable Voice Notification of alarms?

Enable Voice Notification

Voice Notification Overview

Delivery

Voice Notification allows callout with VOIP (SIP) or TAPI. TAPI is available but no longer supported.

VOIP Voice Notification requires a network connection to a local or hosted SIP Server. This may be your existing internal phone network, a hosted SIP solution, or an inexpensive hardware SIP Server (IP-PBX) supporting existing analog lines.

TAPI Voice Notification requires a voice modem or TAPI device and analog phone line. Support is no longer offered for TAPI.

Alarms can be spoken from the alarm message text or using WAV files created by the user. WAV files can be created using a microphone or from entered text (Text-To-Speech)

Once you have configured Voice Notification, you may select a voice recipient group to receive notification for any Tag Group or individual alarm limit.

[Click here to assign Voice Notification recipients to individual alarm conditions...](#)
[Click here to assign Voice Notification recipients to Tag Groups...](#)

Receiving Devices

- Traditional phones and software phones (Soft Phones). Dial a phone number and play a voice message to the recipient. Recipient can acknowledge the alarm using their phone keypad.
- Plant paging system. Announce the message throughout your plant using a paging system. Dial the paging system phone number and play the voice message.

Voice Notification Settings screen (General/VOIP)

General

Callout device settings

Voice Notification allows you to perform voice call-out notification using VOIP (network) or TAPI (analog phone line and call-out device)

Use VOIP Use TAPI

VOIP Callout Settings

Primary SIP Server | Backup SIP Server

Primary SIP Server

SIP Server host/IP: server OR server:port

Proxy: optional

Display name:

User name:

Authorization name:

Password:

Registration required

Use external call process

Show call window

Codects: [Set call codecs...](#)

TAPI Callout Settings

Use this Voice-capable TAPI device:

and backup device (optional):

TAPI Direct access mode

Voice notification recipients

Default Voice Group

Recipient (Phone#)	Schedule	Comment
1234567	Always	Dan
1234445	Always	Maria
\PlantManager\phoneHome	Always	

[Edit Global Voice Groups...](#)

[Add](#) [Edit](#) [Remove](#)

Voice Notification Settings screen (Call Settings)

Voice Notification Settings These settings apply to the current configuration file

General | **Call Settings** | Deprecated/older Call Settings

Call Settings

Starting and ending the call

Verify line connected state

Wait at least seconds before playing the message or greeting

Upon call failure retry the call times, every seconds

Retry for errors that occur after call started

Disconnect the call after seconds or when a hangup is detected

Greeting and access code

Play WAV File greeting before the alarm message

Greeting_Access_8KHz

Loop greeting up to times

Before hearing the message, user must enter numeric access code

Separate multiple with semicolon ;

Leave access code field empty to just play greeting before message

Alarm message to play over phone

Message source

Convert alarm message text to speech (TTS)

Play WAV files

Loop message up to times

Available Voices:

Audio Format: Rate: -10 to 10

Sample message: Listen now

Sample Output: Windows Default Audio Device

Acknowledge settings

Message must play at least times before acknowledge action is allowed

Recipient can acknowledge alarm by pressing the # button on the phone keypad

Acknowledge message:

Recipient can acknowledge ALL alarms by pressing numeric code

Acknowledge ALL message:

Other settings

Blackout seconds

Delay seconds between loops of greeting/alarm msg

Prefix to ALL recipient phone numbers

Strip non-numeric characters from recipient phone numbers

Combine messages to same recipient into one call (TTS only)

Introduction:

Message prefix:

[Warning: Please read the help/doc for "Acknowledge All" behavior details before use](#)

[Make test call](#) [View test call Log](#) Test backup device

[OK](#) [Cancel](#)

Callout device settings

TopView Voice Notification allows VOIP or TAPI callout.

* TAPI is available but no longer supported.

Select "Use VOIP" or "Use TAPI"

VOIP Callout Settings

The VOIP Callout Settings define how TopView will make the outgoing VOIP calls. VOIP calls are made through a SIP Server using the account information specified.

TopView supports a primary and backup SIP Server. The primary SIP Server is required and the backup SIP Server is optional. If both a primary and backup SIP Server are specified and TopView is configured to retry failed calls it will alternate between the primary and backup SIP Server,

SIP Server host/IP

The name or IP address of the VOIP SIP Server.

Proxy

Optional. The outbound domain proxy for the SIP Server.

RTP port range

An allowed RTP port range. RTP is used to exchange the voice packets after the call is established.

Display name

A name to be displayed at the called client.

User name

The user name for the SIP account used to make calls.

Authorization name

The authorization name for the SIP account used for making calls. If you do not have an authorization name you can usually enter the user name.

Password

The password for the SIP account used to make calls.

Use external call process

This is usually checked. Do not uncheck unless you are instructed by Exele support to disable this setting.

Registration required

This is usually checked. True if the SIP Server requires registration for this account.

Show call window

This is usually unchecked. Check this option to display a calling status window during each VOIP call (e.g., debugging).

Codecs

Codecs control how audio is encoded/decoded between TopView and the SIP Server. Most users should use the default codec list.

If you find that the call quality is poor even on a network with a high quality of service, you may want to experiment with different codecs by creating a custom codec list containing one codec and performing test calls using this codec.

Click the [Set call codecs...] button to create a custom codec list for use by TopView VOIP calls.

Set SIP call codecs

Codecs determine the way audio is encoded and decoded over the VOIP call. Most providers support the default codecs, but if call audio isn't as clear as expected, the audio codecs TopView uses can be adjusted below:

- Use default codecs - custom codec settings will be ignored
- Use custom codecs - checked codecs will be offered for use during voice notifications

Use codec	Display name	Name	Payload type	Channels	Sample rate	Description
<input checked="" type="checkbox"/>	PCMU (G.711)	PCMU	0	1	8000	ITU-T G.711 PCM μ
<input type="checkbox"/>	PCMA (G.711)	PCMA	8	1	8000	ITU-T G.711 PCM A
<input type="checkbox"/>	G.722	G722	9	1	8000	ITU-T G.722 audio t
<input type="checkbox"/>	G.723	G723	4	1	8000	Obsoleted codec su
<input type="checkbox"/>	G.726-16	G726	104	1	8000	ITU-T G.726 audio :
<input type="checkbox"/>	G.726-24	G726	105	1	8000	ITU-T G.726 audio :
<input type="checkbox"/>	G.726-32	G726	106	1	8000	ITU-T G.726 audio :
<input type="checkbox"/>	G.726-40	G726	107	1	8000	ITU-T G.726 audio :
<input type="checkbox"/>	G.728	G728	15	1	8000	ITU-T G.728 audio :
<input type="checkbox"/>	G.729	G729	18	1	8000	ITU-T G.729 and G.
<input type="checkbox"/>	GSM	GSM	3	1	8000	European GSM Full
<input type="checkbox"/>	iLBC	iLBC	98	1	8000	Internet low Bitrate C

Select all

Select none

Some descriptions utilize information [from Wikipedia's RTP audio video profile page](#) which is released [under a CC license](#)

VOIP Codecs

From Wikipedia's definition of Audio Codec:

"An audio codec is a codec (a device or computer program capable of encoding or decoding a digital data stream) that encodes or decodes audio."

Each codec processes audio in a particular way, leaving differences in the bandwidth required to communicate audio over a network connection.

Since VOIP calls are sent from TopView to the SIP server over a network, the audio is being encoded by TopView and decoded by the other end of the call, whether it's a softphone or IP-PBX.

By default, TopView specifies multiple codecs for voice notifications and the recipient uses the first supported codec to decode the call audio. The first default codec provided by TopView is PCMU.

Why is this a VOIP configuration option?

Different VOIP providers can support different audio codecs, and some codecs play better over different connections.

If you notice poorer than expected audio quality over the call, you may be able to choose a different codec that will provide better quality, given your network.

What codecs are available?

TopView supports the following codecs:

Name	Payload type	Channels	Description	Sample rate
PCMU (G.711)	0	1	ITU-T G.711 PCM μ -Law audio 64 kbit/s	8000
PCMA (G.711)	8	1	ITU-T G.711 PCM A-Law audio 64 kbit/s	8000
G.722	9	1	ITU-T G.722 audio 64 kbit/s. Usually the codec in use for TopView voice calls. It is of excellent quality.	8000
G.723	4	1	Obsoleted codec superseded by G726	8000
G.726-16	104	1	ITU-T G.726 audio 16 kbit/s	8000
G.726-24	105	1	ITU-T G.726 audio 24 kbit/s	8000
G.726-32	106	1	ITU-T G.726 audio 32 kbit/s	8000
G.726-40	107	1	ITU-T G.726 audio 40 kbit/s	8000
G.728	15	1	ITU-T G.728 audio 16 kbit/s	8000
G.729	18	1	ITU-T G.729 and G.729a audio 8 kbit/s; Annex B is implied unless the annexb=no parameter is used	8000
GSM	3	1	European GSM Full Rate audio 13 kbit/s (GSM 06.10)	8000
iLBC	98	1	Internet low Bitrate Codec 13.33 or 15.2 kbit/s	8000
L16 (2 channel)	10	2	Linear PCM 16-bit stereo audio	44100
L16	11	1	Linear PCM 16-bit audio	44100
opus	120	1	Opus audio	48000
SPEEX-Narrow	97	1	Speex audio	8000
SPEEX-Wideband	100	1	Speex audio	16000
SPEEX-Dynamic	108	1	Speex audio	32000

TAPI Callout Settings

Voice-capable TAPI device

Select user's voice-capable device from the dropdown. This device should be connected to the computer and a phone line. Please check our web site for the latest information about recommended modems: www.exele.com/modems/

Backup device (optional)

If specified and "retry failed calls..." is configured, TopView will alternately try the primary and backup TAPI devices after failure.

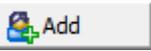
TAPI Direct access mode

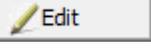
Some TAPI devices may work better if they are accessed directly without the use of the Microsoft TAPI layer. You should only attempt to use this setting if you are having errors with your TAPI device. This setting may not work for many devices.

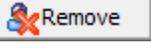
Voice notification recipients

The entered voice recipients are members of the Default Voice Group. They are stored as part of this configuration and not globally visible. If used this group is normally reserved for administrators.

The Default Voice Group can be chosen as the recipient of an alarm condition. See **Configure Alarm Limits** for more information on configuring alarm recipients.

Use the  button to add new recipients to the Default Voice Group

Use the  button to edit the selected recipient, schedule, or comment field. See **Schedules** on page 342 for more information on Schedules.

Use the  button to remove the selected recipient from the Default Voice Group

Use the [Edit Global Voice Groups] button to edit global voice groups. See "Global Voice Notification Groups" on page 327 for more information.

Starting and ending the call

Verify line connected state

Playing a message (WAV file) over a TAPI device before the line state is connected *may* cause errors. Therefore, this setting should be selected for most users.

If selected, TopView will not play any messages until the callout device returns a signal stating that the line is connected. The connected state does not signal that the call has been answered.

Some callout devices may not return the connected state properly, in which case the user should uncheck this setting and use the delay time between call start and WAV play. Perform a test call to monitor the behavior of your callout device.

After dialing, wait X seconds

TopView will dial the phone number and wait the configured "wait time" before it starts to play the any messages.

If "Verify line connected state" is also selected, the line connected state must be true AND the delay seconds expired before the WAV file will play.

Upon failure retry the call X times every Y seconds

If TopView is not able to make a call for an outgoing voice notification message, it will retry at the entered interval. If a backup VOIP SIP Server or TAPI device is configured, TopView will alternate retries between the primary and backup.

Retry for errors that occur after call is started

A TopView Voice Notification call involves an initialization and call stage.

During the initialization stage the callout device is verified (e.g., connect and register with the VOIP SIP Server) and if successful we will make the call. During the call stage the phone call is made to the recipient.

An error can occur at either stage. For VOIP an initialization error usually indicate that the SIP Server is unavailable or the login/registration information is incorrect. A call error can occur due to a bad recipient number or unreachable destination.

If retries are enabled, TopView will always retry if an error occurs during initialization. The "Retry for errors that occur after the call is started" determines if errors during the call stage will trigger a retry of the call.

Timeout: disconnect after X seconds

TopView will disconnect the call after the entered number of seconds or when a hang-up is recognized. The disconnect timer will reset at the start of the call, when the optional greeting code is correctly entered (before the first play of alarm message) and when the first play of the alarm message completes. TopView will prevent the disconnect timeout while the first play of the alarm message is actively playing.

Greeting and access code

Before the alarm message is played to the recipient, TopView can play a greeting and prompt the recipient to enter an access code. This provides a level of security before the alarm message is played and optionally acknowledged. If the access code is blank, the greeting will be played before the alarm message without requiring an access code.

Play WAV file greeting

Select a WAV file from the dropdown for the greeting. The user can click the  button to create a WAV file from text.

If there is a different WAV file preferred for use, copy the file to the \DataPath\voice\ directory. We suggest that the WAV file format be 8KHz, 16bit, mono to be compatible with most callout devices.

Play greeting count

TopView will play the greeting the entered number of times. If an access code is configured, the user can begin entering the code while the greeting is playing.

Access code

Enter one or more numeric access codes. The recipient will use the phone's keypad to enter an access code before hearing the alarm message or being allowed to acknowledge alarms.

To define multiple access codes, separate them with a semicolon.

Example: 1234;5678

If a recipient acknowledges the called alarm, the entered access code will be logged as part of the "acknowledge user" field stored with the acknowledge action.

Notes:

- Once the recipient has started to enter an access code, pressing * or # will allow the recipient to re-enter the access code.
- If the access code is blank the greeting will be played the configured number of times followed by the alarm message. The user will not be required to enter an access code.

Alarm Message to play over phone

Message source

User can select 2 formats for Voice Notification output.

1. TopView can convert the alarm message text to speech
2. User can select and existing WAV file to play over the phone

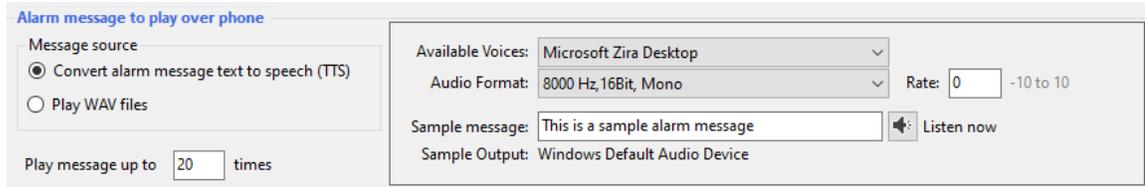
See details below.

Loop message up to X times

Enter the maximum number of times that TopView should replay the message

Convert alarm message text to speech

If selected, TopView will convert the alarm message to audible speech that will be sent to Voice Notification recipients.



Alarm message to play over phone

Message source

Convert alarm message text to speech (TTS)

Play WAV files

Play message up to times

Available Voices: Microsoft Zira Desktop

Audio Format: 8000 Hz, 16Bit, Mono

Rate: -10 to 10

Sample message:

Sample Output: Windows Default Audio Device

The TopView alarm message that is converted to speech may contain a TopView-generated message (Tag 'tt400' > 50), a custom alarm message ("the temperature is high") or both. See **Alarm message and Custom message** on page 138 for more information.

Play message up to X times

The entered count should be large enough to cover the maximum call length

Available voices

Depending on your Windows Operating System, you should have one or more voices already available. You can also purchase higher quality voices which are compatible with TopView/SAPI.

Audio Format

Select the output audio format.

Rate

Enter a value to slow down or speed up the generated speech. A rate of zero will generate speech at the default speed. Valid rate values are from -10 to +10.

Sample message

Enter sample text to be spoken when the user clicks the [Listen Now] button.

Alarm Message – WAV Files

If selected, WAV file can be assigned to each alarm condition on the **Configure Alarm Limits** screen (see page 125). *Note that the user must select a Voice Notification group in the "Notify" dropdown field in order to select a WAV file.*

Alarm message to play over phone

Message source

Convert alarm message text to speech (TTS)

Play WAV files

Loop message up to times

Existing WAV Files (assign to alarm condition on the Edit Limits screen)

Alarm_Acknowledge_8KHz	▶ Play
Alarm_Acknowledge_David_8KHz	
Alarm_Acknowledge_Zira_8KHz - Copy	✖ Remove
Alarm_AllAcknowledge_8KHz	
Greeting_Access_8KHz	
Greeting_NoAccess_8KHz	🗨 Create WAV files from text...

Existing WAV Files

This list includes the WAV files located in \DataPath\Voice\

Play

Plays the selected WAV file over the default audio output device (typically the sound card and computer speakers).

Remove

Deletes the selected WAV file. TopView WAV files messages installed with the application (names starting with "tv_") cannot be deleted.

Create WAV files from text...

Runs the TopView Text-To-Speech application which lets user create WAV files from entered text. See the next section for more information.

Text-To-Speech WAV file generation

This application converts entered text to speech. The speech audio output can be saved to a WAV file.

 **Text to Speech WAV file generation**

Create a WAV file from entered text. The WAV file can then be used for Voice Notification.

Audio settings

Available Voices:  Some voices may not be compatible with the chosen audio format. If you do not hear any sound when you click [Speak now], choose another voice or change the Audio Format.

See documentation for information on obtaining more voices

Audio Format:  We suggest using "8000 Hz, 16Bit, Mono" which is most likely to be compatible

Rate: -10 (slower) to 10 (faster)

Convert text to WAV file

Text to speak:

 Speak now

 Save to WAV file

Audio output:

Audio settings:

Available voices

There are a few free voices which are installed with SAPI. You may want to purchase higher quality voices which are compatible with SAPI 5.0. Please see the release notes and Exele forum for the latest information on voices.

Audio Format

Select the output audio format. For TAPI Voice Notification the format must be compatible with the TAPI callout device.

Rate

Enter a value to slow down or speed up the generated speech. A rate of zero will generate speech at the default speed. Valid rate values are from -10 to +10.

Convert text to WAV file

Text to speak

Enter the text to be spoken

Speak now

Use this button to speak the entered text

Save to WAV file

Saves the spoken text to a WAV file located in \DataPath\Voice

Acknowledge settings

Recipient can acknowledge alarm by pressing KEY button on the phone keypad

If enabled, the user can acknowledge the alarm(s) for the current call by pressing the selected KEY keypad button.

Note: a single call may be made for multiple alarms if multiple alarm calls are combined to the same recipient (see Combine messages to same recipient into one call on page 324)

Acknowledge message

Select the WAV file to play after a single call acknowledge

Recipient can acknowledge ALL alarms by pressing numeric code CODE

If enabled, the user can acknowledge all alarms in the current TopView Engine by entering the numeric code CODE.

Warning: use this setting with caution because all unacknowledged alarms in the current TopView Engine will be acknowledged.

Acknowledge ALL message

Select the WAV file to play after an "acknowledge all alarms" action.

Message must play X times before acknowledge action is allowed

If X=0, the recipient can acknowledge the alarm at any point after the alarm message(s) begin to play over the phone. Otherwise, TopView will not allow acknowledge until the message has completed playing at least X times.

Warning: if you enter a non-0 value you should inform notification recipients that they must allow the message(s) to complete before they will be able to acknowledge the alarm(s).

Other Settings

Blackout period

Allows suppression of numerous voice notification messages if a tag/row is cycling in and out of alarm.

Once a voice notification alarm message is sent for a tag/row, no other voice notification alarm messages will be sent for this tag/row until the entered number of seconds has passed. Note that this blackout period will also suppress escalation and return-to-normal voice notification messages if the voice notification alarm message was suppressed due to the blackout period.

Delay X seconds between loops of greeting/alarm msg

During a voice notification call, TopView can repeat the greeting and alarm message to the called recipient. Entering a delay ($X > 0$) will add a pause/delay of X seconds between each completed message and the next message.

Dial prefix

If entered, the prefix will be automatically added to all called numbers.

TopView Voice Notification makes calls to recipient phone numbers, usually through Contact phone number fields. Some call-out systems may require a prefix to called numbers to route them to an external line (e.g., 9 for external line). Enter a prefix here instead of adding the required prefix to all called Contact phone fields.

If you have configured a primary and backup SIP server you can enter a different prefix for each SIP server by entering both prefixes separated by a semicolon:

prefix1;prefix2

where prefix1 is the prefix for the primary SIP server and prefix2 is the prefix for the backup SIP server.

Strip non-numeric characters from recipient phone numbers

If enabled, any non-numeric characters will be removed before the phone number is used for a voice call.

Depending on the VOIP server or callout device used, a voice call recipient defined with non-numeric characters (e.g., 111-222-3333) may cause the call to fail.

Combine messages to same recipient into one call

If not enabled, each callout alarm message will generate a separate call.

If enabled, TopView will look at the calls in the outgoing callout queue. If the same recipient (phone number) exists for multiple alarm messages, they will be combined into a single call.

Introduction: the introduction message played before any alarm messages. If % exists in the introduction message, TopView will replace it with the number of messages combined. If blank, no introduction message will be used for combined messages.

Message prefix: the message played before each alarm message. If % exists in the prefix message, TopView will replace it with the current message number (1, 2,n). If blank, no prefix message will be used for combined messages.

Notes about combining messages

- If the recipient acknowledges a combined callout message, all alarms that are part of the combined message will be acknowledged. Therefore, it is recommended that you prevent acknowledge until the message has played at least once.
- Combined messages will lengthen the time to speak the callout message, so you may want to increase the timeout value "Disconnect the call after X seconds"
- The setting "Call recipient list until first acknowledge" will call the recipients for a single alarm in the order in which they exist in the recipient list until someone acknowledges the alarm. If messages are combined and a person is called for an alarm, this user will receive combined message for any other alarms in the callout queue to their phone number, regardless of the order of this recipient in various recipient lists. This may disrupt callout order if the same recipient exists in different recipient lists but in different positions in each list.

Deprecated/older Call Settings

These settings are maintained for backward compatibility. TopView has newer settings that should be used instead of these settings. The newer settings are noted below.

Callout queue – Acknowledge and Return-to-normal

These settings are used to control scheduled voice calls when an alarm is acknowledged or no longer active. These settings apply to all calls made for this configuration regardless of the Voice Notification Groups being called. Use of the settings on this screen may override the newer per-group settings for call control.

Recommended: Newer settings within each Voice Notification Group provide per-group settings for handling calls over time and removal of queued calls upon alarm acknowledge and return-to-normal.

Call recipient list until first acknowledge

If selected and multiple recipients exist in the outgoing call queue for the Voice Group (default or global) assigned to the same alarm condition, they will be called sequentially until

1. the alarm is acknowledged by a caller using the assigned acknowledge phone button
OR
2. the last recipient is called.

Warning: if alarm delay settings are used (configured within each Global Voice Notification group), the delayed calls may not be in the callout queue when an alarm is acknowledged and are not removed based on this setting. It is recommended to use the Global Voice Notification group settings to remove calls upon acknowledge.

The user can control the calling order using the  and  buttons along the left side of the Default and Global Voice Group list boxes (top recipient is called first).

If not selected, the default behavior is to call all recipients in the notified Voice Group. An exception to this behavior is a Global Voice Group with alarm delay settings that removes pending calls to people in group upon acknowledge or return-to-normal.

Remove call from outgoing queue if alarm acknowledged

If voice notification calls are scheduled and the alarm that triggered the call becomes acknowledged, TopView can remove the call from the queue and no call will be made for this alarm.

The acknowledgement of the alarm can occur by:

- User acknowledge at TopView Engine window, Remote Viewer, Mobile Web App
- Acknowledge input tag: a tag in the data server that signals an acknowledged alarm
- Acknowledge of another Voice Notification call (if using Acknowledge Groups – see **Acknowledge Group** on page 179 for more information)

Remove call from outgoing queue if alarm RTN (returns-to-normal)

If voice notification calls are scheduled and the alarm that triggered the call becomes inactive (RTN), TopView can remove the call from the queue and no call will be made for this alarm.

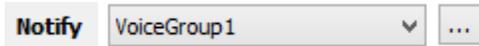
The RTN of the alarm can occur by:

- The alarm condition is no longer true
- The alarm is disabled
- A Server error causes the alarm to no longer be active

Global Voice Notification Groups

When configuring notification recipients, the user can select a voice group to receive the voice notification (see **Selecting the Notify recipients** on page 499 for more information).

Global Voice Groups are named, pre-defined lists of one or more recipients (phone numbers) which are common to all TopView Configurations. If Voice Notification is enabled, the Global Voice Groups are added to the list of available recipients for alarm notification and escalation.

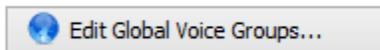


Note: Recipients in the "Default Voice Group" are stored as part of the configuration file and retrieved when TopView starts.

Global Voice Groups are dynamic: the recipients are retrieved at the time of the notification. Global Groups changed while TopView is running will take effect during the next notification.

To edit the Global Voice Groups

Click [Edit Global Voice Groups] located on the Voice Notification Settings screen or the TopView Configurator's Voice Notification screen.



Global Voice Notification Groups Dialog

This dialog allows easy addition and removal of Global Voice Groups and recipients. Be careful when removing Global Groups which may be in use by other TopView configurations.

Global Voice Notification Groups are global to all configurations

Global Voice Notification Groups allow you to group voice notification phone numbers under a single name. You may then send an individual alarm to a Global Voice Notification Group instead of the configuration's default group. The Schedule allows you to assign an "at work" or "on call" time period to the recipient.

Global Voice Notification Groups are dynamic
Unlike the recipients in the default voice group, recipients in a Global Voice Notification Group are retrieved when an alarm occurs. If TopView is running, you can make changes to the recipients in a Global Voice Notification Group and the changes will take effect when the next alarm occurs.

Global Voice Notification Group Name
Callout Operators [v] [New...] [Remove]

Recipient list for group

Recipient (Phone #)	Schedule	Comment
117	Always	This is the phone passed to the person on call

[Add] [Edit] [Remove] [Timeline] [Copy] [Paste]

Comment for group
My comment [Change...]

* Some contact specifiers do not resolve correctly [See unresolved specifiers]

[Export] [Import] [OK] [Cancel]

Alarm notification delay
If this Voice Notification Group is used for alarm notification:
 Send notifications over time (enable delay) [View Notification Timeline]
Wait 0 seconds before calling the first recipient
then 60 seconds between each recipient. Note: this is the time between the start of each call and should be >= the call timeout configured in Voice Notification...Call Settings
Clear any unsent messages upon
 alarm acknowledge alarm RTN (return-to-normal)
Repeat the entire list of recipients 3 times (max=100)
with repeat delay seconds (optional)

'Alarm notification delay' can be used instead of Escalation Templates for simple "alarm notification over time" configurations.
Note: these alarm notification delay settings are only used if this Notification Group is assigned to an alarm limits's Notify field or to a Tag Group's alarm notification. It will not be used for other notifications to this Notification Group (e.g. Escalation Template Steps, acknowledge, return-to-normal, ...)

Configuration usage
Configuration files in which this group is utilized

User can control the calling order using the up and down arrow buttons along the left side of the recipient list box (top recipient is called first).

The Global Voice Groups are stored in the file *VoiceGroups.config* located in the DataPath\Config directory.

Alarm notification delay

If a TopView alarm is configured to notify this voice group and multiple recipients exist in the group, the default behavior is to call the next recipient immediately after the previous call ends.

In some cases, the user may want to configure a delay between each voice notification call and optionally cancel unsent messages if the alarm is acknowledged and/or returns-to-normal before the next call(s) are made. This type of behavior can be configured through Escalation Templates but requires the configuration of multiple steps (one per recipient) including delays and conditions.

Alarm Notification Delay is a simpler solution when the escalation delays and conditions are the same for each recipient.

Alarm Notification Delay in a Global Voice Group allows the user to configure

- An initial delay before sending to the first called recipient, configured through "wait X seconds before sending to the first recipient"
- A delay interval between the start of each call to each recipient in the group, configured through "then Y seconds between each recipient". Note that this is the delay between starting each call and should be \geq the Voice Notification call timeout. See "Starting and ending the call" for more information on the timeout.
- The cancellation of unsent messages if the alarm is acknowledged and/or return to normal, configured through the "Clear any unsent messages upon 'alarm acknowledge' and/or 'alarm RTN' " checkboxes.
- Resending to the entire list multiple times

Alarm notification delay notes:

- The alarm notification delay for a Global Voice Group will only be used if the Global Voice Group is selected as the "Notify" recipient of an alarm. This can be configured for an alarm limit or as part of a Tag Group's notification settings.
- The delay will not be used if
 - the group is part of a custom voice list
 - the group is the recipient of an escalation template step, an acknowledge notification, or a return-to-normal notification
- A general setting for all voice calls will cancel future calls for an alarm if the alarm is acknowledged by a recipient of a phone call. (see Voice Notification... Acknowledge settings on page 323)
 - This general setting:
 - Applies to all voice calls made for an alarm
 - Only removes future calls if the recipient of a call acknowledges an alarm. The alarm delay setting of a Global Voice Group applies to any acknowledgement of the alarm
 - Both settings can exist for Voice Notification

Notification timeline

Click the [Timeline] button to view the timeline that will be used by the TopView Engine to send notifications to this group based on the entered alarm notification delay settings entered.

Configuration Usage

When the dialog is opened a background task will look through the TopView configuration files for use of this Voice notification group. Any configurations using the current notification group will be listed.

Notification: MQTT Publish

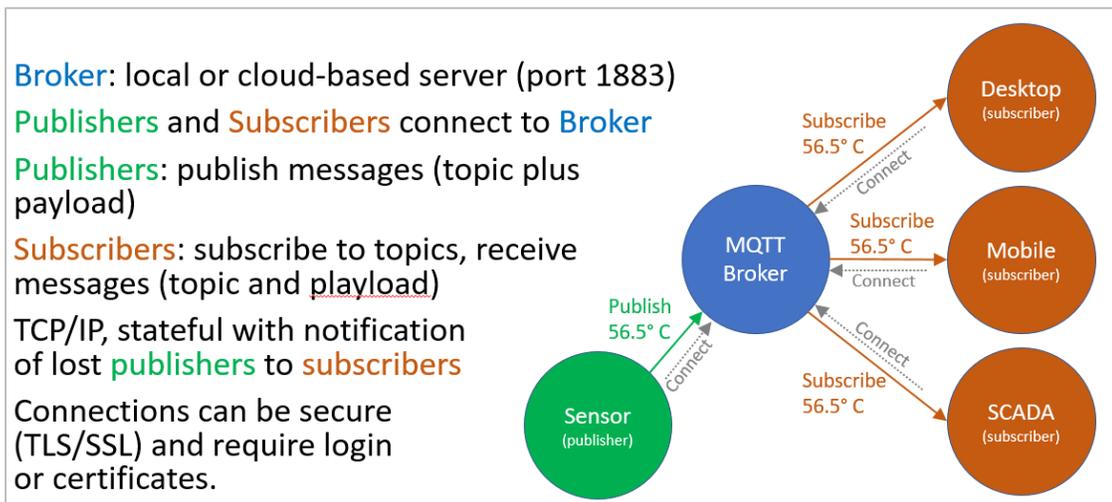
What is MQTT?

MQTT (Message Queuing Telemetry Transport) is a lightweight publish/subscribe message protocol designed for constrained devices with low-bandwidth. It has become popular a popular protocol for “Internet of Things” applications and devices.

For SCADA and Automation users, MQTT allows the sending of commands to devices, and the receiving of published data from (sensor) devices.

The MQTT framework is composed of

- Publishers: send MQTT messages to brokers
- Subscribers: received MQTT messages from brokers
- Brokers: receive MQTT messages from publishers and send them to subscribers



How does TopView use MQTT?

TopView supports MQTT as both a publisher and subscriber.

MQTT Publisher: Regardless of TopView data source (OPC, PI, SQL, ...) all versions of TopView can publish MQTT messages as described in this section.

MQTT Subscriber: The TopView data source “TopView Events for MQTT” allows TopView to subscribe to MQTT messages. For more information on this feature see the separate TopView Events documentation and help file.

MQTT Terminology in TopView

Each MQTT message is composed of a topic and payload.

Topic:

- Multiple levels separated by a forward slash
- Topics do not need to be pre-created
- Topic examples
 - mycompany/city/building/equipment/measurementid
 - exele/rochester/pianoworks/thermostat1/temperature
- Clients subscribe to topics (with or without wildcards)

Payload (message content) has no set type (data-agnostic):

- String: common formats include text (UTF-8), JSON, XML, and CSV
- Binary

* The publisher and subscriber must agree on the format of the payload

When can TopView publish MQTT Messages?

TopView can publish MQTT messages for events of the tags in the monitored tag list.

The following events are supported:

- Alarm: when the alarm for a monitored tag/row becomes active. Use this event to publish new alarm information.
- Acknowledge: when the alarm for a monitored tag/row is acknowledged. Use this event to publish alarm acknowledge information.
- Return-to-normal: when the alarm for a monitored tag/row becomes inactive. Use this event to publish end-of-alarm acknowledge information.
- Refresh: during each refresh of the TopView Engine (see "Refresh rate"). Use this event to publish information about the tag/row including the tag/row value, status, timestamp, alarm state, acknowledge state, ...

Overview: Configuring MQTT Publish in TopView

Configuring MQTT Publish in TopView involves 2 steps:

1. On the MQTT Publish screen of the Configurator, the user must
 - a. Enable MQTT message publishing
 - b. Specify the MQTT Broker and connection detailsSee "MQTT Publish – TopView Configuration Settings"
2. For each monitored tag in the TopView configuration, the user must
 - a. Enable MQTT Publish for the tag. This allows the user to decide which TopView alarms will send SNMP Trap messages.
 - b. Configure the MQTT Publish details (which events and MQTT message content)See "MQTT Publish – Tag Settings".

MQTT Publish – TopView Configuration Settings

Each TopView configuration can publish MQTT messages to one MQTT broker.

The MQTT Publish screen of the Configurator allows the user to specify the details of the broker and default MQTT publish details.

MQTT Message Publishing



The screenshot shows a configuration window titled "MQTT Message Publishing". It contains a checked checkbox labeled "Enable MQTT publishing". Below this is a label "Publish to MQTT Broker:" followed by a dropdown menu showing "LocalMQTTBroker" and a downward arrow. To the right of the dropdown is a button labeled "Configure Brokers..."

Enable MQTT Publishing

Enable or disable MQTT Publishing for the current configuration.

MQTT Broker

The broker alias name of the MQTT Broker to publish to. Click [Configure Brokers] to configure TopView MQTT broker aliases.

For information on configuring an MQTT broker, see the TopView Events help/documentation section "Configuring TopView Events"... "Configure Event Generators"... "Configure Event Generator for MQTT"... "Broker"... "Defining a broker alias". This help/documentation is available in the Help menu of the TopView Configurator.

Default Per-Tag MQTT Publish Settings

When a tag enables MQTT publishing, it must specify the events to publish and the message details for each event.

A tag can either specify the MQTT publish settings or choose to "use the default settings for the configuration" which are specified here.

For details on these settings see "MQTT Publish – Tag Settings".

Notification: SNMP Trap

What is SNMP?

The Simple Network Management Protocol (SNMP) is the dominant protocol in network management. It was designed to be an easily implementable, basic network management tool that could be used to meet network management needs.

In its most common usage, SNMP allows devices on a network (computers, routers, etc.) to be centrally monitored by IT.

Agent and Manager

An Agent is a program that communicates with the Manager on one side using SNMP and with a Device or Application on the other side.

SNMP Get/Set Messages

The Manager often has the ability to communicate to devices on the network through GET and SET operations. These communications are initiated by the Manager.

SNMP Trap Messages

The Agent can send a trap, or asynchronous notification, to the manager telling it about some event on the managed device. This type of communication is initiated by the Agent.

How does TopView use SNMP?

TopView can act as an SNMP Agent that can send SNMP Trap Messages to a Manager when alarms occur in TopView.

SNMP Terminology in TopView

The following SNMP terms are used in the configuration of TopView SNMP Trap Messages

- **Manager:** The SNMP Manager who is receiving the Trap messages. A Manager is identified by a machine name or IP address and port. The default port is 162.
* TopView ships with a test SNMP Manager that can be used for testing TopView SNMP Traps. The test manager will print the details of SNMP Trap messages to the screen.
- **Community:** The SNMP Manager may require a specific text string to accompany SNMP trap messages. This text string is like a password. If the Community value sent by the Agent does not match the expected value, the Trap message may be discarded.
* The test SNMP Manager will accept any value for Community.
- **SNMP Trap version:** TopView supports both V1 and V2c SNMP Trap messages. The content of the SNMP trap message is slightly different between the two versions.
- **Object ID (OID):** OID's are used throughout SNMP to identify items. OID's are a series of integer numbers separated by periods.
Example OIDs:
 - **Vendor specific OID:**
iso(1).org(3).dod(6).internet(1).private(4).enterprise(1).vendor(X)...
The OID for TopView is 1.3.6.1.4.1.44921.0
 - **Management OID** (approved by IAB Internet Activities Board)
iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1)...

- **Variable List/Message list:** the SNMP trap message contains a list of variables. These variables are typically the “message” portion of the SNMP trap. Each variable is defined by 3 items: and Object ID, a message value, and a message value type.
 - **OID:** identifies the variable or sender
 - **Message value:** often times a string value although numeric and OID values can also be sent
 - **Message value type:** identifies what type of data is contained in the message value field. This can be string, integer, OID, etc.

Overview: Configuring SNMP Trap Messages in TopView

Configuring SNMP Trap Messages for TopView alarms involves 2 steps:

3. On the SNMP Trap page of the Configurator, the user must
 - a. Enable SNMP Trap Messages for the current configuration
 - b. Specify the SNMP Manager, Port, and Community
 - c. Specify the SNMP Trap Version (1 or 2c)See **SNMP Trap – TopView Configuration Settings** on page 337
4. For each monitored tag/alarm in the TopView configuration, the user must
 - a. Enable SNMP Trap messages for alarms. This allows the user to decide which TopView alarms will send SNMP Trap messages.
 - b. Configure the SNMP Trap details of the message when an alarm occurs.See **SNMP Trap – Tag Settings** on page 190

SNMP Trap – TopView Configuration Settings

Each TopView configuration can send SNMP Trap Messages to one SNMP Manager.

The SNMP Trap screen of the Configurator allows the user to specify the details of the SNMP Manager.

TopView alarm SNMP Trap Settings Screen

SNMP Trap Messages for Alarms

Simple Network Management Protocol (SNMP) is an "Internet-standard protocol for managing devices on IP networks". Many IT departments use SNMP to manage devices on the network.

SNMP traps allow a device (the agent) to notify the management station of significant events by way of an unsolicited SNMP message. TopView can act as an SNMP Agent that sends SNMP Trap messages for TopView Alarms to an SNMP Manager.

Enable or disable SNMP Traps

Enable SNMP Traps

SNMP Trap Manager Settings

SNMP Manager: IP address or DNS host name where you want TopView to send the SNMP trap messages

Port: Port number on the Manager where TopView is sending the trap messages

Community: Like a password, the Manager may only accept certain community names

Use trap version: Version 1 Version 2 SNMP version for the trap messages sent to the Manager

SNMP trap messages are enabled and sent per-alarm. When you configure the alarm limits and notification settings for an alarm, select the SNMP Trap screen to enable and configure a trap message for the alarm.

Enable SNMP Traps

Enable or disable SNMP Traps for the current configuration.

SNMP Manager

The host name or IP Address of the SNMP Manager.

Port

The port number where the Manager is listening for Trap messages. Default is 162

Version

The SNMP Trap version. Some of the details of the SNMP trap message are based on the selected version.

Notification: EventHook Notification

EventHook Notification allows the user to handle custom notification delivery for notification methods not currently supported by TopView.

What are EventHooks?

TopView EventHooks are user-written plug-in modules that can receive events from TopView including alarm events, log message events, report events, tag value updates, and notification events.

For information on Eventhook events and for details on creating EventHooks, see the EventHook documentation and help files located in DataPath\EventHooks\.

What is EventHook Notification?

One of the event types that can be delivered to EventHooks are "EventHook notifications". If the recipient of an alarm, return-to-normal, or escalation is (1) a Global EventHook Notification Group or (2) a Custom EventHook List, TopView can call the EventHook with the details of the notification event including the reason (alarm, return-to-normal, escalation), the alarm message, and the recipient.

EventHook recipients

Recipients for an EventHook notification can be any entered text or Contact field value, including the Contact\custom field. Since the EventHook will handle the notification, the value of each recipient is based on the information required by the EventHook to deliver or handle the notification. For example, the EventHook may call a Web Service, and the recipient may be one of the arguments required for the web service. TopView does not limit the value of an EventHook recipient.

Configuring EventHook Notification

Event Hook Notification

EventHook Notification

EventHooks are user-written "plug-in" modules that can receive events from TopView. These events include alarm information (active, RTN, acknowledge), audible alarms, reports, and notifications.

To receive notification events in an EventHook module, you must enable EventHook Notification (below) and assign EventHook Notification recipients to TopView alarms.

Enable EventHook Notification for this configuration

Global EventHook Notification Groups


Delivery

EventHook notification delivers the alarm event information to your custom EventHook code. Within your code you can deliver the notification through any methods not available in TopView (e.g. Web Service)

Each recipient in an EventHook Notification Group can be any text you enter for the recipient, or a selected field for a TopView contact including the Contact\Custom field.

[Click here to assign EventHook Notification recipients to individual alarm conditions...](#)
[Click here to assign EventHook Notification recipients to Tag Groups...](#)

The steps for configuring EventHook notifications are similar to the configuration of other notifications in TopView (e.g., Email).

1. Enable EventHook Notification by checking the box displayed above. Since the EventHook notification is handled by an EventHook plug-in, no further configuration steps for the EventHook notification are required.
2. Create EventHook recipients and assign them to alarm events. You can create two types of EventHook recipient lists: Global EventHook Notification Groups (pre-defined groups of EventHook recipients which are visible to all TopView configurations) and Custom EventHook Lists (ad-hoc lists of recipients assigned to an individual alarm event).
 - a. To create Global EventHook Notification Groups, click the [Edit Global EventHook Groups...] button. This will allow you to create one or more EventHook Groups containing recipients. You can then assign these groups to alarm events, return-to-normal events, and escalation events.
 - b. To create a Custom EventHook List, select (Custom EventHook List) from any alarm notification dropdown list, then click [...] to assign the recipients to the list.

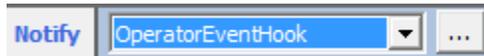
Once configured, EventHook Notification recipients can be assigned to individual tag alarm conditions (see **Configure Alarm Limits** on page 125) or to a Tag Group (See **Tag Groups** on page 196)

3. The EventHook notification can be handled by an EventHook plug-in. EventHooks must be registered with TopView. See **Global Options: EventHooks** on page 498 for more information.

Global EventHook Notification Groups

When configuring alarm limits for tags, the user can select an EventHook group to receive the notification for a limit violation (see **Selecting the Notify recipients** on page 499 for more information).

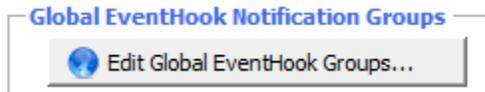
Global EventHook Notification Groups are named, pre-defined lists of one or more recipients which are common to all TopView Configurations. If EventHook Notification is enabled, the Global EventHook Groups are added to the list of available recipients for each alarm condition.



Note: Global EventHook Groups are dynamic: the recipients are retrieved at the time of the alarm. Global Groups changed while TopView is running will take effect during the next notification.

To edit the Global EventHook Groups

Click [Edit Global EventHook Groups] located on the EventHook Notification Settings screen.



Global EventHook Groups Dialog

This dialog allows easy addition and removal of groups and group recipients. Be careful when removing Global Groups which may be in use by other TopView configurations.

Global EventHook Notification Groups (for user-written notification)

Global EventHook Notification Groups allow you to group contact information (email, phone, custom) under a single name. You can then send notification to a Global EventHook Notification Group which can be handled in an Event Hook that you write yourself.

Global EventHook Notification Groups are dynamic
Recipients in a Global EventHook Notification Group are retrieved when a notification is about to fire. If TopView is running, you can make changes to the recipients in these Groups and the changes will take effect when the next notification occurs.

Global EventHook Notification Group Name
OperatorEventHook New... Remove

Recipient list for group

Recipient	Schedule	Comment
\Sue Smith\custom	Always	
AnyStringCanExistAsRecipient	Always	

Add Edit Remove

Comment for group
Change...

OK Cancel

When entering recipients in a group, the user can select any contact field including the Contact\custom field which can be used to store recipient information needed by the EventHook.

The Global EventHook Groups are stored in the file *EventHookGroups.config* located in the DataPath\Config directory.

Schedules

“Schedules” define valid days of the week and valid times during each day. Optionally, a schedule can include date ranges where the schedule is valid or invalid (e.g. vacation, equipment shutdown). Once the user configures a Schedule, the Schedule can be assigned to an Alarm limit condition, a notification group recipient, or Alarm Report task. All schedule times are based on the local PC time of the computer where TopView is installed and running.

For scheduling requirements that cannot be met with a single Schedule, a Schedule Group can be created from multiple Schedules. The Schedule Group is active if any of the member Schedules are active and can be used wherever Schedules can be assigned.

Schedules are dynamic: The valid days and times of an existing Schedule are retrieved when an alarm occurs or alarm report should be created. Therefore, changes to an existing Schedule will take effect when the schedule is referenced for use.

Schedule uses

Alarm Limit Schedule

Each alarm limit condition for a Tag/Row contains an **Alarm Limit Schedule**. An alarm limit schedule defines the days of the week and time during each day when the alarm can occur (become active). The default schedule for each alarm limit condition is "Always". See **Alarm Limit Schedule** on page 138 for more information.

Notification Recipient Schedule

Each recipient in a notification group (e.g., Default Email-SMS Group, Global recipient group) contains a **Recipient Schedule**. A recipient's Schedule defines the days of the week and time during each day when the recipient can receive notification messages. The default schedule for a recipient is "Always".

If the user would like to have different people receive a notification alarm message based on the day and time of day of the alarm:

- Add the recipients to the same group (default group or a global group)
- Configure each recipient's schedule for the appropriate time period
- Assign the group to an alarm condition
- When the alarm occurs, the email will be "sent" to the group.
- By default, only those recipients in the group whose schedules are "active" will receive the notification. For those recipients with inactive schedules, the message can be disregarded, or queued and sent once the schedule is active. See **How does a recipient's schedule affect notification?** below.

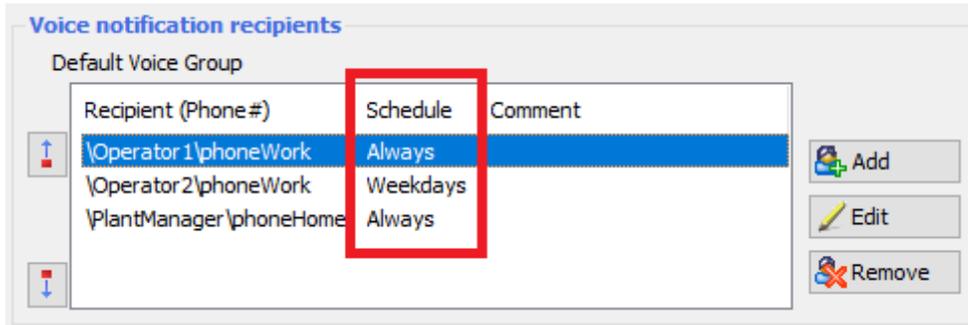
Note: user may add the same recipient multiple times with different schedules.

Alarm Report Schedule

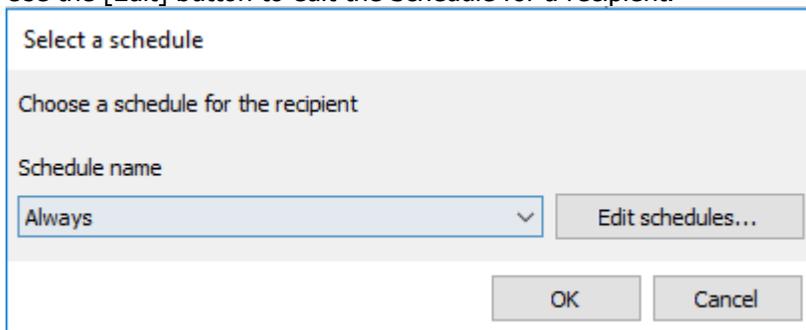
Each Scheduled Alarm Report contains an interval and offset at which time the alarm report is generated/mailed. The assigned schedule can be used to suppress creation and optional email of the alarm report if the schedule is not active. For more information, see "Scheduled Alarm Reports" on page 417.

Configuring a Recipient's Schedule

Schedules are assigned to notification recipients within each notification group.



Use the [Edit] button to edit the Schedule for a recipient.



The drop-down contains a list of existing Schedules. Click the [OK] button to assign the selected schedule to the recipient or, to create a new Schedule click the [Edit schedules...] button.

How does a recipient's schedule affect notification?

If notification is required (alarm, return to normal, etc.) and the recipient's schedule is not active, the default behavior of TopView is to suppress notification: the notification message is not sent. When this occurs, TopView will log the fact that the notification was not sent because the schedule was not active.

Schedule Delay option

For email notification, if a recipient's schedule is not active, TopView supports delaying the sending of an email message until the recipient's schedule is active. The email message is added to the outgoing email notification queue, but is not sent until the schedule is active again.

To configure and use Schedule Delay, the user must

- Configure a Contact with the desired email field (work, home, mobile, other)
- Check the "Sched delay" checkbox for the contact's email field
- Use the contact\email field as the recipient in the email recipient group (Default email-SMS group or Global email-SMS group)

For more information on setting the schedule delay, see **Global Contact List** on page 242.

Notes:

- The schedule delay setting will add items to the email notification queue. TopView will monitor this queue for the number of email messages that should be sent now (no delay), and the number of messages that will be sent later due to a schedule delay. The maximum queue count for each type of message can be set in **Global Options: Memory & Queues** on page 487. If the maximum number of schedule delay messages has been added to the queue, email messages without a delay will not be impacted since the maximum queue counts are managed separately; messages without a delay will continue to use the queue and will be sent to recipients.
- If TopView is restarted, the queue will be cleared and these delayed messages will not be delivered.

Schedule Delay example:

Bob receives email messages as text messages on his phone. He should not receive them between 11pm and 7am, but the messages that occur during this period of time should be stored and delivered at 7am.

- Create a Contact for Bob. Set "mobile email" to his email address for text messaging.
- Check the "Sched delay" checkbox for the mobile email address on the contact page for Bob.
- Create a Schedule for Bob's active period: 7am until 11pm: Call it "BobOnCall"
- Add Bob to any email notification groups for which he should receive notification. Do this by adding Bob's contact field (\Bob\emailMobile) to the notification group. Set his schedule (as part of the notification group) to BobOnCall.

Because the "Sched delay" setting is selected for \Bob\emailMobile, any notification sent while "BobOnCall" is not active will be sent once "BobOnCall" is active (7am).

Creating Schedules

Each Schedule, identified by a user-entered name, contains settings for each day of the week and the start and end time for an enabled day. Optionally, a set of date ranges can be entered where the schedule is, or is not, active.

Schedule name: Weekdays New Schedule... Delete Schedule

Schedule day/time information
Define the days and time of day when the schedule is active. Can be overridden by excluded date ranges.

Always (24 hours a day, 7 days a week)

Time ranges define 'schedule active time' or 'schedule inactive time' (invert). 'From' time should be earlier than 'To' time.
Enter times as hh:mm:ss from 00:00:00 to 23:59:59

Day	From	to	Invert
<input type="checkbox"/> Sunday	00:00:00	23:59:59	<input type="checkbox"/>
<input checked="" type="checkbox"/> Monday	00:00:00	23:59:59	<input type="checkbox"/>
<input checked="" type="checkbox"/> Tuesday	00:00:00	23:59:59	<input type="checkbox"/>
<input checked="" type="checkbox"/> Wednesday	00:00:00	23:59:59	<input type="checkbox"/>
<input checked="" type="checkbox"/> Thursday	00:00:00	23:59:59	<input type="checkbox"/>
<input checked="" type="checkbox"/> Friday	00:00:00	23:59:59	<input type="checkbox"/>
<input type="checkbox"/> Saturday	00:00:00	23:59:59	<input type="checkbox"/>

Date ranges (e.g. vacation)

Exclude date ranges (schedule will never be active during these dates)
 Include date ranges (schedule can only be active during these dates)

From: 26-Feb-2019 12:00 AM To: 01-Mar-2019 12:00 AM + Add

Date ranges

From	To

Use Remove Purge

Configuration usage
Tracks the usage of this schedule across TopView configurations.

— unit1

To create a new Schedule

- Click the [New Schedule] button and enter the name for the schedule.
- If the schedule does not include all time, uncheck the "Always" checkbox.
- Click the checkbox for each day to be included in the schedule.
- For each enabled day, enter the start time and end time during the day when the schedule is active or inactive (invert).

Note: you must enter 24 hr time for the start and end time (e.g., 1pm = 13:00)

- If the start and end time define the period of time when the schedule is not active during the day, check the **Invert** checkbox

Example: Day Shift

Example day shift covers Monday through Friday. 6am until 3pm

Time ranges define 'schedule active time' or 'schedule inactive time' (invert). 'From' time should be earlier than 'To' time

Enter times as hh:mm:ss from 00:00:00 to 23:59:59

<input type="checkbox"/> Sunday	00:00:00	to	23:59:59	<input type="checkbox"/> Invert
<input checked="" type="checkbox"/> Monday	06:00:00	to	15:00:00	<input type="checkbox"/> Invert
<input checked="" type="checkbox"/> Tuesday	06:00:00	to	15:00:00	<input type="checkbox"/> Invert
<input checked="" type="checkbox"/> Wednesday	06:00:00	to	15:00:00	<input type="checkbox"/> Invert
<input checked="" type="checkbox"/> Thursday	06:00:00	to	15:00:00	<input type="checkbox"/> Invert
<input checked="" type="checkbox"/> Friday	06:00:00	to	15:00:00	<input type="checkbox"/> Invert
<input type="checkbox"/> Saturday	00:00:00	to	23:59:59	<input type="checkbox"/> Invert

Example: Night Shift

Example night shift covers Sunday through Thursday night, 10pm until 6am.
Use the "blackout" setting to specify that the time period defines the period of time when the shift is not active.

Time ranges define 'schedule active time' or 'schedule inactive time' (invert). 'From' time should be earlier than "To" time

Enter times as hh:mm:ss from 00:00:00 to 23:59:59

<input checked="" type="checkbox"/> Sunday	<input type="text" value="00:00:00"/>	to	<input type="text" value="22:00:00"/>	<input checked="" type="checkbox"/> Invert
<input checked="" type="checkbox"/> Monday	<input type="text" value="06:00:00"/>	to	<input type="text" value="22:00:00"/>	<input checked="" type="checkbox"/> Invert
<input checked="" type="checkbox"/> Tuesday	<input type="text" value="06:00:00"/>	to	<input type="text" value="22:00:00"/>	<input checked="" type="checkbox"/> Invert
<input checked="" type="checkbox"/> Wednesday	<input type="text" value="06:00:00"/>	to	<input type="text" value="22:00:00"/>	<input checked="" type="checkbox"/> Invert
<input checked="" type="checkbox"/> Thursday	<input type="text" value="06:00:00"/>	to	<input type="text" value="22:00:00"/>	<input checked="" type="checkbox"/> Invert
<input checked="" type="checkbox"/> Friday	<input type="text" value="06:00:00"/>	to	<input type="text" value="23:59:59"/>	<input checked="" type="checkbox"/> Invert
<input type="checkbox"/> Saturday	<input type="text" value="00:00:00"/>	to	<input type="text" value="23:59:59"/>	<input type="checkbox"/> Invert

Date ranges

Date ranges allow the user to enter one or more ranges of dates when the schedule should be active, or should not be active.

For example, a schedule created for a notification recipient may exclude dates when the person is on vacation.

Date ranges (e.g. vacation)

Exclude date ranges (schedule will never be active during these dates)
 Include date ranges (schedule can only be active during these dates)

From: To:

Date ranges

From	To
01-Jan-2017 12:00 AM	15-Jan-2017 12:00 AM
01-Apr-2017 12:00 AM	15-Apr-2017 12:00 AM

Exclude or Include date ranges

The schedule can exclude or include the entered date ranges.

Exclude: This is the typical use of date ranges. The schedule will not be active during the entered date ranges. For example, the date ranges may define vacations or holidays where the schedule should not be active.

Include: The schedule can only be active during the entered date ranges. For example, you may want to create a schedule that is only valid from March 15th through April 15th and from May 1st through June 1st.

Add a new date range

Enter a future From and To time, then press [Add]

Existing date ranges

The list of date ranges is displayed in the "date ranges" list. If a date range has passed, the font color is red.

Press [Use] to copy the selected date range to the From and To date fields above the list.

Press [Remove] to delete the selected date range.

Press [Purge] to remove all date ranges that have passed – date range end time is before current time. Purge will remove the date ranges in red.

Configuration Usage

When the dialog is opened a background task will look through the TopView configuration files for use of this Schedule. Any configurations using the current Schedule will be listed.

Schedule Groups

For scheduling requirements that cannot be met with a single Schedule, a Schedule Group can be created from multiple Schedules.

A Schedule Group is a user-created grouping of multiple Schedules and can be assigned wherever a Schedule can be assigned. A Schedule Group is "active" if any of the included Schedules are active.

Example:

A schedule is defined as every day from 8am until 11am and from 3pm until 8pm.

Issue: Within a single TopView Schedule, the user can define one of the desired time ranges, but not both.

Solution:

- Create two Schedules to define the two time periods.
 - First schedule "8am to 11am": every day from 8am until 11am
 - Second schedule "3pm to 8pm": every day from 3pm until 8pm
- Create a Schedule Group "Morning and Afternoon" that includes the two schedules

Schedule group: Morning and Afternoon [v] [Add schedule group] [Rename group] [Delete group]

Schedules contained in the Schedule group:

Included	Schedule name
<input checked="" type="checkbox"/>	8am to 11am
<input type="checkbox"/>	At all times
<input type="checkbox"/>	Joes vacationing
<input type="checkbox"/>	Monday
<input type="checkbox"/>	OnePeriod
<input type="checkbox"/>	Tuesday
<input type="checkbox"/>	Wed
<input type="checkbox"/>	Weekdays
<input type="checkbox"/>	Always
<input checked="" type="checkbox"/>	3pm to 8pm

A Schedule Group can be assigned where a Schedule can be assigned.

Voice notification recipients

Default Voice Group

Recipient (Phone #)	Schedule	Comment
\Operator 1\phoneWork	Always	
\Operator 2\phoneWork	Morning and Afternoon	
\PlantManager\phoneHome	Always	

Configuration Usage

When the dialog is opened a background task will look through the TopView configuration files for use of this Schedule Group. Any configurations using the current Schedule Group will be listed.

Notification Message Templates

The default notification message for an alarm (email, SMS, voice callout...) is the alarm message. The alarm message can be the TopView generated alarm message and/or the user-entered custom alarm message (See **Alarm message and Custom message** on page 138).

If the user would like to send a different notification message, or a more detailed notification message that may include the alarm message and additional information, or an HTML formatted message for rich email clients, he/she can create Notification Message Templates. Once Notification Message Templates are created, the user can assign a Notification Message Template to an alarm's notification in place of the alarm message including Escalation, Return-to-normal notification, and Acknowledge notification.

Example

Tag: tt001

Alarm limit: > 100

Custom alarm message: The temperature, %value% is too high

Only use custom alarm message

Notify: Engineers (global email-SMS notification group)

Notification message: <Use Alarm Message>

This alarm occurs and generates the alarm message:

The temperature, 101.4 is too high

Since the Notification message is set to <Use Alarm Message>, the email recipients in the Engineers group will receive the following email message:

The temperature, 101.4 is too high

If instead, the user creates a Notification Message Template named "EngineerMsg" and sets the Notification message of the alarm to "EngineerMsg" instead of <Use Alarm Message>, the email recipients in the Engineers group may receive the following message:

TopView configuration: TemperatureMonitor

Tag: tt001

Units: Deg F

Alarm message: The temperature, 101.4 is too high

Please contact Dale Smith at X456 with any questions

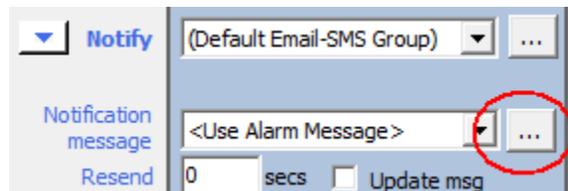
Notification Message Template Notes

- Global!: The Notification Message Templates are global to all TopView configurations. Therefore, a single Template may be used in multiple TopView configurations.
- Where are they used? If a Notification Message Template is used for the initial alarm notification, it will be also be used for resent notifications (see **Resend** on page 141) and escalation notifications (see **Advanced Notification...Escalation** on page 168). The user can also assign a Notification Message Template to the return to normal notification (see **Advanced Notification...Return to Normal Notification** on page 170) and Acknowledge notification (see **Advanced Notification...Acknowledge Notification** on page 172).
- Template Changes: if changes are made to a notification template, those changes will be used during the next notification that uses the template. There is no need to stop and restart any running TopView Engine instances/configurations.
- Placeholders: Notification Message Templates may contain placeholders. These placeholders are resolved at the time that the notification message is sent.
- Excluding recipients: the user can prevent using a Notification Message Template for certain recipients. Exclusions are defined within the template (see below).
- Modem Notification limitation: If using Modem Notification with a Notification Message Template, recipients cannot be excluded. During Modem Notification (TAP), TopView makes a single call with one message and multiple recipients (pager IDs).

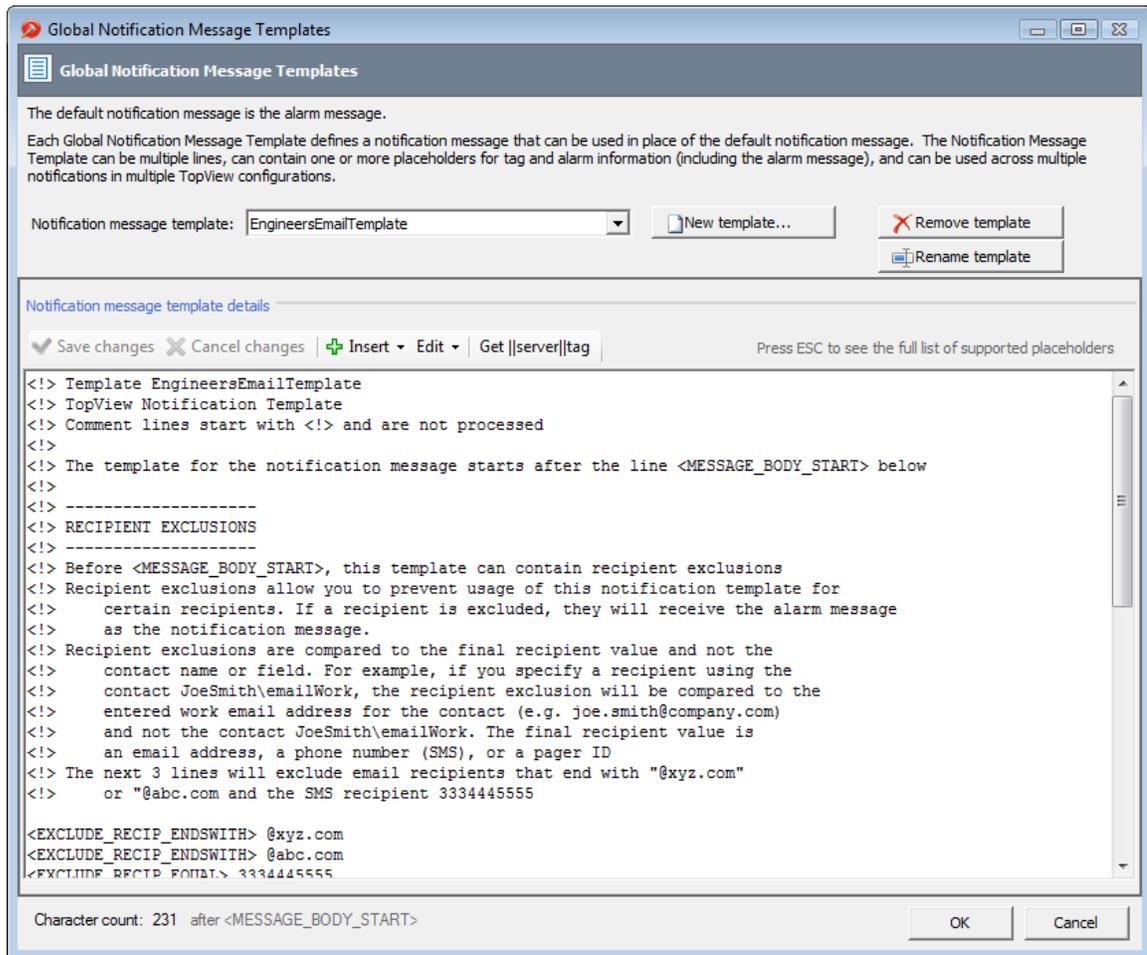
Create/Edit Notification Message Templates

To create or edit the Global Notification Message Templates:

1. From the left menu of the TopView Configurator, under the Global settings, click "Notif Msg templates..."
2. On the alarms and limits screen, each alarm limit has a Notification message setting. The dropdown for this setting contains <Use Alarm Message> plus a list of exiting Notification Message Templates. Click the [...] button to the right of the dropdown to create or edit the Notification Message Templates.



Notification Message Template Screen

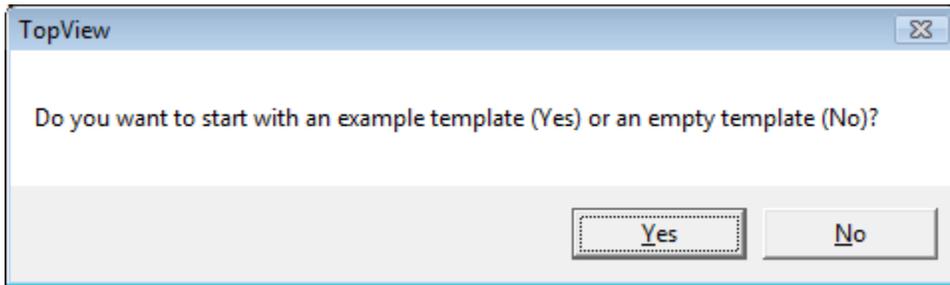


To edit an existing template, select it from the dropdown:



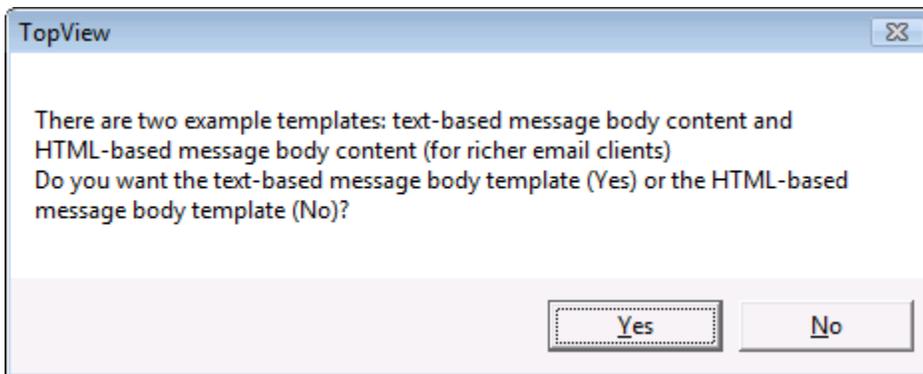
Creating a new template

Click the [New template...] button and enter a name for the template.



We suggest that you click [Yes] to start with the example template.

If the user selected [Yes] (start with an example template), they are then prompted to start with a text-based or HTML-based template:



A simple text-based message body template

```
<!-- Template EngineersEmailTemplate
<!-- TopView Notification Template
<!-- Comment lines start with <!-- and are not processed

<!-- The next 3 lines will exclude email recipients that
<!--     end with "@xyz.com" or "@abc.com
<!--     and the SMS recipient 3334445555

<EXCLUDE_RECIP_ENDSWITH> @xyz.com
<EXCLUDE_RECIP_ENDSWITH> @abc.com
<EXCLUDE_RECIP_EQUAL> 3334445555

<!-- -----
<!-- NOTIFICATION MESSAGE
<!-- -----
<MESSAGE_BODY_START>

This TopView message created at: %currenttime%
The alarm message is %alarmmsg%
TopView configuration: %cfg%

Information about this point:
  Name: %tag%
  Value: %value%
  Eng units: %eu%
  Description: %desc%
  Alarm limits: %limits%
```

Template syntax

Notification message body (<MESSAGE_BODY_START>)

The text for the notification message body includes all lines that occur after <MESSAGE_BODY_START>

Prior to the message body start, the user may enter comments and recipient exclusions.

HTML-based message body (<FORMAT_HTML>)

Some email clients can read messages that are formatted as HTML. The message body of the notification message template can be text-based (default) or HTML-based. If HTML-based, a line containing <FORMAT_HTML> must appear after <MESSAGE_BODY_START> and the message body should contain HTML.

When the user creates a new template, they will be prompted to start with an example template. If the example template is chosen, they can then choose between an example text-based template and an HTML-based template.

The notification message template editor does not present a WYSIWYG HTML Editor, so an HTML-based message body should be created separately (e.g., Microsoft Word...Save as HTML) and the resulting HTML code pasted into the notification message editor. If <FORMAT_HTML> appears after <MESSAGE_BODY_START>, an HTML preview screen will display the current message body contents as HTML.

Comments (<!>)

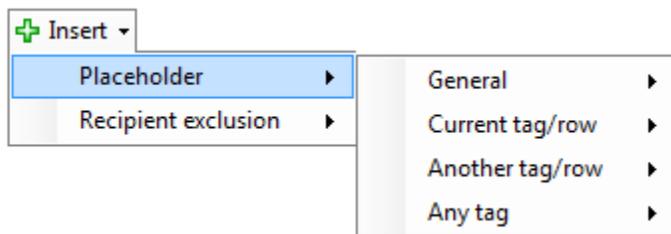
A comment line must begin with <!>

Comment lines may appear anywhere within the template. If they appear within the message body, they will not appear in the notification message.

Placeholders

The message body can include placeholders (e.g., %value%). Placeholder values are replaced at the time that a notification message is sent.

To insert a placeholder, select the location for the placeholder within the message body and click Insert...Placeholder... from the top menu.



For a list of supported placeholders, press the [Esc] key on the keyboard or see **Placeholders for messages, text** on page 149.

Recipient exclusions

When a Notification Message Template is assigned to a TopView alarm notification, the assigned notification recipients will receive the template message instead of the alarm message.

Based on user preference or receiving device (e.g., text message recipient), recipients can be excluded from receiving a Notification Message Template. If a recipient is excluded, they will receive the alarm message as the notification message.

When comparing each notification recipients for exclusion, TopView compares the final recipient value (email address, phone number ...) to the exclusion and not the contact name or contact field value.

Recipient exclusions are contained within the Notification Message Template before the message body start. Multiple exclusions may be entered, one per line.

Note: If using Modem Notification and a Notification Message Template, recipients cannot be excluded. During Modem Notification (TAP), TopView makes a single call with one message and multiple recipients (pager IDs).

The following recipient exclusions are supported.

- **<EXCLUDE_RECIP_EQUAL> value**
Exclude recipient equal to value
Examples:
 - <EXCLUDE_RECIP_EQUAL> john.smith@mycompany.com
 - <EXCLUDE_RECIP_EQUAL> john.smith@vtext.com
 - <EXCLUDE_RECIP_EQUAL> 1112345543
- **<EXCLUDE_RECIP_STARTSWITH> value**
Exclude recipients that start with value
Example:
 - <EXCLUDE_RECIP_STARTSWITH> john.smith
- **<EXCLUDE_RECIP_ENDSWITH> value**
Exclude recipients that end with value
Example:
 - <EXCLUDE_RECIP_ENDSWITH> vtext.com
- **<EXCLUDE_RECIP_NO@>**
Exclude recipients that do not contain @ (exclude non-email recipients)

Including a template within a template

The user may find that multiple Notification Message Templates include the same information. For example, the user may configure each template to have the same information about the tag that caused the alarm (tag name, eng units ...)

If there are common sections within multiple Notification Message Templates the user can create separate templates for each common section, and include the common section templates within other templates. This allows a single location for editing template information that is common to multiple templates.

%inc:templatexyz% placeholder

Within the message body, %inc:templatexyz% includes the contents of the Notification Message Template named "templatexyz" at the position of %inc:templatexyz%.

Notes about %inc:templatexyz%

- templatexyz must be the name of another Notification Message Template
- **Placeholders must be entered lowercase. Therefore, the full placeholder %inc:templatexyz% must be entered lowercase. The include template placeholder %inc:templatexyz% will match templatexyz regardless of the case of the actual template name (e.g., templateXYZ will match %inc:templatexyz%)**
- Any recipient exclusions within templatexyz are ignored and have no effect of the recipient exclusions of the parent template.
- The entire message body contents of templatexyz are included in the parent template (all lines in templatexyz after <MESSAGE_BODY_START>)
- TopView supports one level of template inclusion. For example, templateA can include templateB, but any included templates within templateB are ignored if templateB is included in templateA.

Example of template include

templateA Notification Message Template:

```
<MESSAGE_BODY_START>
There is a high temperature alarm on unit 1
The alarm message is: %alarmmsg%

The tag is %tag% and the alarm limits are %limits%
For details on this alarm or for assistance, call Mike at X551
```

Assume that the last 2 lines in this template are repeated in all Notification Message Templates. Instead of repeating these 2 lines in each template, the user can create a new template named FOOTER

FOOTER Notification Message Template:

```
<MESSAGE_BODY_START>
The tag is %tag% and the alarm limits are %limits%
For details on this alarm or for assistance, call Mike at X551
```

The new FOOTER template can now be included in the other templates:

templateA modified Notification Message Template:

```
<MESSAGE_BODY_START>  
There is a high temperature alarm on unit 1  
The alarm message is: %alarmmsg%  
<!-- Note: the include template name must be entered lowercase  
%inc:footer%
```

Escalation Templates

Global Escalation Templates allow the user to create additional notification behavior that can be assigned to existing alarms. These templates are "global" and visible to all TopView configurations.

The "Notify" setting for each TopView alarm condition sends notification at the time that the alarm occurs. See **Notify** on page 140 for more information.

For additional notification of the tag's alarm conditions, the user can assign an escalation template. The assignment of an escalation template to an existing alarm is performed on the Escalation tab of each tag's Alarm Limits and Notification Settings screen – see **Advanced Notification...Escalation** on page 168).

Each template can contain up to 50 steps.

Each step evaluates a condition of the current alarm at a specified time after the alarm start time. Once the specified time has occurred, the step executes and will notify the step recipients if the condition is TRUE. The entire set of steps can then be repeated one or more times.

Optionally a step can execute "when the condition becomes TRUE". These steps are not included in an Escalation Template with a non-0 repeat.

Global Escalation Templates for Advanced Notification

The "Notify" setting for each TopView alarm condition sends notification at the time that the alarm occurs.

Global Escalation Templates allow the user to create additional notification behavior that can be assigned to existing alarms (on the Escalation and Advanced Notification tab of the tag's Alarm Limits and Notification Settings screen). These templates are "global" and visible to all TopView configurations. If TopView is running when the user makes templates changes, the changes will be applied during the next template usage.

Each template consists of 1 to 50 steps. Each step condition is evaluated at a time after the alarm occurs (delay). If the step condition is TRUE, notification is sent to the recipients. The order of the steps is not important, and the same delay can be entered multiple times with different conditions and recipients. The delay value can be 0 to allow step condition evaluation at the time of the alarm. If the delay is set to -1 the step will execute when the condition becomes TRUE and will not be included if the template is repeated.

Global escalation template:
Operations escalation
New template...
Remove template

Template details

Include step information in notification message After last step, repeat all steps times

Template steps

Add step
Move UP
Move DOWN
Remove step
Copy step details
Paste to selected step

Step	Condition	Delay from alarm start	Notify	Notification msg	Recipients
1	Unacknowledged	120	(Custom Email-SMS List)	<Same as Alarm>	John Simpson\emailWork
2	Unacknowledged AND InAlarm	300	(Custom Email-SMS List)	<Same as Alarm>	Lead Engineer\emailWork

Step details

Step	Condition	Delay from alarm start OR -1	Notify	Notification message
		<input type="text" value="0"/> seconds	(none)	<Same as Alarm>

Recipients:

Export templates
Import templates
OK
Cancel
Apply

Template details

The details of an escalation template include the list of steps, as well as options for including step information in each notification message.

Include step information in notification message

If selected for a template, the outgoing notification message for each step will include a description of the step responsible for sending the notification.

Example:

Original alarm message:

Temperature is high

Escalation notification message:

(Escalation: Unacknowledged 120 seconds after alarm) Temperature is high

After last step, repeat all steps X times

Enter the number of times to repeat the escalation steps. If non-0, the entire set of steps is repeated starting at "time of last step" + "delay of first step".

As an example, assume you have the following escalation template:

(delay = delay from alarm start time)

Step	Delay	Condition	Notify
1	60	Unacknowledged	Email Group1
2	300	Unacknowledged	Email Group2
3	600	Unacknowledged	Email Group3

If this escalation template has a configured repeat count=2, the escalation steps executed by the TopView Engine will be

Step	Delay	Condition	Notify	Loop
1	60	Unacknowledged	Email Group1	Initial
2	300	Unacknowledged	Email Group2	Initial
3	600	Unacknowledged	Email Group3	Initial
4 (step 1 repeat)	660	Unacknowledged	Email Group1	Repeat 1
5 (step 2 repeat)	900	Unacknowledged	Email Group2	Repeat 1
6 (step 3 repeat)	1200	Unacknowledged	Email Group3	Repeat 1
7 (step 1 repeat)	1260	Unacknowledged	Email Group1	Repeat 2
8 (step 2 repeat)	1500	Unacknowledged	Email Group2	Repeat 2
9 (step 3 repeat)	1800	Unacknowledged	Email Group3	Repeat 2

Template steps

Each step defines a condition to be evaluated at a specified time after the alarm start time, as well as who should be notified if the condition is true.

Condition

The condition for each step is evaluated at the step delay after the alarm start time. The most recent alarm for the tag/row does not need to be active in order for the condition to be evaluated.

The name of each condition describes the state of the most recent alarm that must be true in order for the step to perform notification.

Condition	Description
Unacknowledged	most recent alarm is unacknowledged
InAlarm	most recent alarm is still active
Unacknowledged OR InAlarm	most recent alarm is unacknowledged or still active
Unacknowledged AND InAlarm	most recent alarm is unacknowledged and still active
Unacknowledged OR NotInAlarm	most recent alarm is unacknowledged or not active
Unacknowledged AND NotInAlarm	most recent alarm is unacknowledged and not active
Acknowledged	most recent alarm is acknowledged
Not InAlarm	most recent alarm is not active
Acknowledged OR InAlarm	most recent alarm is acknowledged or still active
Acknowledged AND InAlarm	most recent alarm is acknowledged and still active
Acknowledged OR Not InAlarm	most recent alarm is acknowledged or not active
Acknowledged AND Not InAlarm	most recent alarm is acknowledged and not active

Delay

The time at which the step condition should be evaluated. Enter the number of seconds from the alarm start time.

If the delay is set to -1 the step will execute when the condition becomes true. The step will not be included in repeated steps (template repeat count is non-0).

Notify

Creating and assigning recipients for a step is the same procedure used to assign the initial notification for an alarm. See **Selecting the Notify recipients** on page 499 for more information.

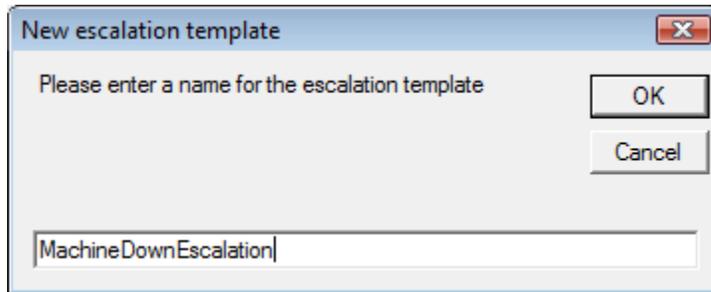
Notification message

The notification message sent at each escalation step can be

1. <Same as Alarm>
Use the notification message assigned to the alarm condition.
For more information, see **Notification message** on page 140
2. Notification message template
Choose an existing notification message template. Click [...] to view or edit notification message templates.
For more information, see **Notification Message Templates** on page 353.

Creating an Escalation Template

- To create a new template, click [New template...]
- Enter a name for the template and click [OK]



New escalation template

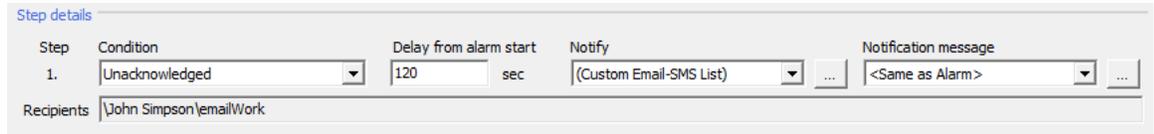
Please enter a name for the escalation template

OK

Cancel

MachineDownEscalation

- Click [Add step] to add the first step to the template
- Configure the condition, delay, notification recipient(s), and notification message for the step.



Step details

Step	Condition	Delay from alarm start	Notify	Notification message
1.	Unacknowledged	120 sec	(Custom Email-SMS List)	<Same as Alarm>

Recipients: \\John Simpson@emailWork

- Add additional steps using the same procedure as above
- Click [Apply] to save the current template
- Assign the template to one or more monitored tags. See **Advanced Notification...Escalation** on page 168

Notes about Escalation Templates

- **Templates assigned to the alarm condition of a tag/row**

Even though the user can define multiple alarm conditions for a single tag/row in TopView, the escalation template is assigned to the tag/row. Therefore, the escalation steps are processed when the tag/row enters alarm, regardless of which alarm condition is TRUE. In cases where different escalation templates should be used for different alarm conditions of the same tag, the user should enter the tag multiple times in the TopView tag list, assigning different alarm conditions and escalation templates to each one.
- **Step processing for a new alarm**

Once the user defines an escalation template for an alarm in TopView, the steps are "assigned" to the alarm when the alarm occurs (transitions into alarm) to be processed at each step delay. If the alarm returns to normal and transitions into alarm again, any unprocessed steps are discarded and the entire list of steps is reassigned, allowing step evaluation to restart based on the new alarm start time.
- **Step condition evaluation: notify or discard**

Each step contains a condition, delay, and notification recipient(s). The condition is evaluated once the delay from alarm start time has occurred, regardless whether the alarm is still active. For this reason, the list of possible conditions contains various options for acknowledged and alarm state to ensure the desired condition is met. If the step condition is TRUE at the delay time from the alarm start time, notification is sent to the step recipients. If the step condition is not TRUE at the delay time from the alarm start time, the step is discarded and will not be processed again for the current alarm unless the escalation template is repeated.
- **Notifying a Default Notification Group**

Escalation template steps allow the user to assign a default notification group as the recipient: (Default Email-SMS Group), (Default Modem Group), (Default Voice Group). These recipient groups are defined as part of a TopView configuration; therefore, the list of recipients may change based on the configuration in which the template is used.
- **Notification details**
 - If email notification is selected for a step, the current settings (on the alarm limits screen) for attachments and custom email subject will be used. If multiple alarm conditions are TRUE and the conditions are OR'd, the attachments and custom email subject for the first TRUE condition will be used.
- **"Notify" setting for alarm condition is not required for template usage**

The Notify setting on the Alarm limit screen sends notification at the time of the alarm. In some cases, you do not want notification sent at the time of the alarm, but you do want to send delayed notification using an escalation template. The "Notify" setting on the Alarm limits screen is not required in order to use an escalation template.

Mobile Web App

Each instance of the TopView Engine contains an embedded web server which, if enabled, hosts the TopView Mobile Web App.

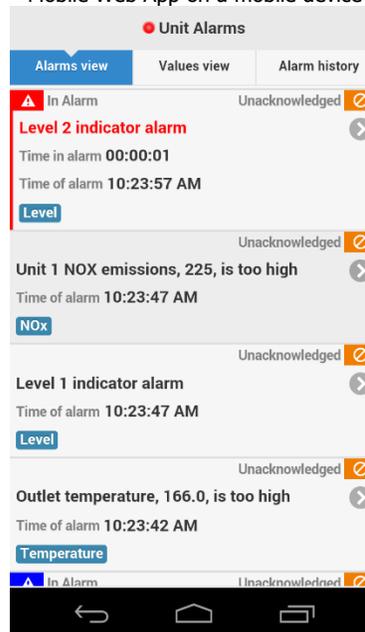
The TopView Mobile Web App allows mobile users to

- View TopView Alarms
- View the current value of monitored points
- View details of an alarm or value
- Acknowledge alarms
- Query and view alarm history

When the TopView Mobile Web App web server is enabled and the TopView Engine is running, browsers with network access to the TopView machine can point to the URL of the Mobile Web App to use the application. There is nothing to install on the mobile device and most current mobile device platforms are supported (iPhone, iPod, Android, Windows Phone, and BlackBerry).

Note: the Mobile Web App is also accessible from desktop browsers with network access to the TopView machine. Modern browsers are supported.

Screen shot of the TopView
Mobile Web App on a mobile device



Configuring the Mobile Web App web server

Enable Mobile Web App for this TopView configuration

Embedded Web Server settings

Display URL using: localhost
 Computer name
 IP Address [fe80::19ad:820a:925e:b768%19] v

HTTP

Enable HTTP port: 7170 URL: <http://localhost:7170>

HTTPS

Enable HTTPS port: 443 URL: <https://localhost:443>

Requires port/certificate binding and URL reservation. See the documentation for more information.

These ports must not be in use by any other applications on the TopView machine

Mobile Web App settings

Custom title:

Show hidden rows

Allow real-time updates * Will result in higher data usage on mobile networks

Update tag values every seconds
Alarms and other events will appear as they occur

Play Audible TTS alarms (TTS Audible Alarms must also be enabled)

%ackurl%

The placeholder %ackurl% can be used to embed an alarm's acknowledge page within a notification message. If you plan to use this placeholder, enter the desired format for the URL domain. If you need to override the port, enter domain:port

Domain for %ackurl%

%ackurl% = <http://TopViewMachine:7170/details/X>

Enable Security (user logon)

Allow alarm acknowledge (if Web Security not enabled)

Configuration of the TopView Mobile Web App is accomplished by configuring the web server that will host the application. The web server is embedded into each instance of the TopView Engine and will be available if the web server is enabled and the TopView Engine for this configuration is running.

Enable Mobile Web App

Check "Enable Mobile Web App..." to enable the TopView Mobile Web App for this configuration

Enable HTTP, listen port

The HTTP listen port defines the HTTP port for the embedded web server. Most commonly used web sites on the internet use port 80 for HTTP. When a URL is entered into a web browser's address field by name only, port 80 is assumed. Otherwise, the address should end as url:port

Displayed web server URL

If the TopView Engine runs interactively, a link to the web server will be located at the bottom of the TopView Engine window.

Web server: [Open on 7170](#)

Also, TopView Admin Tools contains a link to the web server on the Mobile Web App screen. Clicking either link will open the TopView Mobile Web App in the default desktop browser.

The domain format of this URL link can use localhost, the local computer name, or an IP address of the TopView computer. Select the desired format from the "Display URL using" options.

Enable HTTPS, listen port

In addition to the HTTP port specified above, the Mobile Web App supports an HTTPS listen port. HTTPS is optional.

Use of HTTPS requires port/certificate binding and URL reservation. For details on configuring HTTPS see "Configuring HTTPS in the Mobile Web App (MWA)" on page 587.

Permissions for hosting the web server

The TopView Engine will host the web server used by the Mobile Web App.

The TopView Engine runs under a Windows user account, and this account must have permission to host the web server. If you launch the TopView Engine interactively, the Engine runs under the account of the logged in Windows User. If you launch the TopView Engine as a service, the service runs under the account configured for that service.

If the Engine does not have permission to host the web server, the TopView application log (viewable with TopView Admin Tools) will contain the error "Access is denied. The TopView web server does not have permission to open up a port."

To resolve this error, you must elevate the permission of the TopView Engine user account or register the port for hosting by the user. There are a few ways to do this:

Temporary solution for interactive TopView Engine

Close the Configurator. Launch the Configurator from the shortcut by right-clicking the shortcut and choosing "Run as Administrator". Open the TopView configuration file and click [Launch] to run the TopView Engine with elevated permission

Better solution: Register the port and user

This solution is valid

To register a port for serving on Vista and later operating systems:

1. Launch a command prompt as Administrator or elevated privilege
2. Enter the following command
netsh http add urlacl url=http://+:{port number}/ user={user account name}
replacing {port number} with the web server port, and {user account name} with the user.

Example:

```
netsh http add urlacl url=http://+:7170/ user=DOMAIN\username
```

For a local user account, enter user=username.

For earlier operating systems and for more details about this issue, see the following Microsoft article: <http://msdn.microsoft.com/en-us/library/ms733768.aspx>

Custom title

The top of each page in the Mobile Web App will display a title. If the custom title is blank, the configuration name will be used as the title.

Show hidden rows

If checked, the Mobile Web App will display hidden rows. Otherwise, hidden rows are not displayed.

Allow real-time updates

If unchecked, the Mobile Web App will update values and alarms when the user navigates to a new screen or presses the [Refresh] button.

If enabled, "real-time updates" will push new values and alarms to the user. New tag values will be pushed at the entered rate. Alarms and other events will be pushed as they occur. Updated Mobile Web App screens include Values View, Alarms View, and Item details.

* Real-time updates will result in higher data usage on mobile networks.

Play Audible TTS Alarms

If real-time updates are enabled, this option will send audible text-to-speech alarms to the Mobile Web App. Audible Alarms, text-to-speech must be enabled for the current configuration.

Note: this feature may not work on all browsers. See the release notes for latest browser support information.

Domain for %ackurl%

The placeholder %ackurl% can be used to embed an alarm's detail/acknowledge page in a notification message.

If this link is to work for the person who clicks the link, the person's device (computer, phone ...) needs to successfully resolve the domain name of the TopView computer. For example, a mobile phone may not properly resolve the domain name set to the TopView computer name.

The "Domain name for %ackurl%" should be a name or IP address that can be successfully resolved by people using the %ackurl% link.

If you are using port forwarding to direct people to the TopView web server port, the forward port may be different than the entered web listen port. If so, you can enter the domain as name:port.

Security

- Enable Security (user logon) [Configure Security...](#)
- Allow alarm acknowledge (if Web Security not enabled)

The TopView Mobile Web App can run with or without security (logon required).

Without security (no web logon)

To disable logon to the TopView Mobile Web App, uncheck "Enable Web Security".

Without security, anyone with access to the web server URL will be able to use the TopView Mobile Web App by entering the URL into their web browser.

To prevent these users from acknowledging alarms, uncheck "Allow alarm acknowledge (if Web Security not enabled)"

With security (web logon)

To enable logon to the TopView Mobile Web App, check "Enable Web Security".

With security enabled, users will need to logon to the TopView Mobile Web App with a user name and password. In addition, each user is given permission to acknowledge alarms.

To configure the users and permissions, click [Configure Security...]

Security and Permission for TopView Mobile Web App

You can configure security for Web users by creating user names, passwords, and permissions.
Note: usernames and passwords are case sensitive.

Existing Web users

Name	Password	Permissions
bill	****	A
sue	***	
tom	*****	?A

[+ Add new user](#)
[- Remove user](#)

Selected User Settings

Name: **bill**

User settings

UID: 6abd55a6-9a10-4a5f-99bf-f3b763c50075

Password: **** Hide password

Permissions

A Can acknowledge alarms

? Disable this user

OK

This screen allows the user to create one or more web users for the TopView Mobile Web App.

Warning: users and passwords are case sensitive!

When a user is selected from the list, the password and permissions for the user can be set.

The screenshot shows a web interface for setting user details. At the top, it says "Selected User Settings" in blue. Below that, the user's name is "bill". There are three main sections: "User settings", "Permissions", and "User settings" (repeated). The "User settings" section contains a "UID" field with the value "6abd55a6-9a10-4a5f-99bf-f3b763c50075", a "Password" field with "****", and a "Hide password" checkbox which is checked. The "Permissions" section contains two items: "A" with a checked checkbox for "Can acknowledge alarms", and "?" with an unchecked checkbox for "Disable this user".

Permissions

- A: user can acknowledge alarms
- ?: User is disabled. Use this setting to temporarily disable a user

Accessing and Using the TopView Mobile Web App

Once the web server for the TopView Mobile Web App has been configured, you must start the TopView Engine for this configuration.

Test with Interactive TopView Engine

To start the TopView Engine interactively, click the [Save] button and then the [Launch] button in the upper left corner of the Configurator.

When the TopView Engine Window appears, the status of the web server will be displayed at the bottom of the Window.

Web server: [Open on 7170](#)

When the status shows "Open on *port*", the TopView Web Server is ready to accept connections. You can also monitor the status of the web server in TopView Admin tools.

The easiest way to test the TopView Mobile Web App is to click on the blue "Open on port" link at the bottom of the TopView Window.

Note: this will open your desktop browser. Older desktop browsers may not properly display the TopView Mobile Web App. If the application does not display properly, please update your browser to the most recent version available. We recommend using Google Chrome for desktop testing of the TopView Mobile Web App.

How to access the TopView Mobile Web App from your network

In order to use the TopView Mobile Web App from networked computers and mobile devices, they will need network access to the TopView computer as well as the port used for the web server.

Users can access the TopView Mobile Web App by entering the URL of the web server into the address field of a web browser: `http://topviewcomputer:port`

Examples:

- `http://A2SERVER:7070` TopView computer A2Server, port 7070
- `http://168.192.5.10:7075` TopView computer IP address 168.192.5.10, port 7075

If you are attempting to access the TopView Mobile Web App from a mobile device, the device must have access to the network of the TopView machine and must be able to resolve the `topviewcomputer` portion of the URL. If the computer name of the TopView computer is used, the device must be able to resolve this into an IP address. If not, use the IP address.

Firewall warning: if you cannot access the web server, please ensure that the port is not blocked by a firewall. One way to test access to the computer and port is to use Telnet.

For the URL `http://topviewcomputer:port`, from a command prompt type
`telnet topviewcomputer port`

If successful, you should see a blank screen. Otherwise, you will see "Connect failed"
If the telnet service is not available, you may need to enable it. See your Windows Administrator for assistance.

Using the TopView Mobile Web App

If security is enabled for the TopView Mobile Web App, the user will initially be presented with a logon screen. After logon, the application will appear.

Narrow or wide format

Depending on the browser width (pixels), the Mobile Web App will display in narrow or wide format. Most mobile phones will display narrow format, while most tablets and desktops will display wide format.

Narrow format

The screenshot displays the 'Unit Alarms' interface in narrow format. At the top, there is a header with a red dot and the text 'Unit Alarms'. Below this is a navigation bar with three tabs: 'Alarms view' (selected), 'Values view', and 'Alarm history'. The main content area shows a summary of alarm counts: 10 TOTAL, 4 IN ALARM, and 10 UNACKD. Below the summary is a 'Filter and sort' button with a plus icon and a 'Refresh' button with a circular arrow icon. The bottom section lists two active alarms. The first alarm is 'Unit 1 NOx emissions, 225, is too high', with a status of 'In Alarm' and 'Unacknowledged'. It includes details for 'Time in alarm 00:00:00' and 'Time of alarm 10:22:47 AM', and a blue pill labeled 'NOx'. The second alarm is 'Level 1 indicator alarm', also with a status of 'In Alarm' and 'Unacknowledged', including 'Time in alarm 00:00:00' and 'Time of alarm 10:22:47 AM', and a blue pill labeled 'Level'. Each alarm entry has a right-pointing arrow icon.

Data update

The TopView Mobile Web App displays current state information from an instance of the TopView Engine. While viewing a page of the Mobile Web App, the values and alarms will update if real-time updates are enabled. See **Allow real-time updates** on page 371 for more information.

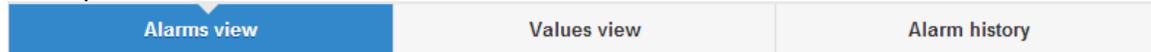
Real-time updates not enabled

The values and alarms are updated as you move between screens in the Mobile Web App. While you are viewing a screen, use the [Refresh data] button to update the current screen.

Switching between Alarms View, Values View, and Alarm History

The initial view of the Mobile Web App is Alarms View.

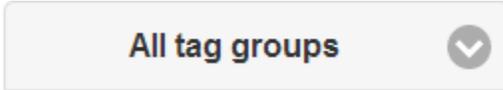
The top of the screen contains buttons to switch between the available views.



Note: the button for the current view is blue and contains a triangle glyph.

Tag Group filter

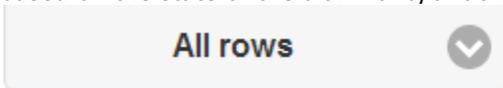
Both Alarms View and Values View allow the user to filter the list of items by Tag Group. Under Filter and sort, Select the Tag Group filter button to display and select a new Tag Groups filter.



Note: the selected Tag Group filter will display all items for the selected Tag Group and children of the selected Tag Group.

Rows filter

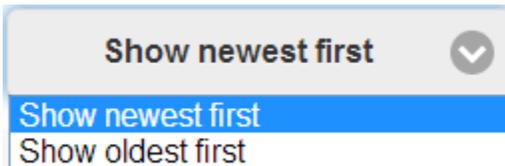
In Values View and Alarms View, the rows filter allows the user to filter the displayed item based on the state of the alarm and/or acknowledgement.



- Alarms only: show items that are currently in alarm (alarm is active)
- Unacknowledged: show items that are unacknowledged regardless of alarm state
- In alarm and unacknowledged: show items that are currently in alarm (alarm is active) and unacknowledged

Sorting

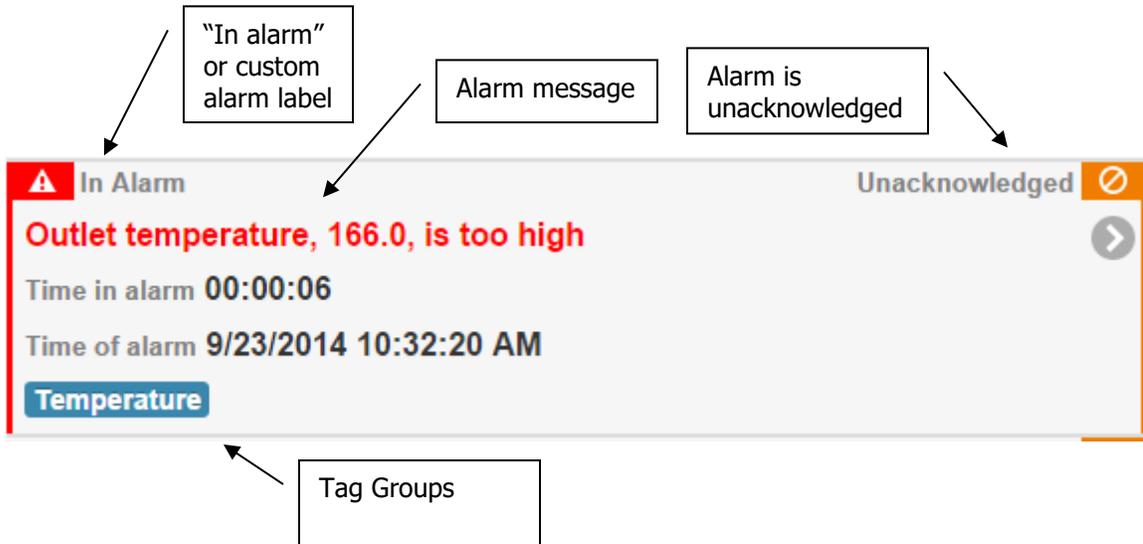
In Alarms View, the user can sort the displayed alarms by "Newest first" or "Oldest first"



Alarms View

Alarms View displays the items currently in alarm or unacknowledged (based on the Row filter) for the selected Tag Group.

The information for each alarm includes the alarm message, the current duration of the alarm "hh:mm:ss", time of the alarm, the alarm state (In Alarm or blank), and a list of primary/secondary Tag Groups.



Select an alarm item to view item details.

Values View

Displays the current value and alarm state for points in the selected Tag Group and Row Filter.

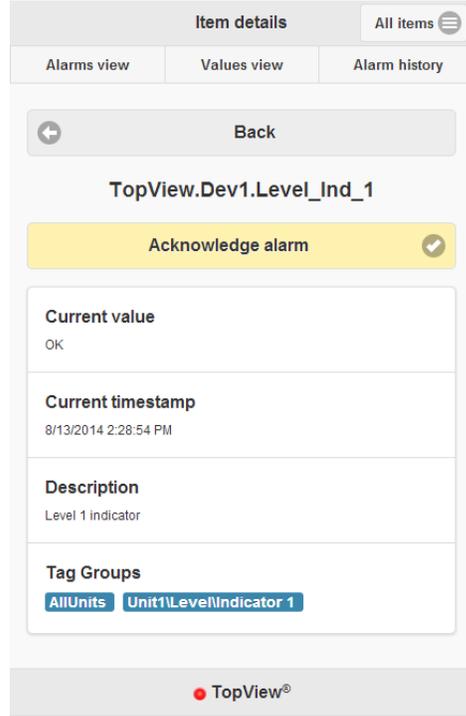
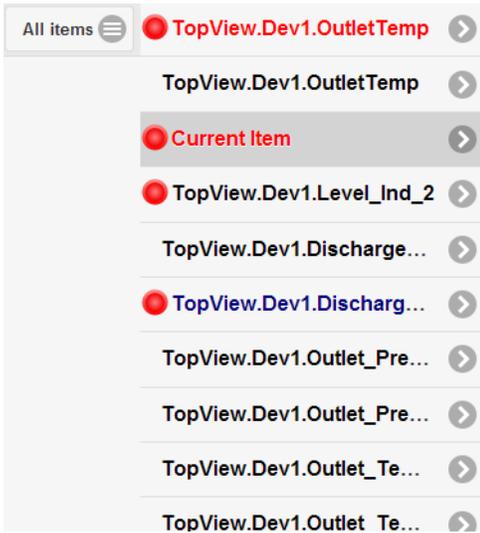
The information for each item includes the tag name, current value, current timestamp, alarm state (if active), a list of primary/secondary Tag Groups, and description.

Item details

Select a tag or alarm item to view the item details screen.

The item details screen combines alarm information (if the item is in alarm) and tag information. The user can also acknowledge an alarm from the details screen.

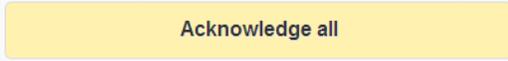
To see the details of another item, select the [All rows] button and select the item.



Acknowledging Alarms

The user can perform a bulk acknowledge (all visible alarms) or individual acknowledge

Bulk acknowledge: scroll to the bottom of Values View or Alarms View and press the "Acknowledge all" button to acknowledge all unacknowledged alarms on the current screen.



Individual acknowledge

Selecting an item from Alarms View or Values View will display the item details. If acknowledge is enabled, the user can acknowledge the alarm from the Item Details screen with the [Acknowledge alarm] button.

Alarm history

The Alarm history page allows the user to

- query TopView alarm history for a period of time
- filter the alarm history by monitored point and alarm duration
- view a summary of the alarms
- view a list of the alarm events for the period (Table)
- show a chart of alarm count per monitored point (find bad actors)
- view a chart of the total number of active alarms during the period (identify alarm flooding)

The screenshot displays the Alarm history interface. On the left, there is a control panel with a 'Get alarm history' button, a refresh icon, and an information icon. Below this are input fields for 'Start' (set to '*-30m') and 'End' (set to '*'). A 'Group summary by' dropdown is set to 'Row number + tag name', and there is a '+ Filters' button. The main content area shows a time range from 8:27:24 AM to 8:57:24 AM. Below this is a summary table:

254	8	0.39	0.17
Total Alarms	Unique rows with alarms	Avg Duration (mins / alarm)	Median Duration (mins / alarm)

Below the summary is a 'Charts' section with a 'Per point' button selected. The chart is titled 'Alarm count per point' and shows a bar chart with 'Alarm count' on the y-axis (0 to 90) and 'Row' on the x-axis (1, 3, 4, 6, 14, 16, 17, 18). The bars represent the number of alarms for each row: Row 1 has approximately 70 alarms, Row 3 has approximately 30, Row 4 has approximately 30, Row 6 has approximately 20, Row 14 has approximately 90, Row 16 has approximately 10, Row 17 has approximately 5, and Row 18 has approximately 10.

At the bottom of the interface, there are two expandable sections: '+ Alarm summary, grouped by row number + tag name' and '+ Table'.

Query the alarm history

When you first view the alarm history page, the alarm history for the last 30 minutes is retrieved and displayed. To refresh or retrieve the alarm history for a different period of time, change the start and end time and click/press the [Get alarm history] button.

Filter the alarm history

The user can filter the alarm events by monitored point and/or alarm duration.

- Filter by point: the dropdown displays a list of points with alarms during the retrieval period. Select a point from the list to filter the alarm history to this point.
- Filter by duration: the alarm events are placed into 4 separate duration ranges that can be used to filter the alarm history. Select a duration range to filter the alarm history to those events with an alarm duration within the filter.

Charts

The charts display alarm history details based on the current filters.

- Per point (Alarm counter per point): displays the total number of alarms for each point with at least one alarm. The X axis displays the row number of the point. Press a bar (touch) or hover over a bar (mouse) in the chart to display the tag name for the point.
- Over time (Active alarm count): displays the total number of active alarms during the period. Allows the user to identify alarm flooding and periods of high alarm activity.

Alarm Summary

The alarm summary displays tag-based alarm statistics for the period. The grouping method used is the default grouping set in Global Options. See "Alarm Summary Grouping" for more information.

Table

The table displays a list of alarm events over the period based on the current filters. The list sorted with the newest alarms first (most recent alarm start time)

Remote Viewer and Dial-in

TopView provides multiple ways to remotely access running instances of the TopView Engine.

Remote Viewer

A running TopView Configuration (instance of the TopView Engine) can be remotely monitored using the TopView Remote Viewer (TopView client). The Remote Viewer is a separate application with its own documentation. The Remote Viewer is installed with TopView or can be downloaded separately from our web site (www.exele.com).

Remote Dial-in

Using a voice modem attached to the TopView computer, users can dial into TopView using a landline or cell phone where they will be presented with a voice menu of choices, including the ability to listen to and acknowledge alarms using their phone's keypad.

TopView Mobile Web App

See **Mobile Web App** on page 368

Remote Viewer & Dial-in

Remote Access settings for this TopView configuration from the TopView Remote Viewer and Remote Dial-in
A separate configuration screen allows you to [configure the TopView Mobile Web App](#)

Remote Viewer settings

TopView alarms can be monitored over your network using the TopView Remote Viewer client application

 Allow remote access from the TopView Remote Viewer
Listen port: This port must not be in use by any other TopView configurations or other applications

 Require Remote Viewer Security

Note: Your license allows for 25 remote connection(s) to the TopView computer.

 [Launch the Remote Viewer on this computer...](#)  [Download the Remote Viewer for other computers...](#)

Remote Dial-in settings

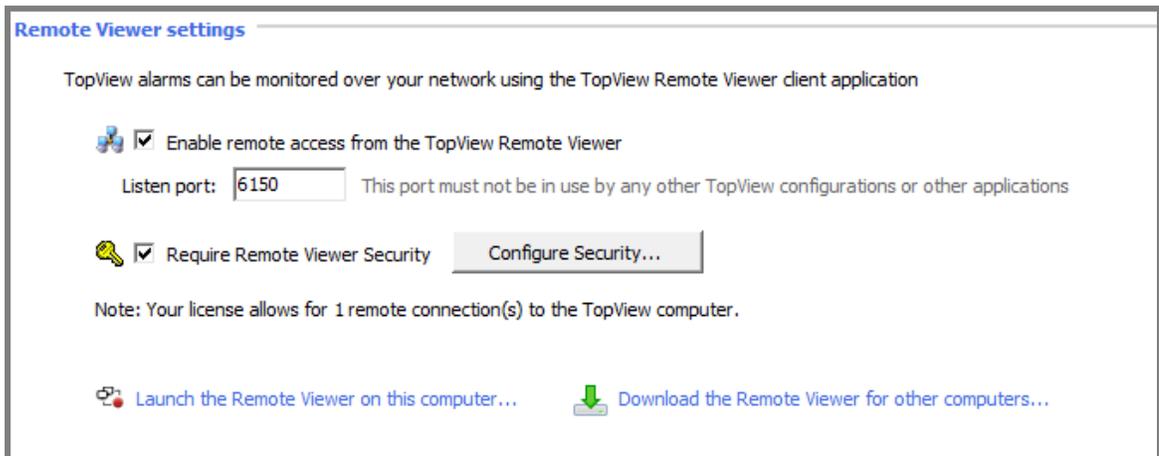
You can dial into TopView using a phone to listen to and acknowledge alarms

 Allow Dial-in access

Remote Viewer settings

In order to accept connections from the Remote Viewer (TopView client), each TopView Engine instance (configuration file)

- Must be enabled to accept incoming connections
- Must be listening on a different port.



The screenshot shows a window titled "Remote Viewer settings". At the top, it says "TopView alarms can be monitored over your network using the TopView Remote Viewer client application". Below this, there are two main sections. The first section has a checked checkbox labeled "Enable remote access from the TopView Remote Viewer" with a small icon to its left. Below the checkbox is a text input field labeled "Listen port:" containing the number "6150". To the right of the input field is the text "This port must not be in use by any other TopView configurations or other applications". The second section has a checked checkbox labeled "Require Remote Viewer Security" with a key icon to its left. To the right of this checkbox is a button labeled "Configure Security...". Below these sections is a note: "Note: Your license allows for 1 remote connection(s) to the TopView computer." At the bottom of the window, there are two links: "Launch the Remote Viewer on this computer..." with a small icon, and "Download the Remote Viewer for other computers..." with a green download icon.

Enable remote access...

Check this box to enable this Configuration to accept remote connection.

Listen port

Enter a sockets port number to listen for incoming connections. Remote Viewer users must specify the same port in order to connect to this configuration (instance of the TopView Engine) once it is running. Make sure to configure a unique port for each running TopView Engine instance/configuration. In order to connect remotely using the Remote Viewer, the chosen port must not be blocked by any firewall or in use by other applications on the TopView computer.

Require Remote Viewer Security

If unchecked, all remote connections from the Remote Viewer application will be allowed to connect and acknowledge alarms. Enabling Remote Viewer security allows the user to assign different permissions to Remote Viewer connections based on password, user/domain and host/ip address.

Once the user has checked the "Require Remote Viewer Security" checkbox, click the [Configure Security] button.

Remote Viewer Security (server-side)

Remote Viewer Security can be configured per TopView Engine instance/configuration. These server-side settings determine who can connect to the running TopView Engine instance (server) with the Remote Viewer (client) as well as the allowed actions once connected.

Note: These security settings are enforced by the TopView Engine (server-side). There are additional client-side permission settings within the Remote Viewer that can restrict the actions of a Remote Viewer client. The client-side permission settings (configured within the Remote Viewer application) determine which actions can be sent by the Remote Viewer to the TopView Engine. Once an action is sent to the TopView Engine, the server-side security settings (below) determine if the action will be performed. Therefore, the allowed actions of a Remote Viewer are a combination of the Remote Viewer permissions (client-side) and the Remote Viewer security settings of the TopView Engine (server-side).

 **Security and Permission for Remote Viewer Connections**

You can configure security and permission for Remote Viewer connections by creating Security Entries. Each entry can specify a password, Windows user and domain or connecting IP Address along with associated permissions.

Existing Security Entries

Name	Security Type	Permissions
Auth by password	Password	ABC
Auth by username	User	ABC

 Add new Security Entry

 Remove Security Entry

Selected Security Entry Settings

Name: **Auth by password**

Grant access by

Password Hide password

User

Group

IP or Host

Permissions

A Can connect

B Can acknowledge alarms

C Can toggle enable/disable alarms

? Disable this security entry

Security entry types

There are 4 different methods ("security entry types") for authorizing Remote Viewer Connections.

- **Password:** prompt the connecting user for a password
- **User/Domain:** the Window's user name and optionally domain name of the connecting user
- **Group:** a Windows Group compared to the Windows Groups of the connecting user
- **IP or Host:** an IP address mask or host name of the connecting machine

Note: A single security entry type may be added multiple times.

Grant access by

Password

If the connecting user is not authorized through User/Domain or IP/Host, he/she will be prompted for a password. The "Hide password" checkbox will hide or show the password in the text box. Note that a user who passes a User/Domain or IP/Host security entry will not receive a password prompt.

User/Domain

The logged in Windows username and domain (optional) of the user who is running the Remote Viewer.

In the Remote Viewer, the current user and domain can be viewed under "Session & Current User Info" in the lower left corner.

Note: To verify connections by username only, leave the domain field blank.

Group

The logged in Windows user who is running the Remote Viewer belongs to one or more Windows User Groups.

In the Remote Viewer, these groups can be viewed under "Session & Current User Info" in the lower left corner.

Enter a group name and assign the desired security.

Note: When a Remote Viewer user connects, their Windows Groups are logged in the TopView application log visible through TopView Admin Tools.

IP/Host security

The TopView Engine will attempt to resolve the IP address (xxx.xxx.xxx.xxx) and host name (e.g., OperatorMachine) of the connecting computer.

- **IP:** enter an IP address mask as xxx.xxx.xxx.xxx. The user may enter an asterisk "*" for one or more fields to allow any value. For example: 100.1.45.67 will allow the IP address 100.1.45.67, while 100.1.45.* will allow any IP address starting with 100.1.45
- **Host:** enter the host name of the connecting computer. Use the tips below for debugging connection failures.

Tips for Debugging Connection failures

The TopView Engine will log all failed and successful connection attempts along with the connecting user, domain, IP and host name. This log can be used to debug connection failures from the Remote Viewer.

Permissions

Each security entry is configured with permissions. These permissions are granted to a user who connects to a running TopView Engine instance using the Remote Viewer and who passes the security entry constraints (password, username, etc.).

- **Can connect:** user is allowed to connect to TopView. Use this setting to temporarily prevent a User/Domain or IP/Host from connecting.
- **Can acknowledge alarms:** user can acknowledge alarms using the Remote Viewer.
- **Can toggle enable/disable alarms:** user can toggle the 'disable alarms' setting of tags in the TopView Engine using the Remote Viewer.
- **Disable this security item:** disables the security item - it will not be used when determining permissions for a connecting user.

Accumulating Permission

A connecting user can accumulate permission from multiple security entries.

The following rules apply for accumulating permissions:

- A connecting user who passes a user/domain or IP/host security entry will not be prompted for a password if a password security entry exists.
- A connecting user who passes multiple user/domain and IP/host security entries will accumulate the sum of all permissions allowed by the security entries. For example, if a user passes a Username/Domain security entry, the user will receive the permissions granted to that user. If he/she also passes an IP/host security entry, any permissions of the IP/host which have not yet been granted will be given to the connecting user.
- If a connecting user passed multiple security items, permissions granted due to one security entry will not be revoked due to another security entry. For example, a user who passes a Username/Domain security entry (which grants alarm acknowledge permission) and also passes an IP/Host security entry (which does not grant alarm acknowledge permission) will be allowed the acknowledge alarms.

Dial-in settings

Dial-in access via TAPI is available but no longer supported.

To allow dial-in access, the user must have a voice-capable TAPI device. To see a list of recommended voice modems, please visit our web site www.exele.com/modems/

Enable dial-in access...

Check this box to enable this dial-in Configuration.

Click the [Configure Dial-in Access] button to begin dial-in configuration.

Dial-in Configuration

 Remote Dial-In settings apply to the current configuration file

Remote Dial-in allows users to dial into TopView using a phone. The user can hear current values and alarms as well as acknowledge alarms through a voice menu system.

General Settings

Direct access mode

Voice-capable dial-in TAPI device:  Keypad commands

Menu voice:  Listen

Audio Format:  Listen

If you cannot hear the spoken words, the selected voice may not be compatible with selected the audio format

We suggest using "8000 Hz, 16Bit, Mono" which is most likely to be compatible with your TAPI dial-in device

Suppress [Alarm ID=XXX] in outgoing notification messages
The Alarm ID can be used by dial-in user to quickly access the alarm that notified them

Do not include Trigger rows in Dial-in session

Modem and phone line sharing

This phone line is also used for Modem Notification Voice Notification

Security

Require caller to enter access code

Access Code	Permissions
1987	AB
944	A

 Add new access code

 Remove access code

Note: Dial-in users must enter the access code followed by #

Permissions

A Can call in **B** Can acknowledge alarms

OK

General Settings

Voice-capable dial-in TAPI device

Select a supported voice device from the dropdown. Visit www.exele.com/modems/ for a list of recommended voice modems.

Menu voice

Select the voice that the dial-in user will hear. There are a few free voices which TopView installs (SAPI 5.1 compatible). You may want to purchase higher quality voices which are compatible with SAPI 5.0. Please see the release notes and Exele forum for the latest information on voices.

Audio Format

Select the voice audio format. This format must be compatible with the TAPI voice modem/card. 8000 Hz (Mono) is compatible with most devices and is the recommended setting.

Line sharing

Line sharing
This phone line is also used for Modem Notification Voice Notification

If the same phone line used for the dial-in TAPI device is also configured for use by Modem or Voice Notification (outgoing calls), TopView can suspend Remote Dial-in when an outgoing call is required. This setting allows user to share a single phone line for dial-in and dial-out access. If a Remote Dial-in session is in progress, the Dial-in session will not be suspended until the call is complete.

Suppress [Alarm ID=xxx] in outgoing notification message

When Remote Dial-in is enabled, outgoing alarm notification messages (email, SMS ...) will contain an alarm ID in the message. When a user calls into TopView using Remote Dial-in, the alarm ID can be used to quickly access and acknowledge this alarm. This setting tells TopView to suppress the alarm ID in outgoing notification messages.

Do not include Trigger rows in dial-in session

This setting will suppress speaking of trigger rows from the dial-in session. See **Trigger** row on page 183 for more information.

Security

Check the "Require caller to enter access code" checkbox to require dial-in users to enter an access code. Once access codes are enabled the user can configure one or more access codes with various permissions for each code.

Security

Require caller to enter access code

Access Code	Permissions
1987	AB
944	A

 Add new access code

 Remove access code

Note: Dial-in users must enter the access code followed by #

Permissions

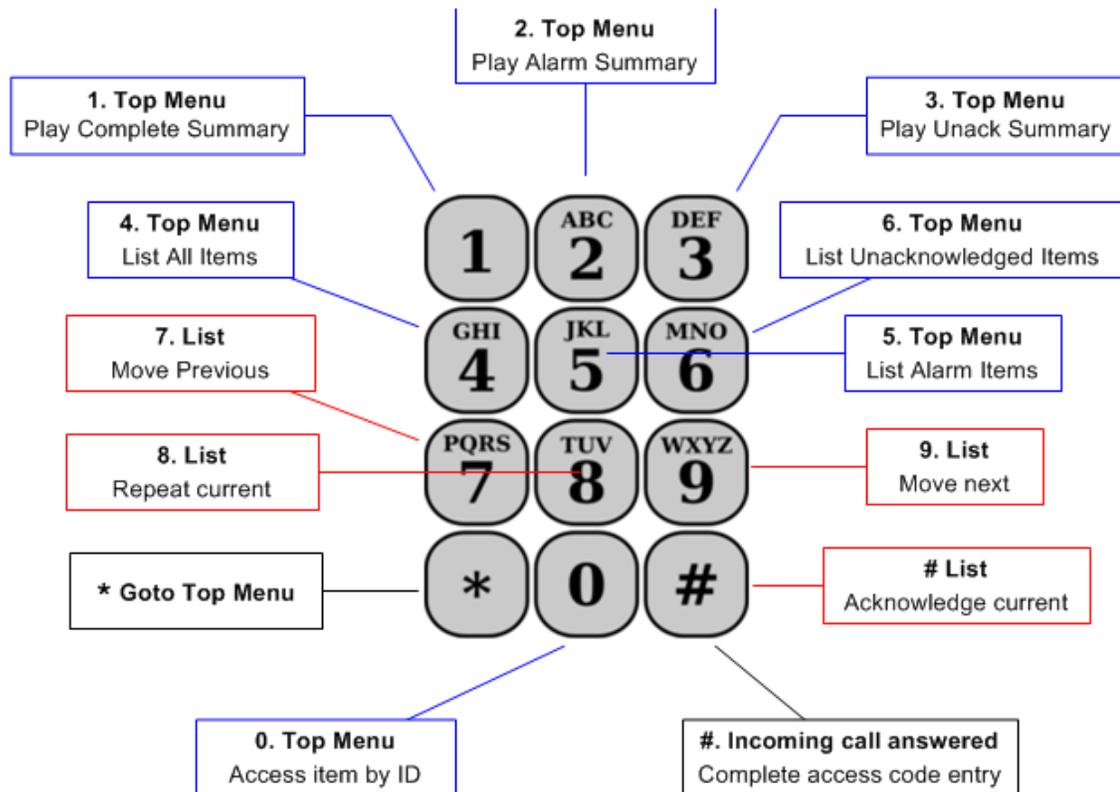
A Can call in **B** Can acknowledge alarms

In the above example, access code 1987 can listen to all items and acknowledge alarms. Access code 944 can listen to items but cannot acknowledge alarms.

Dial-in Menu

Once a user has dialed in to TopView, the user can use their keypad to listen to all items (in alarm or not) and acknowledge any unacknowledged alarms.

The following is an overview of the phone keys and behavior



There are 2 main modes for the Dial-in menu

1. Top Menu mode: accessed at start of call or by pressing *

The Top Menu allows you to play summary information (1,2,3) or enter into list mode for all items (4), alarm items (5) unacknowledged items (6), or a single item by item ID (0)

2. List mode: accessed by key 4,5, or 6

List mode allows you to navigate through the items using the navigation keys 7,8 and 9. While on an unacknowledged item, # will acknowledge the item

Dial-in Session

Testing Dial-in: once Dial-in access has been configured, launch the TopView Engine and launch TopView Admin Tools to monitor Remote Dial-in status and messages.

Call TopView

After TopView is called (call the phone number assigned to the TAPI device phone line), the user will be asked for an access code if dial-in access is configured to require an access code. Use the phone's keypad to enter the access code and press "#". If accepted, it will go to the Top Menu.

Top Menu

Return to the Top Menu at any time by pressing the * key
Use the following Top Menu keys on your phone's keypad:

- **0:** Access an item by ID. Email, SMS, and pager alarm notification messages will contain an ID for the alarm if dial-in access is configured. Once the item ID is entered, you enter **List mode** (see below).
- **1:** Listen to a complete summary. This includes total rows, total alarms and total unacknowledged items.
- **2:** Listen to a summary of current alarms
- **3:** Listen to a summary of unacknowledged items

- **4:** Enter **List mode** for all items
- **5:** Enter **List mode** for alarm items
- **6:** Enter **List mode** for unacknowledged items

List Mode

To return any time to the Top Menu press the * key.

List mode is entered from the Top Menu using the 0, 4, 5, or 6 key.

Once user enters list mode, user is at the beginning of the list. Use the navigation keys to move among the items.

- **7:** Move to previous item
- **8:** Repeat current item
- **9:** Move to next item

- **#:** Acknowledge current item

HTML Snapshot Reports

HTML Snapshot Reports are reports of the current tag values and/or alarms stored as an HTML file. The output can be formatted for desktop or mobile web browsers.

TopView allows you to create one or more HTML Snapshot Reports, each with its own output file, filters, and settings. Each output report (HTML file) can be viewed in a web browser, emailed, transferred to another computer via FTP, or requested via email.

For reports of alarm events that occurred over a period of time, see **Alarm Reports** on page 411.

HTML Snapshot Reports

Unit 1 Values Report	 Add a new HTML Snapshot Report
	 Edit HTML Snapshot Report name
	 Remove HTML Snapshot Report

HTML Snapshot Report details

Name:

Report contents and HTML output file

Report type

Values View report
Any monitored tag

Alarms View report
Tags with active alarms or unacknowledged alarms

Only include items in alarm

Only include disabled items (disabled items report)

Include unacknowledged items that are no longer in alarm

Report columns

The HTML Snapshot Report can use the same columns as configured for the TopView Engine or you can define a custom columns list for this report

Use TopView Engine Display columns
[Modify TopView Engine Display columns...](#)

Define custom columns
[Modify TopView Engine Display columns...](#)

Report output

Create report every: seconds starting at

Output HTML file: 

Custom title: (also the optional email subject)

Use %alarmcount% for report alarm count

HTML should refresh web browser every seconds

Example HTML Snapshot Reports

Alarm and unacknowledged information

The default alarm label is "Alarm". Individual alarms can override this default alarm label with different text.

- **Alarm** Item is in alarm
- **Alarm*** Item is in alarm and unacknowledged
- Item is unacknowledged but not in alarm

Examples Snapshot Reports:

Values View, wide table format

Example Values View Snapshot Report					
Created: 1:44:15 PM					
	Current value	Units	Tag	Description	Primary Group
Alarm*	163.00	Deg F	TopView.Dev1.OutletTemp	Outlet temp	Unit1\Temperature
	163.0	Deg F	TopView.Dev1.OutletTemp	Avg outlet temp	Unit1\Temperature
	HI		TopView.Dev1.Level_Ind_1	Level 1 indicator	Unit1\Level\Indicator 1
	HI		TopView.Dev1.Level_Ind_2	Level 2 indicator	Unit1\Level\Indicator 2
	Stopped	State	TopView.Dev1.Discharge_Pump_1	Discharge Pump 1	Unit1\Pump
	Stopped	State	TopView.Dev1.Discharge_Pump_2	Discharge Pump 2	Unit2\Pump
	145.2	psi	TopView.Dev1.Outlet_Press_4	Outlet 4 pressure	Pressure
	151.2	psi	TopView.Dev1.Outlet_Press_5	Outlet 5 pressure	Pressure
	172.1	Deg F	TopView.Dev1.Outlet_Temp_4	Outlet 4 temperature	Unit1\Temperature
	175.3	Deg F	TopView.Dev1.Outlet_Temp_5	Outlet 5 temperature	Unit1\Temperature
	Up		TopView.Dev1.Station_Status_4	Station 4 status	Station Status
Alarm*	Down		TopView.Dev1.Station_Status_5	Station 5 status	Station Status
Alarm*	Down		TopView.Dev1.Station_Status_6	Station 6 status	Station Status
Alarm*	220	ppm	TopView.Dev1.NoX_Unit1	Unit1 NOx	NOx
	223	ppm	TopView.Dev1.NoX_Unit2	Unit 2 NOx	NOx
Alarm*	166	MW	TopView.Dev1.Power_Unit_1	Unit 1 power	Power
	164	MW	TopView.Dev1.Power_Unit_2	Unit 2 power	Power
Alarm*	1.000		OperationRunning	Operation running	OperationStatus
	443.393		TotalNox		

1. Alarm: Outlet temperature, 163.00, is too high
2. Alarm: Station number 4 is down
3. Alarm: Station number 4 is down
4. Alarm: Unit 1 NOx emissions, 220, is too high
5. Alarm: Unit 1 power output, 166, is greater than 165
6. Alarm: OperationRunning (ADD 1) (1.000) = 1

Alarms View, narrow table format

Outlet temperature, 163.00, is too high

Alarm	Unacknowledged
Priority	1
Time in alarm	000:01:44
Time of alarm	1:44:13 PM
Alarm message	Outlet temperature, 163.00, is too high
Alarm limits	> 150 OR < 130
Primary tag group	Unit1\Temperature
Secondary tag groups	AllUnits
Custom field 1	
Custom field 2	AlarmInfo
Custom field 3	DataAnalysis
Comment	row 1 comment

Level 2 indicator alarm

Alarm	Unacknowledged
Priority	1
Time in alarm	000:00:25
Time of alarm	1:45:33 PM
Alarm message	Level 2 indicator alarm
Alarm limits	=HHI
Primary tag group	Unit1\Level\Indicator 2
Secondary tag groups	AllUnits
Custom field 1	
Custom field 2	
Custom field 3	
Comment	

HTML Snapshot Reports

Each HTML Snapshot Report defines a separate output HTML file, along the view, filter, email, and related settings for the report.



- Click the add button to add a new HTML Snapshot Report. Once a new report is added, configure the details for the task in the HTML Snapshot Report Details section.
- Click the edit button to edit the name of the selected report.
- Click the remove button to remove the selected report

HTML Snapshot Report Details

Displays the settings for the selected HTML Snapshot Report.

Name

Displays the name of the selected HTML Snapshot Report

Report Type

Values View report

- The report will, by default, show all tags/rows – those in alarm and those not in alarm.
- If the user would like the report to only show tags/rows in alarm, check “Only include rows in alarm”.
- If the user would like the report to only show tags/rows that are disabled, check “Only include disabled items”. This option can be used to create a disabled items report.

Alarms View report

- The report will, by default, only include rows that are currently in alarm.
- To include rows that are unacknowledged but not currently in alarm, check “Include unacknowledged items that are no longer in alarm”.

Report Columns

By default, the HTML Snapshot Report columns will mirror the columns selected for the interactive TopView Window. Optionally the user can select the desired columns and column order.

Custom Columns

If "Define custom columns" is selected the user can click "Modify custom columns" to configure the columns for the current report.

The screenshot shows a configuration window for report columns. It has two tabs: "Values View" and "Alarms View". The "Values View" tab is active. The window is titled "Values View Report custom columns".

On the left, there are two columns of checkboxes:

- Current Tag/Operation Value
- Status of value (good/bad)
- Tag's measurement units
- Server
- Tag name
- Current timestamp
- Tag description
- Alarm limits
- Source
- Time in alarm (duration)
- Time of alarm (timestamp)
- Primary Tag Group
- Secondary Tag Groups
- Priority
- Custom field #1
- Custom field #2
- Custom field #3

On the right, there is a "Column order" section with a list box containing the following items:

- Current Tag/Operation Value
- Status of value (good/bad)
- Tag name
- Current timestamp
- Time in alarm (duration)

There are up and down arrow buttons next to the list box. At the bottom right, there are "Copy" and "Paste" buttons.

There is a separate tab/screen for Values View and Alarms View report columns. The correct screen should be displayed based on the current report type.

Check each column that should be included in the report. The column order can be changed using the up and down arrow buttons.

If you would like to copy the current columns and column order to another report, you can use the [Copy] button to copy the current information that you can then [Paste] into another report.

Note that there is a separate [Copy] and [Paste] button for Values View and Alarms View and that you can only copy/paste between the same report type (Values or Alarms).

Report footer

The default report footer is

Generated by EXELE TopView Software
Licensed to YourCompanyName

TopView is a registered trademark of
EXELE Information Systems, Inc.
For more information contact us at support@exele.com or
visit us at <http://www.exele.com>

If you enter a custom footer it will appear before the lines "Generated by EXELE TopView Software" and "Licensed to YourCompanyName"

Customized footer example:

You are receiving this report because you are a
member of the operations team.

Please contact Joe Smith at
joe.smith@yourcompany.com (555) 111-2222
for any questions about this report.

Generated by EXELE TopView Software
Licensed to YourCompanyName

Report Output

Report output

Create report every: 30 seconds starting at 00:00:00

Output HTML file: C:\ProgramData\Exele\TopView\HTML\unit1.html ... View in Browser

Custom title: Unit 1 Summary: Alarm count=%alarmcount% (also the optional email subject)

Use %alarmcount% for report alarm count

HTML should refresh web browser every 10 seconds

Optimize HTML for Mobile Browsers

Table layout

Wide (one table row per point or alarm, multiple columns)

Narrow (multiple table rows per point or alarm, 2 columns)

Create report every

Enter the interval for report creation in seconds. The first report will be created when TopView starts. Subsequent reports will then be created at the entered interval using the offset ("starting at..."). This interval should not be smaller than the refresh interval for this configuration (see **Refresh rate** on page 216)

Starting at (offset) hh:mm:ss

The offset from midnight for the entered "Create report every" interval.

Example: "Create report every 60 seconds starting at 00:00:15" will create the report every 60 seconds starting at 15 seconds after midnight. The report will be created when TopView is started, then at 15 seconds into each minute after TopView is started.

Output HTML File

The path and file name for the Snapshot Report output. This file is created at the entered interval.

Use the  button to browse to a directory/file. Use the  button to view the HTML file in a browser. Note: this file is not created until the user launches the TopView Engine instance for this configuration

Custom title

The custom title will appear at the top of the HTML Snapshot Report. The custom title is also used as the email subject if you configure email recipients for this HTML Snapshot Report.

Use the %alarmcount% placeholder in the custom title text to display the active number of alarms in the report.

Example: Unit 1 Summary: %alarmcount% active alarms

HTML should refresh browser...

If selected, TopView will add HTML code to the output file which forces the browser to refresh the file at the entered interval.

Optimize HTML for Mobile Browsers

If selected, the generated HTML will contain special formatting to make the output easier to view on mobile web browsers. This includes instructions for initial zoom, max width, and smaller font sizes.

Table format: narrow or wide

The generated HTML file contains a table of the tags/alarms.

With the default, wide table format, each Values View or Alarms View column (property) becomes a column in the HTML file table:

Sample wide table format of HTML Snapshot Report

	Time in alarm	Time of alarm	Alarm message	Alarm limits	Group
Alarm 1 *	000:00:08	11/10/2010 1:25:51 PM	Outlet temperature, 162.17, is too high	>150 OR <130	Unit1\Temper
*			Level 2 indicator alarm	=HIHI	Unit1\Level\Ir
Alarm 2 *	000:00:08	11/10/2010 1:25:51 PM	Discharge pump 2 is running	=RUNNING	Unit2\Pump
Alarm 3 *	000:00:08	11/10/2010 1:25:51 PM	Station number 6 is down	=DOWN	Station Statu

With the narrow table format, each Alarms View or Values View column (property) becomes a row in the HTML file, and only two columns are displayed (alarm/unack, property name, property value):

Sample narrow table format of HTML Snapshot Report

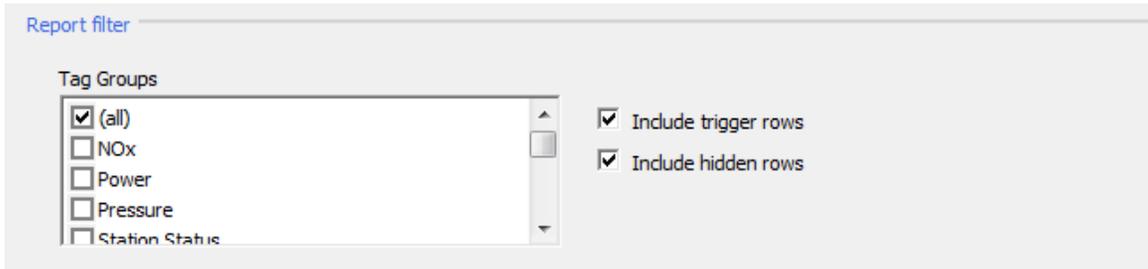
Alarm 1 *	
Alarm msg:	Outlet temperature, 163.1, is too high
Current value:	166.0
Units:	Deg F
Time:	11/10/2010 9:10:32 PM
Desc / Alias:	Outlet temp
Time in alarm:	000:11:04
Group:	Temperature
Current value:	163.6
Units:	Deg F
Time:	11/10/2010 9:10:30 PM
Desc / Alias:	Avg outlet temp
Group:	Temperature
*	
Current value:	OK
Time:	11/10/2010 9:10:32 PM
Desc / Alias:	Level 1 indicator
Group:	Level
Alarm 2 *	
Alarm msg:	Level 2 indicator alarm
Current value:	HIHI
Time:	11/10/2010 9:10:32 PM
Desc / Alias:	Level 2 indicator
Time in alarm:	000:00:30
Group:	Level

Additional notes regarding HTML Snapshot Reports with narrow table format:

- Tag Properties with blank, empty, or no value are suppressed from output. Example: if Alarms View is configured to display Primary Tag Group (per tag), the narrow table output will only display the Primary Tag Group for a tag if it is defined.
- If a tag is in alarm, the first displayed row for the tag will contain the alarm message. This applies to both Values View and Alarms View HTML Snapshot Reports.
- Wide table Snapshot Reports contain an alarm summary at the bottom of the page that displays the alarm message for each active alarm. The alarm summary is not included in the narrow table format – alarm messages are always displayed in the first row of each tag that is currently in alarm.

Report Filter

The report filter is used to configure the tags/rows that should be included in the HTML Snapshot Report.



The screenshot shows a window titled "Report filter" with a "Tag Groups" section. This section contains a list box with the following items: (all), NOx, Power, Pressure, and Station Status. To the right of the list box are two checked checkboxes: Include trigger rows and Include hidden rows.

Tag Groups

Select the Tag Groups to include in the report. This will include tags/alarms with matching primary or secondary Tag Groups. See **Tag Groups** on page 196.

Include trigger rows

Check to include Trigger rows in the report. See **Trigger** row on page 183.

Include hidden rows

Check to include hidden rows in the report. See **Hide this tag (row)** on page 93.

Email the HTML Snapshot Report

If enabled, the most recent HTML Snapshot Report will be emailed to the chosen recipient list at the entered interval. The user must enable Email Notification and configure Outgoing Email Settings.

Email the HTML Snapshot Report

Email Notification must be enabled and outgoing Email settings configured

Enter or select an Email Group (name), email address (user@domain.com), or Contact (\contact\email)

Email the HTML file to

as Attachment

every minutes starting at

Email subject is the custom title entered above

You can also attach the HTML Snapshot Report output file to email notification messages. For a monitored point, set the 'Attach' field for an alarm or return-to-normal condition on the Edit Limits screen to the output file using the full path.

Email the HTML file to

The user can select the recipients (see **Selecting the Notify recipients** on page 499) or may enter a single email recipient such as user@domain.com.

As Attachment

If checked, the HTML Snapshot Report will be attached to the email message. Otherwise, the HTML Snapshot Report appears as the message body of the email message.

Every x mins

The interval for emailing the HTML Snapshot Report.

Starting at hh:mm:ss

The offset from midnight for the entered interval (see example below).

Example:

Example settings:

- Create report every: 30 seconds
- Email the HTML file to: (Default Email-SMS Group)
- Every 120 minutes starting at 01:00:00

Example result:

The HTML Snapshot Report is created every 30 seconds.

Every 2 hours (120 minutes), starting at 1am, the most recent report will be emailed to the Default Email-SMS Group. The emailing times will be: 1am, 3am, 5am, 7am, 9am, 11am, 1pm, 3pm, 5pm, 7pm, 9pm, and 11pm.

Incoming Email Information Request

Users can request the most recent HTML Snapshot report by sending an information request email to TopView. Since multiple HTML Snapshot Reports can be created as part of each TopView configuration, each HTML Snapshot Report must have a unique ID that is used in the request. See **TopView Information Request** on page 275 for more information.

Unique ID

The unique ID for this HTML Snapshot Report.

Publish the HTML Snapshot Report

If enabled, TopView will publish the most recent HTML Snapshot Report file to a remote Server at the entered interval. This feature is typically used to upload the HTML file to a Web Server. The interval for publishing the file can be different than the interval at which the local HTML file is created.

Publish the HTML file every X seconds using FTP

Enter the interval for uploading the HTML file. The most recent HTML file created will be uploaded.

Use Passive FTP Transfer

Sends the "PASV" command to the server. This command requests the server to listen on a data port and to wait for a connection rather than initiate one upon receipt of a transfer command.

For a description of the behaviors that are specified using "passive", see RFC 959, "File Transfer Protocol," Section 3.2, "Establishing Data Connections" and Section 4.1.2, "Transfer Parameter Commands," available at <http://www.rfc-editor.org/>.

FTP Server

Name or IP Address of the FTP Server

Target path

The target directory on the FTP Server

Login user

FTP User name. Leave this field blank for anonymous login

Password

FTP password. Enter your email address for anonymous login

FTP Test

Enter a file name (or browse to a file using the  button) and click the



to upload the file to the FTP Server using the current settings/

Note: If the user is having problems getting the FTP settings to work, try an FTP client to test the entered host, user, password and target directory.

Snapshot Output (File and SQL Server)

The Snapshot Output is a file and/or SQL Server table that contains the current state of monitored TopView tags. This includes items such as tag properties (name, description, units), tag values (value, status, timestamp), and alarm details (active state, acknowledge state, time of alarm ...). The Snapshot Output allows other application to access to the current state of TopView through the generated file or SQL Server table.

Both the Snapshot Output File and Snapshot Output Table are optional and only enabled if the user desires these output formats.

Snapshot Output File

Single file for this configuration containing all current tag information, values, and alarm details

Enable writing to the Snapshot file for this configuration

Json File output type

 File location: C:\ProgramData\Exele\TopView\Snapshot

SQL Server Snapshot table

Table in SQL Server containing all current tag information, values, and alarm details

Enable writing to the Snapshot table in SQL Server

[Configure SQL Server...](#)

Snapshot Output File

The Snapshot Output File is a CSV/Text or JSON file containing the current state of all monitored tags in this TopView configuration.

- The file is located in DataPath\Snapshot\
- The file name is *config.csv* or *config.json* where *config* is the name of the TopView configuration
- The file is created at the refresh interval of the TopView configuration (see **Refresh rate** on page 216)
- Applications that access the generated file should not lock the file while reading. This will prevent TopView from updating the file. One suggestion is to copy the file, the open the copy.

SQL Server Snapshot Table

The Snapshot Table is a SQL Server table that contains the current state of all monitored tags in the current TopView configuration.

If you enable the Snapshot Table output, you must ensure that SQL Server access has been configured for TopView. Click [Configure SQL Server...] to configure the SQL Server instance that should be used by TopView. See **Global Options: SQL Server** on page 478 for more information.

For more tips and installation information for SQL Server and TopView, see **SQL Server Information, Installation and Tips** on page 606.

Notes about Snapshot Output to SQL Server

- The table name is Snapshot
- The same table is used for all TopView configurations. The configuration name is a column of the Snapshot table.
- The Snapshot table is updated at the refresh interval of the TopView configuration (see **Refresh rate** on page 216)
- Applications can access the Snapshot table in SQL Server to retrieve current state information for each running TopView Engine instance/configuration.

Alarm Reports

While TopView is running, each alarm-related event that occurs (alarm, return to normal, acknowledge) is logged to the TopView application log and TopView alarm log files. Optionally, you can also log alarms to SQL Server (See **Log alarms to SQL Server** on page 236).

TopView Alarm Reports allow the user to summarize the alarm events that have occurred over a user-configured period of time. Each Alarm Report can include (1) a summary of alarm activity by monitored tag/point, (2) a summary of the alarm events that occurred (transitioned into alarm) or returned to normal (transition to normal from an alarm) during the selected report time, or (3) a combination of 1 and 2. If you are using SQL Server as the alarm log source, the report can also include alarms that were active during the entire report period (see below).

Ad-hoc Alarm Reports can be created by the user in the TopView Configurator or TopView Admin Tools. The user can also schedule one or more Alarm Report Scheduled Tasks that will be executed by a running instance of the TopView Engine; scheduled tasks will automatically create Alarm Reports and can optionally email the created report to one or more recipients.

Alarm Report source: Files or SQL Server

TopView stores alarm log information to a set of files on the TopView computer. Optionally, TopView can also store alarm information to SQL Server.

If SQL Server alarm logging is enabled, the user can select the source of the Alarm Report as 'log files' OR 'SQL Server'. The user should select SQL Server as the alarm report source if SQL Server logging is enabled.

Alarm log files

Daily alarm log files exist for each running TopView Engine instance/configuration. When an alarm report is created from the alarm log files, the daily log files for the report period are parsed for alarm information.

In some cases, the 'log files' alarm report may miss alarm activity outside the report period:

- "Spanning alarms": Alarm active during entire report period: If an alarm exists before the report period and is active for the entire report period, there may not be entries for this alarm in the daily log files for the report period, and this active alarm may not be included in the report.
- Alarm acknowledged after report period: if an alarm is acknowledged after the alarm report period (past the end day of the report), the acknowledge time is not included in the report since the daily alarm log file for the acknowledge event is not included in the report period.

Alarm comments: Alarm comments/annotations will not appear in 'log file' alarm reports.

SQL Server

SQL Server provides a better mechanism for storing of alarm log events, and we recommend that the user enable SQL Server alarm logging in TopView.

When used as the source of the Alarm Report, SQL Server will return

- All alarms that became active or returned to normal during the report period.
- Spanning alarms (optional): All alarms that were active (True) at the report start time and did not end before the report end time.

Use of SQL Server alarm logging also enables alarm comments/annotations.

Alarm Reports contents

The contents of a TopView Alarm Report may include the following information:

Creation time: the time that the Alarm Report was created

Configuration: the name of the TopView configuration file for the report

Report start/end time: the start time and end time of the report

Tag groups: the Tag Groups that are included in the report

Alarm count: total number of alarms in the report

Alarm summary by tag/point: a summary of each monitored tag/point that had an alarm during the report period, the alarm count, average alarm duration, and total alarm duration.

Alarm details for each alarm that occurred during the report time including

- Index: the count of the alarm (1..n)
- Row: the row number of the alarm from the Tags and Limits screen
- Alarm limits: a description of the limits configured for the tag
- Alarm message: the alarm message
- Start time: the time that the tag/row alarm transitioned "into alarm"
- End time: the time that the tag/row returned to normal from an alarm condition. **An end time flag may be displayed as an asterisk '*' if the alarm was active when TopView was stopped or restarted.** If the end time flag is displayed, the alarm end time in the report is the time that TopView was stopped or restarted.
- Duration: the duration of the alarm displayed as minutes
- Acknowledge time: the time that the alarm was acknowledged or blank if the alarm was not acknowledged
- Time to acknowledge: the difference between the alarm start time and acknowledge time in minutes
- Acknowledged by: the person that acknowledged the alarm. The value of this field is based on how the alarm was acknowledged (Remote Viewer, email, Mobile Web App, ...)
- Acknowledge computer: the computer or device that performed the acknowledge
- UID: a unique ID for the alarm.
- Server: the server/computer name for the tag or point that caused the alarm
- Tag: the tag or point that caused the alarm. This is the tag configured for this row in TopView.
- Description: the tag description
- Units: the tag units
- Value: the value that caused the alarm

- Min/max value: the minimum and maximum numeric value during the alarm. These values only exist for alarms that have ended with a return to normal event.
- Source: the event source name (TopView Events)
- Primary and Secondary Tag Groups: the Tag Groups for the tag or blank if no assigned Tag Group
- Comment: alarm comment field (comment fields are only stored if SQL Server alarm logging is enabled).

Ad-hoc Alarm Reports

Ad-hoc Alarm Reports can be created in the TopView Configurator and TopView Admin Tools, TopView Engine Window, and Remote Viewer. There are a few differences in the available ad-hoc report options depending on the tool that is used:

- **TopView Configurator**
 - Alarm Reports for the current configuration file
 - User can select which Tag Groups to include in the report
- **TopView Admin Tools**
 - Alarm Reports for any configuration file
 - User cannot select which Tag Groups to include in the report. All Tag Groups are included.
- **TopView Engine and Remote Viewer**
 - Alarm Reports for the current/connected configuration
 - Robust filter for Tag Groups, message content...

To create ad-hoc Alarm Reports in the TopView Configurator, choose "Alarm Reports" from the TopView Configurator left menu and then select the "Ad-hoc Alarm Reports" tab.

Ad-hoc Alarm Report settings (TopView Configurator)

The screenshot shows the 'Ad-hoc Alarm Report settings' window. At the top, there's a title bar. Below it, the 'Configuration' is set to 'unit1'. To the right, 'From' is '04-15 12:00 AM' and 'To' is '04-17 12:00 AM'. A 'Tag Groups' list on the left includes '(all)' (checked), 'AllUnits', 'NOx', 'OperationStatus', 'Power', 'Pressure', 'Station Status', and 'Unit'. A 'Create report' button is on the left. On the right, 'Alarm log source for report' has 'SQL Server alarm log' selected, with 'Include spanning alarms' unchecked. 'Alarm summary grouping' has 'Tag name' selected. 'Maximum number of returned events' is set to '5000'.

Configuration: the user can create ad-hoc Alarm Reports for the configuration file that is currently opened in the TopView Configurator

Tag Groups: select the Tag Groups to include in the Alarm Report or "(all)" to include all Tag Groups. For more information on Tag Groups, see **Tag Groups** on page 196.

From and To time: choose a start date and end date for the report.

Alarm log source for report: select the source for the Alarm Report.
Spanning alarms: alarms that were active (TRUE) at the report start time but did not end before the report end time. See **Alarm Report source: Files or SQL Server** on page 412 for more information.

Alarm summary grouping

The method for per-tag alarm summary information. See "Alarm Summary Grouping" for more information.

Create report

Click the [Create Report] button to create the Alarm Report. The output of the Alarm Report will be displayed below the Alarm Report Details.

Alarm Report Output

When the user clicks the [Create Report] button, the Alarm Report will be created using the information entered in the Ad-hoc Alarm Report settings. The output of the Alarm Report will be displayed in a readable text format (Text output), table format (CSV output), JSON format, and formatted HTML. Each report output can be saved to a text, CSV, JSON, or HTML file.

In addition to the alarm events and alarm summary by tag/point, alarm analytics for the current time range can be displayed. For more information, see **Alarm events: Alarm Analytics** on page 528.

The screenshot shows the 'Alarm Reports' configuration panel. It includes a header with a hamburger menu icon and the text 'Alarm Reports'. Below this is a section for 'Show alarm summary, include:' with several checked options: Engine name, Server, Sample alarm msg, Primary Tag Group, and Source (TopView Events). A second row of options includes Description, Row#, RowUID, and Secondary Tag Group(s), all of which are also checked. Below these options is a checkbox for 'Show alarm event details, maximum' followed by a text input field containing an asterisk (*) and the label 'alarm events per tag'. A row of tabs is visible, with 'HTML report' selected and 'CSV report', 'Text report', and 'JSON report' also present. At the bottom of the configuration area, there are two buttons: 'Save to HTML file...' and 'Open last saved HTML report...'. The main content area below the configuration panel displays the text 'TopView Alarm Report' in a blue font.

Scheduled Alarm Reports

The running TopView Engine instance/configuration can automatically create and email one or more Alarm Reports at specified times. The output of a scheduled alarm report can be a file and/or email notification.

Each configured, scheduled, Alarm Report is called an Alarm Report Scheduled Task.

Note: for a running TopView Engine instance, the current status of the Alarm Report Scheduled Tasks can be monitored using TopView Admin Tools. See **Alarm Report Tasks** in TopView Admin Tools on page 564 for more information.

Alarm Report Scheduled Tasks

Lists the configured Alarm Report Schedules Tasks for the current configuration.

Alarm Report Scheduled Tasks

Last 24 hours for Shift Supervisor		Add a new Alarm Report Task
Yesterday for Plant Manager		Edit Alarm Report Task name
		Remove Alarm Report Task

- Click the add button to add a new task. Once a new task is added, configure the details for the task in the Alarm Report Task details section.
- Click the edit button to edit the name of the selected task.
- Click the remove button to remove the selected task.

Alarm Report Task details

Allows the user to configure the details of the selected Alarm Report Scheduled Task.

Schedule and report period

Screenshot of the "Schedule and report period" configuration window. The window contains the following fields and controls:

- Run every:** 1440 mins starting at 00:07:00
- During schedule:** Always (dropdown menu)
- Report start and end time:**
 - Report start time: ReportTime (dropdown), Offset (+/- N d/h/m/s) or blank: -1d (dropdown), Test button
 - Report end time: ReportTime (dropdown), Offset (+/- N d/h/m/s) or blank: (empty dropdown), Test button

Run every: the interval (minutes) at which the report is created (≤ 1440 minutes)

Starting at: the start time for the interval as hh:mm:ss. For example, the above settings create a report every 24 hours (1440 minutes) at 7am.

Schedule: the schedule during which the alarm report can be created. The schedule can be used to enable alarm report creation only on certain days or during specific hours during a day. Click [...] to manage the available schedules. Schedules are global to all TopView configurations. See **Schedules** on page 342 for more information.

Report start and end time: the start and end time of the report. Each time is calculated by adding (+) or subtracting (-) the entered offset to/from the base time.

- Base time: ReportTime (the time that the Alarm Report is scheduled to execute), Today (the start of the current day at 00:00:00), or Yesterday (the start of yesterday at 00:00:00)
- Offset: a duration of time that will be added to (+) or subtracted from (-) the entered base time. If this field is empty, no offset is used. Offset format is +/- N d/h/m/s. The user can select an offset from the drop-down or enter any desired offset amount.

+/-: Add to or subtract from the base time

N: a number

d/h/m/s: units of days, hours, minutes, seconds

Offset Examples:

+1h Plus 1 hour

-3.5m Minus 3.5 minutes

-3d Minus 3 days

- Use the [Test] button to test the entered base time and offset

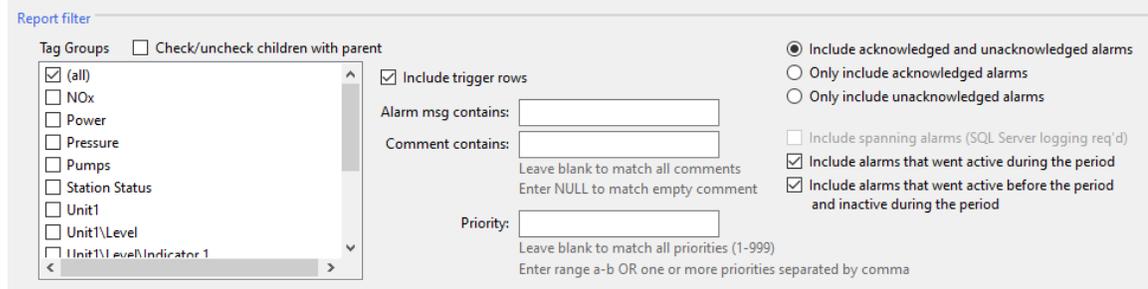
Alarm report data source

Alarm report data source

Alarm log files SQL Server

Select the source for the Alarm Report. See **Alarm Report source: Files or SQL Server** on page 412 for more information.

Report filter



Tag Groups: the Tag Groups to include in the Alarm Report. If “Check/uncheck children with parent” is selected, checking or unchecking a Tag Group will check/uncheck any child Tag Groups. See **Tag Groups** on page 196 for more information.

Include trigger rows: each Alarm Report Scheduled task can include or exclude monitored points that have been designated as “trigger rows”. See “Trigger row” on page 183 for more information.

Alarm msg contains: only include alarms if the entered text appears in the alarm message. Matching is performed without regard to case (e.g., “Unit1” will match “unit1”).

Comment contains: if alarm comments/annotations are used, the alarm report can be filtered to include alarms with specific text in the alarm comment.

- To include alarms with comments that include a specific text string, enter the text string to match. Matching alarm comments must contain this string within the comment, case insensitive.
- To include only empty/blank comments, enter the word NULL
- To include all alarms regardless of the alarm comment, leave this field empty

Priority: Alarm priority is an integer value 1-999

- Empty priority filter will match all priorities
- Filter syntax:
 - Range a-b
OR
 - One or more priority numbers separated by a comma

Alarm acknowledged state: option to include all (acknowledge and unacknowledged), acknowledged only, or unacknowledged only.

Include alarms that went active during the period: alarms with an alarm start time \geq the report start time and \leq the report end time

Include alarms that went active before the period and inactive during the period: alarms with an alarm start time $<$ the report start time and alarm end time \leq the report end time

Include spanning alarms: alarms that were active (TRUE) at the report start time but did not end before the report end time.

Output

Format: the type of Alarm Report to create. See **Ad-hoc Alarm Reports** on page 414 for more information on TXT, CSV, JSON, and HTML Alarm Reports.

Report content:

Title

If not entered, the title of the alarm report will be "TopView Alarm Report". Otherwise, the entered title will be used.

Header: List Tag Groups included in report

For Text and HTML alarm reports, a report header will summarize the report settings (start time, end time...). If the alarm report is emailed as an attachment, the header is included in the email message body. Use this checkbox to include/exclude a list of the Tag Groups included in the alarm report (based on the Tag Group filter for the report).

Body: Include alarm summary by tag/point

A summary of each monitored tag that had an alarm during the report period. Details include the alarm count, average alarm duration, and total alarm duration.

Alarm summary grouping: select the method used for per-tag grouping in the summary. See "Alarm Summary Grouping" for more information.

Optionally, the alarm summary can include (for each tag) the tag description, Primary Tag Group, server name, row number, row UID, a sample alarm message (first alarm message for each tag within the report period) and Source (TopView Events only).

Include alarm event details, maximum of X alarm events per tag

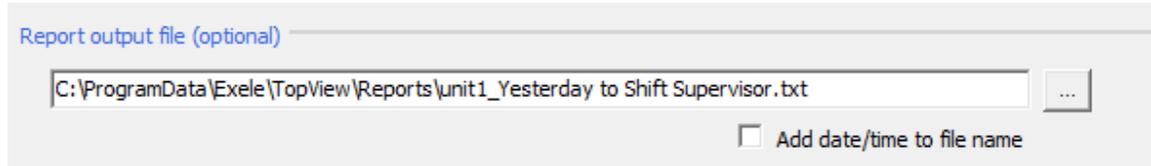
The details of each alarm event that occurred during the report period. If selected, the total number of alarm events listed per tag can be limited with the "Max events per tag" settings. Enter * for all alarm events, or a positive number (1...n) to limit the number of events per tag to a specific number.

Alarm event details, include fields

The information about each alarm that should be included in the alarm event details.

Each selected item will be included in the report. The user can control the order of the items in the report by changing the order of the items in the list (use the up and down arrow buttons to move the position of a selected item).

Report output file (optional)



The name of the output file for this report. This field should be blank to suppress creation of an output file for the Alarm Report. If entered, this file will be created each time the Alarm Report Scheduled Task executes.

If the file already exists, it will be overwritten unless you append the current date/time:

Add date/time to file name: if checked, TopView will append the current date and time to the report output file name. The date and time are appended before the file extension and of the format `yyyymmdd_hhmmss`

Note: You do not need to create an output file to use the email attachment feature.

Use the [...] button to select a folder for the output file. Once a folder is selected, a default file name will appear in the text box. The user can then change the name of the file in the textbox.

Email report (optional)

Email report (optional)

Email Notification must be enabled and outgoing Email settings configured

Email Group (name), email address (user@domain.com), or Contact (\contact\email)

Email report to as Attachment

Custom subject

Use %alarmcount% for report alarm count, %time% for report time
Example: Daily alarm report created %time% contains %alarmcount% alarms

Email report to: if selected, each generated Alarm Report will be emailed to the chosen recipient(s). The recipient can be an email notification group (see **Selecting the Notify recipients** on page 499), a single email recipient (user@domain.com), or a contact email field.

Note: older versions of TopView (prior to v6.7) allowed the user to enter multiple recipients (email addresses or contact email fields) separated by a semicolon (;). Although this format is still supported for backward compatibility, you are encouraged to use an email notification group.

As Attachment: if checked, the Alarm Report will be attached to the email as a file.

Custom subject: If this field is blank, the default alarm report email subject will be used for emailed alarm reports: "TopView alarm report: *taskname* at *reporttime*".

If a custom subject is entered, it will override the default email subject. This custom subject field supports two placeholders:

- %alarmcount% the number of alarms in the report
- %time% the time that the alarm report and email was generated

Alarm RSS Feeds

Overview

What is RSS?

RSS is a method for distributing information updates over the web.

An RSS feed is an XML file hosted on a web server. The contents of the XML file are one or more items that describe the information to be distributed. Many common uses of RSS feeds are blog entries, new items, and videos.

Why use RSS?

Instead of needing to visit a web site to see what is new (the blog, news web site ...), an RSS Reader allows users to "subscribe" to one or more RSS feeds. The reader then displays the information from the feed(s): usually a headline, a brief description, and a link (e.g., to the blog or news item described). The reader can show the RSS item titles, descriptions, and can open the links. The reader may track the items that the user has read, and may allow the user to share items with others.

How does TopView use RSS?

TopView can generate RSS feeds of current alarms. Multiple feeds can be created (filter by TopView Tag Group) and published to a web server. Users can then subscribe to the RSS feed(s) using an RSS Reader to view TopView alarm activity.

RSS Readers

RSS Readers allow users to view TopView Alarm RSS Feeds. These readers can be:

1. Applications that run on the desktop, mobile, or tablet device (iPhone, Android, Windows Phone, iPad)
2. Embedded into web pages (below) and portals such as iGoogle and My Yahoo
3. hardware devices such as LED tickers

Example Alarm RSS Feeds in Readers

My Yahoo

The screenshot shows the My Yahoo homepage. At the top, there is a navigation bar with links for Web, Images, Video, Local, Answers, and more. Below this is a search bar with a 'Web Search' button. The main content area is divided into several sections. On the left, there is a 'Weather' section for Rochester, NY, showing a current temperature of 56°F and a forecast for the next three days. On the right, there is a section titled 'TopView Alarms from Rochester, NY', which is circled in red. This section contains a list of alarm events, each with a title, start time, duration, and tag. Below the alarms, there is a 'Top Stories' section with a 'Featured' tab selected, showing a list of news items.

MY YAHOO! Web Images Video Local Answers more

Quicklinks My Front Page The Best of My Yahoo! NEW New Tab

Content Themes Options

Weather Options

Compact Classic Full

56°F Cloudy

Location Today Tomorrow Friday

Rochester, NY Cloudy 72° / 61° 79° / 64° 72° / 56°

Penfield, NY Cloudy 74° / 61° 82° / 65° 73° / 58°

City or ZIP Go

TopView Alarms from Rochester, NY

- Level 2 indicator alarm - 0 minutes ago
Alarm start time 5/25/2011 11:15:21 AM ; Alarm duration (h:m:s) 000:00:19 ; Tag is TopView.Dev1.Level_Ind_2
- The valve position, 51.1, is greater than 50 percent - 1 minute ago
Alarm start time 5/25/2011 11:15:01 AM ; Alarm duration (h:m:s) 000:00:39 ; Tag is f_sin_100_5m
- Station number 6 is down - 1 week ago
Alarm start time 5/16/2011 7:42:05 PM ; Alarm duration (h:m:s) 207:33:35 ; Tag is TopView.Dev1.Station_Status_6

Top Stories

Featured World Local Finance

As of 11:16 am EDT

- In Joplin, leaders hold tight to rescue hopes (AP)
- Midwest storms spawn several tornadoes, kill 13 (AP)
- Obama, Cameron say no let-up in Libya (AP)
- Abbas says Netanyahu's speech disappointing (AP)
- Banks offer cash transfers to cell number, e-mail (AP)

Android Mobile App

The screenshot shows an Android mobile app interface. At the top, there is a status bar with icons for mail, a dropdown menu, a battery level of 63%, a signal strength indicator, a 3G network connection, and the time 11:41 AM. Below the status bar, there is a list of alarm notifications. Each notification has a title, a subtitle, and a timestamp. The notifications are as follows:

- TopView Alarms from Rochester, NY (40/41)**
- Outlet temperature, 165.3, is too high**
Alarm start time 5/25/2011 10:34:11 AM ;
Alarm duration (h:m:s) 000:00:00 ; Tag is TopView.Dev1.Outl...
★↓ 05-25-2011 10:34 AM (1h)
- Level 1 indicator alarm**
Alarm start time 5/25/2011 10:34:01 AM ;
Alarm duration (h:m:s) 000:00:09 ; Tag is TopView.Dev1.Leve...
★↓ 05-25-2011 10:34 AM (1h)
- Outlet temperature, 165.2, is too high**
Alarm start time 5/25/2011 6:33:16 AM ;
Alarm duration (h:m:s) 000:00:00 ; Tag is TopView.Dev1.Outle...
★↓ 05-25-2011 6:33 AM (5h)
- Level 2 indicator alarm**
Alarm start time 5/25/2011 6:32:46 AM ;
Alarm duration (h:m:s) 000:00:29 ; Tag is TopView.Dev1.Level...
★↓ 05-25-2011 6:32 AM (5h)
- Unit 1 power output, 168, is greater than 165**

Alarm RSS Feeds Screen

Alarm RSS Feeds

Unit 1 Alarms	 Add a new RSS Feed
	 Edit RSS Feed name
	 Remove RSS Feed

Alarm RSS Feed details

Name:	<input type="text" value="Unit 1 Alarms"/>
Output RSS Feed File	
Create file every:	<input type="text" value="60"/> seconds starting at <input type="text" value="00:00:00"/>
Output RSS file:	<input type="text" value="C:\ProgramData\Exele\TopView\RSS\Unit 1 Alarms.rss"/> <input data-bbox="1323 793 1360 825" type="button" value="..."/>
Feed title:	<input type="text" value="TopView RSS Feed Unit 1 Alarms"/>
RSS Feed item details (alarms)	
Each item in the RSS Feed is an active TopView alarm. Press ESC to see the full list of supported placeholders	
Item title:	<input type="text" value="%alarmmsg%"/>
Item description:	<input type="text" value="Alarm start time %toa% / Alarm duration (h:m:s) %tia% / Tag is %tag%"/>
Item link:	<input type="text" value="http://www.yoursite.com/rss/%uid%"/>
Feed filter (alarms to include)	
Tag Groups	<input checked="" type="checkbox"/> (all) <input data-bbox="829 1291 857 1323" type="button" value="^"/>
	<input checked="" type="checkbox"/> Include trigger rows

List of Alarm RSS Feeds

Each Alarm RSS Feed defines a separate RSS Feed output file as well as the filter (alarms to include) and publish options



- Click the add button to add a new Alarm RSS Feed. Once a new feed is added, configure the details for the task in the Alarm RSS Feed Details section.
- Click the edit button to edit the name of the selected feed
- Click the remove button to remove the selected feed

Alarm RSS Feed Details

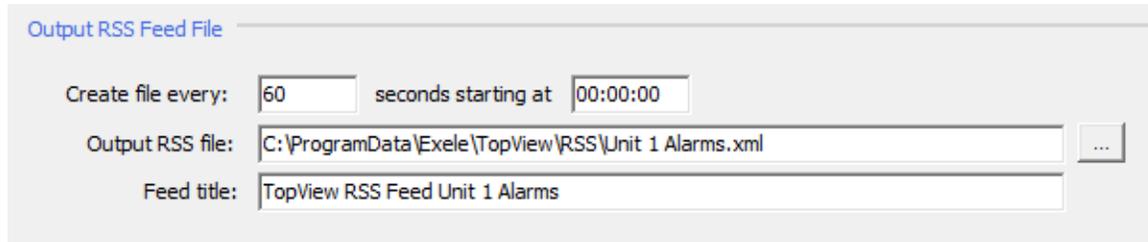
Displays the settings for the selected Alarm RSS Feed

Name

Displays the name of the selected Alarm RSS Feed

Output RSS Feed File

Defines the RSS output file (XML) for the selected Alarm RSS Feed



Output RSS Feed File

Create file every: seconds starting at

Output RSS file:

Feed title:

Create file every

Enter the interval for RSS Feed File creation in seconds. The first RSS Feed File will be created when TopView starts. Subsequent files will then be created at the entered interval using the offset ("starting at..."). This interval should not be smaller than the refresh interval for this configuration (see **Refresh rate** on page 216)

Starting at (offset) hh:mm:ss

The offset from midnight for the entered "Create file every" interval.

Example: "Create file every 60 seconds starting at 00:00:15" will create the file every 60 seconds starting at 15 seconds after midnight. The file will be created when TopView is started, then at 15 seconds into each minute after TopView is started.

Output RSS File

The path and file name for the RSS Feed File. This file is created at the entered interval.

Use the button to browse to a directory/file. Note: this file is not created until the user launches the TopView Engine instance for this configuration.

Feed title

Each RSS Feed contains a title that the reader may display for the feed items (alarms)

RSS Feed Item Details (alarms)

An RSS Feed is made up of multiple items. For Alarm RSS Feeds, each item is an active TopView alarm.

RSS Feed item details (alarms)

Each item in the RSS Feed is an active TopView alarm. Press ESC to see the full list of supported placeholders

Item title:	<input type="text" value="%alarmmsg%"/>
Item description:	<input type="text" value="Alarm start time %toa% / Alarm duration (h:m:s) %tia% / Tag is %tag%"/>
Item link:	<input type="text" value="http://www.yoursite.com/rss/%uid%"/>

Feed items contain a title, description, and link (launched if the user clicks the feed item in an RSS reader). For TopView Alarm RSS Feeds, each of these items (title, description, link) can be static text or information about the alarm. Placeholders can be used to substitute information about the alarm.

See **Placeholders for messages, text** on page 149 for more information about supported placeholders. The user can also press the ESC key to see a list of supported placeholders.

Item title

The title is the main caption for the RSS feed item. Using %alarmmsg% as the title will display the alarm message for the TopView alarm.

Item description

The description may or may not be displayed by an RSS reader. Some readers will allow the user to optionally show the item description.

Item link

The link field can be used to take the user to a URL when the alarm is clicked in an RSS reader. This field is not required and, if left blank, the item will not have a link in the RSS reader.

Warning: some readers (e.g., My Yahoo) will not show items with the same link value, including blank links. Therefore, you may need to have a unique link per item/alarm in order to have all items/alarms displayed in the RSS reader. The links do not need to exist, but a non-existent link may fail if the user clicks the link in the RSS reader.

Feed filter (alarms to include)

The Feed filter is used to configure the alarms that should be included in the RSS Feed.



Feed filter (alarms to include)

Tag Groups

- (all)
- NOx
- Power
- Pressure
- Pumps

Include trigger rows

Include hidden rows

Only include unacknowledged alarms

Tag Groups

Select the Tag Groups of the alarms to include in the RSS feed. This will include tags/alarms with matching primary or secondary Tag Groups. See **Tag Groups** on page 196.

Include trigger rows

Check to include Trigger rows in the RSS feed. See **Trigger** row on page 183.

Include hidden rows

Check to include hidden rows in the RSS feed. See **Hide this tag (row)** on page 93.

Only include unacknowledged alarms

Check to exclude acknowledged alarms from the RSS feed.

Publish the RSS Feed

Most RSS Readers require the RSS Feed File to exist at a URL (e.g., <http://www.mysite.com/TopView/Unit 1 Alarms.rss>)

Publishing is the method of copying the locally created RSS Feed File to a web server.

Notes:

- **Validate your feed:** If your RSS feed is published to a publicly accessible location, you can validate the feed using Feed Validator: <http://feedvalidator.org>
- **MIME Type:** In order for readers to properly see the RSS feed on a web server, the web server should serve the RSS file as application/rss+xml. This may require you to edit the MIME types in the web server for the RSS feed file extension created. See <http://feedvalidator.org/docs/warning/UnexpectedContentType.html>

Publish the RSS Feed File every X seconds using FTP

Enter the interval for uploading the RSS Feed file. The most recent RSS Feed File created will be uploaded. Normally, the entered interval should be equal to the RSS Feed File creation interval.

Use Passive FTP Transfer

Sends the "PASV" command to the server. This command requests the server to listen on a data port and to wait for a connection rather than initiate one upon receipt of a transfer command.

For a description of the behaviors that are specified using "passive", see RFC 959, "File Transfer Protocol," Section 3.2, "Establishing Data Connections" and Section 4.1.2, "Transfer Parameter Commands," available at <http://www.rfc-editor.org/>.

FTP Server

Name or IP Address of the FTP Server

Target path

The target directory on the FTP Server

Login user

FTP User name. Leave this field blank for anonymous login

Password

FTP password. Enter your email address for anonymous login

FTP Test

Enter a file name (or browse to a file using the  button) and click the  to upload the file to the FTP Server using the current settings/

Note: If the user is having problems getting the FTP settings to work, try an FTP client to test the entered host, user, password and target directory.

Health

TopView provides two methods for monitoring the health of each running TopView configuration. Health information can be used as information or as part of a failover configuration. See **TopView Failure** on page 596 for more information on failover configuration.

Health

TopView health can be monitored through Heartbeat signals and Performance Counters

Heartbeat settings

Heartbeat signals can write to Output Points (tags) during each refresh of this configuration. They can be monitored by another TopView configuration or other applications to verify the health of the TopView process running this configuration.

Enable heartbeat signal output

You can configure one or two heartbeat signals. Use two signals if you would like to (1) output a heartbeat signal to two different Servers or (2) have separate signals for the primary and secondary TopView instance when using TopView failover.

[Output Points...](#) Each heartbeat signal is defined by creating a Health Output Point. The Output Point defines the server, output tag, and signal type. Once the Health Output Point is defined, you can assign it to one of the two heartbeat signals below.

You should configure different heartbeat output tags for each TopView configuration.

Select a health output point for each heartbeat signal

Heartbeat signal #1:

Only output heartbeat #1 if the TopView Engine is running on computer named: [Get this computer name](#)
Typically the primary computer name in a TopView failover configuration

Heartbeat signal #2: (optional)

Only output heartbeat #2 if the TopView Engine is running on computer named: [Get this computer name](#)
Typically the secondary computer name in a TopView failover configuration

Performance Counters

TopView Performance Counters provide information about the health and operation of TopView. Performance counters can be monitored using the Windows Performance Monitor and TopView PerfMon.

Write to TopView Performance Counters (this configuration) [Run Windows Performance Monitor...](#)

Status of TopView Performance Counters: Verified

[Create](#) Before using TopView Performance Counters you must create the TopView Performance Counter category and counters on this computer

[Remove](#) Remove the TopView Performance Counters from this computer if you no longer wish to use TopView Performance Counters

[TopView Performance Counter list \(per TopView configuration\)](#)

Counter name	Description
notif_emailsms_failed	Total number of email-SMS notification msgs sent that failed since TopView was started
notif_emailsms_lastfailed	= 1 if the last email-SMS notification failed, otherwise 0
notif_emailsms_queue	Current number of msgs in the outgoing email-SMS queue
notif_emailsms_sent	Total number of email-SMS notification msgs sent since TopView was started
notif_incomingemail_failed	Total number of failed attempts to connect to POP3/IMAP email server
notif_modem_failed	Total number of modem notification msgs sent that failed since TopView was started
notif_modem_queue	Current number of msgs in the outgoing modem notification queue

Heartbeat settings

Enable heartbeat signal output

If checked, the TopView Engine instance/configuration will output one or two heartbeat signals during each refresh. The output values can then be monitored to verify that the TopView Engine instance is running.

If the user purchased a failover license for TopView, he/she can run a second version of TopView on another machine to monitor the heartbeat output tag. The user should perform a time stamp age or value flat-line alarm on the Output Point tag.

Health Output Point

Select an existing health Output Point for each heartbeat signal.

Most users will only need to configure a single heartbeat Output Point. The second heartbeat Output Point is typically used to send a second heartbeat signal to a different Server or to send different heartbeat outputs for the primary/secondary TopView instance in a failover configuration.

Use the [Edit Output Points] button to configure health Output Points. For more information, see **Output** Points on page **207**.

Only enable heartbeat if the TopView Engine is running on computer named X

If selected and a computer name is entered, the heartbeat output point will only be written if this configuration is running on the named computer. For failover configuration, use this setting to restrict heartbeat output to the one computer (assuming that the primary and secondary computer share the same configuration file). See **TopView Failure** on page 596 for more information on failover configuration.

Press [Get this computer name] to retrieve the current computer name into the computer name text box.

TopView Performance Counters

Windows Performance Counters can monitor system components such as processors, memory, and network I/O.

TopView Performance Counters provide TopView performance information using the same framework as existing Windows Performance Counters. Tools used for monitoring Windows Performance Counters (e.g., Windows PerfMon, TopView PerfMon) can then monitor TopView through its Performance Counters. TopView Performance Counters are also displayed on the Performance screen in TopView Admin Tools.

Note: the same performance information available through TopView Performance Counters is also available through TopView Status Tags. See **TopView Status Tags** on page 46.

Negative values – only supported for Status Tags

A few of the performance items have initial or failure states that can be negative. Windows Performance Counters do not support negative values and any negative values will be written to the Performance Counter as a zero. If you monitor the performance item as a TopView Status Tag you will be able to see the negative values. See **TopView Status Tags** on page 46

Available TopView Performance Counters

TopView Performance Counters are created on the local computer and per TopView configuration.

TopView Performance Counters exist under the Performance Counter category "TopView". Each running TopView configuration will create a new instance of the counters; the instance name is the TopView configuration name.

Category name: TopView

Instance name: *cfgname* (where *cfgname* is the name of the TopView configuration)

Counter	Description
alarm_count	Number of current alarms
alarm_totalcount	Total number of alarms that have occurred since TopView was started
alarmactionslog_queue	Total number of alarm actions events that exist in the write queue for the alarm actions log files
alarmlog_queue	Total number of alarm events that exist in the write queue for the alarm log file
applog_queue	Total number of events that exist in the write queue for the TopView application log file
config_available	Is the configuration file for the Engine available (1=True, 0=False) False if the configuration file does not exist. This may indicate a file server failure if the configuration file is not stored locally.
disabled_count	Number of rows with 'disable alarms' set

Counter	Description
errorlog_count	Total number of error entries added to the application log and alarm actions log since TopView started
events_incoming_totalcount	Total number of events that have arrived from Event Generators since TopView was started (TopView Events)
events_incoming_count	Total number of events that have arrived from Event Generators since the last refresh (TopView Events)
events_log_queue	Total number of items in the events log queue waiting to be written to the events log (TopView Events)
heartbeat_5min_sawtooth	Five-minute sawtooth value from 0 to 300 while TopView is running
http_modem_ping (primary) http_bmodem_ping (backup)	=1 if we can ping the networked cellular modem, -1 for ping failure and -2 before we have a result (Note: see Negative values – only supported for Status Tags)
http_modem_signal (primary) http_bmodem_signal (backup)	cellular signal strength of the networked cellular modem (0-100%), -1 for failure getting signal strength and -2 before we have a result (Note: see Negative values – only supported for Status Tags)
http_modem_inbox_count (primary) http_bmodem_inbox_count (backup)	number of received SMS messages stored on the networked cellular modem (0-n), -1 for failure getting count and -2 before we have a result (Note: see Negative values – only supported for Status Tags)
http_modem_unsent_count (primary) http_bmodem_unsent_count (backup)	number of unsent SMS messages (not 'sending' or 'sent') in the networked cellular modem's SMS sent log (0-n), -1 for failure getting count and -2 before we have a result (Note: see Negative values – only supported for Status Tags)
http_modem_sim_connected (primary) http_bmodem_sim_connected (backup)	=1 if the sim card is connected to networked cellular modem, 0 if the sim is disconnected, -1 for failure connecting to the modem and -2 before we have a result (Note: see Negative values – only supported for Status Tags)
http_modem_last_failure (primary)	the time of most recent message send failure in the modem log. Performance counters must be integers, so the value of this counter/status tag is

Counter	Description
http_bmodem_last_failure (backup)	an integer formatted as MMddHHmmss if a recent failure is found, 0 if none found, -1 for failure connecting to the modem and -2 before we have a result. MM=month(01-12), dd=day(01-31), HH=hour(00-23), mm=minute(00-59), ss=second(00-59) (Note: see Negative values – only supported for Status Tags)
http_last_send_modem	If modem failover is configured, indicates the most recent modem used when sending SMS messages. 0 before any messages sent, 1 for primary, 2 for backup
notif_emailsms_failed	Total number of email-SMS notification msgs sent that failed since TopView was started
notif_emailsms_lastfailed	Did the most recent email-SMS notification message fail. 1=True, 0=False
notif_emailsms_queue	Current number of msgs in the outgoing email-SMS queue
notif_emailsms_sent	Total number of email-SMS notification msgs sent since TopView was started
notif_incomingemail_failed	Total number of failed attempts to connect to the POP3/IMAP email server
notif_modem_failed	Total number of modem notification msgs sent that failed since TopView was started
notif_modem_queue	Current number of msgs in the outgoing modem notification queue
notif_modem_sent	Total number of modem notification msgs sent since TopView was started
notif_pop3_failed	(deprecated – use notif_incomingemail_failed) Total number of failed attempts to connect to the POP3/IMAP email server
notif_voice_failed	Total number of voice notification msgs sent that failed since TopView was started
notif_voice_lastfailed	Did the most recent voice notification call fail. 1=True, 0=False
notif_voice_queue	Current number of msgs in the outgoing voice notification queue
notif_voice_sent	Total number of voice notification msgs sent since TopView was started
pi_ep_count	Number of PI EventPipe events received during the most recent refresh (TopView PI only)

Counter	Description
process_memory_private_bytes	Memory usage (bytes) of the current process (Process.PrivateMemorySize64)
process_memory_workingset_bytes	Memory usage (bytes) of the current process (Process.WorkingSet64)
refresh_seconds	Number of seconds since the last refresh of the Engine (based on the configured refresh interval). 0 before the first refresh.
remoteviewer_connections_total	Current number of Remote Viewer connections
remoteviewer_connections_unique	Current number of unique Remote Viewer process connections
restart_seconds	Number of seconds since TopView restarted internally (new configuration file, reconnected server that required internal restart)
row_count	Number of rows in the TopView configuration (tags, User Tags, Operations, ...)
runtime_seconds	Number of seconds since the TopView process started
servers_connected	Equal to 1 if TopView is connected to all data servers (PI, OPC, SQL, Canary Labs,...)
servers_count	Number of data servers or databases accessed by TopView
servers_opc_primary_failover	For users with a primary and failover OPC Servers, the current state of server connection. 0=undefined, 1=connected to primary, 2=connected to failover, 3=not connected
snmptrap_failed	Total number of SNMP Trap msgs sent that failed since TopView was started
snmptrap_queue	Current number of msgs in the outgoing SNMP Trap queue
snmptrap_sent	Total number of SNMP Trap msgs sent since TopView was started
sqlserver_alarmlog_queue	Total number of items in the SQL Server alarm log queue waiting to be written to SQL Server
sqlserver_connected	Equal to 1 if TopView is connected to SQL Server for alarm logging and/or Snapshot Output
sqlserver_update_failed	Total number of SQL Server inserts, updates, or purges that failed
subscription_daysleft	Number of days remaining in the TopView license subscription. 0 if expired or not a subscription license

Counter	Description
statusnotgood_count	Number of rows where the status of the current value is not good
tag_read_mseconds	Number of milliseconds to read all tag values during the last refresh
tapi_uninit_in	Total number of TAPI uninitializations performed for Remote Dial-in
tapi_uninit_out	Total number of TAPI uninitializations performed for Voice Notification
threads_available	Total number of currently available threads for this instance of TopView
threads_max	Maximum number of threads that can be available for this instance of TopView
unack_count	Number of currently unacknowledged alarms

Enable TopView Performance Counters

Write to TopView Performance Counters (this configuration)

If checked, the current TopView configuration will write to TopView Performance Counters when it is running.

Status of TopView Performance Counters

If the status should be displayed as "Verified" before TopView can write to the counters.

If the status is not "Verified" you can click [Create] to create the Performance Counter Category (TopView) and counters on the TopView computer. If you are creating multiple TopView configurations/engines you only need to perform this step once.

Note: when you start a TopView Engine instance/configuration where TopView Performance Counters are enabled, a new instance within the TopView Performance Counter category is created. The name of the instance is the configuration name.

Remove TopView Performance Counters

Click the [Remove] button to remove the TopView category and performance counters from the local computer.

Behavior of TopView Performance Counters

TopView Performance Counters can be monitored using TopView PerfMon or other tools for Windows Performance Counter monitoring. Since TopView Performance Counters exist per TopView configuration, the existence and the values of existing counters depends on the state of the TopView Engine instance for the configuration (running, stopped). This is best illustrated through an example:

Example:

- The TopView Configurator used to create a configuration file: ABC.cfg
- Configuration ABC has enabled TopView Performance Counters. The user also verified TopView Performance Counters to make sure the category and counters exist.
- Configuration ABC is installed as a Windows Service named topview_abc

With the above configuration ABC, there is a TopView Performance Counter that returns the total number of seconds since TopView configuration ABC was last started (i.e., TopView service topview_abc was started). The details of this Performance Counter are:

Category: TopView
Instance: ABC
Name: runtime_seconds

The following sequence of events occur:

1. topview_abc has not been started
Because topview_abc is not running, instance ABC has not been created and the counter (runtime_seconds for instance ABC) does not exist.
2. topview_abc is started
Instance ABC is created and the counter (runtime_seconds for instance ABC) now exists. The value of the counter is the number of seconds since topview_abc was started.

topview_abc is stopped

The counter will exist for a period of time even though the process that created instance ABC no longer exists. While it exists, the value of the counter will not change because topview_abc is no longer running.

After some period of time, instance ABC will no longer exist and the counter (runtime_seconds for instance ABC) will be unavailable.

Create Shortcuts

Each TopView configuration file launches one instance of the TopView Engine. This TopView Engine instance can be configured to run interactively or as a Service. This section describes configuring TopView to run interactively. See **Configure Services** on page 444 for information on running TopView as a Service.

When running interactively, the TopView Engine will run as long as the user is logged onto the machine. If the user logs off, the TopView Engine instance will close. To run the TopView Engine interactively for the current configuration file, the user can

- Click the [Launch] button in the upper left corner of the TopView Configurator



- Create a shortcut using the **Create Shortcuts** screen, then launch TopView from the shortcut

Once the user has saved the current configuration file, he/she can test and create a TopView Engine shortcut.

Create Shortcuts screen

Create Shortcuts

Create a shortcut to launch an interactive instance of the TopView Engine using this configuration file.
Note: an interactive instance of the TopView Engine (not a Service) only runs while the Windows user is logged on.
Once you have configured the shortcut details, click the [Create] button to create the shortcut.

Shortcut details

Shortcut name:

Target:

Shortcut location:

Choose a shortcut location

or locate a folder

Existing shortcuts at this location

Launch TopView Simulation	<input type="button" value="Delete"/>
TopView Config	
TopView unit1.kep	

Shortcut Details

Shortcut name

User-entered name for the shortcut

[Create shortcut] button

Use this button to create the shortcut once you have confirmed the Shortcut location

Target

The launch command for the new shortcut. The format of the target is

TopView.exe configfilename

[Launch] button

Launch the TopView Engine instance for this configuration
Use this to test the shortcut target setting

Shortcut location

Select the location for the new shortcut. Typical locations are the user desktop or start menu.

The screenshot shows a Windows dialog box titled "Shortcut location". At the top, there is a text field containing the path "C:\ProgramData\Microsoft\Windows\Start Menu\Programs\Exele TopView" and an "Open..." button to its right. Below this, there is a section labeled "Choose a shortcut location" with a dropdown menu currently showing "TopView". Underneath, the text "or locate a folder" is followed by a "Browse..." button with a folder icon. A section titled "Existing shortcuts at this location" contains a list box with three items: "Launch TopView Simulation", "TopView Config", and "TopView unit1.kep", with the last item selected. To the right of the list box is a "Delete" button.

Configure Services

Each TopView configuration file contains the settings for one instance of the TopView Engine (alarm and notification engine). The TopView Engine can be configured to run interactively or as a Windows Service. This section describes configuring TopView to run as a Service. See **Create Shortcuts** on page 441 for information on running TopView interactively.

Running an instance of the TopView Engine as a Windows Service allows the TopView Engine instance to start automatically when the machine is booted and does not require a user to be logged in to the TopView computer.

Configure Services allows the user to perform two separate tasks

1. Install or re-install the Service for the current TopView configuration
2. Start, stop, remove, or upgrade any TopView Service (current configuration or another configuration)

You can also install TopView Services using the TopView Service command-line tool. See **TopView Engine Service Manager** on page 538 for more information.

Install/Re-install the Service for this TopView Configuration

The TopView Engine Service for the current configuration can be installed with various properties. These properties can also be changed by re-installing the Service with the new settings.

Install or Re-install the Service

Use the button to install, or re-install, the TopView Service for the current configuration using the entered settings for Startup type, LogOn account, and Display running TopView Engine window.

Note: If the user re-installs an existing TopView Service, any changes made to the Service's properties outside of the TopView Configurator (Control Panel...Administrator tools...Services) will not be preserved. If the user would like to upgrade a TopView Service to a new version of TopView and preserve all current Service settings, they should use the [**Upgrade**] button located to the right of the list of existing TopView Services.

Service name

TopView_cfgname where "cfgname" is the name of the configuration file.

Example:

If the configuration file is named PlantAlarms.cfg, the Server name will be TopView_PlantAlarms

Startup type

Manual: user will need to start the TopView Service after a reboot

Automatic: the TopView Service will automatically start after a reboot

Delayed startup

When the TopView machine reboots, all Windows Services (TopView and non-TopView Services) with Startup type = Automatic will be started. Any Services with "Delayed startup" will be started after all other Automatic Services have been started. The default delay is 2 minutes.

This setting can be enabled if TopView Engine startup issues are only encountered after a reboot. If a startup delay is required for all TopView Engine startups please see **Startup delay** on page 216.

LogOn account for Service

Services run under a specified account. By default, TopView Services are installed to run under the LocalSystem account. If the LocalSystem account does not have permission to connect to your Server, or you need access to resources that are not available to LocalSystem, you will need to specify a username and password for the Service.

LocalSystem account: select to set the Service LogOn account to LocalSystem

User account: select to set the Service LogOn account to a specific user

User: username for the Service as domain\user

For user accounts on the local computer, use a period for the domain

Pw: password for the entered user

Manage existing TopView Engine Services

This section of the Configure Services screen allows the user to manage installed TopView Engine Services.

The same management tasks are available on the TopView Engine Services screen. Please see **TopView Engine Services** on page 76 for more information on Service management tasks

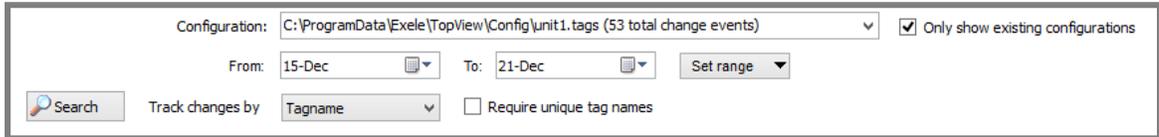
Tag & Limit Changes

TopView maintains a change log and backup of all changes to the monitored tags and alarm settings (.tags file per TopView configuration).

The change history allows the user to query and report the details of all changes to the monitored tags, alarms limits, and related settings.

Search parameters

The search parameters allow the user to configure the change history query



The screenshot shows a search parameters dialog box with the following elements:

- Configuration:** A dropdown menu showing "C:\ProgramData\Exele\TopView\Config\unit1.tags (53 total change events)".
- Only show existing configurations
- From:** A date picker set to "15-Dec".
- To:** A date picker set to "21-Dec".
- Set range:** A button with a dropdown arrow.
- Search:** A button with a magnifying glass icon.
- Track changes by:** A dropdown menu set to "Tagname".
- Require unique tag names

Configuration

The name of the TopView configuration. Each TopView configuration stores tag and limit settings in file named *configname.tags* where *configname* is the name of the configuration.

From and To dates

The search start and end dates. Use the [Set range] button to set common ranges such as Today or "Last 5 days".

Track changes by

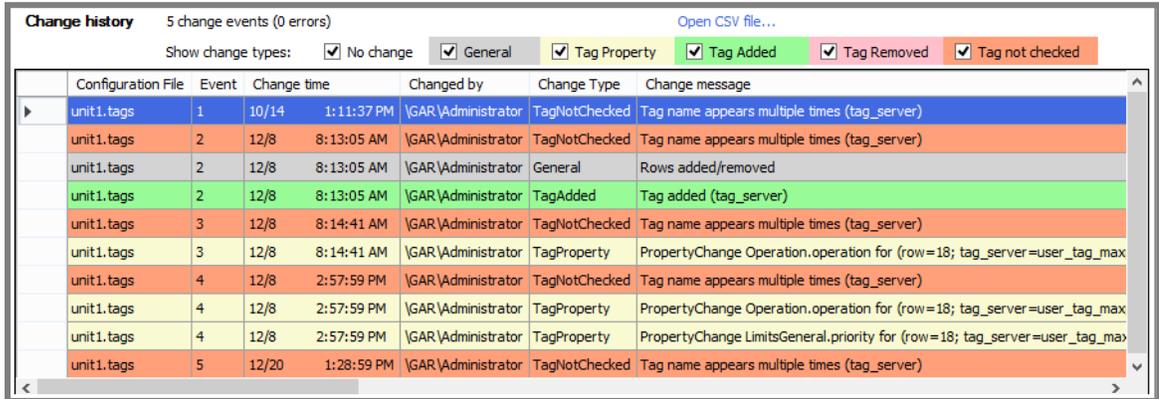
In order to track changes to each monitored tag, the change history needs to know how to identify each monitored tag. The options are:

- **Tagname:** the change history will show all changes to each unique tag name in the monitored tag list. Only select this option if the tag names are unique within the configuration. The change history will not display changes for tag names that appear multiple times.
If "Require unique tag names" is selected, the change history will only be displayed if the tag names in the monitored tag list are unique.
- **Row number:** the change history will show all changes to each row (1...n) in the monitored tag list. Select this option if tags are not moved to new rows and you have not defined RowUID for each tag/row.
- **RowUID:** the change history will show all changes to each unique RowUID in the monitored tag list. Choose this option if you have specified a RowUID for each tag/row in the monitored list.

Click [Search] to display the change history for the current search parameters.

Change history results

The change history results are displayed for the most recent [Search].



Change history 5 change events (0 errors) [Open CSV file...](#)

Show change types: No change General Tag Property Tag Added Tag Removed Tag not checked

Configuration File	Event	Change time	Changed by	Change Type	Change message
unit1.tags	1	10/14 1:11:37 PM	\GAR\Administrator	TagNotChecked	Tag name appears multiple times (tag_server)
unit1.tags	2	12/8 8:13:05 AM	\GAR\Administrator	TagNotChecked	Tag name appears multiple times (tag_server)
unit1.tags	2	12/8 8:13:05 AM	\GAR\Administrator	General	Rows added/removed
unit1.tags	2	12/8 8:13:05 AM	\GAR\Administrator	TagAdded	Tag added (tag_server)
unit1.tags	3	12/8 8:14:41 AM	\GAR\Administrator	TagNotChecked	Tag name appears multiple times (tag_server)
unit1.tags	3	12/8 8:14:41 AM	\GAR\Administrator	TagProperty	PropertyChange Operation.operation for (row=18; tag_server=user_tag_max
unit1.tags	4	12/8 2:57:59 PM	\GAR\Administrator	TagNotChecked	Tag name appears multiple times (tag_server)
unit1.tags	4	12/8 2:57:59 PM	\GAR\Administrator	TagProperty	PropertyChange Operation.operation for (row=18; tag_server=user_tag_max
unit1.tags	4	12/8 2:57:59 PM	\GAR\Administrator	TagProperty	PropertyChange LimitsGeneral.priority for (row=18; tag_server=user_tag_max
unit1.tags	5	12/20 1:28:59 PM	\GAR\Administrator	TagNotChecked	Tag name appears multiple times (tag_server)

Change history columns

- Configuration file: the configuration's .tags file name
- Event and Change time: Each event number is a changed .tags file and will have the same change time
- Changed by: the Windows user account who made the change
- Change type: the type of change that occurred. See below for details on change type.
- Change message: a description of the change
- Property: if the change type is "tag property", the name of the property that was changed
- New/Old value: the current and previous values of the item that was changed
- New/Old tag name and rowuid: the current and previous tag name and rowuid for the item that was changed.

Change types

- No changes: there are no changes between the current .tags file and the previous .tags file
- General: a message about a general change to the tag list (e.g., row count changed)
- Tag property: the property value of a tag was changed
- Tag added: a tag was added to the monitored tag list
- Tag removed: a tag was removed from the monitored tag list
- Tag not checked: the tag could not be checked for changes (e.g., tracking changes by tag name but the tag name is not unique in the monitored tag list).

Configuration Reports

Creating a configuration file in the TopView Configurator requires that the user enter information in multiple locations on different configuration screens. The Reports will summarize the details of the current configuration file and provide verification of recipients and notification settings.

There are three separate reports available on the Reports screen:

- **Configuration Details Report:** current configuration file settings
- **Recipient Report:** recipients, the Contacts they are part of, and the tags/rows that can notify them. **Configuration errors will be detected and displayed to the user.**
- **Tag/Row Notification Report:** each tag/row being monitored and the recipients that each tag/row can notify. **Configuration errors will be detected and displayed to the user.**

The screenshot shows a window titled "Configuration Reports" with three tabs: "Configuration Details Report", "Recipient Report", and "Tag/Row Notification Report". The "Configuration Details Report" tab is active. Below the tabs, there is a description: "Configuration Details Report: Lists the current configuration file settings" and "Lists the details of the current TopView configuration file. This report provides a single view of the configuration information that was entered on the various screens in the TopView Configurator." There are two buttons: "Create" and "Save as Text". To the right of "Save as Text" is a "Save as RTF" button. The main content area displays the following text:

TopView Configuration Report
Date: 3/24/2008 11:27:32 AM
File: C:\ProgramData\Exele\TopView\Config\unit1.cfg

Display
Refresh rate: 5
Display columns for Current Values View
Current Tag/Operation Value: True
Tag's measurement units: False
Server: True
Tag name: False
Current timestamp: False
Tag alias or description: True
Time in alarm: True
Tag Group name: True
Tag quality marker: False

Startup & Settings
Startup delay: 0
Suspend on lost Server connection?: True
Auto-restart on configuration changes?: False
Start Window minimized?: False
Show minimized Window on new alarm?: False
Window 'on-top' of other applications?: False
Show top toolbar?: True
Hide column headers?: False
Hide bottom status pane?: False
Only show tags (rows) in alarm (Values View)?: False
Flash alarms rows?: False

User Permissions

Configuration Details Report

The Configuration Details Report: lists the details of the current TopView configuration file. This report provides a single view of the configuration information that was entered on the various screens in the TopView Configurator.

Configuration Report: Lists the current configuration file settings
Lists the details of the current TopView configuration file. This report provides a single view of the configuration information that was entered on the various screens in the TopView Configurator.

Create Save as Text Save as RTF

TopView Configuration Report
Date: 3/13/2008 11:03:04 AM
File: C:\ProgramData\Exele\TopView\Config\unit1.cfg

Display
Refresh rate: 5
Display columns for Current Values View
Current Tag/Operation Value: True
Tag's measurement units: False
Server: True
Tag name: False
Current timestamp: False
Tag alias or description: True
Time in alarm: True
Tag Group name: True
Tag quality marker: False

Startup & Settings
Startup delay: 0
Suspend on lost Server connection?: True
Auto-restart on configuration changes?: False
Start Window minimized?: False
Show minimized Window on new alarm?: False
Window 'on-top' of other applications?: False
Show top toolbar?: True
Hide column headers?: False
Hide bottom status pane?: False
Only show tags (rows) in alarm (Values View)? : False
Flash alarms rows?: False

User Permissions

Recipient Report

The Recipient Report: displays information about each notification recipient (email, SMS, voice callout ...) which is part of this configuration (including Global Notification groups). Configuration errors will be detected and displayed to the user.

Recipient Report: List all recipients, the Contacts they part of, and all tags/rows that notify them
Displays information about each Email, Modem, and Voice Notification recipient that is part of this configuration, including Global Notification groups. Configuration errors will be detected and displayed to the user.

Create Show tags/rows that notify recipient Save as Text Save as RTF

joe@mycompany.com (Email address for Email Notification)
Type: Email address for Email Notification
Is defined as Contact:
 \Shift 1 Supervisor\emailWork
Is a recipient in:
 Global Email Group: dane

man1@exele.com (Email address for Email Notification)
Type: Email address for Email Notification
Is not defined for any Contacts
Is a recipient in:
 Global Email Group: Managers
 Notified by Row 11, Tag=OTAGS004 (Station 4 status) on Server MyServer
 Notified by Row 12, Tag=OTAGS004 (Station 5 status) on Server MyServer
 Notified by Row 13, Tag=OTAGS005 (Station 6 status) on Server MyServer

man2@exele.com (Email address for Email Notification)
Type: Email address for Email Notification
Is not defined for any Contacts
Is a recipient in:
 Global Email Group: Managers
 Notified by Row 11, Tag=OTAGS004 (Station 4 status) on Server MyServer
 Notified by Row 12, Tag=OTAGS004 (Station 5 status) on Server MyServer
 Notified by Row 13, Tag=OTAGS005 (Station 6 status) on Server MyServer

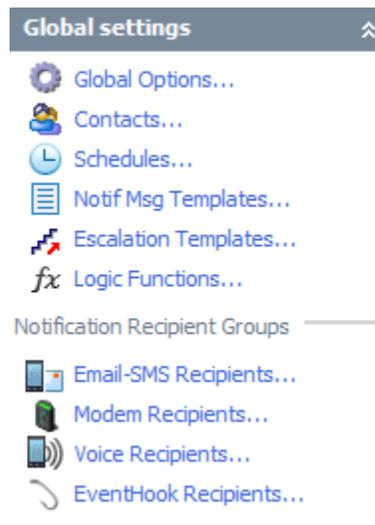
myboss@mycompany.com (Email address for Email Notification)
Type: Email address for Email Notification
Is defined as Contact:

Global Settings (overview)

The tags, limits, and notification settings that the user enters in the TopView Configurator are stored as part of a TopView configuration file. Multiple configuration files can be created, and the settings in each configuration can be used to drive the operation of separate instances of the TopView Engine (the Alarm and Notification Engine).

Although the configuration settings are separated by configuration file, there are a group of settings that are “global”, meaning that the settings are shared by all TopView configurations.

The “Global settings” section of the left menu allows the user to view and edit various the global settings.



Note: there is a separate TopView application that allows the user to view and edit global settings independent of the TopView Configurator. See **Contacts, Schedules, and Global** on page 504 for more information.

Logic Functions (Expressions)

TopView alarms are often logic-based conditions relating to the current value of a tag/point. In some cases, more advanced logic is required to define the alarm condition. This may include the comparison of multiple tag values, performing if...then...else logic, and arithmetic.

TopView Logic Functions allow the user to perform logic operations and calculations involving one or more inputs. The inputs to the logic are typically one or more current tag values. The return value from a logic function (the function result) can be monitored just like any other tag in TopView, allowing the user to apply alarm conditions and notification to the function result.

A Logic Function

- accepts one or more arguments (e.g., tag values)
- performs logic on the inputs
- returns a value (numeric, string, boolean) that can be monitored like tag values
- optionally returns a function status (Good, Bad)

Overview: using Logic Functions

Each Logic Function has a name and set of arguments/inputs

Example:

Function name: MyFunction

Arguments: value1, value2

The user defines the logic of the function based on the arguments. It must also supply a return value.

Example logic for MyFunction:

```
Return (value1 + value2)
```

The return value of MyFunction is the sum of the 2 passed arguments

To call a Logic Function for a set of inputs, the user must call the FCN operation for a tag in the TopView monitored tag list. (See **Operation** on page 99 for more information on Operations). The tag with the defined FCN operation can be a tag from your data server or a User Tag.

When the FCN operation is configured, the arguments can be static values or placeholders. Common placeholders used for the FCN operation are those that reference current tag values.

This example operation will return the sum of the passed 2 numbers:

```
FCN MyFunction 5.1, 6.7
```

A more typical example would return the sum of the current value of two tags.

The most commonly used placeholder for Logic Function arguments is `<%tagvalue||servername||tagname%>` which returns the current value for tag "tagname" on server "servername"

Example operation passing the current value of tagA and tagB to MyFunction:

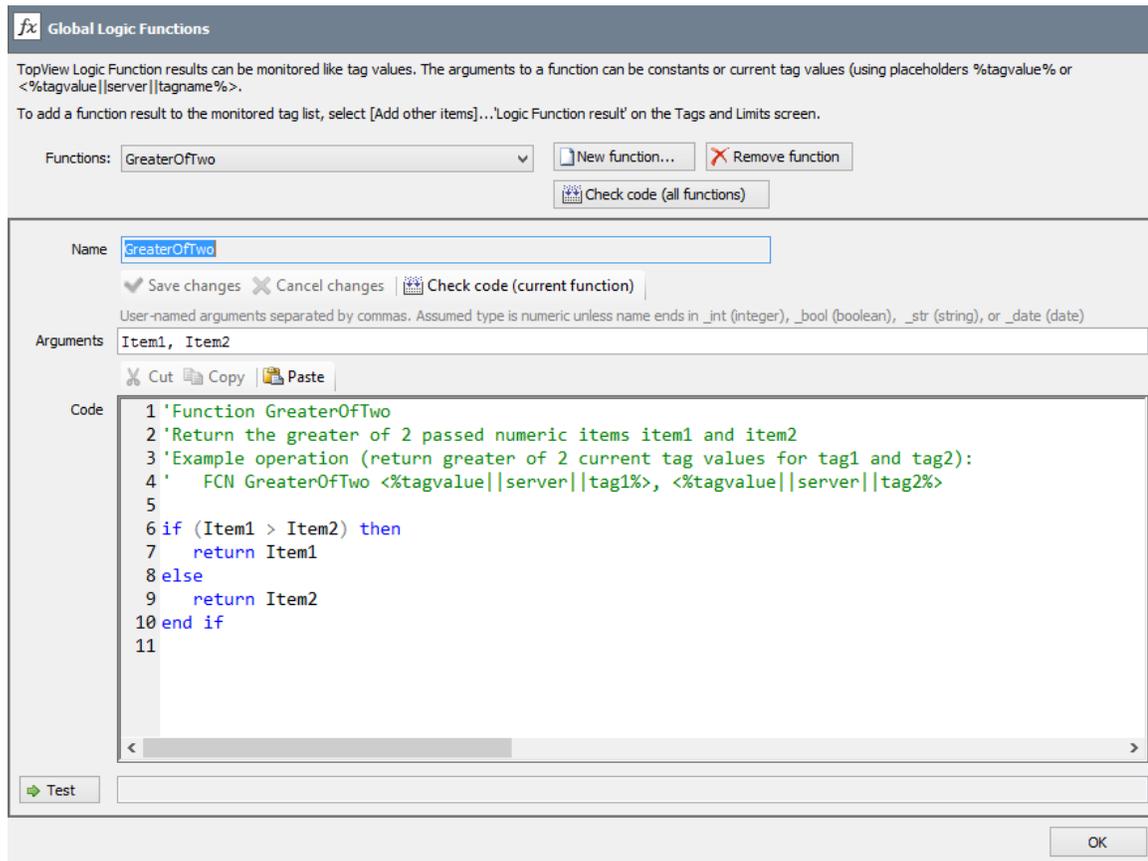
```
FCN MyFunction(<%tagvalue||myserver||tagA%>, <%tagvalue||myserver||tagB%>)
```

See **Placeholders for messages, text, and Logic Function arguments** on page 149 for more information on available placeholders.

Creating Logic Functions

TopView Logic Functions are global, meaning that they are visible to all TopView configurations.

To view, edit, or create Logic Functions, click "Logic Functions..." from the Global Settings section of the left menu in the TopView Configurator.



The Functions dropdown contains a list of existing Logic Functions.

To remove/delete the current function, click the [Remove function] button

To create a new function, click the [New function...] button and enter the name for the new function.

- Enter the function arguments and code (see below for details)
- Click [Save changes] to save changes to the function details
- Click [Cancel changes] to cancel any changes since the last save
- Click [Check code (current function)] to check the function code for any errors

Function details

The screenshot shows a function editor window. At the top, the 'Name' field contains 'GreaterOfTwo'. Below it are buttons for 'Save changes', 'Cancel changes', and 'Check code (current function)'. A note states: 'User-named arguments separated by commas. Assumed type is numeric unless name ends in _int (integer), _bool (boolean), _str (string), or _date (date)'. The 'Arguments' field contains 'Item1, Item2'. Below this are 'Cut', 'Copy', and 'Paste' buttons. The 'Code' area contains the following text:

```
1 'Function GreaterOfTwo
2 'Return the greater of 2 passed numeric items item1 and item2
3 'Example operation (return greater of 2 current tag values for tag1 and tag2):
4 '   FCN GreaterOfTwo <%tagvalue||server||tag1%>, <%tagvalue||server||tag2%>
5
6 if (Item1 > Item2) then
7   return Item1
8 else
9   return Item2
10 end if
11
```

At the bottom left, there is a 'Test' button.

Name

The user-given name of the function

Arguments

A comma-separated list of inputs to the function. The user can choose the names of the arguments and these names are then used within the function code to reference the argument value. It is recommended that the name of each argument relate to the input (e.g., PumpTemperature, Level, TargetValue).

Argument type

By default, each argument is assumed to be numeric (floating point, whole number). To specify an argument type other than numeric, add one of the following data type extensions to the end of the argument name:

- `_int` Integer value (... , -2, -1, 0, 1, 2, ...)
- `_bool` Boolean value (true/false)
- `_str` String value (ON, OFF, Rising)
- `_date` Date value (01-Sep-2012 21:05:00)

Argument examples:

- `MyValue` Numeric, floating point number
- `MyValue_int` Integer
- `MyValue_bool` Boolean value
- `MyValue_str` String value
- `MyValue_date` Date value

Note: within the function code, referencing an argument value requires that you enter the full argument name including any data type extension.

Code

The code contains the function logic.
Use the argument names to reference the function input values.

Example:

```
'Function xGreaterOfTwo
'Return the greater of 2 passed numeric items item1 and item2
'Example operation (return greater of 2 current tag values for tag1
'and tag2):
'   FCN xGreaterOfTwo <%tagvalue||server||tag1%>,
<%tagvalue||server||tag2%>

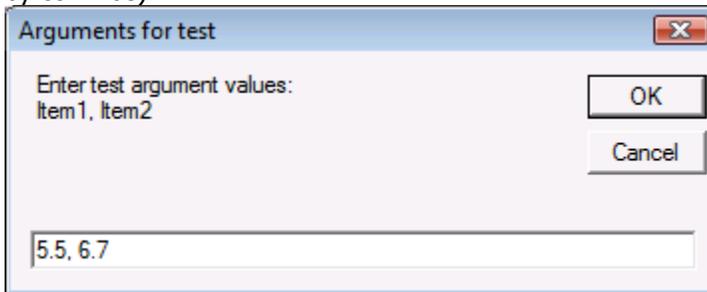
if (Item1 > Item2) then
    return Item1
else
    return Item2
end if
```

Each execution path of the code must return a value – the result of the function.
This is accomplished through the
 return X
statement.

The syntax of the logic function code follows the Microsoft Visual Basic .Net language (comments, variables, operators, If...then...else). Multiple example functions are installed with TopView that demonstrate common Visual Basic language features. Please contact Exele if you have any additional questions.

Test

The user can test a function for a set of input values using the [Test] button. When [Test] is clicked, the user is prompted to enter a value for each argument of the function (separated by commas).



The result of the test is then displayed next to the [Test] button



Using Logic Function result and status

Logic Functions are implemented with a tag or User Tag that calls the FCN operation. See examples in the Logic Function Tutorial section below. See **Operation** on page 99 for more information on Operations.

The "value" of a tag that calls the FCN operation is the result of the Logic Function as determined by the

Return value

statement in the function.

Because the user has control of the return value, the data type can be any type supported by TopView, including string, numeric, Boolean, or date.

Status of result

Each monitored TopView tag has a value and status. The status of a tag can be used in alarm conditions (has good/bad status) and the total number of tags with Bad status can be monitored through the statusnotgood_count TopView status tag.

Each tag that calls the FCN operation has a value and status. Under normal operation, the value is returned by the function's Return statement, and the status is Good.

- Explicitly returning function status: Within a logic function, the user can set the value of FunctionFail to True or False. If set to True, the return status of the function is Bad. If not set or set to False, the return status of the function is Good.

Example:

```
If (somecondition) then
    FunctionFail = true
Else
    FunctionFail = false
End If
```

- If the Logic Function performs an invalid operation (i.e., throws an unhandled exception) the status of the tag will be set to Bad.

Edits to Logic Functions (TopView running)

If the TopView Engine is running and calling a Logic Function which is edited (changes to function saved), TopView will recognize the change within 10 seconds.

Warning: if you are editing a Logic Function by adding or removing arguments, and the function is currently in use by one or more instances of the TopView Engine, you should

1. Stop the TopView Engine(s)
2. Edit the function arguments
3. Edit the TopView configurations that call this function to make the required changes to the argument list
4. Restart the TopView Engine(s)

Imports and References to .Net assemblies

The syntax of the Logic Function code follows the Microsoft Visual Basic .Net language (comments, variables, operators, If...then...else).

References to .Net assemblies

Each Logic Function has a built-in set of referenced .Net Framework assemblies. These include:

- System.dll
- System.xml.dll
- System.data.dll

The user can add additional references by adding a Reference keyword at the top of the Logic Function code.

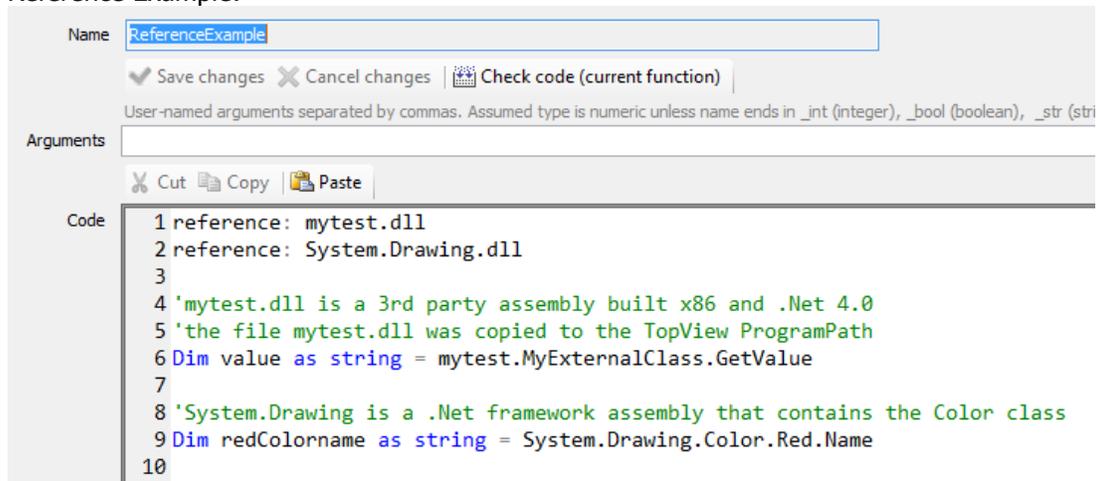
Referencing .Net assemblies:

- specify the assembly name (see example below).

3rd party assemblies:

- must be callable from an x86 application (built x86 or AnyCPU)
- must be callable from a .Net 4 application (TopView)
- the assembly file (dll) must be copied to the TopView ProgramPath

Reference Example:



The screenshot shows a Logic Function editor with the following elements:

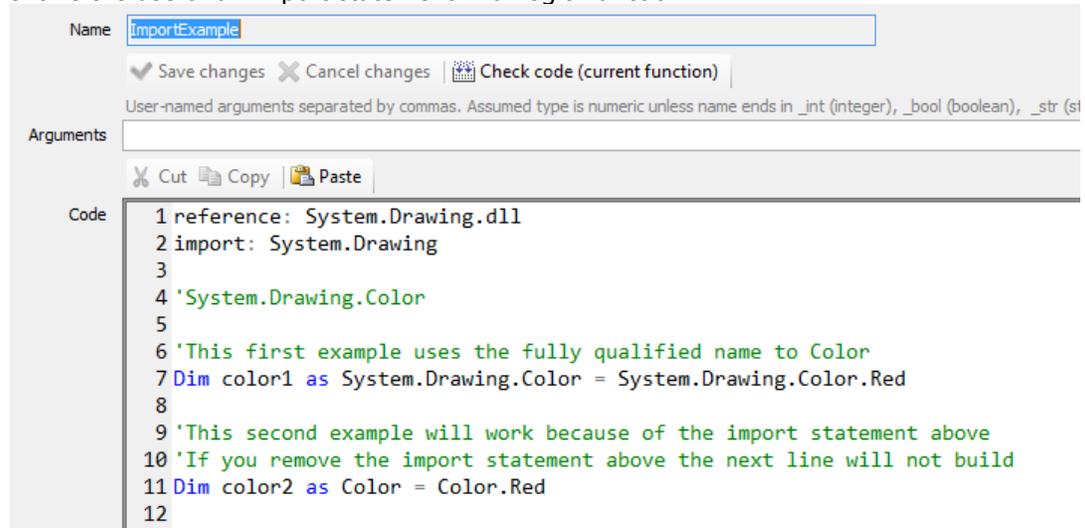
- Name:** ReferenceExample
- Buttons:** Save changes, Cancel changes, Check code (current function)
- Arguments:** User-named arguments separated by commas. Assumed type is numeric unless name ends in _int (integer), _bool (boolean), _str (string)
- Code:**

```
1 reference: mytest.dll
2 reference: System.Drawing.dll
3
4 'mytest.dll is a 3rd party assembly built x86 and .Net 4.0
5 'the file mytest.dll was copied to the TopView ProgramPath
6 Dim value as string = mytest.MyExternalClass.GetValue
7
8 'System.Drawing is a .Net framework assembly that contains the Color class
9 Dim redColorname as string = System.Drawing.Color.Red.Name
10
```

Import

An import enables type names to be referenced without namespace qualification.

Import statements should be entered at the top of a Logic Function. The following example shows the use of an import statement in a Logic Function:



The screenshot shows a Logic Function editor interface. At the top, the 'Name' field contains 'ImportExample'. Below it are buttons for 'Save changes', 'Cancel changes', and 'Check code (current function)'. A note below the buttons reads: 'User-named arguments separated by commas. Assumed type is numeric unless name ends in _int (integer), _bool (boolean), _str (string)'. The 'Arguments' field is empty. Below the arguments are buttons for 'Cut', 'Copy', and 'Paste'. The 'Code' area contains the following text:

```
1 reference: System.Drawing.dll
2 import: System.Drawing
3
4 'System.Drawing.Color
5
6 'This first example uses the fully qualified name to Color
7 Dim color1 as System.Drawing.Color = System.Drawing.Color.Red
8
9 'This second example will work because of the import statement above
10 'If you remove the import statement above the next line will not build
11 Dim color2 as Color = Color.Red
12
```

Logic Function Tutorials and Examples

Example #1

A tag, TagA, exists in the user's data server. Instead of monitoring/alarming the current value of the tag, the user would like to monitor and alarm the "square of a tags current value".

Monitor value: $(\text{TagA})^2$, or $(\text{TagA} * \text{TagA})$

Create Logic Function

Create a new Logic Function

- Function name: SQUARE
- Arguments: one input, the current tag value, named "tagval"
- Logic: there are two options for the logic.
The logic can (1) square the passed value, or (2) multiply the value by itself.
`return tagval^2`
`return tagval*tagval`
- Save the function
- Test the function using the [Test] button

The screenshot shows a logic function editor interface. At the top, the function name is 'SQUARE'. Below the name are buttons for 'Save changes', 'Cancel changes', and 'Check code (current function)'. A 'Check code result' section shows a success message: '1/6/2017 9:50:48 AM: Success! Generated argument list: ByVal tagval as Double'. Below this is a section for 'Arguments' with the value 'tagval' and a note: 'User-named arguments separated by commas. Assumed type is numeric unless name ends in _int (integer), _bool (boolean)'. There are 'Cut', 'Copy', and 'Paste' buttons. The 'Code' section contains the following code:

```
1 'return the square of the passed value
2 'the argument name above is tagval which will be the passed value
3 'Carat ^ is "raise to the power, so
4 ' tagval^2 = "tagval raised to the power of 2"
5 ' another option is to return
6 ' tagval * tagval
7
8 return tagval^2
9
```

At the bottom, there is a 'Test' button and a status bar showing '25 (FunctionFail=False)'.

Add a tag to the monitored tag list

The SQUARE function can be applied to multiple tags. Since the argument to the SQUARE function is a single tag value, we will add a tag (from the data server) to the monitored tag list. This tag is named ITAG010 and is the tag whose value we want to square.

> Row	Tag	Server	Primary Group	Tag ID	Operation	Tag
1	ITAGF010	MyServer	(none)			193

Select the tag in the list, and click the Operations tab from the "Selected tag settings" pane. From the Operations dropdown, select the SQUARE function

Operation: FCN SQUARE tagval

Operation Editor...

Click the [Operations Editor...] button

Operation Editor

Logic Function

Function name: SQUARE

Arguments: tagval

Get FCN argument values

Copy to clipboard for pasting into FCN arguments. Press CTRL-V to paste result into the operation below.

Tag value: <%tagvalue||server||tag%> Show all placeholders (click a name to copy)

Edit the Operation Note: this editor supports multiple lines to assist in the editing of long operation strings

FCN SQUARE tagval

We need to replace the argument, tagval, with the current value of the tag to which we are applying this operation.

Click [Show all placeholders] to show the available placeholders, then click the blue %tagvalue% to copy this placeholder to the clipboard.

%tagvalue% current row tag value before operation; equal to %value% if no operation

Back in the Operations Editor, delete "tagval" and press CTRL-V to paste the copied placeholder into the operation.

Operation Editor

Logic Function
 Function name: SQUARE
 Arguments: tagval

Get FCN argument values
 Copy to clipboard for pasting into FCN arguments. Press CTRL-V to paste result into the operation below.

Tag value: <%tagvalue||server||tag%> Show all placeholders (click a name to copy)

Edit the Operation Note: this editor supports multiple lines to assist in the editing of long operation strings

```
FCN SQUARE $tagvalue$
```

Save and launch the configuration. The TopView value of this tag/row is the square of the current tag value.

In the TopView Engine Window, hover your mouse over the value to see the details of the operation.

Values View Selected Tag Group: All

Value	Units	Tag	Time	Time in alarm
39484.074		ITAGF010	07-Sep-2012 08:13:43	

Details for row: 1

```

In alarm: No
Alarm msg:
Comment:
Unacknowledged: No
Value: 39484.074 (Tag value = 198.706)
Timestamp: 07-Sep-2012 08:13:43
Units:
Operation: FCN SQUARE %tagvalue%
           FCN SQUARE 198.706
Tag: ITAGF010
Desc:
Server: MyServer
Primary Group:
Secondary Groups:
Tag ID:
Priority: 1
Time in alarm:
Alarm limits:
Disabled: False
AND Gate block: False
  
```

Any alarm conditions created for this tag/row will be compared to the operation result (the square of the tag value).

Example #2

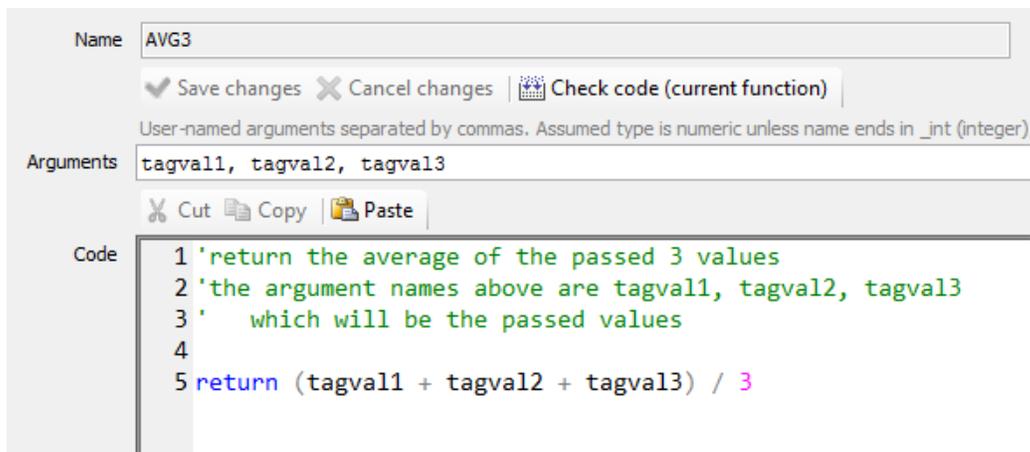
Three tags (TagA, TagB, TagC) exists in the user's data server. The user would like to monitor and alarm the "average of the 3 tag values".

Monitor value: $(\text{TagA} + \text{TagB} + \text{TagC}) / 3$

Create Logic Function

Create a new Logic Function

- Function name: AVG3
- Arguments: three inputs, the 3 current tag values, named tagval1, tagval2, tagval3
- Logic:
return (tagval1 + tagval2 + tagval3)/3
- Save the function
- Test the function using the [Test] button



The screenshot shows a logic function editor interface. At the top, there is a text input field labeled "Name" containing the text "AVG3". Below this field are three buttons: "Save changes" (with a checkmark icon), "Cancel changes" (with an 'X' icon), and "Check code (current function)" (with a code icon). A small text note below the buttons reads: "User-named arguments separated by commas. Assumed type is numeric unless name ends in _int (integer)". Below this is a text input field labeled "Arguments" containing the text "tagval1, tagval2, tagval3". Below the arguments field are three buttons: "Cut" (with a scissors icon), "Copy" (with a document icon), and "Paste" (with a document icon). At the bottom is a text area labeled "Code" containing the following Python code:

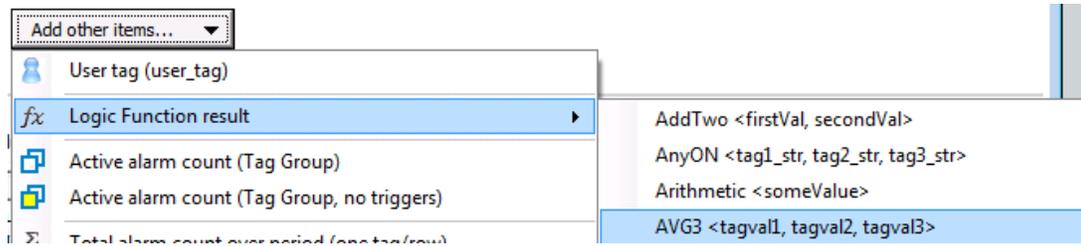
```
1 'return the average of the passed 3 values
2 'the argument names above are tagval1, tagval2, tagval3
3 '   which will be the passed values
4
5 return (tagval1 + tagval2 + tagval3) / 3
```

Add a user tag to the monitored tag list

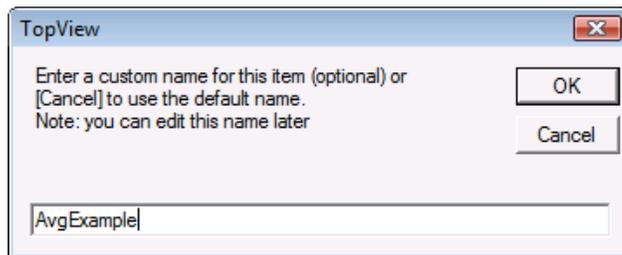
Since the arguments to the AVG3 function are 3 different tag values and not a single tag value, it is recommended that you add a User Tag to the monitored tag list.

TopView contains a shortcut to add a User Tag with a FCN operation.

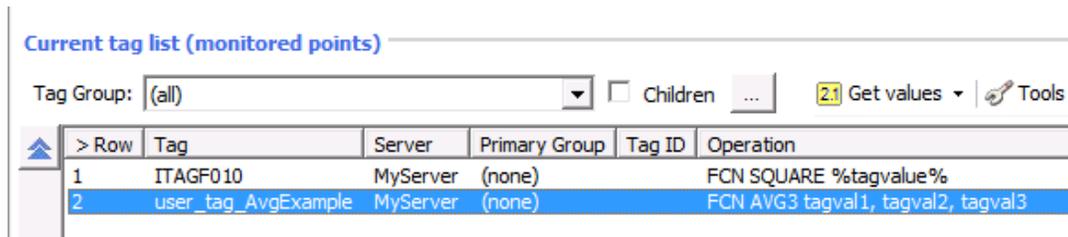
On the Tags and Limits screen, click [Add other items...], Logic Function result, AVG3



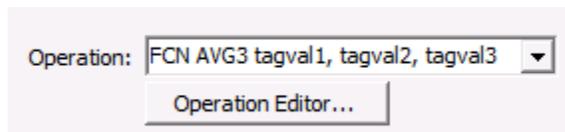
When prompted for the custom name, enter AvgExample. This will be the custom name for the User Tag.



The User Tag will appear in the monitored tag list and the operation is set to "FCN AVG3"



Select the tag in the list and make sure the Operations tab from the "Selected tag settings" pane.



Click the [Operations Editor...] button

Operation Editor

Logic Function
 Function name: AVG3
 Arguments: tagval1, tagval2, tagval3

Get FCN argument values
 Copy to clipboard for pasting into FCN arguments. Press CTRL-V to paste result into the operation below.

Tag value: <%tagvalue||server||tag%> Show all placeholders (click a name to copy)

Edit the Operation Note: this editor supports multiple lines to assist in the editing of long operation strings

```
FCN AVG3 tagval1, tagval2, tagval3
```

We need to replace the 3 arguments (tagval1, tagval2, tagval3) with the current value of the 3 tags that we want to average.

We will replace each argument with the <%tagvalue||server||tag%> placeholder.

To create each placeholder, click the [Tag Value: <%tagvalue||server||tag%>] button.

Tag value: <%tagvalue||server||tag%>

This button allows you to perform a Tag Search to select a tag. It will then create the tag value placeholder for the selected tag and copy this to the clipboard. You can then paste the placeholder into the operation.

Operation Editor

Logic Function
 Function name: AVG3
 Arguments: tagval1, tagval2, tagval3

Get FCN argument values
 Copy to clipboard for pasting into FCN arguments. Press CTRL-V to paste result into the operation below.

Tag value: <%tagvalue||server||tag%> Show all placeholders (click a name to copy)

Edit the Operation Note: this editor supports multiple lines to assist in the editing of long operation strings

```
FCN AVG3 <%tagvalue||MyServer||ITAGF100%>, <%tagvalue||MyServer||ITAGF101%>,
<%tagvalue||MyServer||ITAGF102%>
```

Save and launch the configuration. The TopView value of this User Tag is the average of the 3 tag values.

In the TopView Engine Window, hover your mouse over the value to see the details of the operation.

The screenshot shows a software interface with a 'Values View' window. At the top, it says 'Selected Tag Group: All'. Below this is a table with columns: Value, Units, Tag, Time, and Time in alarm. The table contains two rows. The first row has a value of 39445.257 for tag ITAGF010 at 07-Sep-2012 09:26:13. The second row has a value of 173.246 for tag AvgExample at 07-Sep-2012 09:26:02. The value 173.246 is circled in red. Below the table, a 'Details for row: 2' panel is open, showing various properties for the 'AvgExample' tag. The 'Operation' property is circled in red and shows the formula: 'FCN AVG3 <%tagvalue||MyServer||ITAGF100%>, <%tagvalue||MyServer||ITAGF101%>,... FCN AVG3 122.737, 196.7348, 200.2657'. Other properties include 'In alarm: No', 'Unacknowledged: No', 'Value: 173.246', 'Timestamp: 07-Sep-2012 09:26:02', 'Units:', 'Tag: AvgExample', 'Server: MyServer', 'Priority: 1', and 'AND Gate block: False'.

Value	Units	Tag	Time	Time in alarm
39445.257		ITAGF010	07-Sep-2012 09:26:13	
173.246		AvgExample	07-Sep-2012 09:26:02	

Details for row: 2

In alarm: No
Alarm msg:
Comment:
Unacknowledged: No
Value: 173.246
Timestamp: 07-Sep-2012 09:26:02
Units:
Operation: FCN AVG3 <%tagvalue||MyServer||ITAGF100%>, <%tagvalue||MyServer||ITAGF101%>,... FCN AVG3 122.737, 196.7348, 200.2657
Tag: AvgExample
Desc:
Server: MyServer
Primary Group:
Secondary Groups:
Tag ID:
Priority: 1
Time in alarm:
Alarm limits:
Disabled: False
AND Gate block: False

Any alarm conditions created for this User Tag will be compared to the operation result (the average of the 3 tags).

Global Options

Global Options are computer-wide TopView settings that affect all TopView Configurations. From the main TopView Configurator screen, click "Edit Global Options..." in the Global settings section of the left menu

Global Options: General

Missing tags

In order to execute properly, TopView expects all configured tags to exist. If one or more tags are missing (tag does not exist or TopView does not have permission to see the tag), TopView cannot perform its configured tasks correctly.

Note: TopView PerfMon allows missing tags. See **PerfMon (TopView PerfMon)** on page 61.

Default TopView behavior (do not allow missing tags)

- During startup and while running, all configured tags must exist.
- If TopView cannot resolve one or more tags, an error is logged.
- If the user has configured "Send errors to the Default Email-SMS Group", the error is emailed (see **Email-SMS settings** on page 258).
- TopView will continue to try resolving missing tags. If all missing tags can be resolved, normal operation will continue. Otherwise, TopView is running but paused.

Allow TopView to run with missing tags

If enabled, TopView will continue to execute even if one or more tags cannot be resolved.

Warning: use of this setting may allow TopView to run a partial configuration. Please make sure that you enable "Send errors to the Default Email-SMS Group" in order to receive immediate notification of missing tags.

Supported "missing" tags:

- Tags in the monitored tag list
- Tags used as alarm limit values
- Tags used for Output Points

Operation if "allow missing tags" is enabled:

- Error is logged
- If the user has configured "Send errors to the Default Email-SMS Group", the error is emailed (see **Email-SMS settings** on page 258).
- The missing tag is converted to a user tag (see **User Tags** on page 86).

Example:

Tag XYZ is missing. It is renamed to user_tag_missing_XYZ

- If the tag is part of the monitored tag list, set the flag MissingTagBlock to prevent alarms for this tag. MissingTagBlock is similar to disabled.
- If the tag is a limit tag, the value is set to "MISSING" for all limit comparisons. Numeric limit comparisons (e.g., <, >) will not be evaluated. Some alarm limits may be incorrectly violated (e.g., "not equal to")
- If the tag is an output point, it is disabled.
- **A running TopView Engine instance will not attempt to resolve missing tags until it is restarted.**

Logic Functions

Load all Logic Functions at startup

Logic Functions may be used by each TopView configuration. See **Logic Functions** on page 454 for more information.

Each TopView Engine runs a single TopView configuration. By default, the TopView Engine will only load and build the Logic Functions used by the configuration.

If “TopView Engine should load all Logic Functions at startup” is selected the TopView Engine will load and build all Logic Functions regardless of their use in the configuration. This option should only be enabled if the TopView Engine fails to load required Logic Functions.

Load any changes without a restart

The default behavior of the TopView Engine is to load and build any changes to Logic Functions that occur while the Engine is running.

If this option is unchecked the TopView Engine will only load Logic Functions at startup. Any changes to Logic Functions while the Engine is running will be applied during the next restart of the Engine.

Configuration File Changes

A running TopView Engine can automatically check for changes to the current configuration (see **Apply configuration changes while running** on page 217).

The TopView Engine will check for configuration changes by looking at the modified time of the configuration file. In some cases where the configuration is stored on a separate machine (file server), the modified time of the file may change before the contents of the file can be read successfully.

If “TopView Engine should wait X seconds before attempting to read changes to a configuration file” is set to a positive number (of seconds), the TopView Engine will wait X seconds before attempting to read the changed configuration file. This delay can ensure that the file contents can be properly read.

Persisting runtime disable/enable states delay

TopView Engine should wait X seconds after last disable/enable change before persisting changes to the configuration file

The TopView Engine can write runtime disable/enable actions back to the configuration file (see **Write run-time alarm disable and snooze actions back to this configuration file** on page 218 for more information).

If TopView is writing back runtime disable actions, TopView will wait X seconds after the last enable/disable action before writing back to the configuration file. This allows multiple, recent enable/disable actions to be persisted with a single update of the configuration file.

Remote Viewer

If a TopView Engine is configured to accept connections from the Remote Viewer TopView client, the Engine listens on the configured port for client connection requests.

If “Reset TopView Engine listener every X hours” is enabled, the Engine will reset the listener at the configured interval. This setting should only be used to resolve specific network issues and upon recommendation of Exele support.

Text-to-speech Conversion

Max characters to convert to speech

The maximum number of characters in a message string that will be converted to spoken words (text-to-speech). If a message exceeds this character length it will be truncated to the maximum length allowed. Text-to-speech conversion may occur in TopView features such as audible alarms and voice notification.

If truncated add...

If a text-to-speech message is truncated because it exceeds the maximum character length, this additional message will be added to the truncated message (before the text-to-speech conversion) to inform the recipient that the message was shortened.

Text-to-speech engine

The default TTS engine in TopView is the Microsoft SAPI Automation interface, a component of Windows operating systems. If for some reason this engine is not operating as expected, the user can select the TTS engine included in the Microsoft .Net Framework.

Warning: voice names may change between SAPI Automation and System.Speech. For example, the SAPI Automation voice "Microsoft Zira Desktop - English (United States)" is named "Microsoft Zira Desktop" when using System.Speech. Switching the TTS Engine may break existing TTS functions in TopView unless the selected voice is updated.

Tag import/export CSV in Configurator

Replacement character for commas

When the monitored tag list is exported, any commas are converted to the entered character(s). During import, any character(s) are converted to commas. The default replacement character is ` (backtick)

Global Options: Alarms

Alarm Color

Each tag/row in TopView has an associated alarm color. The color may be set for each alarm condition or controlled by alarm priority.

By default, the alarm color is only when the alarm is active. The Alarm Color option allows the user to configure a different behavior for use of alarm color:

- When alarm is active (default)
- When alarm is active or unacknowledged
- Until the next alarm

Alarm summary grouping

Default method for Alarm Summaries: select the default method that TopView should use for "per-tag" alarm summary details. See "Alarm Summary Grouping" for more information.

Note: this default is passed to the Remote Viewer for use on the Alarm history and analytics screen.

Alarm Conditions

Value Flatline Alarm: Calculate flat line alarm duration using local machine time

See **Calculating flat-line alarms** on page 145 for more information.

Alarm Messages

Default TopView alarm message should display...

When an alarm occurs, TopView will create an alarm message for the alarm condition. This default alarm message can be configured to display

- the tag name
- the tag description

See **Alarm message and Custom message** on page 138 for more information.

Change order of TopView alarm message and custom alarm message

An alarm message can contain both a custom message and TopView-generated message (see **Alarm message and Custom message** on page 138 for details). By default, a custom alarm message will appear after the TopView-generated alarm message. Use this option to change the order.

Timestamp/Value Change alarms: suppress "from" in alarm message

The timestamp change alarm condition and value change alarm condition will, by default, include a "from" value in the TopView-generated alarm message.

Example: Value changed from 5 to 6

If the user suppresses the "from" value in the TopView-generated alarm message, the alarm message will only contain the "to" portion of the message.

Example: Value changed to 6

Acknowledge

Suppress writing to acknowledge output tag

If an alarm has a configured acknowledge input tag and acknowledge output tag, TopView will suppress writing to the acknowledge output tag if the source of the alarm acknowledge was the acknowledge input tag. Default = True

Return-to-normal actions

TopView allows the user to configure actions that occur when an alarm returns to normal.

These actions include:

- Custom alarm response
- Event Output Point
- RTN Notification
- MQTT publish

An active alarm typically returns to normal due to an alarm that is no longer active. It may also return to normal if the alarm is disabled/shelved or there is an error connecting to the data server. In previous versions, the RTN actions were only executed if the RTN was due to an alarm that was no longer active.

Select the RTN actions that you would like TopView to execute if the RTN is due to an alarm disable/shelve or server connection error.

Global Options: Applications

General

Configurator: Startup: load last configuration

When the Configurator starts it will automatically load the most recent configuration file

Startup: check for elevated permission (run as Administrator)

The Windows user who runs a TopView application may not have the required access to TopView files and may not be allowed to perform certain tasks (e.g., install TopView Service).

Many users work around this limitation by running the application "as Administrator" by right-clicking the application shortcut and choosing "Run as Administrator" or by modifying the properties of the application shortcut.

When enabled for a TopView application this setting instructs the application to check for elevated permissions. If not found it will prompt the user to restart with elevated permission.

Force single instance

When enabled for an application, will only allow once instance of the application to run on the machine.

IPC (Interprocess Communication)

IPC (inter-process communication) is used by TopView Engine clients including the Configurator, Admin Tools, Web Configurator, and other Engines to communicate to running TopView Engines.

TopView supports IPC via TCP (always used by the Web Configurator) and .NET's System.Runtime.Remoting (default for all other IPC clients – Admin Tools, Configurator, Engines).

You can change the default method for "all other IPC clients" to TCP although most users should use the default/recommended settings.

For IPC via TCP, Engines will listen for clients on the next available port within the range of displayed ports. The port range is the entered starting port plus 500. The user can change the starting port if required.

The scan rate should only be changed based on instructions from Exele support.

Configurator: Simplified View

Simplified View options allow the user to hide certain options, menu items, and screens that may not be used or of interest to the end user.

General: Hide alarm RSS feeds

Hide "Alarm RSS Feeds" from the left menu

Tag Settings: Hide advanced tag settings

Hide "Advanced TopView Engine Options for this tag" from the General tab of the selected tag's settings on the Tags and Limits screen. This includes the "Deliver value events to EventHooks" option and User values.

Tag Settings: Hide Custom Fields

Hide the "Custom Fields" tab of the selected tag's settings on the Tags and Limits screen.

Tag Settings: Hide Operations/Log Functions

Hide the "Operations" tab of the selected tag's settings on the Tags and Limits screen. Hide "Logic Functions" from the left menu.

Alarm Limits and Notification Settings Screen (General): Hide advanced notification – Escalation

Hide "Escalation" from the Advanced Notification tab of Alarm Limits and Notification Settings screen. Escalation can still be configured for Tag Groups.

Alarm Limits and Notification Settings Screen (General): Hide advanced notification – RTN

Hide "Return to Normal Notification" from the Advanced Notification tab of Alarm Limits and Notification Settings screen. RTN notification can still be configured for Tag Groups.

Alarm Limits and Notification Settings Screen (General): Hide advanced notification – Acknowledge

Hide "Acknowledge Notification" from the Advanced Notification tab of Alarm Limits and Notification Settings screen. Acknowledge notification can still be configured for Tag Groups.

Alarm Limits and Notification Settings Screen (General): Hide inhibit/Gate

Hide "Inhibit/Gate" tab from the Alarm Limits and Notification Settings screen

Alarm Limits and Notification Settings Screen (General): Hide Custom Actions

Hide "Custom Actions" tab from the Alarm Limits and Notification Settings screen

Alarm Limits and Notification Settings Screen (General): Hide Event Output Points

Hide "Event Output Points" tab from the Alarm Limits and Notification Settings screen

Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification

Hide the per-limit notification recipient and notification message settings on the "Alarm Limits" tab in the Alarm Limits and Notification Settings screen. Alarm notification can still be configured for Tag Groups.

Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification custom subject

Hide the per-limit custom email subject settings on the "Alarm Limits" tab in the Alarm Limits and Notification Settings screen.

Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification recipients

Hide the per-limit notification recipients on the "Alarm Limits" tab in the Alarm Limits and Notification Settings screen.

Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit notification attachments

Hide the per-limit email attachment settings on the "Alarm Limits" tab in the Alarm Limits and Notification Settings screen.

Alarm Limits and Notification Settings Screen (Alarm limits): Hide alarm limit priority

Hide the per-limit alarm priority settings on the "Alarm Limits" tab in the Alarm Limits and Notification Settings screen. Priority can still be set for the tag/row.

Alarm Limits and Notification Settings Screen (Alarm limits): Hide comment for alarm limits

Hide the comment field on the "Alarm Limits" tab in the Alarm Limits and Notification Settings screen.

Alarm Limits and Notification Settings Screen (Acknowledge Settings): Hide 'Suppress new alarms if unacknowledged'

Hide the "Suppress new alarms if unacknowledged" option on the "Acknowledge Settings" tab in the Alarm Limits and Notification Settings screen. Note that this setting also appears on the "Options" tab and will be displayed/hidden with the setting on the "Acknowledge Settings" tab.

Alarm Limits and Notification Settings Screen (Acknowledge Settings): Hide 'Acknowledge on return-to-normal'

Hide the "Acknowledge on return-to-normal" option on the "Acknowledge Settings" tab in the Alarm Limits and Notification Settings screen. 'Acknowledge on return-to-normal' can still be configured for a Tag Group.

Notifications (Left menu): Hide Modem Notification/Pagers

Hide "Modem Notification" from the Notification section of the left menu.

Notifications (Left menu): Hide MQTT Publish

Hide "MQTT Publish" from the Notification section of the left menu.

Notifications (Left menu): Hide EventHooks

Hide "EventHooks" from the Notification section of the left menu.

Notifications (Left menu): Hide SNMP Traps

Hide "SNMP Traps" from the Notification section of the left menu. This setting will also hide the "SNMP Trap" tab in the Alarm Limits and Notification Settings screen.

Global Options: Format

Timestamp format for display

The user can enter a custom format string that will be used to format the display of each tag's timestamp (date/time of the tag's current value), time of alarm, and time of return-to-normal.

This format string will be applied to

- The timestamp displayed for each tag in the TopView Engine window and Remote Viewer (Values View)
- The time of alarm displayed for each tag in the TopView Engine window and Remote Viewer (Values View and Alarms View).
- The %timestamp%, %tia%, %tor%, and %acktime% placeholder used in custom messages. See **Placeholders for messages, text** on page 149 for more information.
- For details on supported date format strings, see **Custom date formats** on page 598.

Custom field date/time format

Custom fields support date/time placeholders to display items such as alarm start time and alarm end time within the custom field value. See **Custom fields** on page 111 for more information.

The user can enter a global custom format string that will be used to format the display of each date/time item in each custom field.

Note: The global custom format string for custom fields can be overridden by an individual custom field if the custom field specifies <format>.

For details on supported date format strings, see **Custom date formats** on page 598.

Global Options: Folders

TEMP folder

TopView creates temporary files for various configured tasks.

The default behavior is for TopView to store temporary files in the folder defined by the TEMP environment variable on the TopView machine.

The custom TEMP folder allows the user to override the location of temporary files.

TEMP files

Persist report

If TopView is enabled to persist alarms state/disabled alarms/acknowledge during an internal restart, TopView can create a persistence report which details which items can be persisted. For more information see **Persist alarm, acknowledge, and disable state during internal restart (Engine remains running)** on page 219.

Configuration changes

If the TopView Engine is configured to apply configuration changes while running, TopView compares a new configuration to the previous configuration to apply changes and determine if an internal restart is required.

The before/after configuration files used in the comparison logic can be stored to the TEMP folder and added to the application log to allow investigation into the before/after states used in the comparison logic.

Global Options: SQL Server

This Global Options screen allows you to configure the instance of SQL Server that will be used by TopView configurations running on this computer.

Note: these settings are not related to the values monitored by TopView SQL

SQL Server use by TopView is optional but includes

- Alarm logging: TopView can log alarms to SQL Server in addition to file-based alarm logging. Use of SQL Server for alarm logging is optional per configuration. See **Log alarms to SQL Server** on page 236 for information on enabling alarm logging to SQL Server for each TopView configuration file.
- Snapshot Output: TopView can output the current state of all monitored tags and alarms to a table in SQL Server. Output to the Snapshot table is optional per configuration. See **SQL Server Snapshot Table** on page 410 for information on enabling output to the Snapshot table for each TopView configuration file.

See **SQL Server Information, Installation and Tips** on page 606 for SQL Server installation and configuration information.

Server name

The Server name for SQL Server. Use the drop-down to view existing Servers on your network. The format of the Server is typically *computer\instance*

Where "computer" is the host computer for SQL Server and "instance" is the SQL Server instance name.

SQL Server Express: Default Server is computer\SQLEXPRESS unless you have installed a new SQL Server instance for TopView. See **SQL Server Information, Installation and Tips** on page 606 for information on installing a new instance.

Note: If you cannot see your SQL Server in the dropdown, make sure that the SQL Server Browser Service is running on the SQL Server computer.

Logon settings

TopView will connect to SQL Server as the executing user or with a specific SQL Server username and password. Since TopView may access SQL Server under various accounts (e.g., interactive or running as a Service), it is advised that you use SQL Server Authentication. If Windows Authentication is selected, please ensure that all TopView users and TopView Service Logon account have access to SQL Server.

Database name

Enter a name for the TopView SQL Server database. The default name for the database is "TopView". All tables used by TopView will be created in this database.

Connection timeout

The number of seconds before a connection attempt will time out and fail. If not specified or less than "1" will use the default timeout (15 seconds)

Query with NOLOCK

NOLOCK can prevent queries from being blocked by uncommitted updates. NOLOCK is not typically required for TopView but can be enabled if 3rd parties are causing block situations with TopView queries.

Verify

Before you can use SQL Server from TopView, the proper database and tables must be created in the selected SQL Server instance.

Click [Connect and Verify Database] to verify an existing TopView database or to create the TopView database and tables.

SQL Server Alarm Log Table Schema

Table name: Alarms

Column Name	Column Type	Description
pKey	int	Primary key for table
ID	nvarchar(50)	The id of this alarm entry
Configuration	nvarchar(100)	The TopView configuration that the alarm is associated with
Row	smallint	The row index of the alarm (1..n in the configuration)
Message	nvarchar(4000)	The alarm message
Limits	nvarchar(250)	A description of the configured alarm limits
Priority	smallint	The alarm priority (1..999)
Servename	nvarchar(100)	The server name associated with the monitored tag
Tagname	nvarchar(100)	The monitored tag name
TagDesc	nvarchar(200)	The tag description
TagGroup	nvarchar(100)	The Primary Tag Group assigned to the monitored tag
TagGroupSec	nvarchar(1000)	The Secondary Tag Groups assigned to the monitored tag
TagValue	nvarchar(1000)	The value at the time of the alarm. This may be a tag value or operation result.
TagValueStatus	nvarchar(100)	The status of the value at the time of the alarm:Good, Bad, Uncertain (uncertain for TopView OPC only)
Source	nvchar(250)	The event source name (TopView Events)
ValueMin	float	The minimum value during the alarm event
ValueMax	float	The maximum value during the alarm event
TagCustomField1	nvarchar(1000)	The first custom field value for the tag (optional)
TagCustomField2	nvarchar(1000)	The second custom field value for the tag (optional)
TagCustomField3	nvarchar(1000)	The third custom field value for the tag (optional)
StartTime	datetime	The start time of the alarm (local time)
StartTimeUTCOffset	float	The offset of the start time from UTC time (hours)
EndTime	datetime	The end time of the alarm (local time) or 1/1/1800 if not set
EndTimeUTCOffset	float	The offset of the end time from UTC time (hours)
EndTimeFlag	tinyint	Flag (1) if the end time was set due to TopView being stopped or restarted.
AckTime	datetime	The acknowledge time of the alarm (local time) or 1/1/1800 if not set
AckTimeUTCOffset	float	The offset of the acknowledge time from UTC time (hours)

AckUser	nvarchar(100)	The user who acknowledged the alarm
AckComputer	nvarchar(100)	The computer that the acknowledge was performed from (location of AckUser)
DisableTime	datetime	The time that the active alarm was disabled (local time) or 1/1/1800 if not set
DisableTimeUTCOffset	float	The offset of the disable time from UTC time (hours)
DisableUser	nvarchar(100)	The user who disabled the active alarm
DisableComputer	nvarchar(100)	The computer that the disable was performed from (location of DisableUser)
Comment	nvarchar(4000)	The comment/annotation for the alarm
CommentUser	nvarchar(100)	The user who entered the comment
CommentComputer	nvarchar(100)	The source computer of the comment user
CommentTime	datetime	The time that the comment was entered or edited (local time) or 1/1/1800 if not set
CommentTimeUTCOffset	float	The offset of the comment time from UTC time (hours)
IsTriggerRow	tinyint	=1 if the tag is a TopView trigger row

SQL Server Snapshot Table Schema

Table name: Snapshot

One record per monitored tag/row per TopView configuration

Column Name	Column Type	Description
Configuration	nvarchar(100)	The TopView configuration for the tag
Row	smallint	The row index of the tag (1..n in the configuration)
Tagname	nvarchar(100)	The monitored tag name
Servername	nvarchar(100)	The server name of the monitored tag
TagGroup	nvarchar(100)	The Primary Tag Group assigned to the monitored tag
TagGroupsSec	nvarchar(1000)	The Secondary Tag Groups assigned to the monitored tag
Description	nvarchar(200)	The tag description
Units	nvarchar(100)	The measurement units of the tag
Alarm_Limits	nvarchar(250)	A description of the configured alarm limits for the tag
Priority	smallint	The assigned priority for alarms of this tag
Value	nvarchar(1000)	The current value of this row (usually the tag value unless an operation exists)
Value_BeforeOperation	nvarchar(1000)	The current value of the tag for this row regardless of operation performed

Value_Timestamp	datetime	The current timestamp of the value
Value_StatusOK	tinyint	The status of the value (1=Good, 0 = Not good)
Alarm_Active	tinyint	Is an alarm active (1=Yes, 0=No)
Alarm_Unacknowledged	tinyint	Is the most recent alarm unacknowledged (1=Yes, 0=No)
Alarm_AcknowledgeUser	Nvarchar(200)	The user who acknowledged the most recent alarm
Alarm_AcknowledgeDevice	Nvarchar(200)	The device or computer of the user who acknowledged the most recent alarm
Alarm_TimeOfAcknowledge	datetime	The time of the most recent alarm acknowledge
Alarm_TimeInAlarm_hhmmss	Nvarchar(50)	The time in alarm of the most recent alarm as hours:minutes:seconds
Alarm_TimeOfAlarm	datetime	The time of the most recent alarm
Alarm_Message	Nvarchar(1000)	The most recent alarm message
Alarm_Comment	Nvarchar(2000)	The comment/annotation of the most recent alarm
Alarm_UID	Nvarchar(100)	The UID of the most recent alarm (also exists in Alarm log)
Alarm_Disabled	tinyint	1 if the alarm is currently disabled
Alarm_Disabled_Indicator	ncarchar(5)	"X" if the alarm is currently disabled with no expiration "XE" if the alarm is currently disabled with an expiration "F" if the alarm is not currently disabled but has a scheduled shelve/snooze start time in the future Blank otherwise (not disabled and no scheduled shelve/snooze)
Operation	nvarchar(100)	The configured operation for this tag
Comment	nvarchar(4000)	The comment/annotation for the most recent alarm
CustomField_1	nvarchar(200)	The first custom field value for the tag (optional)
CustomField_2	nvarchar(200)	The second custom field value for the tag (optional)
CustomField_3	nvarchar(200)	The third custom field value for the tag (optional)

Global Options: PI

Connect without PI Login

Changes the default connection behavior to the PI Server.
See **How does TopView connect to PI?** on page 55 for more information.

Retrieve PI snapshot values each scan

Changes the default PI tag value retrieval behavior from exception to poll.
See **How does TopView retrieve PI tag values?** on page 56 for more information.

PointList EventPipe maximum size

The maximum size of the PISDK EventPipe if a PointList EventPipe is used by TopView ("Retrieve PI tag snapshot..." and "Use EventPipe per monitored PI Point" both unchecked).

The default size for the PointList EventPipe is 10,000.

During each TopView refresh, the EventPipe is emptied by TopView. If the user is monitoring a large number of tags with many new snapshot/current values, it is possible for the EventPipe to be full – the number of new snapshot values for the tags exceeds the EventPipe maximum size. At this point, the PI Server will cache new values that it could not deliver to the EventPipe and TopView will "fall behind" and appear to see older values as the most recent value. This situation will generate both warning and error messages in the TopView application log.

To monitor the behavior of the EventPipe during each TopView refresh, run TopView Admin Tools and view the EventPipe details that are displayed as newevents/maxevents. Under normal conditions, the newevents number should be significantly lower than maxevents.

Warning: increasing the EventPipe maximum size may increase the memory used by each TopView Engine instance.

Use EventPipe per monitored PI Point

If checked, sets the default PI tag EventPipe behavior to Per Point (default).
See **How does TopView retrieve PI tag values?** on page 56 for more information.

Global Options: PIAF

The PIAF Global options allow configuration of the data retrieval method for PIAF (element attributes and PI tags)

Monitored lists (recommended)

Monitored lists implement a "group read" to poll the current tag and attribute values. This is the default and recommended method for PIAF.

Use Data Pipes

This is the most efficient method of data retrieval. The data pipe will receive changes to PI tags and attribute values and TopView will pull these changes from the pipe.

The data pipe throughput can be monitored through status tags, performance counters, and from TopView Admin Tools.

***Warning: data pipes may not be supported by all attribute types. E.G., some attributes which are analyses results are not supported by data pipes**

PI pipe pull count: the maximum number of events pulled from the data pipe each 1/2 second.

Snapshots

Snapshots is the most efficient method of data retrieval. TopView will poll each individual tag and attribute for its current value.

Global Options: OPC

Initial tag value retrieval delay

Allows the OPC DA Server cache to update before the first retrieval of tag values. Use this option if the initial tag values/timestamps displayed in the TopView Engine window are invalid.

Separator character for OPC array tags

The default separator character for OPC array tags is ^.

The user can override this default separator by entering a different character. For more information, see **Support for OPC array tags** on page 51.

Suppress retrieval of tag attributes

If selected, the TopView Engine will not attempt to retrieve the description or engineering units defined for each OPC tag. Some OPC Servers may not properly handle this request, so attributes should only be retrieved if the OPC Server will properly respond to the request. Note that TopView contains an alias and units field per tag which will override the tag description and units retrieved for the OPC tag.

Perform OPC DEVICE read of current values

When an OPC client (TopView) reads tag values from an OPCDA Server, it can specify a CACHE or DEVICE read. CACHE reads return the most recent value from the OPC Server cache of current values, while DEVICE reads instruct the OPC Server to read the tag value from the source. If you are having problem with CACHE reads (e.g., tag values not updating), you can try to perform DEVICE reads. Note that read time may be longer for DEVICE reads. You can monitor the read time in TopView Admin Tools, Performance.

When latching, include "uncertain" qualities

"Latching" in TopView will retain the last "good value". By default, "good value" means that the OPC quality is good. Check this option to consider uncertain quality as a "good value". See **Latch last good value** on page 93.

Write output values from a separate thread

For OPC, the default behavior is to write any output values (Output Points, output tags, acknowledge outputs) on a separate thread. If unchecked, the outputs will occur on the main TopView thread which may impact performance of the TopView Engine.

This option should only be unchecked if errors are encountered in the TopView Engine when writing outputs on a separate thread.

Data Access Method

TopView OPC/SCADA can perform both tag read and tag write OPC operations.

Even with separate read/write threads, DCOM may still cause blocking between read and write operations. Therefore, an OPC Server exhibiting slow write times may block read functions in TopView and prevent TopView from maintaining the configured refresh rate. This can be resolved by executing OPC calls on a separate thread from the calling thread.

The default behavior is to execute all OPC calls on a separate thread. If for some reason this is causing data access issues this behavior can be changed:

- All OPC calls execute on a separate thread from the calling thread (default)
- Server connection on a separate thread, all other OPC calls occur on the calling thread.
- All OPC calls execute on calling thread

Global Options: PerfMon

Heartbeat performance counter

TopView PerfMon continuously checks and verifies each performance counter computer to make sure that its counters are available. Part of this verification process involves reading a "heartbeat" counter from each computer.

The default heartbeat counter is (category, counter, instance):

```
Processor, Processor time, _Total
```

If this counter cannot be read, TopView assumes that the computer is not available.

Use this setting to change the default heartbeat counter.

This counter must exist on all computers accessed by TopView PerfMon!

Value for bad status

If a performance counter cannot be read, the status will be bad.

The value of this tag can be a string description of the error or a value of 0.

Global Options: Memory & Queues

The TopView Engine contains multiple processing queues that may grow in size while the Engine is running. As queues grow, the memory of the TopView Engine process will grow. In addition, requests for TopView alarm history may result in large in-memory data sets which can increase the memory of the TopView Engine process.

Each notification method (email-SMS, modem, voice, and audible) has a queue that fills and empties as alarm messages are generated and delivered. Writes to the TopView application log file, alarm log file, and SQL Server are queued and removed upon successful write or transaction. TopView Events will queue and write incoming events if event logging is enabled.

Notification queues will grow in size if items are added faster than they are processed. Log queues will grow in size if items are added but the file write or SQL Server transaction fails. Each queue contains a default maximum queue size. After the queue maximum size is reached, addition items will not be added to the queue. Should a queue become full, the application log file and/or Windows Event log will contain information regarding any discarded items.

The Email-SMS notification queue contains 2 maximum queue sizes. Some email messages are added to the queue for immediate delivery, while others are added for future delivery due to "Retry failures" (see **Retry** failures) or a feature called "Schedule delay". (See **How does a recipient's schedule affect notification?**). Although both message types use the same email notification queue, the maximum count for each message type is managed separately.

Requests for alarm history can result in large in-memory data sets. TopView will limit the number of returned alarm events in each query to prevent memory and performance issues in the TopView Engine.

Warning: increasing the queue sizes will affect the memory used by the TopView Engine process when the queue is filling up with items. Increasing the maximum number of returned alarm events will affect the memory used by the TopView Engine when users request alarm history.

Default maximum queue and event sizes

Alarm events per query	5000 events
Application log file queue:	10000 items
Alarm log file queue:	10000 items
SQL Server alarm log queue:	10000 items
TopView Events event log write queue:	15000 items
Email-SMS notification queue:	5000 messages
Email notification queue (retry/schedule delay):	5000 messages
Modem notification queue:	1000 messages
Voice notification queue:	250 messages
SNMP Trap queue:	10000 messages
Audible Alarms (TTS) queue:	200 messages
Output values queue size:	5000 output values
Publish MQTT message queue size:	10000 messages

Modem Notification maximum messages per TAP call

For Modem notification (TAP), outgoing message in the queue are combined and sent in one phone call to the TAP terminal number. The users paging company may restrict the number of messages that can be sent in one call. The "Modem Notification maximum messages per TAP call" setting restricts the maximum number of modem notification messages that will be sent in one TAP call.

Global Options: Notification

General:

Allow duplicate recipient for same ALARM event

When an alarm notification event occurs, the list of recipients may be a combination of multiple notification groups and recipients. The final list of recipients may contain multiple instances of the same recipient.

The default behavior of TopView is to remove duplicate recipients for the same notification event to prevent the recipient from receiving multiple messages or calls.

In some cases, the desired behavior is to send multiple notification events to the same recipient. For example, the desired behavior may be to call a person 3 times in a row before moving to the next person in the list. This option can be used to allow sending multiple notification events to the same recipient.

Email-SMS

Delay between multiple outgoing messages

When multiple email or SMS notification messages are generated within a short period of time, the messages are added to the outgoing email-SMS notification queue and each message is sent independently. The delay setting allows you to increase the time between each sent message. The delay can be used to reduce the sending frequency of messages from TopView if the mail server or cellular modem is having difficulty processing multiple messages at the default send rate (default = wait 1 second between each message).

Suppress UTC Offset in date field of email notification messages

When TopView sends an email notification message, the email header contains a "Date:" value. This date value is used by most email clients to display the message "Sent" time.

Example:

Message header:

```
From:support@exele.com  
To:support@exele.com  
Date: Mon, 06 May 2016 08:15:25 -0400
```

The "Date:" field in the message header contains a timestamp along with the TopView machine UTC offset in hours (-4 hours in the above example). Providing this offset allows an email client in a different time zone to display the "sent" time in the local time zone.

This setting allows the user to suppress the UTC offset in the "Date:" field. This will prevent email clients in different time zones from showing the "Sent" time in local time zone.

The default behavior is to include the UTC offset.

Use local language for month format in Date field

The Date field in the outgoing SMTP message contains a 3-letter month abbreviation. The default behavior in TopView is to use the English 3-character month abbreviations (JAN, FEB, MAR, ...).

This setting allows the user to override this behavior and to use the 3-letter month abbreviations created from the local language setting of the TopView computer.

Custom date format at start of message

Each email message starts, by default, with the current time when the email was generated. For details on supported date format strings, see **Custom date formats** on page 598.

Note: The user can suppress this time for a specific TopView configuration on the Email Notification settings screen.

Footer: Suppress "<Sent by TopView>" at the end of the message

If enabled will suppress the email and SMS message footer.

Note: this option is only valid for non-expiring, purchased TopView licenses.

Return to normal (RTN) notification

An RTN notification message can include a prefix in the subject (email) and message body to inform the recipient that the notification message was generated from an RTN event and not a new active alarm event.

The RTN prefix string can be changed from the default value "(RTN)" and the user can decide to include or exclude the RTN prefix when a Notification Message Template is used for the notification message body.

Overview of RTN prefix usage:

- If the RTN does not have a custom email subject, the RTN subject is the same as the alarm message and the prefix is added
- If the RTN has a custom email subject, the prefix is not used and the custom subject should inform that the RTN has occurred
- If the RTN does not have a custom message, the prefix is added to the message
- If the RTN has a custom message (not a template), the prefix is not used and the custom message should inform that the RTN has occurred
- If the RTN message is a notification template, the prefix is added based on the Global Option to include or exclude the RTN prefix.

See **Advanced Notification...Return to Normal Notification** on page 170 for more information on RTN Notification.

Resend notification

Allows the user to change the default email-SMS message prefix and email subject suffix for a resent email message. See **Resend** on page 141 for more information.

If you do not want to mark resent messages, you can clear this field or enter the word NULL, EMPTY, or BLANK

Sync cellular modem's date and time with this machine

For the HTTP/HTTPS cellular modems, sync the time of the modem to the TopView machine time upon sending an SMS message or checking the modem's inbox. If this is enabled you should not check the sync time option in the modem's settings.

Incoming email filter

Click the [Configure users who can send email to TopView...] button to configure the filter.

See "Incoming email filter" for more information.

Clear old SMS messages from the Inbox after X hours

When using networked cellular modems for SMS, a TopView Engine will only remove incoming SMS messages with a matching Engine ID. Older messages without matching Engine IDs can be purged when they age beyond the entered number of hours.

Reply-to-acknowledge email/SMS

If reply-to-email acknowledge is enabled (see **"Reply-to-email" Acknowledge**), the alarm notification message body will contain an acknowledge code ARQx. The recipient can reply to the message with the same acknowledge code to acknowledge the alarm.

Suppress ARQx in email subject line if reply-to-email acknowledge enabled

If the acknowledge code is included in the subject, automatic "Out-of-office" reply messages may include the original subject, allowing the "Out-of-office" reply messages to acknowledge the alarm. It is recommended that you suppress the acknowledge code in the subject (default setting).

Suppress brackets [] around ARQ in outgoing messages

By default, the acknowledge code in the notification message will be enclosed in [].

Example: [ARQx].

Some notification message replies may automatically replace [] with () causing TopView to miss the acknowledge code. (TopView looks for whitespace or [] around the acknowledge code). This option will send the acknowledge code surrounded by whitespace.

Put ARQx before message details

Controls whether the acknowledge code appears at the start (before) or end of the message.

Secure Acknowledge

The default acknowledge code is ARQx where x is the row number of the alarm. It is possible for a person to receive a notification with ARQx but to return a different acknowledge code ARQy to acknowledge a different alarm.

For each alarm, secure acknowledge will generate a random code of 4-8 characters and will append this to the ARQx acknowledge code sent in the notification. To acknowledge the alarm, the full acknowledge code must be sent back to TopView.

Example:

- Acknowledge code for row 123 alarm without secure acknowledge: ARQ123
- Acknowledge code for row 123 alarm with secure acknowledge: ARQ123-AE59 where AE59 is a random 4-digit code for the alarm

Notes about Secure Acknowledge:

- If the user receives an acknowledge code for an alarm, but before replying the alarm returns to normal and then triggers a new alarm, the previous acknowledge code will not acknowledge the new alarm. The user will receive a new message with the new acknowledge code and must send the new acknowledge code to TopView
- If secure acknowledge is enabled, the user can set the length of the unique code from 4-8 characters. Each length will determine the number of possible codes that can be generated. The longer the length of the unique code, the more secure the unique code will be. See below.

The unique code is a hexadecimal number of length 4-8.

The number of possible unique codes by code length (4-8) are:

- 4: 65,535
- 5: 1,048,575
- 6: 16,777,215
- 7: 268,435,455
- 8: 4,294,967,295

Tag/row information request (IRQ): suppress echo of IRQ

For incoming email/SMS information requests (IRQ command), suppress the echo of the sent IRQ command in the response Email/SMS message.

SMS Format for HTTP/HTTPS modem

The HTTP/HTTPS modems (MultiTech rCell 100) may require TopView to set the SMS format of the modem. Please see the modem configuration document for more information on this setting.

SMTP HELO Argument

The user should only change this setting if they are having problems sending email through an SMTP mail server related to the HELO command. When sending email, you may see an SMTP error such as "Invalid domain" returned from the HELO command.

The HELO command is sent by TopView to the SMTP mail server at the beginning of each email transmission. The user can see this command in each TopView Email Notification log file.

The HELO command introduces the client (TopView) to the SMTP mail server. The syntax of the command is

```
HELO X
```

where X is an identifier for the client. Most SMTP mail servers will accept any identifier. By default, TopView will send the IPV4 IP address of the TopView computer.

If the SMTP server requires a specific identifier, the user can use the Custom field to enter the required identifier.

The HELO argument can be set to one of the following items:

- **IP Address (IPV4):** the TopView computer's TCP/IP v4 IP address (aaa.bbb.ccc.ddd)
- **IP Address (IPV6):** the TopView computer's TCP/IP v6 IP address (if available)
- **Computer name:** the TopView computer name
- **Custom:** any string identifier

SMTP Encoding

When TopView communicates to the SMTP Server, the messages are encoded to/from a byte stream. The default encoding used by TopView is ASCII.

Some languages cannot be encoded using ASCII, and attempting to send email from TopView may result in an overflow message and send failure. If this occurs, you can change the encoding from ASCII to UTF-8

Voice callout notification

Force the Engine to process each VOIP call on a single thread

By default, management of VOIP-based voice notification calls occurs on a separate thread from the main Engine thread. This is a behavior that started in version 6.32.

This setting will force TopView to revert to the older behavior and is only recommended with input from Exele TopView Support.

Global Options: Audit & Backup

TopView can record each time a change is saved to a TopView Configuration file, Contact, Schedule, or Global Recipient Group. In addition, a copy of the modified file can be copied to a backup folder.

TopView Admin Tools can be used to view the Change Log and backup information.

Record configuration changes in the Audit Change Log

Each time a configuration change is saved, a record will be recorded in the Audit Change Log. This record will contain the time of the change, the user, the type of change, the changed file, and the name of the backup file (if enabled).

Store backup of configuration changes

Each time a configuration change is saved, a backup of the changed file will be stored. The location of the backup files is DataPath\Audit\backup. The "readonly" flag of the backup file will be set to True.

The backup files make it possible to restore a previous version of a TopView configuration file, Contact list, Schedule, or Global Recipient Group. Please contact Exele support if you need to restore a backup file.

Record configuration changes and backups to the AuditLog SQL Server table

If enabled, a copy of the changes and the change log are stored to the AuditLog table in SQL Server.

Global Options: EventHooks

EventHooks are user-written modules (.Net assemblies) that can receive events from the TopView Engine.

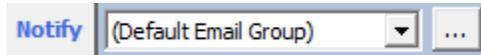
Registered EventHooks

The user can manage the list of registered EventHook Assemblies. Each instance of the TopView engine will load the registered EventHooks at startup and deliver the desired events.

For more details on EventHooks, see the EventHook documentation and help located in DataPath\EventHooks.

Selecting the Notify recipients

When configuring notification in TopView, you need to select the named list of recipients that will receive the notification. This is usually presented to the user as a drop-down field:



TopView offers multiple options for configuring the list of recipients for a notification including Default notification groups, Global notification groups, and Custom notification lists.

Default Notification Groups

Each type of notification (email-SMS, modem, voice) contains a Default Group. The Default Group is a list of one or more recipients and recipient schedules. The Default Group is stored as part of the current configuration file and cannot be shared among multiple TopView configurations.

If you only need a single list of recipients in TopView for all alarm notification, you can use the default Group. Otherwise, the Default Group would typically include the TopView administrator(s) and you should create global notification groups for each defined list of recipients.

Once you have enabled email, modem, or voice notification, the Default Group will appear in the Notify dropdown. If you would like to modify the recipients in the default group, click the [...] button to the right of the Notify dropdown.

The Default Group for each notification is configured on the notification settings screen.

- (Default Email-SMS Group): See **Email-SMS notification recipients** on page 257.
- (Default Modem Group): See **Default Modem Group** on page 302
- (Default Voice Group): See **Voice notification recipients** on page 315

How are changes recognized by a running instance of the TopView Engine?

Since Default Notification Groups are stored as part of the current configuration file, changes will only be seen when TopView is restarted or if you have configured TopView to automatically restart on configuration file changes.

Global Notification Groups

Each type of notification (email-SMS, modem, voice, EventHooks) can contain one or more Global Notification Groups. A Global Notification Group is a list of one or more recipients and recipient schedules. The Global Notification Groups are stored separately from the current configuration and can be shared among multiple TopView configurations.

Once the user has configured a Global Notification Group, the name will appear in the Notify dropdown.

For more information on Global Notification Groups:

- Global email-SMS notification groups: See **Global Email-SMS Notification** Groups on page 296
- Global modem notification groups: See **Global Modem Notification** Groups on page 306
- Global voice notification groups: See **Global Voice Notification Groups** on page 327
- Global EventHook notification groups: See **Global EventHook Notification** Groups on page 340

How are changes recognized by a running instance of the TopView Engine?

When TopView needs to send a notification, it will look for any changes to an existing Global Notification Group.

Custom Notification Recipient List

A Custom Notification Recipient List allows the user to create a dynamic list of recipients for a specific notification.

A Custom Notification Recipient List

- Is not predefined (as in a notification group), but is instead configured when you select **(Custom Email-SMS list), (Custom Modem list), (Custom Voice list), or (Custom EventHook list)** from the Notify dropdown.
- Can include one or more Notification Groups (Default or Global Notification Group) and/or Contacts for a notification type (email-SMS, modem, voice, EventHook).
- Only exists as part of the notification that it is assigned to; it cannot be shared between multiple alarms or notifications.
- Can be used as the recipient for alarm conditions, return to normal conditions, and Tag Group notification.

Custom Notification Recipient Lists are beneficial in the following situations:

- the recipient list is unique for a specific alarm
- the recipient list is composed of multiple pre-defined Notification Groups
- the user does not want to pre-define Notification Groups, but would like to select the recipients for each alarm notification by choosing from the list of Contacts

To configure the recipients in a Custom Notification Recipient List, select the custom list from the Notify dropdown and click the [...] button to the right of the Notify dropdown.

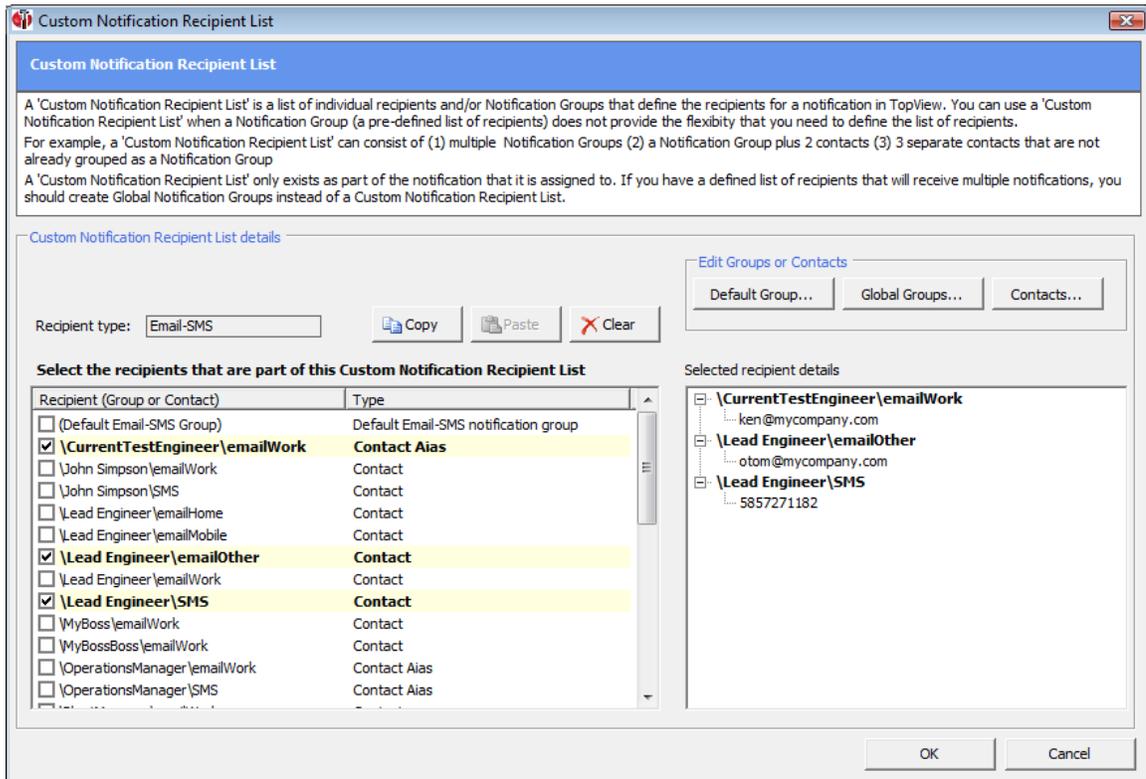
- **(Custom Email-SMS list)**: a custom list of recipients for email and/or SMS notification
- **(Custom Modem list)**: a custom list of recipients for modem notification
- **(Custom Voice list)**: a custom list of recipients for voice notification
- **(Custom EventHook list)**: a custom list of recipients for EventHook notification

How are changes recognized by a running instance of the TopView Engine?

Because TopView stores a Custom Notification Recipient List in the configuration file, changes to the Groups and/or Contacts in the list (adding or removing Groups or Contacts in the list) will only be seen when TopView is restarted or if you have configured TopView to automatically restart on configuration file changes.

Any changes made to an existing member of a Custom Notification Recipient List that is either a Global Notification Group or Contact will be automatically recognized by a running instance of the TopView Engine.

Configuring the custom recipient list



The left side of the Custom Notification Recipient List screen displays the current Notification Groups and Contacts. To add a Group or Contact to the list, check the box before the Group or Contact name. As you add recipients to the list, the complete list of recipients is displayed on the right.

To modify or change the available Groups and Contacts, use the following buttons:

- **[Default Group]**
Edit the Default Email-SMS, Modem, Voice Group
- **[Global Groups...]**
Edit the Global Email-SMS, Modem, Voice, EventHook Notification Groups
- **[Contact...]**
Edit Global Contacts

Copy and Paste

After the user defines the members of a custom list, they can copy the custom list to another alarm or return-to-normal notification. Each notification type (email-SMS, modem, voice, EventHook) contains a "clipboard" that allows the user to copy and paste the recipients in a custom list.

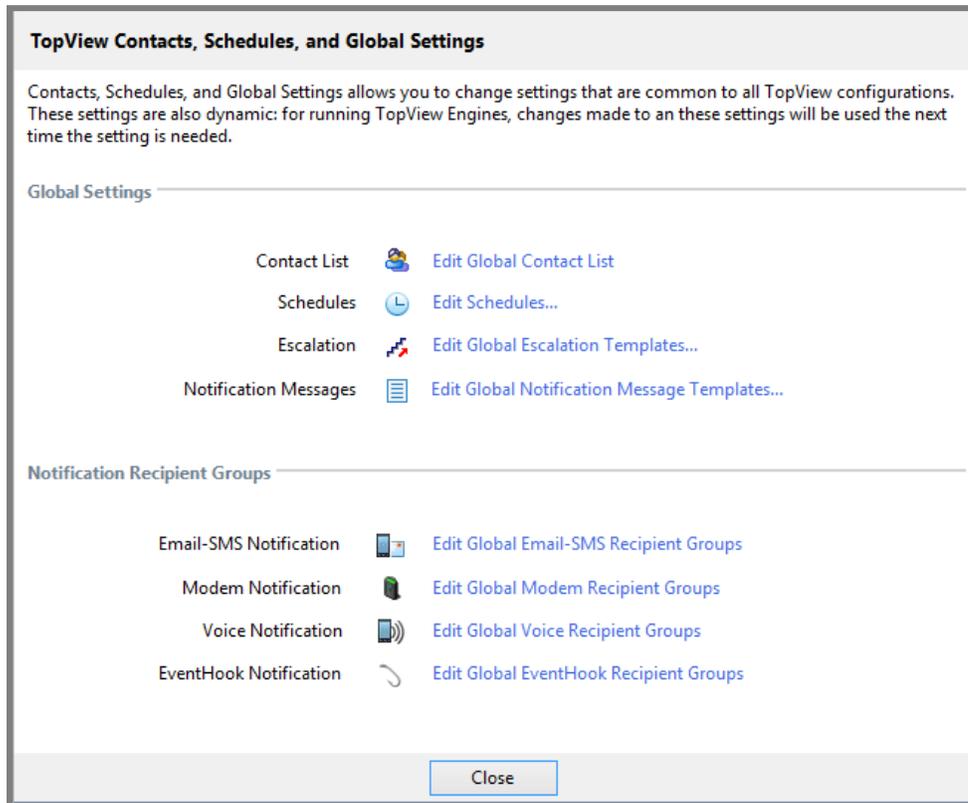
When the user clicks [Copy], the selected recipients are copied to the clipboard. The user can then close this screen and navigate to another custom list for a different notification. Clicking [Paste] will select the copied recipients in the current list. Pasting performs a merge function:

if there are existing selected recipients in the list when the user clicks [Paste], these recipients are not de-selected.

Contacts, Schedules, and Global Settings

The TopView Configurator allows the user create and manage the Contacts, Schedules, and Global Settings. These settings are common to all TopView configurations, and may be changed while TopView is running.

Contacts, Schedules, and Global Settings is a standalone application that can run independently of the TopView Configurator and allows a user to quickly make changes to these common settings.



For more information on these settings, see

- **Global Contact List** on page 242
- **Schedules** on page 342
- **Escalation Templates** on page 362
- **Notification Message Templates** on page 353
- **Global Email-SMS Notification** Groups on page 296
- **Global Modem Notification** Groups on page 306
- **Global Voice Notification** Groups on page 327
- **Global EventHook Notification** Groups on page 340

TopView Engine: Alarm and Notification Engine

The TopView Engine is the alarming and notification engine for TopView.

Each running instance of the TopView Engine operates on the details of a single configuration file created with the TopView Configurator. Multiple TopView Engine instances for multiple configuration files can run simultaneously.

Each TopView Engine instance is responsible for performing all of the tasks configured in its configuration file including:

- Retrieving tag values
- Determining alarms
- Sending notifications
- Accepting Remote Viewer connections
- Hosting the Mobile Web App web server
- Answering remote dial-in callers
- Creating HTML Snapshot Reports
- Creating Scheduled Alarm Reports
- Sending output values for output points

Note: the TopView Engine window may not be visible if it is running as a Service. Use **TopView Admin Tools** to monitor the running TopView Services.

The screenshot shows the TOPVIEW Alarm and Notification Engine interface. The window title is 'UNITIKEP 11:15:12 TopView'. The main header displays 'TOPVIEW Alarm and Notification Engine' and 'Not running as a Service EXELE'. The interface includes a 'Tag Groups' tree on the left, a 'Current values and alarms' tab, and an 'Alarms View' table. The table lists various alarms with their states (High, HIHI, Information, Warning) and messages. A status bar at the bottom shows 'Rows 22 | Points 18 | Alarms 7 | Unack 9 | Hidden 0 | Disabled 0' and a 'Latest msg'.

State	Ack	Time in alarm	Alarm Message	Limits
High	ACK	000:01:30	Outlet temperature, 161.20, is too high	> 150 OR < 130
	ACK		TopView.Dev1.OutletTemp trend DOWN for 6 seconds	LL150 OR HH200 OR TUS
	ACK		Level 1 indicator alarm	=HI (DelayIn=10s)
HIHI	ACK	000:00:05	Level 2 indicator alarm	=HIHI
Information	ACK	000:00:45	Discharge pump 2 is running	=RUNNING
Information	ACK	000:01:30	Station number 4 is down	=DOWN
Information	ACK	000:01:30	Station number 4 is down	=DOWN
Warning	ACK	000:01:30	Unit 1 NOX emissions, 225, is too high	> 100
High	ACK	000:01:30	Unit 1 power output, 167, is greater than 165	> 165

Launching a TopView Engine instance

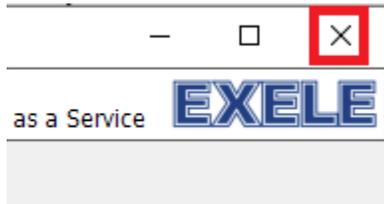
Each TopView Engine instance (one per configuration) can be launched interactively or as a Windows Service.

Launching interactively: see **Create Shortcuts** on page 441 for more information.

Launching as a Service: see **Configure Services** on page 444.

Stopping a TopView Engine instance

If TopView is running interactively, stop it by clicking the close button in the upper right corner of the TopView Engine window.



If TopView is running as a Service, it is necessary to stop the TopView Service. See **Configure Services** on page 444 for more information.

TopView Engine Window Contents

Current values and alarms VS Alarm history and analytics

The TopView Engine window contains both current and historical information



- **Current values and alarms**
Updating display of the monitored points and current alarm state of these points
- **Alarm history and analytics**
Query and view alarm history, create of alarm reports, and perform alarm analytics

Current values and alarms

The Current values and alarm screen is an updating display of the monitored points and current alarm state of these points.

The screenshot shows the TOPVIEW Alarm and Notification Engine interface. The main window displays a list of alarms with columns for State, Ack, Time in alarm, Alarm Message, and Limits. The interface includes a navigation pane on the left for Tag Groups, a top menu bar with options like Acknowledge, Alarm Actions, and Admin Tools, and a status bar at the bottom showing system metrics and the latest message.

State	Ack	Time in alarm	Alarm Message	Limits
High	ACK ●	000:01:30	Outlet temperature, 161.20, is too high	> 150 OR < 130
	ACK ●		TopView.Dev1.OutletTemp trend DOWN for 6 seconds	LL150 OR HH200 OR TUS
	ACK ●		Level 1 indicator alarm	=HI (DelayIn=10s)
HIHI	ACK ●	000:00:05	Level 2 indicator alarm	=HIHI
Information	ACK ●	000:00:45	Discharge pump 2 is running	=RUNNING
Information	ACK ●	000:01:30	Station number 4 is down	=DOWN
Information	ACK ●	000:01:30	Station number 4 is down	=DOWN
Warning	ACK ●	000:01:30	Unit 1 NOX emissions, 225, is too high	> 100
High	ACK ●	000:01:30	Unit 1 power output, 167, is greater than 165	> 165

Alarm and Unacknowledged

The first two columns contain the current alarm and unacknowledged states

- **State**
The alarm state. If non-blank, the alarm is active. By default, the word "Alarm" is displayed although this text can be overridden per alarm condition.
- **Ack**
If the ACK button  appears, the item is unacknowledged

Blocked and Disabled items

The first column may also indicate a blocked or disabled item

- **GateBlock** The Inhibit/Gate settings for row is currently True (blocking). The row is blocked and no alarms can occur.
- **StatusBlock** Alarms are blocked because "check for good status" is enabled on the Alarm Limits screen for this tag/row and the value status is not good. No alarms can occur.
- **Disabled** The item is disabled
- **Disabled (27.6min)** The item is snoozed (disabled for a period of time, "alarm shelving"). The remaining snooze time is displayed

Pop-up Tooltip

If the user holds the mouse over a displayed item, a pop-up window will display details about the item.

Details for row: 2

Click ● to acknowledge

In alarm: Yes
Alarm msg: TopView.Dev1.OutletTemp trend UP for 5 seconds
Comment:
Unacknowledged: Yes
Value: 162.2 (Tag value = 163.2)
Status: Good
Timestamp: 4/14/2020 3:25:11 PM
Units: Deg F
Operation: AVG 15S

Tag: TopView.Dev1.OutletTemp
Desc: Avg outlet temp
Server: MyKServer
Primary Group: Unit1\Temperature
Secondary Groups: AllUnits
RowUID: outtempavg
Priority: 2
Time in alarm: 000:00:00
Alarm limits: LL150 OR HH200 OR TU5 OR TD6
Disabled: False
Inhibit block: False
Status block: False

Values View vs. Alarms View

The TopView Engine window provides two views of the current tags/rows and active alarms. The user can switch between Values View and Alarms View using any of the 3 View selectors.



Values View

Values View can display all monitored points, including those that are in alarm and those that are not in alarm. The emphasis for Values View is the monitored point values.

Columns

The user can configure the columns that are displayed in Values View. See **Values View columns** on page 231 for more information.

Values View rows filter

The items (rows) that are displayed can be controlled through the filter



Values View Filter:

- No Filter: show all tags/rows unless hidden
- Alarm: show all tags/rows that are currently in alarm
- Unacknowledged: show all tags/rows that are currently unacknowledged
- Alarm or Unacknowledged: show all tags/rows that are currently in alarm or unacknowledged
- Alarm and Unacknowledged: show all tags/rows that are currently in alarm and unacknowledged
- Disabled: show all tags/rows that are currently disabled

Alarms View

Alarms View can display

- Active alarms: items that are currently in alarm
- Inactive but unacknowledged: items that are not currently in alarm but are unacknowledged

The emphasis for Alarms View is the alarm message and time in alarm.

Columns

The user can configure the columns that are displayed in Alarms View. See **Alarms View columns** on page 231 for more information.

Alarms View rows filter

The items (rows) that are displayed can be controlled through the filter



Alarms View Filter:

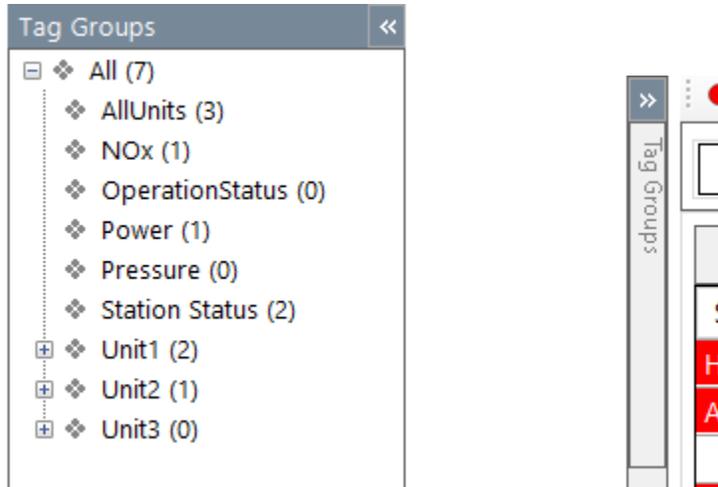
- No Filter: show all tags/rows that are in alarm or unacknowledged. Same as “Alarm or Unacknowledged” filter value
- Alarm: show all tags/rows that are currently in alarm
- Unacknowledged: show all tags/rows that are currently unacknowledged
- Alarm or Unacknowledged: show all tags/rows that are currently in alarm or unacknowledged
- Alarm and Unacknowledged: show all tags/rows that are currently in alarm and unacknowledged
- Disabled: disabled items cannot be in alarm, so this filter will show all tags/rows that are unacknowledged and disabled.

Priority: 1-X

Select the priority range of the items displayed in the TopView Engine window (this runtime setting temporarily overrides the configuration setting)

Tag Groups Pane

If the user has configured Tag Groups, the Tag Groups pane will list the Tag Group names. See **Tag Groups** on page 196 for more information.



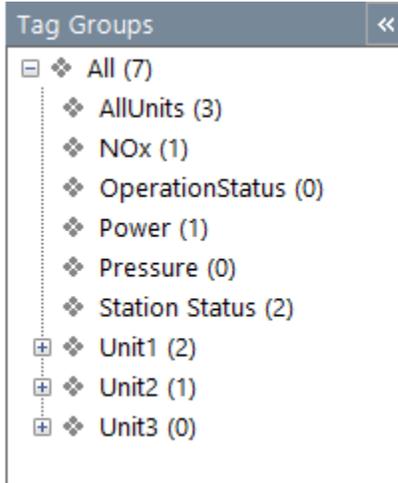
If there are no Tag Groups configured, this pane will initially be collapsed. Hide a visible Tag Groups pane using the << close button.

Once the pane is hidden, show this pane using the vertical Tag Groups tab or clicking the >> open button.

Using the Tag Groups Tree

The Tag Group pane lists the Tag Groups created by the user. The "All" group contains all tags in the configuration.

Next to each Tag Group name is the number of tags in the group that are currently in alarm. If the Tag Group has child Tag Groups, the number of alarms displayed includes the alarm count for each child Tag Group.



Selecting a Tag Group will filter the list of displayed tags and Group Summary information displayed at the bottom of the pane.

Note: If a tag has assigned primary and secondary Tag Groups, the tag will appear under all assigned Tag Groups (primary and secondary)

Group summary

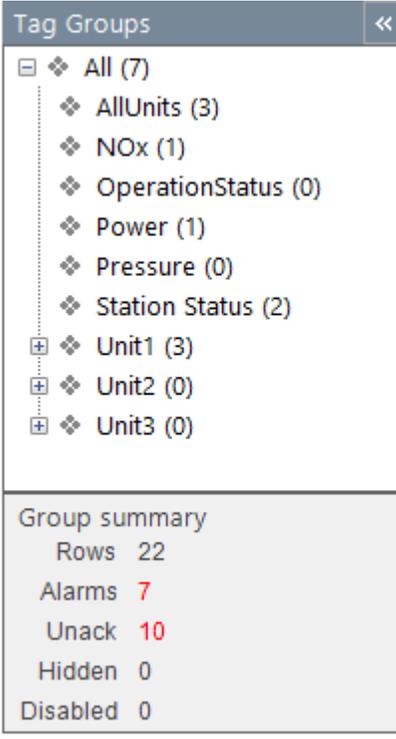
The Group Summary gives details about the selected Tag Group. The summary counts include the selected Tag Group and any child Tag Groups.

The information listed uses the syntax:

(# in ThisGroup) / (# Total)

In the example at right, the **Power** Tag Group is selected. The following information is available:

- 2 of 17 total tags are in this group
- 1 of 1 current alarms are in this group
- 1 of 1 unacknowledged alarms are in this group
- 0 of 1 hidden tags are in this group
- 0 of 0 disabled alarms are in this group



The screenshot shows a 'Tag Groups' window with a tree view on the left and a 'Group summary' table on the right. The tree view shows a hierarchy of tag groups: 'All (7)' (expanded), 'AllUnits (3)', 'NOx (1)', 'OperationStatus (0)', 'Power (1)' (selected), 'Pressure (0)', 'Station Status (2)', 'Unit1 (3)', 'Unit2 (0)', and 'Unit3 (0)'. The 'Group summary' table provides the following data:

Group summary	
Rows	22
Alarms	7
Unack	10
Hidden	0
Disabled	0

Top Toolbar

The user can show/hide the toolbar by right-clicking the TopView Engine window and choosing **Show toolbar** from the pop-up menu. The initial setting of the toolbar (displayed or hidden) and permission to show/hide the toolbar can be set in the Configurator (see **User Permissions for TopView Engine window** on page 233 for details).

Most of the toolbar items are also available in the pop-up context menu available by right-clicking the list of values (Values View) or alarms (Alarms View).

Toolbar items



Acknowledge

Acknowledge alarms in selected Tag Group.

Click the Acknowledge button to acknowledge all unacknowledged alarms in the current Tag Group.

To acknowledge a single row, click the ACK button  at the start of the row.

See **Acknowledging alarms** on page 536 for more information.

Alarm Actions

Displays the Alarm Actions Log for the selected alarm. Alarm Actions contain details of an individual alarm's activity (active, return to normal, acknowledge), related notifications, and actions taken through notifications (e.g., alarm acknowledge through notification).

See "Alarm Actions Logs" for more information.

Admin Tools

Launches the **TopView Admin Tools** applications (see page 544).

Show alarm history

Displays the alarm history for the selected item.

Comment

Add a comment/annotation to the selected items. Comments can be added to items that are in alarm or unacknowledged. This feature is enabled if TopView is logging alarms to SQL Server. See **Log alarms to SQL Server** on page 236 for information on enabling alarm logging to SQL Server for each TopView configuration file.

Note: The Alarm History screen allows you to enter comments/annotations for active and completed alarm events.

Disable

Disable, snooze (shelve), or enable alarms and notification for one or more items.



Selected

The user can select multiple rows using the Ctrl or Shift key on your keyboard.

Displayed

Includes all displayed items. This list is controlled by the selected Tag Group, View (Values or Alarms), and filter.

Disable

Disable items (no alarms or notification) until re-enabled or TopView restarted. This action has no effect on an item that is already disabled. If the item is snoozed, it becomes disabled.

Disabled items are displayed in a gray font with "Disabled" in the first column.

Disabled	163.2	Deg F	Avg outlet temp
----------	-------	-------	-----------------

Snooze/Shelve (Alarm Shelving)

Disable items (no alarms or notification) for a period of time (snooze duration). The wake-up time for snoozed items is current time plus the snooze duration. If an item is already snoozed, sets a new wake-up time to the current time plus snooze duration. Snooze duration: use the dropdown to select a duration, or enter a new duration. The format of the duration is X d/h/m/s where X is a number d=days, h=hours, m=minutes, s=seconds

Snooze items will be displayed in a gray font with "Disabled (Xmin)" in the first column. X is the remaining number of minutes before the item is automatically re-enabled.

Disabled (29.8min)	163.1	Deg F	Avg outlet temp
--------------------	-------	-------	-----------------

Enable

Enable items that are disabled (including snooze/shelve items). This action has no effect on items that are already enabled.

Sound

Toggles local Audible Alarms on (play) or off (muted)
(this runtime setting temporarily overrides the configuration setting)

More Actions

Drop-down menu of additional items

Refresh now: Perform a refresh now (do not wait until the next scheduled refresh).

Font bold: Toggle the font bold setting.
(this runtime setting temporarily overrides the configuration setting)

Font size: Change the font size
(this runtime setting temporarily overrides the configuration setting)

Speak selected alarm: Speaks the alarm message for selected rows that are currently in alarm. The user may select multiple rows by holding down the CTRL key. In the configuration, TTS Audible Alarms must be enabled. Note that rows which have the setting "Suppress audio TTS of alarm message" will be spoken using this button.

Deselect highlighted row: Removes the highlight bar from the selected row.

Unsort rows: Lets user sort the tags in the TopView Engine window by clicking on any of the column headers. This item allows user to turn off sorting so that the order of the tag is the same as the original order.

Toggle row enabled/disabled: For selected rows, toggles the 'disable alarms' setting. All rows are initially enabled unless the "disable alarms" setting is configured for the current tag/row. Disabling alarms will disable all alarming and notification for the row. The displayed tag value will still update. When disabled, the row font color will be gray and "Disabled" will be displayed in the first column.

Toggle On-Top: Toggles the on-top setting of the TopView Engine window. When on-top, the TopView Engine window stays on top of other running applications.
(this runtime setting temporarily overrides the configuration setting)

Restart (reload configuration): Restarts the TopView Engine instance. This forces a re-read of the current configuration file. Not available if running TopView as a Service.

Launch Configurator: Runs the TopView Configurator and opens the current configuration file. Not available if running TopView as a Service.

Launch 3rd party application: Launches the optional 3rd party application.

Hide column header rows: toggles the column header row of the Values and Alarms View details.
(this runtime setting temporarily overrides the configuration setting)

Show hidden rows: displays rows that were configured as hidden rows

Hide bottom status pane: Displays or hides the bottom status pane.
(this runtime setting temporarily overrides the configuration setting)

Alarm history and analytics

The "Alarm history and analytics" screen allows the user to

- retrieve, filter, view, and export the details of current and completed TopView alarm events
- create, view, and save alarm reports
- view and analyze overall and per-point alarm behavior through an interactive group of charts and alarm events lists

Relative time

Time range

Base time

Start time: Now

Offset (+/- N d/h/m/s)

-1h

Base time

End time: Now

Offset (+/- N d/h/m/s)

Include spanning alarms
Alarm history source:
SQL Server

Filter

Alarm events

Count: 60

Retrieval time (local): 4/14/2020 3:07:27 PM

Time range (remote): 4/14/2020 2:07:27 PM to 4/14/2020 3:07:27 PM

View: List of Alarm Events Alarm Reports Alarm Analytics

Alarm summary grouping: Row number + Tag name

TopView Alarm Analytics

Alarm summary

Alarm occurrence by period

Active alarm count over time

Alarm occurrence (transition into alarm state)

Period: 5m

New alarms (occurrence) by period 5m

Interval start time	Alarm count
14-Apr-20 14:10:00	4
14-Apr-20 14:15:00	4
14-Apr-20 14:20:00	5
14-Apr-20 14:25:00	6
14-Apr-20 14:30:00	5
14-Apr-20 14:35:00	5
14-Apr-20 14:40:00	5
14-Apr-20 14:45:00	4
14-Apr-20 14:50:00	6
14-Apr-20 14:55:00	4
14-Apr-20 15:00:00	5
14-Apr-20 15:05:00	6

Alarm events during selected period (4/14/2020 2:22:27 PM to 4/14/2020 2:27:27 PM) Count=6

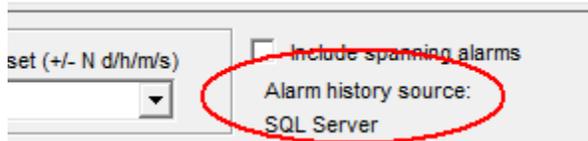
Row	Tag	Start time	End time	Alarm message
17	TopView.Dev1.Power_Unit_2	4/14/2020 2:22:34 PM	4/14/2020 2:23:24 PM	Unit 2 power output, 167, is too high
1	TopView.Dev1.OutletTemp	4/14/2020 2:23:24 PM	4/14/2020 2:26:19 PM	Outlet temperature, 161.1, is too high
6	TopView.Dev1.Discharge_Pump_2	4/14/2020 2:23:44 PM	4/14/2020 2:24:44 PM	Discharge pump 2 is not running

519

Alarm history source

TopView alarm history is stored in a set of alarm log files on the TopView computer. Optionally, you can also store alarm history to SQL Server. See **Log alarms to SQL Server** on page 236 for information on enabling alarm logging to SQL Server for each TopView configuration file.

The source for the displayed alarm history is the alarm log files unless SQL Server alarm logging is enabled and active. The current alarm history source is displayed on the Alarm history screen.



Time range

Relative time

Check "Relative time": Relative time

The time range defines the start and end time for alarm history retrieval. Each time includes a base time and offset amount. The offset is added to, or subtracted from, the base time.

Base time

- Now: current day and time
- Today: today's date at time 00:00:00 – the most recent midnight
- Yesterday: yesterday's date at time 00:00:00
- StartOfMonth: first day of the current month at time 00:00:00
- StartOfPrevMonth: first day of the previous month at time 00:00:00

Offset

+/- N d/h/m/s

- +/- : add to, or subtract from, the base time
- N: an integer or floating-point number
- d/h/m/s: units of days, hours, minutes, or seconds

Examples:

Now -1d	24 hours ago
Today	Last night at midnight
Today +8h	8am this morning
StartOfMonth - .5d	Noon on the last day of the previous month

Absolute time

Uncheck "Relative time": Relative time

Each time includes a date and time

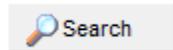
Include spanning alarms

Check this option to include spanning alarms: alarms that are active (TRUE) at the alarm history retrieval start time but did not end before the retrieval end time.

Note that this option is only available if TopView is logging alarm history to SQL Server.

Retrieve alarm history

Once you have entered the alarm history time range and spanning option, click the [Search] button to retrieve the alarm history for the entered time range.



Note: The listed alarm events and analytics are always based on the last retrieved alarm events from pressing the [Search] button.

Filter

The alarm history for the time range is retrieved when the user clicks [Search]. The filter is then applied to the retrieved results and will affect the displayed alarm events including the list of alarm events, alarm reports, and alarm analytics.

Changes to the filter do not require another query of alarm history and therefore will update the displayed alarm events, reports, and analytics quickly.

The screenshot shows a 'Filter' panel with the following elements:

- Clear** button
- Alarm state:** All
- Acknowledged state:** All
- Alarm msg contains:** (empty text field)
- Comment contains:** (empty text field)
- Triggers:** Non-Triggers
- Engine:** (empty dropdown)
- Row #:** (all)
- Tag name:** (all)
- Row UID:** (all) (non-blank Row UIDs)
- Priority:** (empty text field) 1-999 if blank. Enter range a-b OR one or more priorities separated by comma
- Sort by tag name:** (checkbox)
- Tag Group:** (all) (checked), NOx, Power, Pressure, Pumps, Station Status
- Check/uncheck children with parent:** (checkbox)

Click the [Clear] button to clear the filter items (reset to default values)

Alarm state

- All: display active and complete alarms
- Active: only display active alarms (have not ended)
- Completed: only display alarms that have ended

Acknowledged state

- All: display alarms that are unacknowledged and acknowledged
- Acknowledged: only display alarms that have been acknowledged
- Unacknowledged: only display alarms that are unacknowledged

Alarm msg contains

Enter text that appears in the alarm message. This field is not case sensitive.

Comment contains

Enter text that appears in the alarm comment. This field is not case sensitive.
Enter NULL to match empty comments.

Triggers

- Non-triggers: only display alarms for non-trigger rows
- All: display trigger rows and non-trigger rows
- Triggers: only display alarms for trigger rows

See **Trigger** row on page 183 for more information

Row #, Tag name, Row UID

Displays alarms for tags with the selected row number, tag name, or Row UID

Priority

- Alarm priority is an integer value 1-999
- Empty priority filter will match all priorities
- Filter syntax:
 - Range a-b
OR
 - One or more priority numbers separated by a comma

Tag Group

Select/check one or more Tag Groups.

Check/uncheck children with parent:

Tag Groups can be hierarchical. For example, Tag Group "Unit1" may have child Tag Groups named "Unit1\Temperature" and "Unit1\Pressure".

If "Check/uncheck children with parent" is selected, checking or unchecking a parent Tag Group (e.g., "Unit1") will check or uncheck any child Tag Groups (e.g., "Unit1\Temperature" and "Unit1\Pressure").

See **Tag Group** on page 90 for more information.

Alarm events: List of Alarm Events

To view the alarm events for the search time range and filter, select the “List of Alarm Events” view.

View:  List of Alarm Events  Alarm Reports  Alarm Analytics

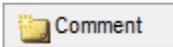
The alarm events for the most recent alarm history retrieval and filter are displayed.

Engine name	Start time	End time	Flag	Duration (min)	Alarm message
Unit1	4/14/2020 3:06:57 PM	(Active)		3.68	Outlet temperature, 166.0, is too high
Unit1	4/14/2020 3:06:42 PM	(Active)		3.93	Discharge pump 2 is running
Unit1	4/14/2020 3:06:32 PM	4/14/2020 3:06:37 PM		0.08	Outlet temperature, 165.2, is too high
Unit1	4/14/2020 3:06:27 PM	(Active)		4.18	Level 2 indicator alarm
Unit1	4/14/2020 3:06:22 PM	4/14/2020 3:06:27 PM		0.08	Level 1 indicator alarm
Unit1	4/14/2020 3:06:22 PM	4/14/2020 3:06:27 PM		0.08	Outlet temperature, 165.2, is too high
Unit1	4/14/2020 3:06:17 PM	4/14/2020 3:06:27 PM		0.17	Unit 1 NOX emissions, 223, is too high
Unit1	4/14/2020 3:06:07 PM	4/14/2020 3:06:12 PM		0.08	Unit 1 NOX emissions, 224, is too high
Unit1	4/14/2020 3:06:07 PM	4/14/2020 3:06:17 PM		0.17	Outlet temperature, 166.0, is too high
Unit1	4/14/2020 3:05:57 PM	4/14/2020 3:06:02 PM		0.08	Outlet temperature, 165.5, is too high
Unit1	4/14/2020 3:05:47 PM	(Active)		4.85	Unit 1 power output, 168, is greater than 165
Unit1	4/14/2020 3:05:27 PM	4/14/2020 3:05:52 PM		0.42	Unit 1 NOX emissions, 225, is too high
Unit1	4/14/2020 3:05:27 PM	4/14/2020 3:06:07 PM		0.67	Level 2 indicator alarm
Unit1	4/14/2020 3:05:22 PM	4/14/2020 3:05:27 PM		0.08	Level 1 indicator alarm
Unit1	4/14/2020 3:05:12 PM	4/14/2020 3:05:17 PM		0.08	Unit 1 NOX emissions, 224, is too high
Unit1	4/14/2020 3:05:02 PM	(Active)		5.60	The valve position, 52.1, is greater than 50 percent
Unit1	4/14/2020 3:05:02 PM	4/14/2020 3:05:07 PM		0.08	Outlet temperature, 166.0, is too high

The information displayed for each alarm event includes

- **Start time:** start time of the alarm
- **End time:** the end time of the alarm (return to normal time) or “(Active)” if the alarm has not ended
- **Flag:** * if the end time was set due to a TopView restart and not a true return-to-normal event of the alarm.
- **Duration:** length of the alarm in minutes
- **Alarm message:** the alarm message for the event
- **Comment:** comment/annotation for the event
- **Acknowledge time:** the time of any acknowledge event of the alarm or blank if not acknowledged.
- **Primary Tag Group:** the primary tag group for the tag that generated the alarm event
- **Tag:** the point that generated the alarm condition
- **Row index:** the row index of the monitored point in the TopView configuration (1...n).

Comments / Annotations



If SQL Server is used for alarm logging (see **Log alarms to SQL Server** on page 236), the user can add comments/annotations for displayed alarm event. Select one or more alarm events in the list (use CTRL or SHIFT to select multiple items) and click the [Comment] button.

The user will be presented with a dialog where they can

- Enter a single comment for all selected alarm events (single entry and save)
User must check "Enter one comment..." to see the single comment entry
- Enter a different comment for each alarm event (entry and save per alarm event)
- Pull previous comments for one or more alarms

The screenshot shows a dialog box titled "TopView alarm comment/annotation". At the top right, there is a checked checkbox labeled "Enter one comment for all alarms". Below the title bar, there are two main sections:

- Enter a single comment/annotation for all selected alarms:** This section contains a large text input field and a "Save" button.
- Enter a comment/annotation for each alarm:** This section contains a "Save all and close" button and two alarm entries. Each entry includes:
 - Alarm msg: Discharge pump 2 is running
 - Alarm time: 12/7/2015 2:54:06 PM
 - Comment: Could not discharge
 - Buttons: "Save" and "Pull"

At the bottom of the dialog, there is a section titled "Pull previous comments" with the text "Retrieve the most recent non-blank comment/annotation for each alarm". Below this, there is a "Search over the last" input field containing the number "2", followed by the text "hours" and a "Pull all previous comments" button.

Pulling previous comments

- Each listed alarm contains a [Pull] button to the right of the Comment field. This button will pull the previous non-blank comment for this alarm
- At the bottom of the dialog, [Pull all previous comments] will pull the previous non-blank comment for each listed alarm
- The search duration at the bottom of the screen configures the search period for pulling single and all non-blank comments

Export



Click the [Export button] to save the details of the displayed alarm events to an external file. This exported file is CSV format and can be viewer in applications such as Microsoft Excel. Note that exported commas (,) are converted to tildes (~).

Selected alarm event details

The bottom of the Alarm history screen can display more details for the selected alarm event. This includes information that is not included in the displayed alarm events list columns.

Alarm events: Alarm Reports

To view the alarm reports for the current search time range and filter, select the "Alarm Reports" view.

View: List of Alarm Events Alarm Reports Alarm Analytics **Alarm summary grouping:** Row number + Tag name

Show alarm summary, include: Engine name Server Sample alarm msg Primary Tag Group Source (TopView Events)
 Description Row# RowUID Secondary Tag Group(s)

Show alarm event details, maximum alarm events per tag [Configure columns for alarm event details...](#)

HTML report CSV report Text report JSON report

TopView Alarm Report
Created: 4/15/2020 1:09:22 PM
Configuration: Unit1
Report start time: 4/14/2020 1:07:21 PM
Report end time: 4/15/2020 1:07:21 PM
Tag Groups: all
Max events per tag (Alarm event details): 1
Alarm count: 5000
* Max alarm events reached for report period - report includes partial results

Alarm summary by 'Row number + Tag name'

Tag	Alarm count	% total	Avg duration (min)	Total duration (min)	Engine name	Source	Description	Primary Group	Server	Row	RowUID	Last alarm message
TopView.Dev1.NoX_Unit1	1824	36.5	0.2	332.0	Unit1	-	Unit1 NOx	NOx	MyKServer	14	-	Unit 1 NOX emissions, 224, too high
TopView.Dev1.OutletTemp	1301	26.0	0.7	963.9	Unit1	-	Outlet temp	Temperature	MyKServer	1	-	Outlet temperature, 166.0, is too high
TopView.Dev1.Level Ind 2	621	12.4	0.7	413.5	Unit1	-	Level 2	Level	MvKServer	4	-	Level 2 indicator

Alarm summary grouping

Determines the method used for "per-tag" information in the alarm summary. See "Alarm Summary Grouping" for more information

Formats

Four separate alarm reports (HTML, CSV, TXT, and JSON) are displayed

Report contents

Each alarm reports can contain

- a summary of alarms by monitored tag/point
- a list of the alarm events with an optional maximum per monitored tag/point

Select the desired content for each report

Save and View reports

Each report can be saved to a file. After the save, the user can open the file in the default program for the report file type (HTML, CSV, TXT, JSON)

Alarm events: Alarm Analytics

The list of alarm events displays each alarm event that occurred over the time range using the current filter. Alarm Analytics provides further alarm event analysis per monitored point/tag, per interval within the time range, as well as overall active alarm behavior during the time range.

To view the alarm analytics for the current search time range and filter, select the "Alarm Analytics" view.

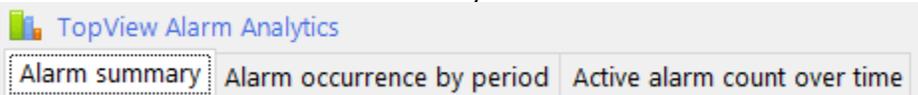
View:  List of Alarm Events  Alarm Reports  Alarm Analytics

The alarm analytics for the most recent alarm history retrieval and filter will be displayed.

There are three alarm analytics screens available:

- Alarm summary: per-tag alarm statistics and analysis based on the selected alarm summary grouping method. Includes tag-based alarm information such as alarm counts, average duration, and total duration.
- Alarm occurrence by period: alarm occurrence count (number of alarms that occurred) for each user-defined interval within the most recent alarm history time range.
- Active alarm count over time: active alarm statistics for all alarm events (using current search range and filter). Includes total active alarm counts and alarm event details over the time range.

Select the tab for the desired alarm analytics screen:

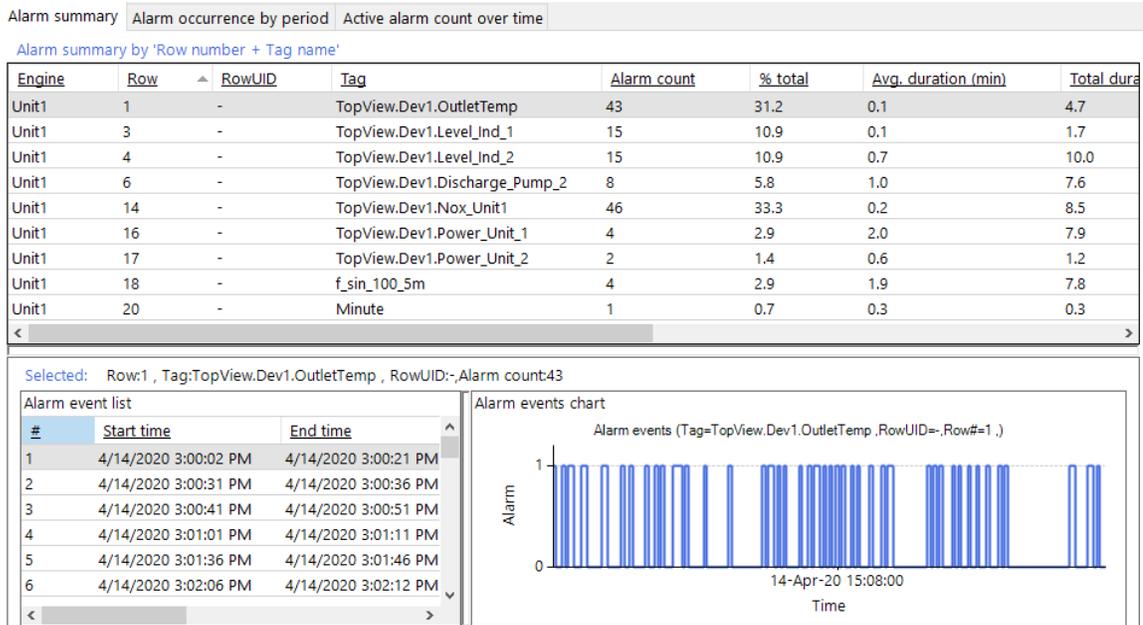


Alarm summary

Alarm statistics for each monitored tag based on the selected alarm summary grouping method.

Alarm summary grouping:

For more information see “[Alarm Summary Grouping](#)”



The top list displays the list of points (tags) with one or more alarm events during the current time range using the current filter. The displayed information includes:

- **Tag:** the point name (tag name)
- **Alarm count:** total number of alarms that occurred for the point
- **% total:** The point's alarm count as a percentage of all alarms that occurred for the list of displayed points (current time range and filter)
- **Avg duration (min):** the average duration (minutes) of an alarm event for this point
- **Total duration (min):** the total number of minutes that this point was in alarm
- **Server:** the data server name for the point
- **Description:** the tag description
- **Primary Group:** the Primary Tag Group for the tag

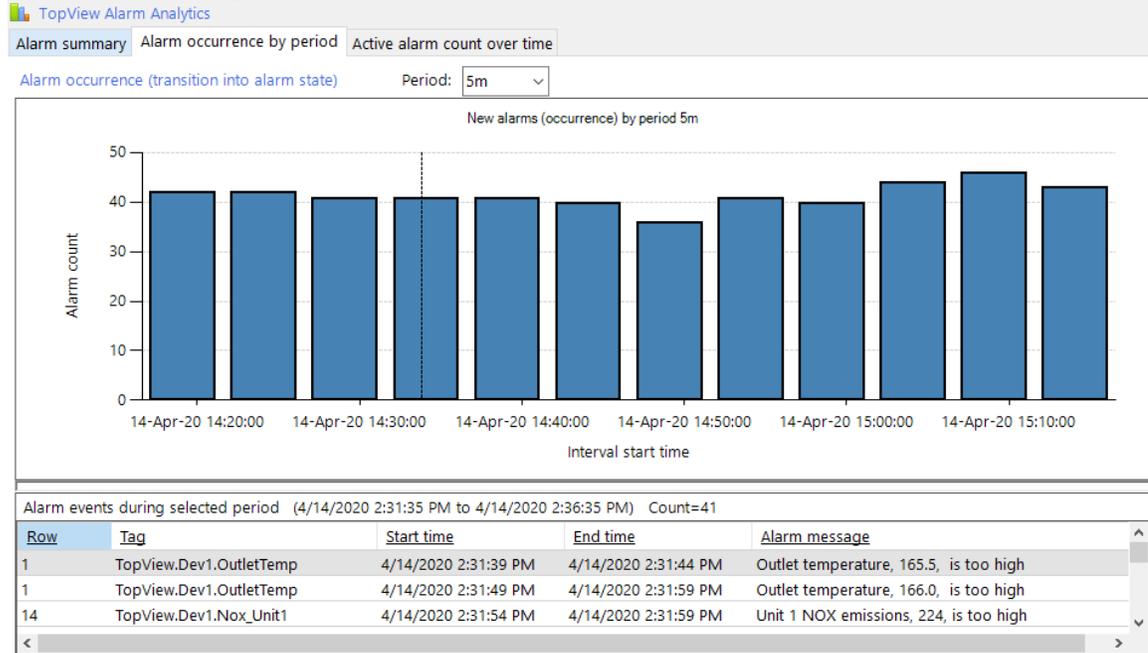
When a point is selected in the top list, the bottom list and chart displays alarm event details for the selected point.

- **Alarm event list:** displays the details of the alarm events for the selected point. This includes the start time, end time, duration, alarm message, and alarm UID. Selecting an alarm event in the list will drop a cursor on the alarm events chart at the alarm event start time.
- **Alarm events chart:** displays a chart of the point's alarm events over the time range. A value of 0 = "alarm not active" and a value of 1 = "alarm active". Clicking an alarm

event on the chart (click the chart with the left mouse button) will highlight the alarm event in the alarm event list.

Alarm occurrence by period

Alarm occurrence count (number of alarms that occurred) for each user-defined interval within the time range



The user can select an interval of time using the Period dropdown:

Period: 5m

The final letter of the period is m (minutes), h (hours), or d (days).

For each user-selected interval within the time range (using the current filter), the chart displays a bar representing the total number of alarms that *occurred* (transitioned into alarm) during the interval. This allows the user to recognize bursts or floods of alarms during the time range.

Selecting a bar (interval) from the chart (click the chart with the left mouse button) will display the following information underneath the chart:

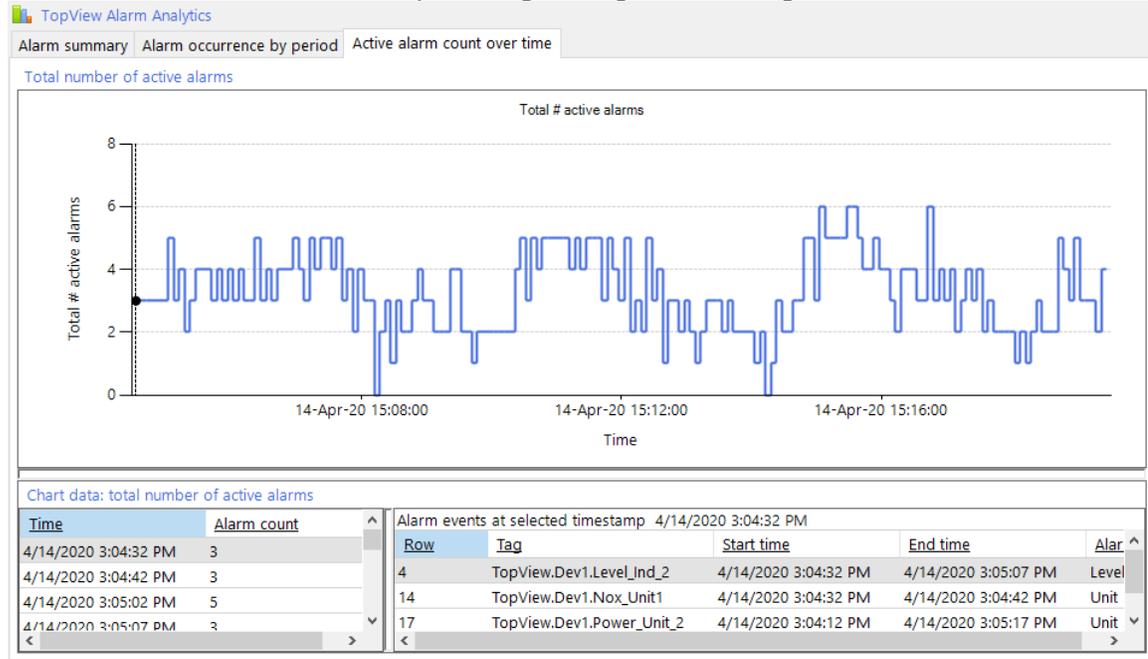
- The start/end of the selected interval and number of alarms that occurred
- The details of the alarm events that occurred in the selected interval

Alarm events during selected period (4/14/2020 2:31:35 PM to 4/14/2020 2:36:35 PM) Count=41

Row	Tag	Start time	End time	Alarm message
1	TopView.Dev1.OutletTemp	4/14/2020 2:31:39 PM	4/14/2020 2:31:44 PM	Outlet temperature, 165.5, is too high
1	TopView.Dev1.OutletTemp	4/14/2020 2:31:49 PM	4/14/2020 2:31:59 PM	Outlet temperature, 166.0, is too high
14	TopView.Dev1.NoX_Unit1	4/14/2020 2:31:54 PM	4/14/2020 2:31:59 PM	Unit 1 NOX emissions, 224, is too high

Active alarm count over time

Active alarm count statistics for all points/tags during the time range



The “Total number of active alarms” chart displays the total number of active alarms at any point within the time range (using the current filter).

The bottom of the screen displays 2 lists:

- The left list contains the datapoints in the chart: a timestamp and total active alarm count at this time.
- The right list contains the alarm events for the selected chart datapoint (selected time in the left list).

Selecting a datapoint from the left list (datapoints for chart) will drop a cursor in the chart at the selected time and also will display the alarm events (those comprising the total alarm count at the selected time) in the right list.

Selecting a time on the chart (click the chart with the left mouse button) will select the chart datapoint in the left list which will then display the active alarm events at this time in the right list.

Zooming the X axis (time) on charts

The user can zoom into an area of the alarm analysis charts (X-axis time zoom) by clicking and holding the left mouse button, then dragging the mouse left or right. The zoom area will be highlighted as the user drags and the zoom will occur when the user releases the left mouse button.



Further zooming can be accomplished by repeating the click-drag process.

Once the user has zoomed into an area of the chart, a scroll bar will appear under the X-axis.



The chart time range can be changed by moving the scroll bar left or right.

Undo zoom: the user can undo the most recent zoom by clicking the undo zoom button at the left end of the scroll bar: 

Making changes to the TopView configuration

Any display changes made to an interactive TopView Engine window are temporary (font, hide columns headers, etc....).

Permanent changes to the configuration must be made using the TopView Configurator.

Running the Configurator

Launch the TopView Configurator

Start...Programs...Exele TopView...TopView Config

Re-reading the Configuration File

By default, the TopView Engine will not automatically read changes to its configuration file. You can change this behavior by setting "Apply configuration changes while running" for the configuration file. See **Apply configuration changes while running** on page 217 for more information.

If "Apply configuration changes while running" is not set:

- If running TopView as a Service, the user should restart the Service to see changes to the configuration.
- If running TopView interactively, select the More Actions...Restart from the top toolbar.

Run a silent import from scripts or custom code

See **Automating Configuration Changes** on page 591 for details.

Alarms

When an alarm limit is violated, TopView will perform any configured tasks for the alarm including notification, audible alarms, output points, and launching custom applications.

An item is "in alarm" if the state column value for the item is not blank. By default, the word "Alarm" appears as the state, but this text can be overridden with a custom alarm text (See "**Alarm**" label on page 139).

Unless the tag/row is a "trigger row", it is considered "in alarm" until the alarm condition is no longer true.

See **Configure Alarm Limits** on page 125 for more information on configuring alarm limits and **Options Screen** on page 182 for information on trigger rows.

Values View		Selected Tag Group: All					
State	Ack	Value	Units	Description	Time in alarm	Time of alarm	Pr
High	ACK ●	164.00	Deg F	Outlet temp	000:05:22	10/23/2013 2:35:00 PM	Un
		163.4	Deg F	Avg outlet temp			Un
	ACK ●	OK		Level 1 indicator			Un
HIHI	ACK ●	HIHI		Level 2 indicator	000:00:18	10/23/2013 2:40:04 PM	Un
		Running	State	Discharge Pump 1			Un
Information	ACK ●	Running	State	Discharge Pump 2	000:00:14	10/23/2013 2:40:08 PM	Ur
		146.2	psi	Outlet 4 pressure			Pri
		153.2	psi	Outlet 5 pressure			Pri
		168.5	Deg F	Outlet 4 temperature			Un
		167.0	Deg F	Outlet 5 temperature			Un
		Up		Station 4 status			St
Information	ACK ●	Down		Station 5 status	000:05:22	10/23/2013 2:35:00 PM	St
Information	ACK ●	Down		Station 6 status	000:05:22	10/23/2013 2:35:00 PM	St
Warning	ACK ●	225	ppm	Unit1 NOx	000:05:22	10/23/2013 2:35:00 PM	NC
		225	ppm	Unit 2 NOx			NC
High	ACK ●	168	MW	Unit 1 power	000:05:22	10/23/2013 2:35:00 PM	Po
		161	MW	Unit 2 power			Po
	ACK ●	1.000		Station 1 status	000:05:22	10/23/2013 2:35:00 PM	St

Acknowledging alarms

When an alarm occurs, by default the tag/row becomes unacknowledged. Unacknowledged tags/rows in TopView have an ACK button  at the start of the row. This is visible in the TopView Engine window (if visible) and the Remote Viewer.

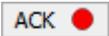
Alarm		195.1	PSI	Outlet 4 pressure	000:00:17	Pressure
Alarm		109.8	PSI	Outlet 5 pressure	000:00:17	Pressure
		194.9	Deg F	Outlet 4 temperature		Unit1\Temperature

A user can acknowledge a single alarm condition (tag/row) or all unacknowledged items in the selected Tag Group.

Acknowledging all alarms in the Tag Group:

- Click the Acknowledge button on the top toolbar.

Acknowledging a single tag/row:

- Click the ACK button  at the start of the row.

Notes

- An acknowledged tag/row may still have an active alarm.
- Alarms can also be acknowledged using **Notification:** Voice Notification, the Remote Viewer, email-SMS reply-to-acknowledge, and the Mobile Web App.
- If an alarm occurs and disappears without being acknowledged, the ACK button  will remain at the start of the row. This informs the user that an alarm occurred which was not acknowledged.
- TopView allows the user to create new alarm conditions based on rows being acknowledged or unacknowledged. See **Configure Alarm Limits** on page 125 for more information.
- Comments/annotation prompt: upon acknowledge, the user may be prompted to enter a comment. See **Prompt for alarm comment/annotation on acknowledge** on page 175 for more information.

Alarm Events (notification, output points ...)

If there are configured events such as notification or output points, the TopView Engine will perform these tasks when the tag/row transitions "into alarm".

These tasks are typically performed in the background. Use the **TopView Admin Tools** application to monitor the status of these background tasks.

Log Files

Use **TopView Admin Tools** to view the contents of the various log files generated by each running TopView Engine instance/configuration.

Launching TopView Admin tools

- Full mode: click the [Admin Tools] button on the top menu
- Log view mode: click the most recent application log message displayed at the bottom of the TopView Engine window

TopView Engine Service Manager

Most users run each TopView Engine as a Window Service.

The Configurator allows the user to install or re-install the TopView Engine Service for the current configuration file. For most users the Configurator is sufficient for installing TopView Engine Services. See **Install/Re-install the Service for this TopView Configuration** on page 445 for more information.

The TopView Service Manager provides another method for managing TopView Engine Services. This command-line tool allows the user to

- List the installed TopView Engine Services
- Remove a TopView Engine Service
- Install a TopView Engine Service

The TopView Service Manager can be used to perform bulk operations on TopView Engine Services when doing the same tasks from the Configurator would be possible but tedious.

TopView Service Manager commands

The TopView Service Manager (tvservicemgr.exe) is located in the TopView ProgramPath folder (Start...Programs...Exe\TopView...More...Open ProgramPath Folder)

LIST

List installed TopView Engine Services

Command: tvservicemgr.exe list

REMOVE

Remove a TopView Engine Service

Command: tvservicemgr.exe remove servicename

Example: tvservicemgr.exe remove topview_unit1alarms

INSTALL

Install a TopView Engine Service

Command: tvservicemgr.exe install --cfg=configfile --startup=manual/automatic --delayedstart=yes/no --userlogon=yes/no --user=domain\user --pw=password

--cfg

The full path to the TopView Configuration file (.cfg) for the Service

-startup

The Service startup type (manual or automatic, manual if not specified)

-delayedstart

If the Service startup type is automatic, if the automatic startup should be a delayed (yes or no, no if not specified)

-userlogon

If the Service has a configured user logon account (yes or no, no if not specified).

If no, the Service will use LocalSystem account.

If yes, the Service Logon account is specified through the --user and --pw arguments

--user

The user account domain\user if --userlogon=yes

--pw

The user account password if --userlogon=yes

Example: tvservicemgr.exe install --

cfg=C:\ProgramData\Exele\TopView\Config\unit1alarms.cfg --startup=automatic --
delayedstart=no --userlogon=yes --user=. \administrator --pw=abc

Example: tvservicemgr.exe install --

cfg=C:\ProgramData\Exele\TopView\Config\unit2alarms.cfg --startup=manual --
userlogon=no

TopView Information Icon

The TopView Information Icon runs in the System Notification Area of the computer running TopView.

The **TopView Information Icon** can be used to:

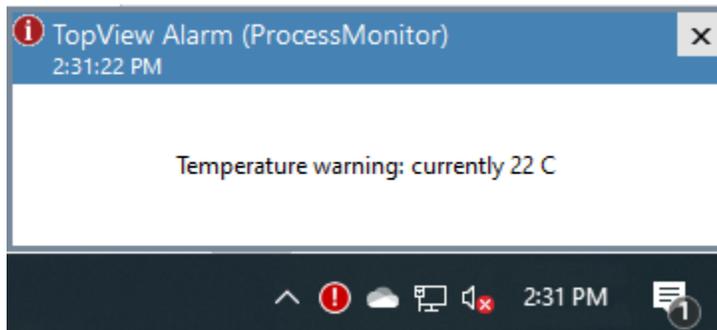
- View new alarms in a pop-up window (optional)
- Listen to new Audible Alarms (optional)
- Monitor the current list of running TopView Engine instances/configurations
- Launch the TopView Configurator, Web Configurator, TopView Admin Tools, or the TopView Remote Viewer client

Starting the TopView Information Icon

When TopView is installed, the TopView Information Icon is added to the startup folder of the computer.

Start...Programs...Startup

If the Icon is not currently running, the user can launch the TopView Information Icon using **Start...Programs...Exe TopView...More...TopView Information Icon**



Stopping the TopView Information Icon

Right-click the icon and click Exit.

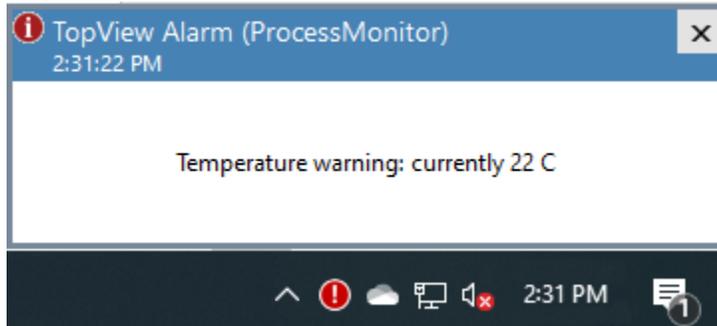
To prevent the TopView information icon from running automatically, remove the shortcut from the Startup folder.

Start...Programs...Startup...TopView Information Icon

Right-click the shortcut and click "delete".

New alarm icon window

Each running TopView Engine instance/configuration can display new alarms in a pop-up window above the TopView Information Icon. This allows a central, local notification area for all running TopView Engine instances.



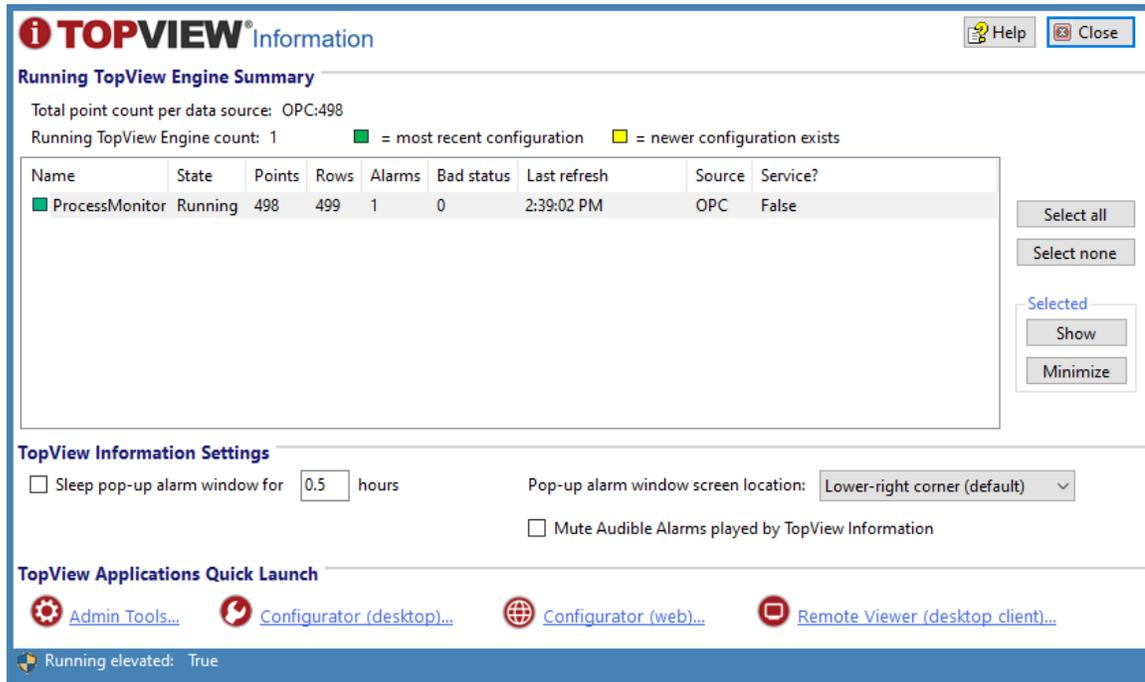
To configure this setting, see **Show alarms in System tray** pop-up window on page 226.

Audible Alarms through icon

Audible Alarms can be played by the running TopView Engine instance or sent to the TopView Information Icon. See Audible Alarms, **Play through TopView Information Icon** on page 241 for more information.

The TopView Information Screen

Click the icon to display the TopView Information Screen



Running TopView Engine Summary

The current list of running TopView Engine instances/configurations will be displayed.

The summary information includes the total number of TopView Engine instances and the total number of rows/tags across all running TopView Engine instances.

The displayed information per TopView Engine instance includes:

- **Name:** the name of the TopView Engine instance (the configuration file)
- **Points:** the number of points in the TopView Engine instance (used to compute total points for license)
- **Rows:** the number of rows/tags being monitored
- **Alarms:** the current number of alarms
- **State:** Startup, Running, or Suspended (if reconnecting to Server(s))
- **Last refresh:** the time of the last refresh
- **Source:** OPC, Events, PI, SQL, CanaryLabs, or PerfMon
- **Service:** True if the TopView Engine instance is running as a Windows Service

To minimize a displayed TopView Engine window, select the name in the list and click the [Minimize] button.

Sleep pop-up alarm window

Check this option to suppress displaying the pop-up alarm window for a period of time. If enabled, the remaining amount of time is displayed.

Pop-up alarm window screen location

Select the desired location of the pop-up alarm window. "Lower-right corner (default)", "Upper-right corner", "Upper-left corner", or "Lower-left corner"

Mute Audible Alarms played by TopView Information

If there are configured Audible Alarms through the icon, checking this item will suspend all Audible Alarms.

TopView Applications Quick Launch

Click to launch the listed TopView application.

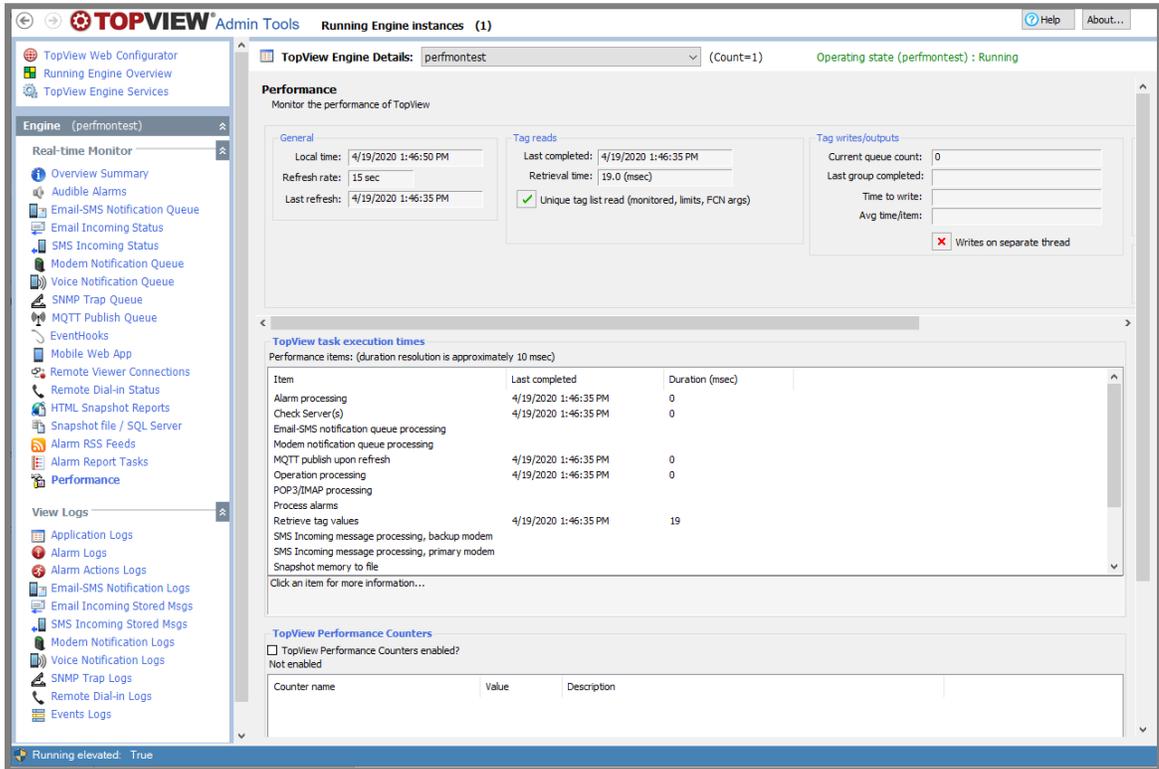
For information on these applications, see

- **TopView Admin Tools** on page 544
- **Configurator (desktop)** see "TopView Configurator" on page 70
- Configurator (web) see separate Web Configurator help/doc.
- TopView Remote Viewer client: see separate Remote Viewer help/doc

TopView Admin Tools

TopView Admin Tools is an application designed to monitor running TopView Engine instances/configurations and to view application and audit logs.

Each instance of the TopView Engine can run interactively or as a Windows Service. Therefore, the TopView Engine window may not be visible to users. In addition, a visible TopView Engine window displays the current values and alarms, but does not provide access to logs or details of the background tasks (sending notifications, accepting remote connections, performance information, etc.).



Using TopView Admin Tools, user can

View a summary of all TopView Engines ...

- Engine name, tag count, alarm count, state, and last refresh

Manage TopView Engine Services

- Start, stop, upgrade, and delete

Monitor (for each running TopView Engine)...

- Overview of all running TopView Engines
- Current values and alarms
- Audible Alarms settings
- Outgoing email-SMS, modem, and voice notification queues
- Incoming email status (incoming email)
- SMS incoming status
- EventHooks
- Current status of the Mobile Web App web server
- Current connections from the Remote Viewer
- Status of Remote Dial-in
- HTML Snapshot reports
- Snapshot Output file and table
- Alarm RSS Feed output
- Status of Alarm Report tasks
- TopView performance details

View...

- All log files (application, alarm, alarm activity, and notification)
- Audit/change log and backup details

Create...

- Ad-hoc Alarm Reports

Starting TopView Admin Tools

There are multiple ways to launch TopView Admin Tools

- Start...Programs...Exele TopView...TopView Admin Tools
- From the TopView Engine window's top toolbar, click [Admin tools] button
- From the TopView Engine window, click the most recent log message displayed at the bottom of the screen. This will open TopView Admin Tools in "View log" mode.
- From the TopView Configurator, click the "Run TopView Admin Tools" at the bottom of the left menu.

Overview of all running TopView Engines

From the top of the left menu, select Running Engine Overview.

This screen will display an overview of each running TopView Engine. The information displayed is described in **Running TopView Engine Summary** on page 75.

The user can double-click an Engine in the list to view the details the TopView Engine.

Manage TopView Engine Services

This screen allows the user to manage installed TopView Engine Services.

The same management tasks are available on the TopView Engine Services screen of the Configurator. Please see **TopView Engine Services** on page 76 for more information on Service management tasks

Select a running TopView Engine instance

The Real-time Monitor, View Logs, and Reports and Audits sections of the left menu display information for a running TopView Engine.

There are two ways to select the desired TopView Engine:

- (1) From the Running Engine Overview screen, double-click an Engine from the list
- (2) From the drop-down, select a running TopView Engine instance:

 **TopView Engine Details:** (Count=1) Operating state (Unit1-Alarms) : Running

Real-time Monitor

Overview Summary

TopView Summary

Configuration

Name of the configuration file

Is Service?

True if TopView is running as a Service

Startup time

The date and time when the TopView Engine instance/configuration started

Run time

The total amount of time since the TopView Engine instance started (now – start time)

Last full restart time

The last time the TopView Engine was restarted/reinitialized while running. This can be forced by the user or can occur automatically (e.g., configuration changes, some server connections lost/restored ...). See **Apply configuration changes while running** on page 217 for more information on configuration changes and internal restart.

Last tag/limit change

The last time the TopView Engine applied tag or limit changes that did not require an internal restart. See **Apply configuration changes while running** on page 217 for more information.

Configuration usage

"Using current file" if the TopView Engine is using the most recently saved configuration file.

Pending disable persist

True if the TopView Engine has pending disable/enable actions that have not been written back to the configuration file.

Summary (current)

Summary of the current state of the TopView Engine instance/configuration

Row count

The number of rows in the TopView Engine instance

Point count

The number of points in the TopView Engine instance. Points are rows that contain a tag or, for TopView PI, a PI Expression operation result. Points are counted against the point-count of your TopView license.

Alarm count

The number of current alarms

Unack count

The number of unacknowledged items

Summary (since startup)

Summary of values (totals) since TopView started

Total alarms

The total number of alarms that have occurred

Email-SMS count

The number email messages that have been sent. This count can include non-alarm messages such as the TopView health email.

Email-SMS failed

The number email messages that failed to send properly

Page count

The number modem/page messages that have been sent. This count can include non-alarm messages such as the "page all errors to default modem group".

Page failed

The number modem/page messages that failed to send properly

Voice count

The number Voice Notification messages that have been sent.

Voice failed

The number Voice Notification messages that failed to send properly

Operating State & Server Information

Operating state: Initially displays "Startup" until TopView connects to Servers and verifies all tags. Then, it displays "Running" if operating normally or "Suspended" if suspended due to lost server connections. See **Suspend** on bad Server connection on page 216 for more information.

Server count: number of unique servers accessed.

Server status information: the name and current connection state for each unique server.

License server list: a list of the unique server names used for TopView data server licensing.

SQL Server logging

Displays the current state of SQL Server for alarm logging and/or Snapshot Output

Server

The specified SQL Server instance for alarm logging

Alarm logging?

True if "Log alarms to SQL Server" enabled

Snapshot Output?

True if Snapshot Output to SQL Server enabled

Connected

True if TopView has successfully connected to SQL Server

Last connection check

TopView continuously monitors and updates the connection status to SQL Server regardless of the use of SQL Server (logging of new alarms, alarm reports...)

Values and Alarms Summary

Displays the Tag Groups, Current Values and Current Alarms View for the TopView Engine instance.

Values and Alarm Summary

Refresh Auto refresh Last refresh: 10/23/2013 2:52:28 PM

Tag Groups

- All
 - AllUnits
 - NOx
 - OperationStatus
 - Power
 - Pressure
 - Station Status
 - Unit1
 - Unit2
 - Unit3

Current Values View | Current Alarms View

		Value	Units	Description
High	ACK ●	163.25	Deg F	Outlet temp
		163.5	Deg F	Avg outlet
	ACK ●	OK		Level 1 ind
HIHI	ACK ●	HIHI		Level 2 ind
		Running	State	Discharge I
Information	ACK ●	Running	State	Discharge I
		145.3	psi	Outlet 4 pr
		148.2	psi	Outlet 5 pr
		168.2	Deg F	Outlet 4 te

Limit and Acknowledge tags

Displays a list of the current values for tags used as alarm limit values and input acknowledge tags in the TopView Engine instance.

See Alarm Limit **Value** on page 133 for information on using tag as limit values.

See **Acknowledge Tag** on page 176 for more information on acknowledge tags.

Audible Alarms

See TopView Configurator, **Notification: Audible Alarms** on page 239 for details on Audible Alarm settings.

Audible alarms are enabled

Checked if Audible Alarms are enabled

Audible Alarm sounds ON for this computer

True if Audible Alarms are will play on the local computer. Toggle this setting using the [Toggle On/Off] button.

Audible Alarms played through TopView Information Icon

True if the TopView Engine instance/configuration will send local Audible Alarms to the TopView Information Icon.

Sound type

The type of Audible Alarms configured:
System Beep, WAV file or Text-to Speech

Last Audible Alarm played at

The date and time of the last Audible Alarm

Email-SMS, Modem, and Voice Notification Queue, SNMP Trap Queue

Each notification method contains a queue for outgoing messages.

See **Global Options: Memory & Queues** on page 487 for more information.

The queue screen for each notification method contains the same basic information regarding the queue.

Notification enabled for this configuration

Checked if this method of notification is enabled.

Outgoing message queue

Displays the contents of the queue. Each queue contains the notification messages that have not yet been delivered. Use the [Clear queue] button to clear all notification messages from the queue.

Most recent outgoing message information

Contains details regarding the most recent notification message sent. To view more details about this event and previous events, click the [View Notification Logs] button.

Example: most recent Email-SMS Notification message details

Email Incoming Status

The Email Incoming Status screen displays the current state of TopView's monitoring for incoming email requests. See **Deprecated/older settings**

Note: These settings are not recommended for new users.

TopView can send email messages directly to each recipient's domain (send directly). Direct email bypasses any delays in user's mail server and is typically faster but may not be allowed by the receiving domain.

Send email directly:

Direct emailing requires a DNS Server to resolve the address of each recipient. The dropdown allows the user to select the DNS Server to use:

- (Default): use the default DNS Server for this computer
- Enter a DNS Server: enter the IP Address or host name of the DNS Server
- Public DNS Servers from opendns.com
208.67.222.222 and 208.67.220.220 are public DNS Servers that can be used if your computer has access to the Internet

Select a DNS Server or enter a DNS Server address/host name.

Note: the ability to successfully send direct email is often based on the recipient's domain (user@domain.com). Therefore, you should test a recipient from each domain that will receive email from TopView.

Send to local SMTP Server pickup directory

This setting can be selected on a machine which is running an SMTP mail server. The email messages are delivered to the entered pickup directory. From this point, the local SMTP server will process and deliver them. For TopView, this method is more efficient than directly sending through an SMTP Server.

The [Query] button will fill the "Local pickup" textbox with the value of the first SMTP pickup directory for this computer. If this field remains blank, TopView was not able to determine the local pickup directory.

If the user is running Windows 2000 or later, you may be able to use the SMTP Server which is installed with Internet Information Services (IIS).

To administer, start, or stop the local SMTP server, go to Control Panel>Administrative Tools> Internet Information Services.

If the user does not have a local SMTP Server, he/she can choose this delivery method to create email message files in the entered pickup directory.

Incoming Email Settings on page 268 for more information.

SMS Incoming Status

The SMS Incoming Status screen displays the current state of TopView's monitoring for incoming SMS text messages. See **Incoming SMS Settings** on page 291 for more information.

EventHooks

The EventHooks screen displays the currently loaded EventHooks as well as the events that will be delivered to each EventHook.

For information on Eventhook events and for details on creating EventHooks, see the EventHook documentation and help files located in DataPath\EventHooks\.

Mobile Web App

The Mobile Web App screen displays the current status of the embedded web server for the TopView Mobile Web App. See **Mobile Web App** on page 368 for more information.

Remote Viewer Connections

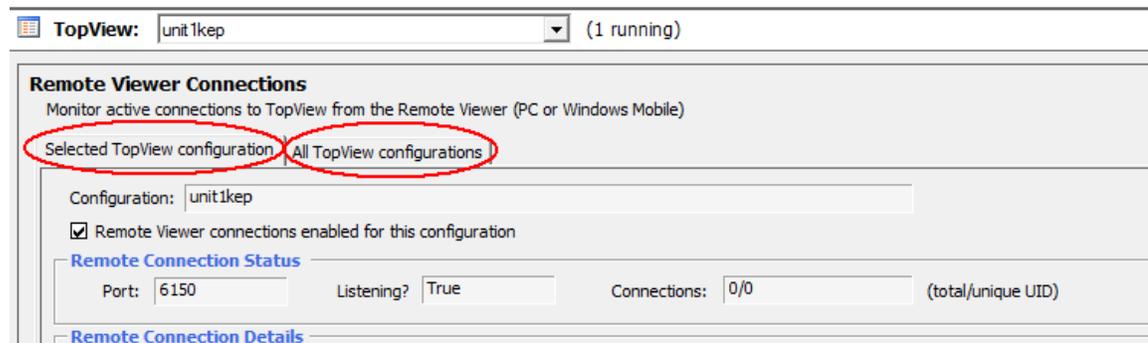
TopView Engine instances/configurations can accept remote connections from the TopView Remote Viewer. The Remote Viewer operation details are contained in a separate document. For information on configuring TopView to accept Remote Viewer connections, see **Remote Viewer settings** on page 384.

Using the Remote Viewer Connections screen, the user can monitor Remote Viewer connections to the selected running TopView configuration as well as all running TopView configurations.

The selected running TopView configuration is displayed at the top of TopView Admin Tools:



Using the tabs, the user can monitor the selected TopView configuration or all running TopView configurations.



Total vs. unique connections

Remote Viewer connection information is displayed as both "total" and "unique" connections.

A single running instance of the Remote Viewer is a unique connection to the TopView computer and is assigned a unique ID (UID) that will appear in the Remote Viewer connection lists.

Since a single Remote Viewer instance can make multiple connections to the TopView computer, the total number of Remote Viewer connections may grow while the number of unique connections (Remote Viewer instances) may not increase.

Remote Viewer concurrent licensing is enforced using the number of unique connections to the TopView computer (across all running TopView configurations)

Reset Listener

The TopView Engine listens for Remote Viewer connections on the displayed port. The listener is idle until new connection requests arrive.

If users are encountering any issues with the listener stability, resetting the listener may clear up the problem. **Stability of the listener should not be an issue, so please contact Exele if you are experiencing any problems.**

Clicking [Reset Listener] will force the TopView Engine to reset the listener.

Time-based reset: an automatic, time-based listener reset can be configured by adding a setting to the TopView.ini file located in DataPath.

```
[General]
RemoteViewerListenerResetHours=X
```

where X is the number of hours between automatic listener resets.
X can be an integer or float value.

Selected TopView configuration

Configuration:

Remote Viewer connections enabled for this configuration

Remote Connection Status

Port: Listening? Connections: (total/unique UID)

Remote Connection Details

UID for Remote Process	Remote host	Remote address	Connection time (hh:mm:ss)	Rem
bc5601b5-d08e-4f99-86d4-fc36f1940f43	Lunker	127.0.0.1	0:00:12	Adm

Configuration

The name of the selected running TopView Engine instance/configuration

Remote Viewer connections enabled

Checked if the TopView Engine instance is configured to accept connections from the Remote Viewer.

Remote Connection Status

Port: The sockets port that TopView is listening to for incoming connections

Listening?: True if TopView is listening for incoming connections

Connections: Current number of total and unique connections from the Remote Viewer

Remote Connection Details

UID for Remote Process: A unique identifier for the Remote Viewer process

Remote host: the name of computer that is running the Remote Viewer

Remote address: the IP address of the computer that is running the Remote Viewer

Remote user: the Windows user that is running the Remote Viewer

Remote domain: the Windows domain of the user that is running the Remote Viewer

All TopView configurations

Updating

The "All TopView configurations" details are only updated when the user clicks [Refresh]

TopView Engine port usage

TopView Engine port usage		
Port	Listening?	TopView Engine instance
6180	Yes	SQL
6185	Yes	UnitMonitor

For each running TopView Engine instance, Admin Tools lists the port number configured for Remote Viewer connections and if the Engine instance is currently listening on the port.

Remote Connection Details

Remote Connection Details							
Running configuration count:		<input type="text" value="7"/>		Connections per source			
		OPC:	<input type="text" value="1/1/25"/>	(total/unique UID/License max)			
		PI:	<input type="text" value="0/0"/>	(total/unique UID/License max)			
		PerfMon:	<input type="text" value="0/0"/>	(total/unique UID/License max)			
		SQL:	<input type="text" value="0/0"/>	(total/unique UID/License max)			
UID for Remote Process	Source	Configuration	Remote host	Remote address	Remote user	R	
3aacaeba-280e-4481-970a-ab8ae899b54d	OPC	UnitMonitor	serverV	127.0.0.1	Administrator	PI	

Running configuration count

The number of running TopView Engine instances/configurations

Connection per source

For each data source, the total number of connections, unique connections, and the Remote Viewer license maximum unique connections count is listed. If the Remote Viewer license count is unlimited, the license max is not displayed (as in the above screen shot).

Remote Connection Details

UID for Remote Process: A unique identifier for the Remote Viewer process

Source: OPC, PI, SQL, CanaryLabs, or PerfMon based on the TopView data source of the configuration

Configuration: the running TopView Engine instance/configuration that accepted the connection

Remote host: the name of computer that is running the Remote Viewer

Remote address: the IP address of computer that is running the Remote Viewer

Remote user: the Windows user that is running the Remote Viewer

Remote domain: the Windows domain of the user that is running the Remote Viewer

Remote Dial-in Status

Remote Dial-in is the ability to call TopView using any phone to listen to and acknowledge alarms. For more information, see **Dial-in settings** on page 389.

Remote Dial-in enabled for this configuration

Checked if this TopView Engine instance is configured to accept remote dial-in connections.

Remote Dial-in Device Status

Device

The TAPI device listening for incoming calls

Listening?

True if the TAPI device is listening for calls

Line status

Current TAPI line status

Inactivity time

During a call, time since last user input

Remote Dial-in Log

The most recent remote dial-in log is displayed. To view previous remote dial-in logs, click the [View Remote Dial-in Logs] button.

HTML Snapshot Reports

The TopView Engine instance/configuration can create HTML Snapshot Reports for the current values and/or alarms. See **HTML Snapshot Reports** on page 395 for more information.

Report list

Each HTML Snapshot Report is listed, along with its next scheduled report creation time. Select a report to display the details and most recent output file.

Selected Report Details

Name: the selected HTML Snapshot Report

Report view: the configured view for the report (Current Values or Current Alarms)

Interval: report creation interval

Tag Groups: the list of Tag Groups included in the report

Email report: checked if emailing of the report is enabled

FTP: checked if FTP of the report is enabled

Most recent HTML file

Displays the most recent selected HTML Snapshot Report file. Use the [Refresh] button to refresh the displayed HTML file.

Snapshot file/SQL Server

The TopView Engine instance/configuration can output current state information to a file and/or SQL Server table. See **Snapshot Output (File and SQL Server)** on page 409 for more information.

Snapshot Output File

If enabled, displays the contents of the most recent Snapshot Output file for this instance of the TopView Engine. To update the displayed file contents, click the [Refresh] button.

Snapshot Output to SQL Server

If enabled, displays the contents of the Snapshot table in SQL Server for this instance of the TopView Engine. To update the displayed table contents, click the [Refresh] button.

Alarm RSS Feeds

The TopView Engine instance/configuration can create RSS Feeds of current alarms. See **Alarm RSS Feeds** on page 424 for more information.

RSS Feed list

Each Alarm RSS Feed is listed, along with its next scheduled creation time. Select a feed to display the details and most recent output feed file.

Selected Feed Details

Feed Name: the selected Alarm RSS Feed name

Interval: feed file creation interval

Tag Groups: the list of Tag Groups included in the feed

FTP: checked if FTP of the feed is enabled

Most recent RSS Feed file

Displays the most recent selected Alarm RSS Feed file. Use the [Refresh] button to refresh the displayed file.

Alarm Report Tasks

Alarm Report Tasks are scheduled Alarm Reports that have been configured in the TopView Configurator and are active in the running TopView Engine instance. This screen allows the user to monitor the status of the Alarm Report Scheduled Tasks. For more information, see "Scheduled Alarm Reports" on page 417.

Performance

The Performance screen displays performance information for the TopView Engine instance/configuration. This screen can be used to

1. Monitor TopView performance for various processing tasks
2. View the current values of the TopView Performance Counters

General

Local time: The local computer time

Refresh rate: The configured refresh rate for the TopView Engine instance/configuration.

Last refresh: The time of the last refresh

Tag reads

Last completed: Time that TopView completed the most recent read of tag values (during the last refresh).

Retrieval time: Time to complete the most recent read of tag values (within 10 msec).

Unique tag list read: If TopView is reading input tags as a group (default) instead of individually

OPC DEVICE read: For TopView OPC, if TopView is performing DEVICE reads instead of CACHE reads. See "Perform OPC DEVICE read of current values" on page 485 for more information.

PI Exceptions (TopView PI): Only read changed tag values. See **Global Options: PI** on page 483 for more information. If PointList EventPipe is in use, the number of new values during the last refresh is displayed as newvalues/maxsize where maxsize is the maximum size of the EventPipe as configured in the PI Global options.

Tag writes/outputs

Current queue count: number of outputs waiting to be written

Last completed: The last time that the queued values were written

Time to write: the number of milliseconds to empty the queue (milliseconds for # items)

Avg time/item: the average write time per item

Writes on separate thread: true if output values are written on a separate thread. This option is only available for certain data sources.

Log files – write queues

Messages for the application, alarm, and alarm actions log files are put into queues and flushed to the files. The number of events in each queue is displayed.

The queues should be empty unless the Engine is having an issue writing to the files.

TopView task execution times

Displays the execution time of various internal tasks. Select an item in the list to see a description of the item.

- **Alarm processing:** After the tag values are retrieved and operations performed, the alarm limits for each tag/row are compared to the value to determine if the tag/row is in alarm
Performance information: Time to determine if each tag/row is in alarm during the most recent refresh
- **Check Server(s):** Server connections are checked during each refresh before tag values are read
Performance information: Time to check the status of each Server connection during the most recent refresh"
- **Email-SMS notification queue processing:** Processing of the outgoing email-SMS notification queue
Performance information: Time to process and send any queued messages
- **Modem notification queue processing:** Processing of the outgoing Modem notification queue
Performance information: Time to process and send any queued messages
- **MQTT publish upon refresh:** Async posting of the MQTT messages configured per tag during each refresh
Performance information: Time to send/queue all outgoing MQTT messages for refresh
- **Operation processing:** Each tag/row can have an optional Operation. The operations are performed during each refresh after the tag values are retrieved
Performance information: Time to perform all configured operations during the most recent refresh
- **POP3/IMAP processing:** If 'Reply-to-email' acknowledge or information request is enabled, TopView will check a POP3/IMAP mailbox for incoming mail messages
Performance information: Time to check mailbox and process messages
- **Process alarms:** Once it is determined which rows are in alarm, TopView will process the alarms and perform any required functions (logging transitions, adding msgs to notification queues, event output points, ...)
Performance information: Time to process alarms during the most recent refresh
- **Retrieve tag values:** Tag values are read during each refresh
Performance information: Time to read the tag values during the most recent refresh
- **SMS Incoming msg processing:** If 'Reply-to-SMS' acknowledge or information request is enabled, TopView will check the incoming SMS inbox (GSM modem) for incoming SMS messages
Performance information: Time to check incoming SMS inbox and process messages
- **Snapshot memory to file:** If Snapshot file enabled, TopView will create the Snapshot file each refresh
Performance information: Time to write the Snapshot file during the most recent refresh
- **Snapshot memory to SQL Server:** If Snapshot to SQL Server enabled, TopView will export the Snapshot to the Snapshot table during each refresh

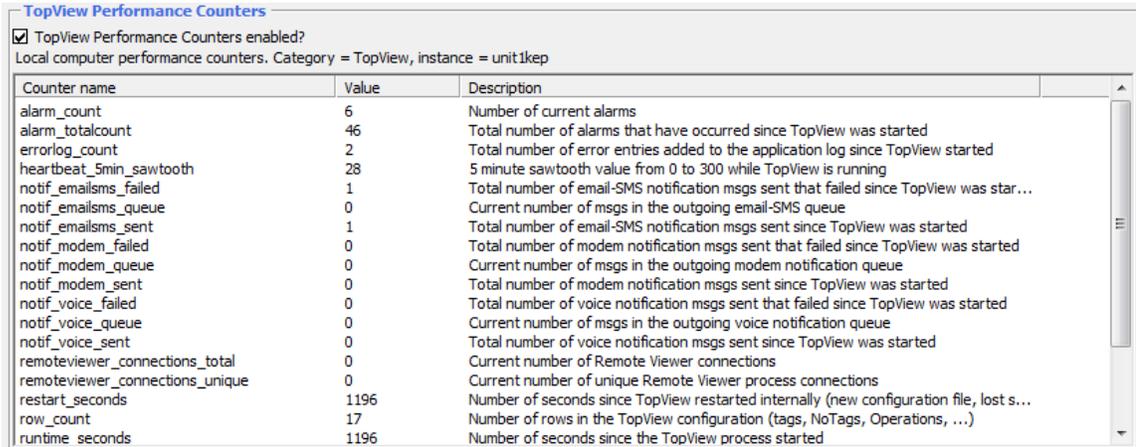
Performance information: Time to export the Snapshot to the SQL Server Snapshot table during the most recent refresh

- **Snapshot to memory:** If writing Snapshot to file or SQL Server, TopView caches the current TopView state to memory during each refresh for Snapshot export
Performance information: Time to write Snapshot data for all monitored tags to memory
- **Update display:** If the TopView Engine is visible (running interactively), the current values/alarms are updated in the TopView Engine window after the values have been retrieved and the alarm conditions processed
Performance information: Time to update the display during the most recent refresh
- **Voice notification queue processing:** Processing of the outgoing Voice notification queue
Performance information: Time to process and send any queued messages
- **Write output values:** If writing values to tags, performance information for the write operation
Performance information: time to write the items in the output queue

TopView Performance Counters

Each TopView Engine instance/configuration can output information to local Windows Performance Counters.

If the selected TopView Engine instance is configured to output TopView Performance Counter, the value of each counter will be displayed. See **TopView Performance Counters** on page 434 for more information.



Counter name	Value	Description
alarm_count	6	Number of current alarms
alarm_totalcount	46	Total number of alarms that have occurred since TopView was started
errorlog_count	2	Total number of error entries added to the application log since TopView started
heartbeat_5min_sawtooth	28	5 minute sawtooth value from 0 to 300 while TopView is running
notif_emailsms_failed	1	Total number of email-SMS notification msgs sent that failed since TopView was star...
notif_emailsms_queue	0	Current number of msgs in the outgoing email-SMS queue
notif_emailsms_sent	1	Total number of email-SMS notification msgs sent since TopView was started
notif_modem_failed	0	Total number of modem notification msgs sent that failed since TopView was started
notif_modem_queue	0	Current number of msgs in the outgoing modem notification queue
notif_modem_sent	0	Total number of modem notification msgs sent since TopView was started
notif_voice_failed	0	Total number of voice notification msgs sent that failed since TopView was started
notif_voice_queue	0	Current number of msgs in the outgoing voice notification queue
notif_voice_sent	0	Total number of voice notification msgs sent since TopView was started
remoteviewer_connections_total	0	Current number of Remote Viewer connections
remoteviewer_connections_unique	0	Current number of unique Remote Viewer process connections
restart_seconds	1196	Number of seconds since TopView restarted internally (new configuration file, lost s...
row_count	17	Number of rows in the TopView configuration (tags, NoTags, Operations, ...)
runtime_seconds	1196	Number of seconds since the TopView process started

View Logs

TopView contains extensive logging for the applications, alarms, notification messages, and remote access. The Logs section of TopView Admin Tools allows easy access to the log file contents.

Location of log files

The log files are located subdirectories of DataPath\Log\
"DataPath" is the path for data files chosen during the installation.

To open DataPath, select
Start...Programs...Exele TopView...More...**Open DataPath Folder**

See **File/Folder Permissions: ProgramPath and DataPath** on page 34 for more information on "DataPath".

Application Logs

The Application Log is the main TopView log. It contains information, warnings and error messages regarding all aspects of a running TopView Engine instance/configuration. All alarms, notifications, outputs, remote connections, and other TopView events are logged.

Each application log file contains log messages for a specific day.

The user can view the application logs by file (daily log file) or by date range.

Path

The location of the daily application log files.

Use the  button to view this directory in Windows Explorer

Select log file

View by daily log file

Log file list

The list of existing daily application log files. Select a log file to display the log file contents. Click the  button to view the file in Windows Notepad.

The name of the file is **cfgname_yyyymmdd.log** where
cfgname: name of the TopView configuration
yyyy: 4-digit year, mm: 2-digit month, dd: 2-digit day

Use the [Refresh file list] button to refresh the list of files.

Show all files

If checked, the log files for all TopView configurations will be displayed.

If unchecked, the log files for the current TopView configuration will be displayed.

Note: this checkbox is only visible if one or more TopView Engine instances are running.

View by date range

The user can view the daily log file contents for a date range. TopView Admin Tools will concatenate the contents of the daily log files into a single view.

TopView configuration

Select the TopView configuration

Date range

Select a start and end date

Click 

Filter

Log file contents filter for the displayed log contents. The log contents will only display the information from the application log if it matches the filter. Note that the user must click the [Apply filter] button to update the log contents for the current filter.

Message containing text

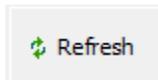
Enter the text to find in the message

Message level filter

Select the message levels to view: Information, Warning, Error

Message type filter

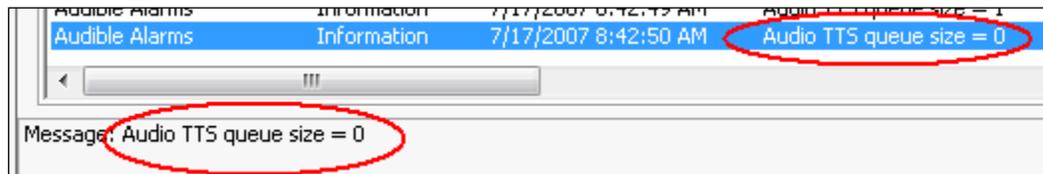
Select the message types to view



Apply the filter to the displayed log file contents.

Log file contents

Displays the log contents of the selected log file or date range after the filter is applied. If a line of the log file contents is selected, the complete message will be displayed under the list of log file lines.



Alarm Logs

The Alarm Logs contain all alarm messages from TopView including alarms, acknowledgements and return to normal conditions. The alarm log messages are a subset of the messages contained in the Application Logs.

TopView will create a new Alarm Log each day. If there are no TopView alarm messages during a specific day, there will not be a log file for the day.

The user can view the alarm logs by file (daily log file) or by date range.

Path

The location of the daily alarm log files.

Use the  button to view this directory in Windows Explorer

Select log file

View by daily log file

Log file list

The list of existing daily alarm log files. Select a log file to display the log file contents.

Click the  button to view the file in Windows Notepad.

The name of the file is **cfgname_yyyymmdd.log** where

cfgname: name of the TopView configuration

yyyy: 4-digit year, mm: 2-digit month, dd: 2-digit day

Use the [Refresh file list] button to refresh the list of files.

Show all files

If checked, the log files for all TopView configurations will be displayed.

If unchecked, the log files for the current TopView configuration will be displayed.

Note: this checkbox is only visible if one or more TopView Engine instances are running.

View by date range

The user can view the daily alarm log file contents for a date range. TopView Admin Tools will concatenate the contents of the daily alarm log files into a single view.

TopView configuration

Select the TopView configuration

Date range

Select a start and end date

Click 

Filter

Alarm log file contents filter for the displayed log contents. The log contents will only display the information from the alarm log if it matches the filter. Note that the user must click the [Apply filter] button to update the log contents for the current filter.

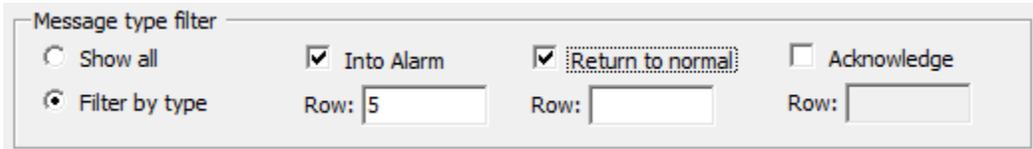
Message containing text

Enter the text to find in the message

Message type filter

Show all: show all log file messages regardless of type

Filter by type: show specific types of alarm messages (into alarm, return to normal, acknowledge)

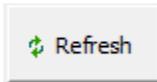


The screenshot shows a control panel titled "Message type filter". It contains two rows of options. The first row has four radio buttons: "Show all" (unselected), "Into Alarm" (checked), "Return to normal" (checked), and "Acknowledge" (unchecked). The second row has a radio button for "Filter by type" (selected), followed by three "Row:" labels and input fields. The first input field contains the number "5", the second is empty, and the third is empty.

Filter by type

- Check each type the user would like to view
- Enter a row number or blank for all rows

The above example will show all alarm log messages for "row 5 going into alarm" and "any row return to normal".



Apply the filter to the displayed log file contents.

Log file contents

Displays the alarm log contents after applying the current filter.

Alarm Actions Logs

The Alarm Actions Logs contain details of an individual alarm's activity (active, return to normal, acknowledge), related notifications, and actions taken through notifications (e.g., alarm acknowledge through notification).

TopView will create an Alarm Action Log for each alarm that occurs.

Path

The location of the alarm action log files.

Use the  button to view this directory in Windows Explorer

Select log file

Each log file contains details of alarm activity for one alarm

Filters

Configuration: view logs for current configuration or all configurations

Level: filter log files that contain specific message levels (info, warning, error)

Configuration: configuration name filter

Row number: row number of the alarm tag

Time range: start and end time of alarm

Log file list

The list of alarm actions logs is displayed. Select a log file to display the log file contents.

Click the  button to view the file in Windows Notepad.

The name of the file is **cfgname_yyyymmdd.log** where

cfgname: name of the TopView configuration

yyyy: 4-digit year, mm: 2-digit month, dd: 2-digit day

Use the [Refresh file list] button to refresh the list of files.

Show all files

If checked, the log files for all TopView configurations will be displayed.

If unchecked, the log files for the current TopView configuration will be displayed.

Note: this checkbox is only visible if one or more TopView Engine instances are running.

Filter

Filter the messages of the selected log file

Level: filter messages by message level (info, warning, error)

Type: filter messages by type (Email-SMS, Acknowledge, ...)

Log file contents

Displays the alarm log contents after applying the current filter.

Email-SMS, Modem, Voice Notification Logs, SNMP, Logs

These logs contain the details of each notification message sent by TopView. There is one notification log file per notification message delivery attempt.

Path

Path

The location of the notification log files (email, modem or voice).

Use the  button to view this directory in Windows Explorer.

Select log contents

View by file

The list of existing notification log files (email-SMS, modem or voice).
Select a log file to display the log file contents.

Use the [Refresh file list] button to refresh the list of files.

Log contents

Displays the contents of the selected notification log file.

Remote Dial-in Logs

The Remote Dial-in Logs contain the details of each remote dial-in call to TopView. There is one log file per remote dial-in call.

See **Dial-in settings** on page 389 for information on configuring remote dial-in.

The Remote Dial-in logs can be viewed using the instructions for **Email-SMS, Modem, Voice Notification Logs** on page 575.

Email Incoming Stored Msgs

Each incoming email is stored on the TopView computer. You can view the contents of each incoming email to help diagnose any problems with the processing of the incoming email message.

See Deprecated/older settings

Note: These settings are not recommended for new users.

TopView can send email messages directly to each recipient's domain (send directly). Direct email bypasses any delays in user's mail server and is typically faster but may not be allowed by the receiving domain.

Send email directly:

Direct emailing requires a DNS Server to resolve the address of each recipient. The dropdown allows the user to select the DNS Server to use:

- (Default): use the default DNS Server for this computer
- Enter a DNS Server: enter the IP Address or host name of the DNS Server
- Public DNS Servers from opendns.com
208.67.222.222 and 208.67.220.220 are public DNS Servers that can be used if your

computer has access to the Internet

Select a DNS Server or enter a DNS Server address/host name.

Note: the ability to successfully send direct email is often based on the recipient's domain (user@domain.com). Therefore, you should test a recipient from each domain that will receive email from TopView.

Send to local SMTP Server pickup directory

This setting can be selected on a machine which is running an SMTP mail server. The email messages are delivered to the entered pickup directory. From this point, the local SMTP server will process and deliver them. For TopView, this method is more efficient than directly sending through an SMTP Server.

The [Query] button will fill the "Local pickup" textbox with the value of the first SMTP pickup directory for this computer. If this field remains blank, TopView was not able to determine the local pickup directory.

If the user is running Windows 2000 or later, you may be able to use the SMTP Server which is installed with Internet Information Services (IIS).

To administer, start, or stop the local SMTP server, go to Control Panel>Administrative Tools> Internet Information Services.

If the user does not have a local SMTP Server, he/she can choose this delivery method to create email message files in the entered pickup directory.

Incoming Email Settings on page 268 for more information on POP3/IMAP email in TopView

SMS Incoming Stored Msgs

Each incoming SMS text message is stored on the TopView computer. You can view the contents of each incoming message to help diagnose any problems with the processing of the incoming text message.

See **Incoming SMS Settings** on page 291 for more information.

Events Logs (TopView Events)

TopView Events can log all incoming events. Event logging is not enabled by default and must be enabled in the TopView configuration. See **Event logs (TopView Events)** for more information.

TopView stores a daily events log file for each TopView Engine.

The events can be viewed here or opened in a CSV file.

Reports and Audits

Alarm Report

TopView Admin Tools can be used to create ad-hoc alarm reports. The Alarm Report contains a summary of the alarms that occurred over a user-configured period of time. This report is based on the information stored in the Alarm Logs.

Alarm Reports can also be created in the TopView Configurator and the Remote Viewer. See "Ad-hoc Alarm Reports" on page 414.

Audit Change Log & Backup

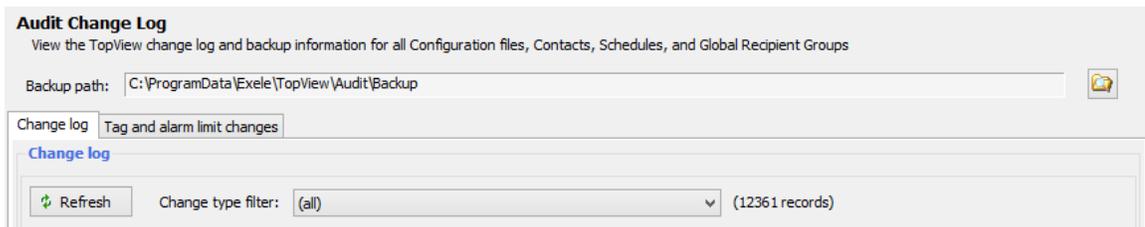
TopView can log and backup all changes to TopView Configuration files, Contacts, Schedules, and Global Recipient Groups. For more information, see **Global Options: Audit & Backup** on page 498.

Backup path

Location of the backup files.

Change log

The Change Log screen displays the details of the TopView Audit Change Log.



[Refresh]

Re-reads the change log and displays the records that match the current filter.

Change type filter

Select one of the change log types or (all) to display all change log records. The records from the most recent read of the change log are displayed.

Change log contents

- Date: the date and time of the change
- Change type: the type of change
- Changed by: the Windows user who saved the change. Format is \Domain\Username.
- File changed: The file that was changed. For Configuration changes, this is the name of the TopView Configuration file. For all other changes, this is the name of the internal TopView file that was modified when the user saved the change.
- Backup to: the name of the backup file. When the change was saved, a backup of the changed file was copied to the backup path. Contact Exele support if you need to restore a backup file.

Tag and alarm limit changes

The Tag and alarm limit changes screen displays the details of changes that have occurred to tags, alarm limits, and related settings.

This screen is also available in the TopView Configurator. For more information on the features and use please see **Tag & Limit Changes** on page 447.

How-to, Advanced Concepts, and Notes

When do I need to restart a running TopView Engine instance/configuration?

A running TopView Engine instance is controlled by a configuration file created in the TopView Configurator. The content of the configuration includes all information entered in the TopView Configurator except for items that are "global" to all configuration files.

Global items include:

- Global Email, Modem, Voice, and EventHook Notification Recipient Groups. Note: the Default Email, Modem, and Voice Groups are stored as part of the configuration file.
- Schedules
- Contacts
- Escalation templates
- Notification Message Templates

By default, TopView reads the information in the configuration file (including the Default Email, Modem, and Voice recipient groups) and will not re-read the configuration file unless the TopView Engine instance is restarted (stopped/started) or the user manually reloads the configuration in a running TopView Engine. This behavior allows the user to make changes to the configuration without impacting the operation of a running TopView Engine instance/configuration until the user decides that the changes should take effect.

The user can change this behavior for a configuration by selecting "Apply configuration changes while running" on the Options screen in the TopView Configurator. If this option is selected, a running TopView Engine instance will monitor the configuration for changes and will apply the changes while running. Some changes will require an internal restart (current state lost) while others can be applied without losing state. See **Apply configuration changes while running** on page 217 for more information.

Global items (described above) can be changed at any time and the changes will automatically be recognized by running TopView Engine instance.

Changing tag names

TopView PI, TopView OPC, and TopView SQL use internal pointers to the tags that are being monitored. Point numbers in PI do not change if the tag name is changed. OPC uses tag handles, but these do not necessarily remain the same and therefore cannot be used reliably to resolve tag names. TopView SQL tags are based on name only.

Although it is technically possible for TopView PI to use point numbers along with tag names, there are some possible problems that could occur. For example, assume that a tag "ABC" is renamed to "DEF" and TopView is restarted. TopView could then look at tag DEF since the point number has not changed. Now, the user creates a new tag named "ABC" and TopView is restarted. Which tag should TopView monitor: ABC or DEF?

To avoid this type of confusion, TopView will resolve tags by server and tag name. **If one or more tag names that are used by TopView are changed, the user will need to change the tag names within TopView to match the new names.**

Alarm Summary Grouping

The record for each TopView alarm event includes the details of the alarm event including the tag name, row number (1..n), and optional RowUID of the tag.

The alarm summary within TopView alarm reports and alarm analytics includes "per-tag" alarm information such as number of alarms and average duration.

Prior to TopView v6.34, the "per-tag" information was always gathered for each unique "tag name + row number". If a tag was moved to a different row number in the configuration, an alarm summary over this period would display the tag twice, once for each row number. This behavior presented a challenge if the user wanted to make configuration changes that affected existing tag row numbers yet wanted to preserve alarm summary information for a tag over the entire alarm history.

TopView alarm history queries now include an "alarm summary grouping" option which allows the user to choose the method for collecting and summarizing per-tag alarm information.

The available options for alarm summary grouping are:

- Row number + tag name (default)
- Row number (regardless of the tag name in the row)
- RowUID (all blank RowUIDs are grouped together)
- Tag name only
- Tag name or RowUID (use RowUID if it exists, otherwise use tag name)

The grouping options allow the user to decide how the alarm summary creates the "per-tag" information.

The default grouping method can be set in Global Options. See Global Options, "Alarm summary grouping".

Which grouping options should I use?

If your configuration contains a unique list of tag name in the monitored tag list, you should choose "Tag name only".

If your configurations do not have a unique list of tags, you should enter a RowUID for each tag and choose "RowUID".

Bad Server Connections

This section defines the behavior of TopView if it cannot connect to one or more Servers, or if it loses connection to one or more Servers (OPC/PI Servers, SQL Database, Canary Labs Historian, or PerfMon computers).

There are a few settings in TopView that affect the behavior of TopView if it cannot connect to one or more servers. This section assumes the user is familiar with the following settings:

- Latching good values (see **Latch last good value** on page 93)
- Suspend on bad server connection (See **Suspend** on bad Server connection on page 216 for details.)

Behavior for bad Server connections

- If "Suspend on bad Server connection" is set
 - TopView will suspend retrieval of all tag values, all processing of alarms, output values, etc. This will prevent "bad status" alarms from occurring and will also prevent `servers_connected` from updating. The user will not be able to configure any alarm/notification for the bad Server connection.
- If "Suspend on bad Server connection" is not set
 - For tags on the disconnected Server, display the tag value as "Error connecting to ..." and set the tag status to bad. User can override this value with "latch last good value" as described below.
 - For tags on the disconnected Server
 - If "Latch last good value" is selected for the tag, TopView will process the alarm conditions for the tag
 - If "Latch last good value" is not selected for the tag, TopView will not evaluate any alarm conditions except for the "bad status" alarm condition.
 - If **Check for good status** (page 129) is not selected for a tag from a disconnected Server, the user can configure a bad status alarm for the tag that will trigger on a bad Server connection. Typically, this is configured for a single tag from the Server. An alarm can also be generated with `servers_connected` (next item)
 - The TopView Status tag **servers_connected** will have a value of 0 after the bad Server connection. The user can monitor this status tag and send notification when the value is 0. See **TopView Status Tags** on page 46 for more information.
 - Tags and alarms from connected Servers will continue to update and process alarms and notifications.
- If "latch last good value" and not "suspend on bad Server connection", override the value and status of the tags to the last known good values. Continue with normal processing of alarms using the latched values.
- TopView will attempt reconnection to disconnected Servers every 30 seconds. During the attempted reconnection, any delay or timeout will affect the retrieval of other tags (from connected Servers) and the processing of their alarms.

Behavior after reconnection

If "Suspend on bad Server connection" is set:

- TopView will perform an internal restart which will perform initialization of the TopView Engine in the same manner as the initial startup

If "Suspend on bad Server connection" is not set:

- After a reconnection to a disconnected Server, TopView will attempt to validate the tags from this Server and, if successful, will continue operation without disruption.
- If the validation of tags is not successful, TopView will perform an internal restart which will perform initialization of the TopView Engine in the same manner as the initial startup.

During an internal restart, alarms which existed before the reconnection may be seen as "new alarms" that may generate new notification messages. Alarms can be suppressed that exist at startup and during an internal restart – see **Suppress alarm notification at startup and for the first X** seconds on page 184 for information on suppressing alarms at startup and during internal restarts.

Priorities and Notification Message Queues

Each monitored item/tag in TopView can be assigned a priority number (1 to 999).

- 1 = High priority
- 999 = Low priority

The priority number is assigned to the tag/row of the monitored item and its alarm condition(s). Every monitored item in TopView is assigned a priority, even if there are no configured alarm conditions for the item.

When a TopView alarm occurs for a monitored item and notification has been configured for the alarm condition, a notification message is added to the appropriate notification queue: Email, Modem, Voice.

The messages in each queue are processed according to their priority number. Those messages with a higher priority (a lower priority number) are processed before items with a lower priority (a higher priority number).

For Email and SMS Notification, the delivery time per message is smaller; therefore, the effects of priority-based queue processing will not be as significant. With Modem and Voice Notification, the processing time for each message is longer; the effects of priority-based queue processing will be noticeable. It is therefore important that the most critical alarms be assigned a high priority number to ensure that they are delivered quickly.

Priority for non-alarm messages

Some TopView notification messages are not the result of a transition into alarm (e.g., periodic TopView health email). Since these messages are processed using the same queues as the alarm messages, they are assigned a priority number to ensure that they are processed and delivered properly along with the alarm notification messages.

The following priorities are automatically assigned:

- TopView error messages (Email/Modem)
TopView errors can be delivered via Email-SMS Notification or Modem Notification. See **Notification: Email-SMS Notification** and **Notification: Modem Notification** for more information.
Priority = 1
- HTML Snapshot Report (Email)
Each HTML Snapshot Report can be periodically emailed. See HTML Snapshot Reports on page 395 for more information.
Priority = 999
- Alarm Reports (Email)
See **Scheduled Alarm Reports** for more information.
Priority = 999
- TopView Health (Email)
See **Health email** for more information.
Priority = 999

Configuring HTTPS in the Mobile Web App (MWA)

The TopView Mobile Web App (MWA) is a web application accessible through a web server hosted by a running TopView Engine.

The web server supports both HTTP and HTTPS. The following information is for users who desire to host the MWA web server using HTTPS. For more information on MWA see "Mobile Web App" on page 368.

Certificate

To set up HTTPS for the MWA web server you will need to have an SSL certificate. This certificate can either be generated locally (self-signed), or purchased from a Certificate Authority.

Helpful resources

- [HTTP.sys web server implementation in ASP.NET Core 2.1](#). This article is based around a different application framework, but many of the commands and concepts still apply, especially surrounding SSL.
- [How to Configure a Port with an SSL Certificate](#)
- [Working with SSL at Development Time is easier...](#) is an article based around web application development, but provides similar instructions for binding an SSL certificate to a port over which web traffic is served.

Generating a self-signed certificate using PowerShell

There are multiple methods for creation of self-signed certificates.

The following example steps use Windows PowerShell in Windows 8.1 or later. [More information on this PowerShell command is available here](#).

1. Run PowerShell as Administrator
2. Run the following command:

```
New-SelfSignedCertificate -DnsName <Computer name> -  
CertStoreLocation "cert:\LocalMachine\My"
```

where <Computer name> is the name of the computer hosting the Mobile Web App (the TopView machine).

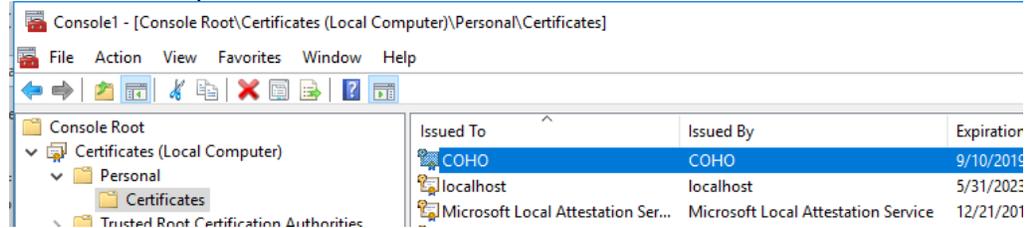
Example for machine named COHO

```
New-SelfSignedCertificate -DnsName COHO -CertStoreLocation  
"cert:\LocalMachine\My"
```

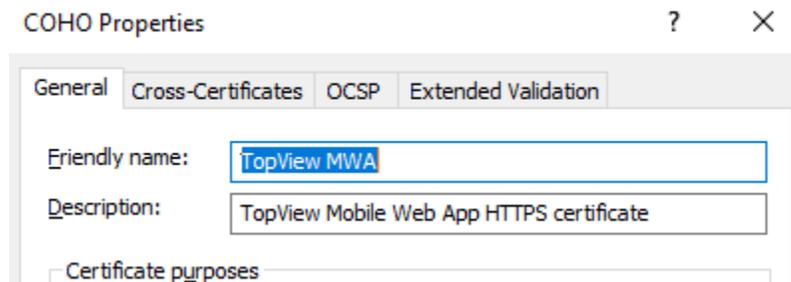
3. If the command completes it will display a thumbprint.
Copy this thumbprint into Notepad or another application so you can reference it later.

Adding the self-signed certificate as a trusted certificate authority

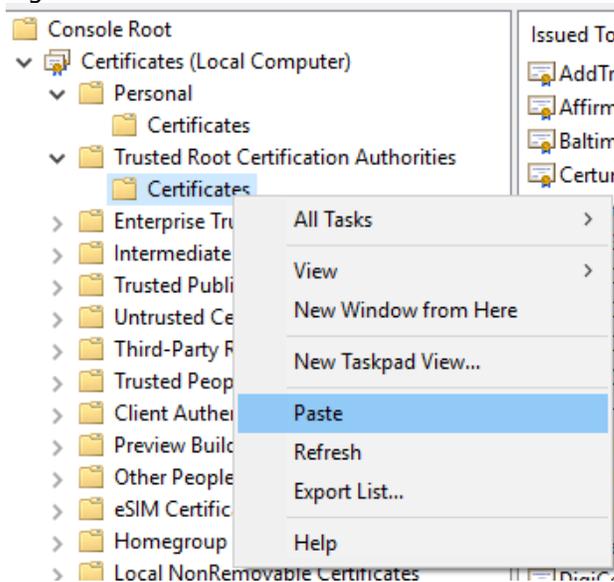
1. Run "MMC.exe" as Administrator
2. File...Add/Remove Snap-in
3. Select Certificates from left side and click [Add>] button
4. Select to manage certificates for "Computer account" and click [Next]
5. Select the computer: Local computer and click [Finish]
6. You should see your certificate under Certificates>Personal>Certificates



7. Right-click the certificate, choose Properties
Set the Friendly name and Description



8. Right-click the certificate, choose Copy
 - a. Expand Certificates>Trusted Root Certification Authorities>Certificates
 - b. Right-click on Certificates and choose Paste



Bind the MWA port to your certificate

Once the certificate is available you need to bind it to the MWA port that you configured for HTTPS (default is 443).

Find the thumbprint for your certificate

*This step is only required if you do not have the thumbprint from the PowerShell New-SelfSignedCertificate command executed earlier.

1. Use MMC to view the trusted certificates. See "Generating a self-signed certificate using " in the previous section for information on running MMC and viewing certificates. You may also be able to run certmgr.msc.
2. Find your certificate in Certificates>Trusted Root Certification Authorities>Certificates
3. Double-click the certificate and click the Details tab
4. Scroll to the field named "Thumbprint"
5. The Thumbprint value should match the thumbprint that was displayed in PowerShell.
6. Warning: if you try to copy the thumbprint from MMC it will have additional spaces and possible unprintable characters that may cause the netsh command (later step) to fail.

Generate a GUID for your certificate

1. You can search online for "GUID Generator" or you can generate a GUID using PowerShell.
 - a. PowerShell command:
`[guid]::NewGuid()`
2. Copy the new GUID and paste this value into Notepad or another application so you can reference it later

Bind the certificate to the port

1. Run the Windows command prompt (CMD.exe) as Administrator
2. Run the following command

```
netsh http add sslcert ipport=0.0.0.0:SSLPORT  
certhash=THUMBPRINT appid="{GUID}"
```

where

- a. SSLPort = the HTTPS port configured for the MWA in TopView
- b. THUMBPRINT = the certificate thumbprint
- c. GUID = the GUID you generated for the certificate

Example:

```
netsh http add sslcert ipport=0.0.0.0:443  
certhash=d56d5aa78b618b254cd384c9d46d654a2369d51f appid="{d6723d2f-  
139f-47e9-9c8a-88a114a12ba2}"
```

Optional: register the port

If you have errors opening the HTTPS port when you run the TopView Engine, you may need to register the port for the user account of the TopView Engine.

To register a port for serving:

1. Launch a command prompt as Administrator or elevated privilege
2. Enter the following command
netsh http add urlacl url=http://+:{port number}/ user={user account name}
replacing {port number} with the HTTPS port, and {user account name} with the user of the TopView Engine process.

Example:

```
netsh http add urlacl url=http://+:7170/ user=DOMAIN\username
```

For a local user account, enter user=username.

For earlier operating systems and for more details about this issue, see the following Microsoft article: <http://msdn.microsoft.com/en-us/library/ms733768.aspx>

Automating Configuration Changes

TopView provides the ability to dynamically force changes in TopView (tags, limit conditions, limit values) without the need to manually make changes through the TopView Configurator.

This section assumes familiarity with:

- Using the TopView Configurator to create a configuration file (see **TopView Configurator** on page 70)
- Using the bulk export/import function of the Configurator (see **Bulk tag configuration** on page 119)
- The “Apply configuration changes while running” setting
See **Apply configuration changes while running** on page 217

Overview of automating configuration changes

- Use the TopView Configurator to create a configuration file containing the tag, alarms, and notification settings.
- Set the “Apply configuration changes while running” setting for this configuration.
- Use “Bulk tag configuration” to export the tags and limits configuration to a CSV file
- Start the TopView Engine instance for the current configuration file
- Use custom code or another application to make changes to the exported CSV file (tags, limit conditions, limit values, etc.).
- Update the configuration file with the changes in the CSV file by performing a “silent import”. The silent import will update and save the configuration.
- TopView will recognize the updated configuration file (due to “Apply configuration changes while running” setting) and re-read the configuration changes.

Implementing a "silent import"

A "silent import" will modify a TopView configuration file with the information contained in tags and limits CSV file. The "silent import" is a command-line version of the Import function available in the TopView Configurator (see **Bulk tag configuration** on page 119) for more information).

The silent import is accomplished by launching the TopView Configurator application executable with a set of command-line arguments. This launch string can be performed from custom code or added to batch/script files.

Command-line syntax:

`TVConfig.exe /cfg: cfgfile /imp: csvfile /log: logfile /mode: mode`

- **TVConfig.exe:** full path to the TopView Configurator executable. Enclose this path in double-quotes. Example:
`"c:\Program Files\Exele\TopView\TVConfig.exe"`
- **cfgfile:** full path to the TopView configuration file to modify. Example:
`c:\ProgramData\Exele\TopView\Config\myconfig.cfg`
- **csvfile:** full path to the TopView tags and limits CSV file to import. The format of this file must be consistent with an exported file created using Bulk tag configuration. Example:
`c:\ProgramData\Exele\TopView\Config\myconfig_tags.csv`
- **logfile:** full path to the silent import log file. Example:
`c:\mylogs\myconfig_import.log`

If logfile is not passed, user will see the TopView Configurator screen and any messages related to the import function.

If logfile is passed:

- If logfile exists, it will be deleted
- TVConfig.exe will open the configuration file, perform the import, save the configuration file, and exit without displaying the TopView Configurator screen.
- Messages and status information will be written to logfile

The last line written to logfile will be single character 0 or 1
0=success, 1=error

- **mode:** the import mode (replace/add/updateadd)
One of the 3 possible import modes. If not specified mode=replace
 - **replace:** replace all tags with tag in the csv
 - **add:** add tags to the end of the existing tag list
 - **updateadd:** update existing tags and add any new tags
 - **update:** update existing tags and ignore any new tags

Silent Import Example

Tip:

If executing the silent import command from the command prompt, it will launch TVConfig.exe and return before the silent import operation is done. This makes it difficult to know when the operation is completed.

If, instead, the silent import command is placed in a batch file (.bat), it is possible to call the batch file using the command

```
Call batchfile
```

This statement will not return until the silent import operation is complete.

Example:

The following command is entered as one line in the batch file go.bat

```
"c:\Program Files\Exele\TopView\TVConfig.exe"  
/cfg: c:\ProgramData\Exele\TopView\Config\myconfig.cfg  
/imp: c:\ProgramData\Exele\TopView\Config\myconfig_tags.csv  
/log: c:\mylogs\myconfig_import.log  
/mode: replace
```

The batch file is launched through the following command-line statement:

```
Call go.bat
```

The following is the contents of the log file myconfig_import.log

```
Reading configuration file:  
c:\ProgramData\Exele\TopView\Config\myconfig.cfg  
Successful read of configuration file  
Importing from  
c:\ProgramData\Exele\TopView\Config\myconfig_tags.csv  
Import method: replace all  
Import tag count: 22  
Current tag count: 22  
Import complete.  
Successful import  
Saving configuration  
Successfully saved configuration file  
0
```

Phone Lines and Modems

TopView has multiple dial-out (notification) and dial-in features which utilize one or more phones lines and modems.

Modem Notification:	outgoing call, COM port access
Voice Notification:	outgoing call, TAPI access
Remote Dial-in:	incoming call, TAPI access

We suggest using a different modem/phone line for each feature. TopView supports sharing a single modem/phone line for multiple dial-in/dial-out features with proper configuration. Please test this configuration before using in a production environment.

TAPI Errors and Uninitialization

TAPI (Telephony API) may be used for both Voice Notification (outgoing call) and Remote Dial-in (incoming call).

The TopView Engine may encounter TAPI errors from time-to-time. These errors are more likely to occur if you are sharing a single TAPI device for both dial-out and dial-in.

TopView's response to critical TAPI errors is to reset the device through a TAPI uninitialization. TopView will log uninitializations in the application log.

Frequent resetting the TAPI device through uninitialization may cause a memory creep in the TopView Engine process. Therefore, TopView will limit the number of uninitializations for dial-out and dial-in. The default limit is 5000 which the user can override in the TopView.INI file located in the root DataPath folder.

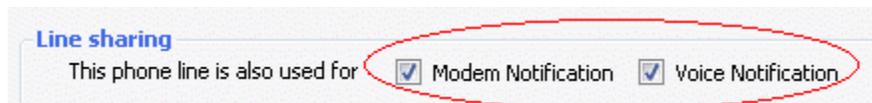
[General]

TAPIUninitMax=x

The current number of uninitializations can be monitored through both TopView Performance Counters and TopView Status Tags. The counter/tag names are tapi_uninit_out and tapi_uninit_in.

Multi-use modem, Single phone line

If Remote Dial-in is configured, TopView will "listen" to the configured phone line for incoming calls; outgoing calls will fail if not configured to share the line. If the Remote Dial-in phone line is used for either Modem or Voice Notification, it is necessary to instruct TopView to share this line. This is accomplished through the Remote Dial-in settings dialog.



Dual-use Notification

The Modem Notification settings screen contains a checkbox "Modem is also used for Voice Notification". If the same modem is used for both Modem and Voice Notification, this item should be checked to ensure that both notification methods do not attempt to access the modem at the same time.

Modems

Please check out website for the latest information on recommended modems.
<http://www.exele.com/modems>

Failover and Redundancy

Failover configuration involves the ability to handle various forms of failure between data collection, data availability (server), data monitoring (TopView), and notification (TopView).

Data Server Failure

“Data Server failure” is defined as the condition where TopView is healthy, yet the data source Server (OPC, PI, SQL, Canary Labs, ...) is not available to TopView. This condition may be caused by:

- Malfunction of the Server
- Reboot or shutdown of Server
- Network failure between TopView and the Server

For TopView OPC, you can define a backup OPC Server. See “OPC Server Alias Groups and Backup/Failover OPC Servers” on page 50.

See **Bad Server Connections** on page 584 for information on TopView behavior during bad or lost Server connections.

TopView Failure and Redundancy

“TopView failure” is defined as the condition where TopView has stopped running or is not available. This condition may be caused by:

- Stopping a running TopView Engine instance/configuration
- Shutdown of the TopView machine
- Failure of the network card on the TopView machine
- Unexpected events

TopView failover and redundancy involves a second TopView machine that can monitor the health of the primary machine and operate when the primary is not healthy.

A separate document and help file are available that describe the details of the configuration of TopView failover and redundancy. This information is installed with TopView and available through the Help menu and [Help] button in the TopView Configurator.

Commands to Start or Stop a TopView Engine instance/configuration

Launching a TopView Engine interactively:

To launch a TopView Engine instance interactively, use the command
topview_exe_path configuration_path

where

- *topview_exe_path* is the full path to TopView.exe enclosed in double quotes
- *configuration_path* is the full path to the TopView configuration file

Example:

```
"C:\Program Files\Exele\TopView\TopView.exe" c:\Config\mycfg.cfg
```

There is no command to stop an interactive TopView Engine instance

Starting a TopView Engine Service:

The Windows command to start and stop a Windows Service is

```
net start servicename  
net stop servicename
```

When the user installs a TopView configuration to run as a Windows Service, the Service name is *topview_cfgname* where *cfgname* is the configuration name. Therefore, the commands to start and stop a TopView Service are:

```
net start topview_cfgname  
net stop topview_cfgname
```

Example:

```
TopView configuration file:    c:\TopViewData\Config\abc.cfg  
TopView Service name:        topview_abc  
Start TopView Service:       net start topview_abc  
Stop TopView Service:        net stop topview_abc
```

Custom date formats

Some options in TopView allow the user to format the date/time with a custom date format string. This section defines the supported format string characters for the custom format string.

Format Examples

The following is an example of a user-defined date and time format

Timestamp = December 7, 1998, 8:50 am

Format	Display
---------------	----------------

M/d/yy HH:mm	12/7/98 08:50
--------------	---------------

Format syntax

The entered format must be created using the following characters

Format specifier	Description
d	Represents the day of the month as a number from 1 through 31. A single-digit day is formatted without a leading zero.
dd	Represents the day of the month as a number from 01 through 31. A single-digit day is formatted with a leading zero.
ddd	Represents the abbreviated name of the day
dddd (plus any number of additional d specifiers)	Represents the full name of the day of the week
f	Represents the most significant digit of the seconds fraction; that is, it represents the tenths of a second in a date and time value.
ff	Represents the two most significant digits of the seconds fraction; that is, it represents the hundredths of a second in a date and time value.
fff	Represents the three most significant digits of the seconds fraction; that is, it represents the milliseconds in a date and time value.
ffff	Represents the four most significant digits of the seconds fraction; that is, it represents the ten thousandths of a second in a date and time value.
fffff	Represents the five most significant digits of the seconds fraction; that is, it represents the hundred thousandths of a second in a date and time value.
ffffff	Represents the six most significant digits of the seconds fraction; that is, it represents the millionths of a second in a date and time value.
fffffff	Represents the seven most significant digits of the seconds fraction; that is, it represents the ten millionths of a second in a date and time value.
F	Represents the most significant digit of the seconds fraction; that is, it represents the tenths of a second in a date and time value. Nothing is displayed if the digit is zero.
FF	Represents the two most significant digits of the seconds fraction; that is, it represents the hundredths of a second in a date and time value. However, trailing zeros or two zero digits are not displayed.

FFF	Represents the three most significant digits of the seconds fraction; that is, it represents the milliseconds in a date and time value. However, trailing zeros or three zero digits are not displayed.
FFFF	Represents the four most significant digits of the seconds fraction; that is, it represents the ten thousandths of a second in a date and time value. However, trailing zeros or four zero digits are not displayed.
FFFFF	Represents the five most significant digits of the seconds fraction; that is, it represents the hundred thousandths of a second in a date and time value. However, trailing zeros or five zero digits are not displayed.
FFFFFF	Represents the six most significant digits of the seconds fraction; that is, it represents the millionths of a second in a date and time value. However, trailing zeros or six zero digits are not displayed.
FFFFFFF	Represents the seven most significant digits of the seconds fraction; that is, it represents the ten millionths of a second in a date and time value. However, trailing zeros or seven zero digits are not displayed.
h	Represents the hour as a number from 1 through 12, that is, the hour as represented by a 12-hour clock that counts the whole hours since midnight or noon. A particular hour after midnight is indistinguishable from the same hour after noon. The hour is not rounded, and a single-digit hour is formatted without a leading zero.
hh, hh (plus any number of additional h specifiers)	Represents the hour as a number from 01 through 12, that is, the hour as represented by a 12-hour clock that counts the whole hours since midnight or noon. A particular hour after midnight is indistinguishable from the same hour after noon. The hour is not rounded, and a single-digit hour is formatted with a leading zero.
H	Represents the hour as a number from 0 through 23, that is, the hour as represented by a zero-based 24-hour clock that counts the hours since midnight. A single-digit hour is formatted without a leading zero.
HH, HH (plus any number of additional H specifiers)	Represents the hour as a number from 00 through 23, that is, the hour as represented by a zero-based 24-hour clock that counts the hours since midnight. A single-digit hour is formatted with a leading zero.
m	Represents the minute as a number from 0 through 59. The minute represents whole minutes that have passed since the last hour. A single-digit minute is formatted without a leading zero.
mm, mm (plus any number of additional m specifiers)	Represents the minute as a number from 00 through 59. The minute represents whole minutes that have passed since the last hour. A single-digit minute is formatted with a leading zero.

M	Represents the month as a number from 1 through 12. A single-digit month is formatted without a leading zero.
MM	Represents the month as a number from 01 through 12. A single-digit month is formatted with a leading zero.
MMM	Represents the abbreviated name of the month
MMMM	Represents the full name of the month
s	Represents the seconds as a number from 0 through 59. The result represents whole seconds that have passed since the last minute. A single-digit second is formatted without a leading zero.
ss, ss (plus any number of additional s specifiers)	Represents the seconds as a number from 00 through 59. The result represents whole seconds that have passed since the last minute. A single-digit second is formatted with a leading zero.
t	Represents the first character of the AM/PM designator
tt, tt (plus any number of additional t specifiers)	Represents the AM/PM designator
y	Represents the year as a one or two-digit number. If the year has more than two digits, only the two low-order digits appear in the result. If the first digit of a two-digit year begins with a zero (for example, 2008), the number is formatted without a leading zero.
yy	Represents the year as a two-digit number. If the year has more than two digits, only the two low-order digits appear in the result. If the two-digit year has fewer than two significant digits, the number is padded with leading zeros to achieve two digits.
yyy	Represents the year with a minimum of three digits. If the year has more than three significant digits, they are included in the result string. If the year has fewer than three digits, the number is padded with leading zeros to achieve three digits. Note that for the Thai Buddhist calendar, which can have five-digit years, this format specifier displays all five digits.
yyyy	Represents the year as a four-digit number. If the year has more than four digits, only the four low-order digits appear in the result. If the year has fewer than four digits, the number is padded with leading zeros to achieve four digits. Note that for the Thai Buddhist calendar, which can have five-digit years, this format specifier includes all five digits.

yyyyy (plus any number of additional y specifiers)	<p>Represents the year as a five-digit number. If the year has more than five digits, only the five low-order digits appear in the result. If the year has fewer than five digits, the number is padded with leading zeroes to achieve five digits.</p> <p>If there are additional y specifiers, the number is padded with as many leading zeroes as necessary to achieve the number of y specifiers.</p>
:	Represents the time separator. This separator is used to differentiate hours, minutes, and seconds.
/	Represents the date separator. This separator is used to differentiate years, months, and days.
Any other character	Copies any other character to the result string, without affecting formatting.

Running a large number of TopView Services

How many TopView Services can I run?

When Microsoft Windows starts, it reserves various areas of memory for tracking its resources. One of these is the relatively unknown desktop heap. When a large number of processes are running, this heap may run out of memory.

This has implications on the number of TopView Services that can be started. Symptom of insufficient heap size: You have a large number of TopView Services running. When you start the next one (TopView_X), it fails to start. If you stop one of the running TopView Services, you are able to start TopView_X without any errors.

Note that you are more likely to have memory heap issue on older Microsoft Operating Systems (2003/XP).

Modifying heap size

To modify heap settings, you must modify the Windows Registry.

To start the Windows registry editor, click Start...Run, and enter: regedt32.

We suggest that you research and understand the implications of making any registry changes.

The registry entries that you should modify are different based on the LogOn settings of your TopView Services. YOU MUST REBOOT AFTER MAKING THESE CHANGES.

If you are TopView running as a specific user account

Registry entry: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management\

Key: SessionViewSize, DWORD

Recommended value: 48 (decimal)

If you are running TopView Services as LocalSystem

Registry entry: HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\Session Manager\SubSystems\

Key: Windows, EXPAND_SZ

The default data for this registry value will look similar to the following (all on one line):

```
%SystemRoot%\system32\csrss.exe ObjectDirectory=\Windows  
SharedSection=1024,3072,512 Windows=On  
SubSystemType=Windows ServerDll=basesrv,1  
ServerDll=winsrv:UserServerDllInitialization,3  
ServerDll=winsrv:ConServerDllInitialization,2  
ProfileControl=Off MaxRequestThreads=16
```

Recommended value: set the third SharedSection value (512 in above example) to 1024.

Moving the TopView DataPath

During the TopView installation, the user selects a location for the TopView DataPath.

The TopView DataPath is a folder (and subfolders) where the users of TopView have read/write permission. The DataPath stores configuration information, logs, audit trail, and possibly reports. For more information, see **Installation and Directory Structure** on page 34.

In some cases, the user may want to move the location of DataPath and preserve the information that already exists in DataPath. Reasons may include:

- IT required changes to selected location
- Desire to move DataPath to a file server in order to share the DataPath between a primary and failover TopView computer.

Steps for moving DataPath from folder DP1 to DP2

- To view the current DataPath (DP1), select Start...Programs...Exele TopView...More...Open DataPath folder
- Stop all TopView Engine instances and TopView applications
- Copy all files and subfolders from DP1 to DP2
- Select Start...Run
Enter "%windir%\TopView.ini"
Notepad should open and display the contents of the file TopView.ini
 - TopView.ini should contain a setting in the [Environment] section for current DataPath (DP1)
Example:
DataPath=C:\ProgramData\Exele\TopView
 - Change this entry to point to DP2.
Instead of deleting the current setting (DP1), add a # at the start of the line to comment this setting, then add a new line for DP2.
Example (comment DP1, add DP2):
#DataPath=C:\ProgramData\Exele\TopView
DataPath=C:\AllAppData\TopView
- Run the TopView Configurator
 - Select "Configuration files" from the left menu
 - The "Current storage location" may show DP1\Config which is the old location. Click the [Set to default] button to change this to DP2\Config
 - For each configuration file, open it in the Configurator:
 - If you have any HTML Snapshot Reports that save the report to a subfolder of DP1, change the report settings to write the report to DP2
 - If you have any Scheduled Alarm Reports that save the report to a subfolder of DP1, change the report settings to write the report to DP2
 - If you have any RSS Feeds that save the RSS feed file to a subfolder of DP1, change the RSS Feed settings to write the report to DP2

- If you are running this configuration as a TopView Service:
 - Select "Services" from the left menu.
 - Verify that the Service settings are correct (Startup type, LogOn account) and click [Re-install].
 - Verify that the configuration file listed for the Service is the one located in DP2
- Modify any desktop or start menu shortcuts that you may have created to launch the TopView engine. The launch string contains the location of the TopView configuration file (it should be changed to the DP2 location)
- Backup DP1 and remove the folder to prevent accidental usage of DP1
- Restart the TopView Engine(s) interactively or as Services based on how you have been running TopView before the move.

SQL Server Information, Installation and Tips

TopView can optionally utilize SQL Server for alarm logging as well as Snapshot Outputs.

- Alarm logging: See **Log alarms to SQL Server** on page 236
- Snapshot Outputs: See **Snapshot Output (File and SQL Server)** on page 409

Once SQL Server is installed, you must inform TopView of the SQL Server name and instance that should be used (See **Global Options: SQL Server** on page 478 for more information). All TopView Engine instances/configurations running on the same computer log to the same SQL Server database.

Supported versions include SQL Server 2000 and later, including the free SQL Server Express versions.

For the latest TopView/SQL Server information, tips, recommendations, downloads, and installation steps, visit:

<http://www.exele.com/software-products/topview/topview-versions/topview-sql/>