

# Bypass Alarm Using ScadaPhone WebServer

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#### **OVERVIEW:**

In almost every SCADA system, situations occur in which nuisance alarms are reported to operators who are well-aware of the situation being reported (e.g. a piece of equipment or a sensor is malfunctioning and is in the process of being fixed), but simply acknowledging the alarm does not always stop the repetitive reporting because the alarm signal may be "bouncing" between OFF and ON, and each bounce is interpreted as a new reportable alarm cycle.

In these situations, the system designer may opt to allow the system operators to place specific alarms into a **bypass state** to stop the nuisance alarm reporting. There are a number of ways this can be accomplished:

- 1. The alarm can be **disabled in the SCADA server**.
- The alarm can be disabled in ScadaPhone using the Enabled field in the Alarm Information window, but this requires Supervisor Access in ScadaPhone (to switch ScadaPhone from Run Mode to Development Mode, modify the Alarm Enable field, and return ScadaPhone to Run Mode).
- 3. The alarm can be **disabled in ScadaPhone** using the **Runtime Enable Expression** (which is an optional field available in all ScadaPhone alarm definitions).

The third method, using the **Runtime Enable Expression**, is is covered in this application note.

🚺 Alarm Inform	ation				?	$\times$
Browse Alarms						
Alarm Type	Discrete Alarm (	Analog Alarm	Local (store in	Alarms.Local.	txt)	
Tag/Alarm Name	Group1.Analog	Alarm007				
Ack Tag Name	Group1.Analog	Alarm007.Ack				
Coptional	Auto-Suffix					
Alarm Group Gro	up1					
Priority High	01/00/00	Filter De	elay 00:00:30, Tru elay 04:00:00 Tru	e		
	01.00.00	Puntime Enable		-		
	Ack	Over Range L	imit 99.5			
Console Ack Re	quired	High High L	imit 95			
Latching Conse	ole Ack	High L	imit 90			
Automatically A	ck When Report	ed Low L	imit 10			
Inverse Trigger	Logic (0=Active)	Low Low L	imit 5			
Inverse Ack Log	jic (0=Acked)	Under Range L	imit 0.5			
Text message for	email/alpha-nun	neric pagers (optio	nal) Syntax Help	Multi-Line E	dit	
Text message for Group1 HighPrio Display Format : 0	<b>email/alpha-nun</b> rity Analog Alarm Sroupl HighPr	neric pagers (optio 17 Tiority Analog	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse
Text message for Group1 HighPrio Display Format : C	email/alpha-nun rity Analog Alarm Group1 HighPr	neric pagers (optio 7 iority Analog	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse
Text message for Group1 HighPrio Display Format : 0 Voice Message 0	email/alpha-nun rity Analog Alarm Groupl HighPr Composition	neric pagers (optio 7 riority Analog	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse
Text message for Group1 HighPrio Display Format : ( Voice Message ( WavFile(Group WavFile(HighP	email/alpha-nun rity Analog Alarm Group1 HighPr Composition 1) iority)	neric pagers (optio 17 Giority Analog	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse
Text message for Group1 HighPrio Display Format : ( Voice Message ( WavFile(Group WavFile(HighPr WavFile(Analog	email/alpha-nun rity Analog Alarm Group1 HighPr Composition 1) iority) gAlarm)	neric pagers (optio 17 Giority Analog	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse
Text message for Group1 HighPrio Display Format : ( WavFile(Group WavFile(HighP) WavFile(Analog WavFile(7)	email/alpha-nun rity Analog Alarm Group1 HighPr Composition 1) iority) jAlarm)	neric pagers (optio 7 riority Analog	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse
Text message for Group1 HighPrio Display Format : ( Voice Message ( WavFile(Group WavFile(HighP) WavFile(Analog WavFile(7)	email/alpha-num rity Analog Alarm Group1 HighPr Composition 1) iority) jAlarm)	neric pagers (optio 7 iority Analog	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse A
Text message for Group1 HighPrio Display Format : ( Voice Message ( WavFile(Group WavFile(HighPr WavFile(Analog WavFile(7)	email/alpha-num rity Analog Alarm Sroup1 HighFr Composition 1) iority) Alarm)	neric pagers (optio	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse A
Text message for Group1 HighPrio Display Format : 0 Voice Message (0 WavFile(Group) WavFile(Inapp) WavFile(Analog) WavFile(7)	email/alpha-num rity Analog Alarm Sroup1 HighPr Composition 1) iority) Alarm)	neric pagers (optio	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse ∳
Text message for Group1 HighPrio Display Format : ( WavFile(Group WavFile(Fright) WavFile(Fright) WavFile(Analog WavFile(7)	email/alpha-num rity Analog Alarm Scoup1 HighPr Composition 1) tority) Alarm)	neric pagers (optio	nal) Syntax Help Alarm 7	Multi-Line E	dit Brov	vse 4
Text message for Group1 HighPrio Display Format : C Voice Message C WavFile(Group WavFile(Analog WavFile(Analog WavFile(Analog WavFile(Analog MavFile(Analog Analo	email/alpha-num rity Analog Alarm Scoup1 HighPr Composition 1) iority) Alarm) d Inse	neric pagers (optio 7 iority Analog	nal) Syntax Help Alarm 7 Remove	Multi-Line E	dit Brov	vse A ↓
Text message for Group1 HighPrio Display Format : 0 Voice Message ( WavFile(Group) WavFile(Analog WavFile(Analog WavFile(7) Ad	email/alpha-num rity Analog Alarm Szoup1 HighPr Composition 1) iority) pAlarm) d inse	neric pagers (optio 17 riority Analog	nal) Syntax Help Alarm 7 Remove	Multi-Line E	dit	vse ♪
Text message for Group1 HighPrio Display Format : 0 Voice Message (0 WayFile(Group) WayFile(HighP) WayFile(Analog) WayFile(Cr) Ad	email/alpha-num rity Analog Alarm Szoup1 HighPr Composition 1) iorithy gAlarm) d Inse ious OK, Ni	retic pagers (optio 7 riority Analog rt Edit ext OK, Nev	nai) Syntax Help Alarm 7 Remove	Multi-Line E	dit Brov	vse ∳

**The goal of this application note** is the creation of an interactive table of discrete tags which can be controlled by system operators for the purpose of silencing nuisance alarms. ScadaPhone's **Web Server Interface** provides an ideal means for creating such an interactive table:

Scada	Phone	Tag Values	×	+				-		×
$\leftrightarrow$ $\rightarrow$	C 1	🗘 🛈 local	host:81,	/TagVal	s?SID=02.	143317.09	0&TG=	. ☆	В	:
		Tag Lis	st: Gro	up1 A	larm Byp	ass Con	trol			<b>^</b>
Moc	lify	Group1.Ana AlarmMsg: ( Current Valu	alogAla Group1 le = 1	arm00 LowPi	<b>1.RTE</b> riority Ana	alog Alarn	n 1			
Moc	lify	Group1.Ana AlarmMsg: ( Current Valu	alogAla Group1 ie = 1	arm00 Norma	3.RTE alPriority	Analog Al	arm 3			
Moc	lify	Group1.Ana AlarmMsg: ( Current Valu	alogAla Group1 le = 1	arm00 Norma	5.RTE alPriority	Analog Al	arm 5			
Moc	lify	Group1.Ana AlarmMsg: ( Current Valu	alogAla Group1 le = 1	arm00 HighP	<b>7.RTE</b> Priority An	alog Aları	m 7			I
Mod	lify	Group1.Ana AlarmMsg: C Current Valu	alogAla Group1 le = 1	arm00 Broad	9.RTE IcastPrior	ity Analog	) Alarm (	9		Ţ
4		Main M	/lenu )	Gro	oup List		•		•	-

In the example above, each table entry contains three pieces of information:

- 1. A ScadaPhone tag name with an extension ".RTE" (RTE stands for Run Time Enable)
- 2. A copy of the **Alarm Message** associated with the **RTE** tag (this helps the operator identify the correct alarm to bypass if the **RTE** tag name is cryptically abbreviated).
- The Current Value of the RTE tag. If the Current Value = 1, then the associated alarm is enabled; to place the associated alarm into bypass mode, the operator can set the Current Value to 0 by clicking the Modify button.

The following pages outline the steps necessary to configure this feature.

<u>Note</u>: This document assumes that alarms have already been configured in a ScadaPhone project. If alarms have not yet been configured, complete the alarm configuration before proceeding.

#### Step 1: Configure Runtime Enable fields for all alarms

As shown in the image on page 3 of this document, each ScadaPhone alarm has an optional **Runtime Enable Exp** field. This field is denoted as an "*expression*" because any valid Boolean expression (such as **\$Hour > 8**) can be used to drive the **Runtime Enable** status; however, in the **Alarm Bypass** feature, each **Runtime Enable Exp** consists solely of a **Discrete Holding Tag** having the name of the **Alarm Trigger Tag** with the suffix extension "**.RTE**" added. ScadaPhone has a configuration window specifically designed to facilitate the configuration of the **Runtime Enable Expressions** for all alarms. To open this window:

- Place ScadaPhone into **Development Mode.**
- Click the **Window** | **Alarm Attribute Organizer** menu item from ScadaPhone's main window.
- From the top menu bar of the Alarm Attribute Organizer window, click Alarm Bypass Configuration.
- The Alarm Bypass Configuration window shows a complete list of project alarms and their Runtime Enable settings. Alarms lacking a value in the optional Runtime Enable field will display <BLANK>.

🖌 ScadaPł	one									_		×	
File Mode	Options	Window	Loas	Modem(s)	Web Serve	er ScadaLi	nk TTP	Scheduler	Session	h Help			
C:\ScadaTE	C\ScadaPho	Alar	m Attrik	oute Organize	er	1							
Logs Al	arms (2008)	Tag	Propert	v Organizer		Conta	cts (4)	Users (1) M	enus (2)	Wav File	s (124)		
Float Nev	-			, <b>,</b>			1			_		1	
Alarm Gro	💋 Alarm A	ttribute O	rganizei	r							×		
Group1	Alarm Mess	age CSV In	nport To	ool Alarm B	Bypass Conf	iguration						~	
2	Group1	Group10	Group2	Group3 (	Group4 Gro	oun5 Grou	nf Grou	in7 Group	Group	9 System			
3	\$LicenseS	oroup ro		ologbo (	steap : on		0.01	sp. cicap	- diodp.	, oyseen			
5	\$TTP_Erro	🥖 Alarr	n Bypas	s Configurat	ion								$\times$
6	STTP_Erro	This feat	ure facil	itates the cou	ofiguration	of Alarm Ru	ntimeEna	ble fields to	interface	with the \	Web Sen	ver Tag I	ict
7	\\HUB\Gr	feature; t	his allo	ws operators	with Data E	ntry Access	authoriza	ition to disab	le nuisan	ce alarm i	reportin	g from	ist
	\\HUB\Gr	remote.				-							
10	\\HUB\Gr	The list b	elow al	lows the view	ving and mo	dification o	f each ala	arm's Runtim	eEnable f	ield. This	feature	will	
11	\\HUB\Gr	automat	ically de	fine (or dele	te) Runtime	Enable field	in the fo	llowing forn	nat: <alar< td=""><td>mName&gt;</td><td>.RTE</td><td></td><td></td></alar<>	mName>	.RTE		
12	\\HUB\Gr	Runtime	Enable f	ields which a	are are non-	blank or do	not end v	vith the".RTE	" suffix m	ust be ma	anually (	edited.	
14	\\HUB\Gr	No alar	ms conf	igured for .R	TE Bypass								
15	\\HUB\Gr	Alarm G	iroup.N	ame: [Group	o1] Group1.	AnalogAlar	n001						^
16	\\HUB\Gr	Run	time En	able: <blan< td=""><td></td><td></td><td>003</td><td></td><td></td><td></td><td></td><td>_</td><td></td></blan<>			003					_	
16:42:48 De	\\HUB\Gr	Run	time En	ame: [Group able: <blan< td=""><td>ij Group I. IK&gt;</td><td>AnalogAlar</td><td>n003</td><td></td><td></td><td></td><td></td><td></td><td></td></blan<>	ij Group I. IK>	AnalogAlar	n003						
	\\HUB\Gr	Alarm G	iroup.N	ame: [Group	o1] Group1.	AnalogAlar	n005						
	Select All	Run	time En	able: <blan< td=""><td>IK&gt;</td><td></td><td>007</td><td></td><td></td><td></td><td></td><td></td><td></td></blan<>	IK>		007						
	- List Filter	Alarm G Run	iroup.N time En	ame: [Group able: <blan< td=""><td>o1] Group1. IK&gt;</td><td>AnalogAlar</td><td>n007</td><td></td><td></td><td></td><td></td><td></td><td></td></blan<>	o1] Group1. IK>	AnalogAlar	n007						
	Use Na	Alarm G	iroup.N	ame: [Group	o1] Group1.	AnalogAlar	n009						
	Selected A	Run	time En	able: <blan< td=""><td>IK&gt;</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>~</td></blan<>	IK>								~
	Enable	🗌 Defi	ne .RTE	Fields Sele	ect All	ОК	(	Cancel					
	Local S												
	Latchin	ig Phone A e Ack Regi	ick uired			Priority Filter Delay	N/A						
	Latchin	g Console	Ack		Conso	le Ack Time	N/A						
	Autom	atically Ac	k When	Report	Re-	Alarm Delay	N/A						
	Inverse	Trigger Lo	gic (0=)	Active)	Runtim	e Enable Exp	N/A						
	mverse	Ack Logic	U-ACK	(cu)	AI	alog Limits	N/A						
	Undo		Close										
	ondo		ciuse										

## Step 2: Define RTE Fields in all alarms

The **Alarm Bypass Configuration** window allows the user to define **RTE** fields for all alarms with just 3 clicks:

- Click the Select All label.
- Put a check mark in the **Define .RTE Fields** box.
- Click OK.

Alarm Bypass Configuration
This feature facilitates the configuration of Alarm.RuntimeEnable fields to interface with the Web Server Tag Lis feature; this allows operators with Data Entry Access authorization to disable nuisance alarm reporting from remote.
The list below allows the viewing and modification of each alarm's RuntimeEnable field. This feature will automatically define (or delete) RuntimeEnable fields in the following format: <alarmname>.RTE</alarmname>
RuntimeEnable fields which are are non-blank or do not end with the".RTE" suffix must be manually edited.
All alarms configured for .RTE Bypass
Alarm Group.Name: [Group1] Group1.AnalogAlarm001  Runtime Enable: Group1.AnalogAlarm001.RTE
Alarm Group.Name: [Group1] Group1.AnalogAlarm003 Runtime Enable: Group1.AnalogAlarm003.RTE
Alarm Group.Name: [Group1] Group1.AnalogAlarm005 Runtime Enable: Group1.AnalogAlarm005.RTE
Alarm Group.Name: [Group1] Group1.AnalogAlarm007 Runtime Enable: Group1.AnalogAlarm007.RTE
Alarm Group.Name: [Group1] Group1.AnalogAlarm009 Runtime Enable: Group1.AnalogAlarm009.RTE
Define .RTE Fields Select All OK Cancel

After the Alarm Bypass Configuration window is closed, clicking any of the alarms in the Alarm Attribute Organizer will display the Runtime Enable Expression changes:

				-	
💋 Alarm Attribute Organizer					×
Alarm Message CSV Import Tool Alarm B	ypass Configuration				
Group1 (200) Group10 (200) Group2 (2	200) Group3 (200)	Group4 (200)	Group5 (200)	Groupt	• •
Group1.AnalogAlarm001					^
Group1.AnalogAlarm003					
Group1.AnalogAlarm005					_
Group1.AnalogAlarm007					
Group1.AnalogAlarm009					
Group1.AnalogAlarm029					~
	0				
Select All Clear Selection Edit Alar	m Groups				
List Filter					
Filter Filter String				Case Sens	itive
Selected Alarm Attributes					
Enabled	AlarmT	vpe ODiscret	e 🖲 Analog		
Local Storage	Alarm Gr	up Group1			
Latching Phone Ack	Pric	rity High			
Console Ack Required	Filter De	alay 00:00:39, F	alse		
Latching Console Ack	Console Ack Ti	me 01:00:00			
Automatically Ack When Report	Re-Alarm De	elay 00:38:00, 1	frue		
Inverse Trigger Logic (0=Active)	Runtime Enable	Exp Group1.A	nalogAlarm007	RTE	
Inverse Ack Logic (0=Acked)	Analog Lir	nits 0.5, 5, 10,	90, 95, 99.5		
Under					
Close					

<u>Note:</u> Upon completion of **Step 2**, clicking on the **Discretes** tab of the ScadaPhone's main window reveals an important detail about the newly-created **RTE** tags. They are defined as **Holding Tags** in the ScadaPhone project. **Holding Tags** are *not* added to any **SCADA I/O polling lists**, but rather they are merely memory-based tags which hold a value.

This designation is indicated by the light blue icons labeled **HLD** (as opposed to SCADA-linked I/O tags which are labeled with as **OPC** in the image below):

🖉 ScadaPhone —		×
File Mode Options Window Logs Modem(s) WebServer ScadaLink TTP Scheduler Session Help		
C:\ScadaTEC\ScadaPhone\Projects\TestServerProject.1		
Logs Alarms (2008) Discretes (5063) Analogs (1018) Strings (1) Contacts (4) Users (1) Menus (2) Wav Files (124		
	.1	1
Float New Properties Modify value Find References		
Type Tag Name Value		
OPC Group10.DiscreteAlarm045 0		~
OPC Group10.DiscreteAlarm045.Ack 1		
HLD Group10.DiscreteAlarm045.RTE 1		
OPC Group10.DiscreteAlarm047 1		
OPC Group10.DiscreteAlarm047.Ack 1		
HLD Group10.DiscreteAlarm047.RTE 1		
OPC Group10.DiscreteAlarm049 0		
OPC Group10.DiscreteAlarm049.Ack 0		
HLD Group10.DiscreteAlarm049.RTE 1		
OPC Group10.DiscreteAlarm051 1		
OPC Group10.DiscreteAlarm051.Ack 0		
HLD Group10.DiscreteAlarm051.RTE 1		
OPC Group10.DiscreteAlarm053 0		
OPC Group10.DiscreteAlarm053.Ack 0		
HID_Groun10_DiscreteAlarm053_RTF 1		
Filter List		
23:22:06 Development Mode		.::

#### Step 3: Adding ".RTE" Tags To Web Server Tag Lists:

After the **RTE** tags have been defined to control the **Alarm Runtime Enable** fields, the next step is to make them accessible to system operators via the ScadaPhone's **Web Server Interface**. To do this, open the **Web Server** window and click on the blue hyperlink next to the **Tag List(s)** label:

<b>1</b>	ScadaPh	none											_		Х
File	Mode	Options	Window	Logs	Modem(s)	Web Server	ScadaLink	ттр	Schedul	er S	ession	Help			
C:\S	ada 🗾	ScadaPho	ne Web Ser	ver							_		×	]	
Log	<sup>js</sup> M	ain Window	Log		Web Server T				_	~	1				
<u>F</u> loa	t I 🖂	Enable We	eb Server	# T:	web Server I	ist Name	-	_		^					
		AN IP: 192	.168.0.3		200 Group	1 Alarm Bypa	ss Tags							<u> </u>	^
HL	D	FagList(s):	<none></none>												
OF	C Se	erver URL:	<none></none>	ł –											
OF	C Co	onnections	Communicati	0										1	
HL	20	019/07/02	22:46:31	1									^		
HL		019/07/02	23:00:00								L3:29)	Instal	lat		
OF	C 20	019/07/02	23:25:08	-											
HL	20	019/07/02	23:55:29	]											
		019/07/02	23:55:29	-							Sourc	e @ 201	9-0		
OF	C 20	019/07/02	23:55:29	•							Projec	ts\Test	Ser		
HL	20	019/07/02	23:55:41	1							0 022	D-2000			<b>v</b>
	C.												~		
22,50	50 Dev	olonment M	lodo	-	Néw	Edit	Rémove		OK						

💋 Web S	Server Tag Lists	- 🗆	×				
# Tags	Tag List Name			Web Seprer Tag List	_		$\mathbf{x}$
200	Group1 Alarm Bypass Tags			web server rag List			^
			App	ly All Alarm Messages to Tag Descriptions			
			Tag	List Name			
			Gro	up2 Alarm Bypass Tags			
			Tag	List			
			Tag	Name / Tag Description			
						_	
N	ew Edit Remove	ОК		Add Tags Remove Tags	Edit Descrip	tion	
				OK Cance	el		

Clicking the New button on the Web Server Tag Lists window opens the Web Server Tag List window:

The Web Server Tag Lists feature supports multiple uniquely-named lists. It is important to give each list an adequately descriptive name, because that name will be presented to the operators when they connect to the Web Server. The best design for this Alarm Bypass Configuration is to segregate the RTE Tag Lists into one Tag List per Alarm Group. The Tag List Name does not have to exactly match the alarm group name, but it is best to specify a tag list name which makes it clear which alarm group is controlled by each list.

In the image above, there is an existing list for Group1 Alarm Bypass Tags and another list for Group2 Alarm Bypass Tags is being edited in the Web Server Tag List window. As indicated by the highlight, click the Add Tags button to select which tags are to be displayed for the list being edited. Clicking the Add Tags button opens the Web Server Tag Browser:

💋 Web Server Tag Browser	-	
Analogs (1020) Discretes (5070)	Strings (10)	
\$EmailServerConnectionFailed \$EmailServerConnectionFailed.a \$LSAKey \$LSATemp \$LicenseShutdownAlarm \$PrevMenuBit \$RunMode \$ScadaLinkFailed \$ScadaLinkFailed.ack	dk	^
STTP Error.HUB		~
Show Tags Already Being Used	Image: All all select All all selections     All selections     All selections       Switch to Analog     Switch to String	ctions
Filter Filter String	OK Cancel	Case Sensitive

The **Web Server Tag Browser** has 3 tabs which organize the available tag names by data type: **Analog**, **Discrete** and **String**. Since all of the **RTE** tags in this example are **Discrete**, click the **Discrete** tab to view the alphabetized list of all **Discrete** tags defined in the ScadaPhone project.

In order to refine the list of tags, there is a **List Item Filter** near the bottom of the window. By setting the **Filter String** to "**&Group2 &RTE**" the list is narrowed to the tags needed for this example.

💋 Web Server Tag Browser	_		×
Analogs (0) Discretes (200) Strings (0)			
Group2,AnalogAlarm001.RTE     Group2,AnalogAlarm003.RTE     Group2,AnalogAlarm003.RTE     Group2,AnalogAlarm007.RTE     Group2,AnalogAlarm007.RTE     Group2,AnalogAlarm011.RTE     Group2,AnalogAlarm011.RTE     Group2,AnalogAlarm015.RTE     Group2,AnalogAlarm015.RTE     Group2,AnalogAlarm015.RTE     Group2,AnalogAlarm015.RTE     Group2,AnalogAlarm015.RTE			^
Group2, AnalogAlarm019.RTE			
Show Tags Already Being Used I All All Select All All All All All Select All All All Selections	All Selec	tions	
Filter Filter String & Group2 & RTE		Case S	ensitive

Tip: For an explanation of the **Filter** syntax, click the **Filter String** label to open the **Tag Browse Filter** window. This window assists the user in the construction of complex filters and gives an explanation of all available **Filter String Prefix Characters**.

🖉 Tag Browse Filter	×
Enter filter criteria below, or leave blank for no f	iltering
Filter Strings (one per line)	Filter String Prefix Characters
&Group2 &RTE	I OR       Must contain any (default)         & AND       Must contain all         ! NOT       Must not contain any         < Prefix       Must start with any         > Suffix       Must end with any
Filter: &Group2 &RTE Case Sensitive OK	Cancel

In this example, the tag names contain the **Alarm Group** name, so the "**&Group2 &RTE**" filter narrows the list such that the **Check All** button effectively selects all desired tags; however, in most real-world projects, the tag names will not contain the **Alarm Group**, so the filtering may need to be done in phases, *or* the **Filter** can be simply reduced to "**RTE**" and the appropriate alarms can be manually selected.

When selecting tags manually, standard Windows **<Shift>** and **<Ctrl> <Left-Click>** methods can be used to select multiple items and then checked by clicking the **Check All Selections** button.

💋 Web Server Tag Browser		- 0	×
Analogs (1) Discretes (2011) String	gs (0)		
Group2.DiscreteAlarm091.RTE     Group2.DiscreteAlarm093.RTE     Group2.DiscreteAlarm095.RTE     Group2.DiscreteAlarm097.RTE     Group2.DiscreteAlarm097.RTE			^
Group3. AnalogAlarm001.RTE Group3. AnalogAlarm001.RTE Group3. AnalogAlarm003.RTE Group3. AnalogAlarm007.RTE Group3. AnalogAlarm007.RTE			Ŷ
Show Tags Already Being Used	All     All     Select All     All Selections       Switch to Analog     Switch to String	All Selections	
Filter Filter String RTE		Case	Sensitive
	OK Cancel		

The **Web Server Tag Browser** will add all check-marked tags to the **Web Server Tag List** when **OK** is clicked.

#### Step 4: Adding Alarm Messages as Tag Descriptions

In many projects, the tag/alarm names are heavily abbreviated, cryptic and confusingly similar; this creates the potential for the operator to erroneously disable the wrong alarm due to misidentification. As a safeguard against this mistake, the **ScadaTEC Web Server Interface** (which is also implemented in other ScadaTEC apps) allows the system designer to enhance each **Tag List** entry with a **Description**.

Descriptive strings can be manually entered for each tag, but in ScadaPhone, there is a special enhancement to the **Tag List Item Description** feature: The associated **Alarm Message** can be used as a **Tag List Item Description**:

💋 Web Ser	ver Tag List		-	×	
Apply All Ala	irm Messages to Tag	Descriptions			
Tag List Nar	ne				
Group2 Ala	m Bypass Tags				
Tag List					
Tag Name /	Tag Description				
Name: Grou	up2.AnalogAlarm00	1.RTE		^	
Name: Grou	ing AnalogAlarm00	RTF			
Desc: Alarn	Msg: Group2 NormalPr	iority Analog Alarm 3			
Name: Grou	I <mark>p2.AnalogAlarm00</mark> NKS	5.RTE			
Name: Grou	102.AnalogAlarm00	7.RTE		 	
Desc: <bla< td=""><td>NK&gt;</td><td></td><td></td><td>×  </td><td></td></bla<>	NK>			×	
L	Add Tags	Remove Tags	Edit Description		
WebServer	- Edit Tag List Item D	escription			X
Tag Name	2				
Group2.A	nalogAlarm005.RTE				
Tag Desc	ription				Use Alarm Message
@AlarmN	/lsg(Group2.AnalogA	larm005)			
AlarmMsg	j: Group2 NormalPric	ority Analog Alarm	5		
		ОК	Cancel		

Note that in the Web Server Tag List window:

- Manually entered descriptions are displayed in blue.
- Alarm Message descriptions are displayed in purple.
- Items lacking a description are displayed with a <BLANK> marker.

To edit an individual description, highlight the tag name in the **Web Server Tag List** window and click the **Edit Description** button. If the highlighted tag has an associated alarm, the **Use Alarm Message** label will be displayed; clicking the **Use Alarm Message** label will insert a special **@AlarmMsg** marker into the **Tag Description** field. The **@AlarmMsg** marker requires the name of the associated alarm as a parameter. By using this special function, ScadaPhone can ensure that the description output by the Web Server will always display the current alarm message (even if the system designer changes the **Alarm Text Message** after setting up the **Web Server Tag Lists**).

Clicking the **Apply All Alarm Messages to Tag Descriptions** menu item at the top of the **Web Server Tag List** window applies **Alarm Message** descriptions to *all* **Tag List** items with one click. Do this before proceeding. <u>Note:</u> After completing **Step 4**, the Web Server output of the **Tag Lists** and **Alarm Message Descriptions** can be examined by directing a local web browser (on the same computer as ScadaPhone) to load <u>http://localhost:81</u> (assuming ScadaPhone's Web Server is **Enabled** and configured to listen on the default **TCP Port (81)**.

The default entry page for the ScadaPhone Web Server is the Login page. After entering a valid ScadaPhone User login, clicking the Tag Values button from the ScadaPhone Root Menu page opens the Grouped Tag Lists page. From there, click the appropriate View button to see the results of the Tag List configuration from Step 4:



## Step 5: Configuring Direct Links to Specific Tag List Pages

In many SCADA systems, it is possible to link **HTTP URLs** to button click handlers. If the SCADA host being used in conjunction with ScadaPhone supports that capability (through **Visual Basic for Applications** or some other scripting interface), a specially formatted URL can be encoded to bypass the **ScadaPhone Web Server Login**.

For direct access to a specific ScadaPhone Web Server Tag List page, format the link URL as follows:

http://HostName:81/?UserName=Randy&Password=1234&Page=TagVals&ExtQuery=TG=Group2 RTE Tags

This link assumes the following:

 ScadaPhone is running on a computer named HostName with the Web Server enabled on TCP Port 81

(Note that a raw **IP Address:Port** such as **192.168.1.10:81** can also be specified, if the port number is omitted, the **default TCP port for HTTP** [**80**] is assumed)

- The ScadaPhone project contains a User definition for Randy with login password 1234
- There is a Tag List named Group2 RTE Tags

Links such as this can also be created on the ScadaPhone host computer by creating a **Windows Desktop Shortcut** and entering a correctly formatted link in the **URL** field:

G		📕 TagVa	ls Direct Propert	ies					>
TagVals		General	Web Document	Carbonite	Security	Details	Previous V	/ersions	
Direct	Open	5	TagVals Direct						
	Print								
•	Move to OneDrive	URL:	http://lo	calhost:81/	?UserNam	ie=Supei	rvisor&Pa		
	Restore previous versions	Shortcut	key: None						
	Send to	Visits:	Unknown						
	Cut								
	Сору					Change	e Icon		
-	Create shortcut								
	Delete								
	Rename								
	Properties								
					OK	Can	icel	Apply	
				h					_

If the system designer wants to constrain the web client from navigating to other pages once logged in to the ScadaPhone Web Server, and additional switch can be added to the end of the **Direct-Link URL**:

http://localhost/?UserName=Bob&Password=1&Page=TagVals&ExtQuery=TG=ListName%26JSV.NavEna bled=false

The switch is somewhat cryptic, but it is analyzed as follows:

- All text after the '?' is referred to as the Query String.
- All text after the ExtQuery= marker constitutes the Extended Query String; this is treated as one Query String element by the ScadaPhone Web Server. If the Extended Query String needs to contain an ampersand (&), it must be encoded (or "escaped" as %26) to be correctly processed by the Web Server.
- The first part of the **Extended Query String** is **TG=ListName**; this identifies which **Tag List** page to display.
- The second part of the Extended Query String (%26JSV.NavEnabled=false) is treated as a second query element because it is delimited with an encoded ampersand (%26); after the delimiter, the assignment JSV.NavEnabled=false instructs the ScadaPhone Web Server to insert a JavaScript Variable (JSV) named NavEnabled into the HTML served to the Web Browser Client (i.e. Chrome, Firefox, Safari, etc.).

The JavaScript in the **TagVals** page checks for a variable named **NavEnabled**, if it is defined and set to **false**, the navigation buttons at the bottom of the **Tag List** page are hidden. This prevents the operator from navigating elsewhere in the **ScadaPhone Web Server**.

ScadaPh	ione x ScadaPhone x + - 🗆 X		ScadaPhone Tag Values x + - C X
$\leftrightarrow \rightarrow c$	🕽 🕜 🛈 localhost:81/TagVals?SID=03.12 🛧 🖪 🗄		$\leftrightarrow$ $\rightarrow$ C $\bigtriangleup$ localhost:81/TagVals?SID=03.12 $\updownarrow$ B :
Tag List: Group2 Alarm Bypass Tags			Tag List: Group2 Alarm Bypass Tags
	Development Mode 02:10:37		Development Mode 02:09:40
Modify	Group2.AnalogAlarm001.RTE Manually entered description Current Value = ?		Modify Group2.AnalogAlarm001.RTE Manually entered description Current Value = ?
Modify	Group2.AnalogAlarm003.RTE AlarmMsg: Group2 NormalPriority Analog Alarm 3 Current Value = ?		Modify Group2.AnalogAlarm003.RTE AlarmMsg: Group2 NormalPriority Analog Alarm 3 Current Value = ?
Modify	Group2.AnalogAlarm005.RTE Current Value = ?		Modify Group2.AnalogAlarm005.RTE Current Value = ?
Modify	Group2.AnalogAlarm007.RTE Current Value = ?		Modify Group2.AnalogAlarm007.RTE Current Value = ?
Modify	Group2.AnalogAlarm009.RTE Current Value = ?		Modify Group2.AnalogAlarm009.RTE Current Value = ?
Modify	Group2.AnalogAlarm011.RTE Current Value = ?		Modify Group2.AnalogAlarm011.RTE Current Value = ?
4	Main Menu Group List		
Navigation Enabled			Navigation Disabled

The system designer can create numerous **Direct-Link URL**s which specify varying **Tag List** pages as appropriate for specific operators who are authorized to control specific alarm groups and not authorized to control other groups.

Using the VBA or other scripting interface, Direct-Link URLs can be constructed to relay User Name and Password credentials from the SCADA server to the Query String portion of the Direct-Link URL.

This concludes the setup procedure for the ScadaPhone Alarm Bypass Configuration.

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